

Scopus

EXPORT DATE:03 Mar 2024

Abujreiban, T.

Impact of Using Some Active Learning Strategies in a Curricula and Teaching Methods Course on the Learning Motivation Level and the Development of Critical Thinking Skills Among the Students of the Faculty of Arts at Al-Zaytoonah University

(2023) Journal of Higher Education Theory and Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181960387&doi=10.33423%2fjhetp.v23i20.6691&partnerID=40&md5=f7a4c49d01de8fcb45a4bddfaaf421d5)

[85181960387&doi=10.33423%2fjhetp.v23i20.6691&partnerID=40&md5=f7a4c49d01de8fcb45a4bddfaaf421d5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181960387&doi=10.33423%2fjhetp.v23i20.6691&partnerID=40&md5=f7a4c49d01de8fcb45a4bddfaaf421d5)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study aimed at identifying the impact of using some active learning (AL) strategies in a Curricula and Teaching Methods Course on the learning motivation level and the development of Critical Thinking Skills among the Faculty of Arts at Al-Zaytoonah University (ZUJ) students. The study subjects were (61) male and female students selected from the Curricula and Teaching Methods Course of the Faculty of Arts at ZUJ. The study adopted the quasi-experimental approach. To answer the two questions of the study, the Learning Motivation Scale consisting of (35) paragraphs, and the Critical Thinking Skills Test consisting of (34) paragraphs were constructed. The study results revealed that there are significant differences between the means of the scores of the students of the Curricula and Teaching Methods course between the experimental group and the control group on the Learning Motivation Scale and the Critical Thinking Skills Test that can be attributed to using AL strategies. Therefore, the researcher recommended the use of learning outcomes related to learning motivation and critical thinking skills. © 2023, North American Business Press. All rights reserved.

Alyahya, M.S., Assaf, S.R., Alzoubi, M., Al-Sheyab, N.A., Ashour, A.F.

The Impact of COVID-19 on Dental Care Services and Practices in Jordan

(2023) Journal of Health Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180892190&doi=10.1177%2f09720634231215156&partnerID=40&md5=bb5b6f760584bdda18c88713156e5f83)

[85180892190&doi=10.1177%2f09720634231215156&partnerID=40&md5=bb5b6f760584bdda18c88713156e5f83](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180892190&doi=10.1177%2f09720634231215156&partnerID=40&md5=bb5b6f760584bdda18c88713156e5f83)

AFFILIATIONS: Department of Health Management and Policy, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Allied Medical Sciences Department, Faculty of Applied Medical Sciences, Jordan University of Science and Technology, Irbid, Jordan;

Department of Maternal and Child Health Nursing, Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan;

Department of Adult Health Nursing, Faculty of Nursing, The Hashemite University, Zarqa, Jordan

ABSTRACT: Dentists and their patients are highly exposed to COVID-19 due to the close contact nature of dental procedures. The primary aim of this study was to investigate the impact of COVID-19 on dental care practices and services in Jordan. A mixed-method design was used; data from dentists (N = 400) were collected using an online survey, and 15 semi-structured telephone interviews were conducted with dentists from public and private sectors. The findings revealed that the COVID-19 pandemic significantly impacted dental care practices and services. The majority of the participants reported a decline in their income and a decline in dental services demand, with a significant increase in costs for this profession. Additionally, this study showed that most participants were in a state of anxiety and fear about contracting the virus and transmitting it to their families while practising their profession that caused a change in their behaviours and attitudes. In conclusion, dental healthcare workers are at greater risk of being infected with COVID-19. There is a need to implement recommended protocols in dental clinics, it is also essential that decision makers develop appropriate interventions and measures to ensure continuity in the provision of dental services during the pandemic. © 2023 Indian Institute of Health Management Research.

Alhammadin, G., Jarrar, Y., Madani, A., Lee, S.-J.

Exploring the Influence of VDR Genetic Variants TaqI, ApaI, and FokI on COVID-19 Severity and Long-COVID-19 Symptoms

(2023) Journal of Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180617026&doi=10.3390%2fjpm13121663&partnerID=40&md5=f60b3a76b05eda1a162a7770134fa7f0)

[85180617026&doi=10.3390%2fjpm13121663&partnerID=40&md5=f60b3a76b05eda1a162a7770134fa7f0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180617026&doi=10.3390%2fjpm13121663&partnerID=40&md5=f60b3a76b05eda1a162a7770134fa7f0)

AFFILIATIONS: Department of Pharmaceutical Science, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Pharmacology, Pharmacogenomics Research Center, College of Medicine, Inje University, Busan, 50834, South Korea

ABSTRACT: There is increasing evidence regarding the importance of vitamin D in the prognosis of coronavirus disease 2019 (COVID-19). Genetic variants in the vitamin D receptor (VDR) gene affect the response to vitamin D and have been linked to various diseases. This study investigated the associations of the major VDR genetic variants ApaI, FokI, and TaqI with the severity and long post-infection symptoms of COVID-19. In total, 100 Jordanian patients with confirmed COVID-19 were genotyped for the VDR ApaI, FokI, and TaqI variants using the polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) method. COVID-19 severity, the most commonly reported long-COVID-19 symptoms that lasted for >4 weeks from the onset of infection, and other variables were analyzed according to VDR genetic variants. In this study, ApaI and FokI polymorphisms showed no significant associations with COVID-19 severity ($p > 0.05$). However, a significant association was detected between the TaqI polymorphism and the severity of symptoms after infection with the SARS-CoV-2 virus ($p = 0.04$). The wild-type TaqI genotype was typically present in patients with mild illness, whereas the heterozygous TaqI genotype was present in asymptomatic patients. With regard to long-COVID-19 symptoms, the VDR heterozygous ApaI and wild-type TaqI genotypes were significantly associated with persistent fatigue and muscle pain after COVID-19 ($p < 0.05$). Most carriers of the heterozygous ApaI genotype and carriers of the wild-type TaqI genotype reported experiencing fatigue and muscle pain that lasted for more than 1 month after the onset of COVID-19. Furthermore, the TaqI genotype was associated with persistent shortness of breath after COVID-19 ($p = 0.003$). Shortness of breath was more common among individuals with homozygous TaqI genotype than among individuals with the wild-type or heterozygous TaqI genotype. VDR TaqI is a possible genetic variant related to both COVID-19 severity and long-COVID-19 symptoms among Jordanian individuals. The associations between VDR TaqI polymorphisms and long-COVID-19 symptoms should be investigated in larger and more diverse ethnic populations. © 2023 by the authors.

Alsayyed, O., Hamadneh, T., Al-Tarawneh, H., Alqudah, M., Gochhait, S., Leonova, I., Malik, O.P., Dehghani, M.

Giant Armadillo Optimization: A New Bio-Inspired Metaheuristic Algorithm for Solving Optimization Problems

(2023) Biomimetics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85180468875&doi=10.3390%2fbiomimetics8080619&partnerID=40&md5=05d3b2c66b12f3dbd0ef1fd66e8b43ff

AFFILIATIONS: Department of Mathematics, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Data Sciences and Artificial Intelligence, Al-Ahliyya Amman University, Amman, 11942, Jordan;

Department of Basic Sciences, German Jordanian University, Amman, 11180, Jordan;

Symbiosis Institute of Digital and Telecom Management, Constituent of Symbiosis International Deemed University, Pune, 412115, India;

Neuroscience Research Institute, Samara State Medical University, 89 Chapaevskaya str., Samara, 443001, Russian Federation;

Faculty of Social Sciences, Lobachevsky University, Nizhny Novgorod, 603950, Russian Federation;

Department of Electrical and Software Engineering, University of Calgary, Calgary, AB T2N 1N4, Canada;

Department of Electrical and Electronics Engineering, Shiraz University of Technology, Shiraz, 7155713876, Iran

ABSTRACT: In this paper, a new bio-inspired metaheuristic algorithm called Giant Armadillo Optimization (GAO) is introduced, which imitates the natural behavior of giant armadillo in the wild. The fundamental inspiration in the design of GAO is derived from the hunting strategy of giant armadillos in moving towards prey positions and digging termite mounds. The theory of GAO is expressed and mathematically modeled in two phases: (i) exploration based on simulating the movement of giant armadillos towards termite mounds, and (ii) exploitation based on simulating giant armadillos' digging skills in order to prey on and rip open termite mounds. The performance of GAO in handling optimization tasks is evaluated in order to solve the CEC 2017 test suite for problem dimensions equal to 10, 30, 50, and 100. The optimization results show that GAO is able to achieve effective solutions for optimization problems by benefiting from its high abilities in exploration, exploitation, and balancing them during the search process. The quality of the results obtained from GAO is compared with the performance of twelve well-known metaheuristic algorithms. The simulation results show that GAO presents superior performance compared to competitor algorithms by providing better results for most of the benchmark functions. The statistical analysis of the Wilcoxon rank sum test confirms that GAO has a significant statistical superiority over competitor algorithms. The implementation of GAO on the CEC 2011 test suite and four engineering design problems show that the proposed approach has effective performance in dealing with real-world applications. © 2023 by the authors.

Al-Qerem, W., Jarab, A., Bawab, A.Q.A., Hammad, A., Ling, J., Alasmari, F., Oweidat, K.A., Ibrahim, S.

Assessing the validity and reliability of the Arabic versions of Mini Asthma Quality of life questionnaire and Asthma Control Test in adult patients with asthma: A factor analysis study (2023) Saudi Pharmaceutical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180463224&doi=10.1016%2fj.jsps.2023.101878&partnerID=40&md5=a99e619e27866e5c76e420b7e70f7958)

[85180463224&doi=10.1016%2fj.jsps.2023.101878&partnerID=40&md5=a99e619e27866e5c76e420b7e70f7958](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180463224&doi=10.1016%2fj.jsps.2023.101878&partnerID=40&md5=a99e619e27866e5c76e420b7e70f7958)

AFFILIATIONS: Department of Pharmacy, AlZaytoonah University of Jordan, Amman, Jordan;

Collage of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, University of Science and Technology, Jordan, Irbid, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Chester Road, Sunderland, United Kingdom;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Saudi, Riyadh;

Pulmonary and Sleep Department, The University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, The University of Jordan, Amman, Jordan;

AAU Health and Biomedical Research Center, Al Ain University, Abu Dhabi, United Arab Emirates

ABSTRACT: Background and objective: Asthma is a common disease that has a significant influence on patients' quality of life. Although Arabic tools for assessing symptom control and quality of life in individuals with asthma are available, no sufficient studies have evaluated the validity of these tools. Therefore, the aim of the current study was to validate the Arabic version of these tools. Methods: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted on the Arabic versions of the Asthma Control Test (ACT) and Mini Asthma Quality of Life Questionnaire (Mini AQLQ). Results: A total of 314 participants (70.1 % females) were enrolled in the current study. The mean age of the participants was 51.47 (± 16.37). EFA suggested a three-factor model for Mini AQLQ and a one-factor model for ACT, which was confirmed by CFA analyses. High correlations were found between spirometric values and ACT and Mini AQLQ scores, indicating good concurrent validity. The area under the curve produced by the Roc curve was 0.861 ($p < 0.001$), and the most suitable cut-off point was 4.741. Conclusion: All analyses conducted showed that the Arabic versions of both Mini AQLQ and ACT are reliable and valid and can be administered to adults with asthma. The application of these validated instruments will improve the management and diagnosis of asthma in Arab countries. © 2023 The Author(s)

Abu Helal, A.-R.

On the semantics of (negated) approximative kaada in Classical Arabic: A case for embedded exhaustification

(2023) Linguistics Vanguard, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180086988&doi=10.1515%2flingvan-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180086988&doi=10.1515%2flingvan-2022-0106&partnerID=40&md5=342f1df02c7bb6030dcbc36bd26e4089)

[0106&partnerID=40&md5=342f1df02c7bb6030dcbc36bd26e4089](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180086988&doi=10.1515%2flingvan-2022-0106&partnerID=40&md5=342f1df02c7bb6030dcbc36bd26e4089)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The purpose of this paper is twofold. First, it proposes a compositional semantic analysis for approximative kaada in Classical Arabic which has the property of being a clause-level rather than predicate-level operator: [KAADA α] is paraphrased as [α is false but there exists β close to α such that β is true]. The analysis is based on the integrated semantics of Penka (Penka, Doris. 2006. Almost there: The meaning of almost. Proceedings of Sinn und Bedeutung 10. 275-286) in which the negativity component of kaada is interpreted as part of its lexical meaning within a situation semantics framework. It also makes a novel use of the concept of semantic closeness among situations in terms of the intuitively appealing dimension of the relative completion of an event. Second, the paper presents and analyzes an instance of a puzzle noted by most descriptive Classical Arabic grammarians (see, for example, al-Ahmad, Ayman. 2021. Dalalit KAADA l-manfiah fi l-Qur'aan l-kareem. Journal of the Association of Arab Universities for Literature 9(2). 838-859) in which negated kaada has an interpretation where the negativity implication disappears altogether. The paper offers a solution to the puzzle based on a previous suggestion made by Kilbourn-Ceron (Kilbourn-Ceron, Oriana. 2016. Embedded exhaustification: Evidence from almost. Journal of Semantics 34(1). 43-60) in which an instance of embedded exhaustification appears to apply in approximatives in certain contexts in such a way that the negativity inference is obscured. © 2023 Walter de Gruyter GmbH, Berlin/Boston.

Al-Qerem, W., Eberhardt, J., Jarab, A., Al Bawab, A.Q., Hammad, A., Alasmari, F., Alazab, B., Husein, D.A., Alazab, J., Al-Beool, S.

Exploring knowledge, attitudes, and practices towards artificial intelligence among health professions' students in Jordan

(2023) BMC Medical Informatics and Decision Making, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179669284&doi=10.1186%2fs12911-023-02403-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179669284&doi=10.1186%2fs12911-023-02403-0&partnerID=40&md5=f0c05021921bccb519bd3a8e66882648)

[0&partnerID=40&md5=f0c05021921bccb519bd3a8e66882648](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179669284&doi=10.1186%2fs12911-023-02403-0&partnerID=40&md5=f0c05021921bccb519bd3a8e66882648)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman,

11733, Jordan;

School of Social Sciences, Humanities and Law, Department of Psychology, Teesside University, Middlesbrough, TS1 3BX, United Kingdom;

College of Pharmacy, Al Ain University, Abu Dhabi, 64141, United Arab Emirates;

AAU Health and Biomedical Research Center, Al Ain University, Abu Dhabi, 112612, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 12372, Saudi Arabia;

School of Medicine, The University of Jordan, Amman, 11910, Jordan

ABSTRACT: Introduction: The integration of Artificial Intelligence (AI) in medical education and practice is a significant development. This study examined the Knowledge, Attitudes, and Practices (KAP) of health professions' students in Jordan concerning AI, providing insights into their preparedness and perceptions. Methods: An online questionnaire was distributed to 483 Jordanian health professions' students via social media. Demographic data, AI-related KAP, and barriers were collected. Quantile regression models analyzed associations between variables and KAP scores. Results: Moderate AI knowledge was observed among participants, with specific understanding of data requirements and barriers. Attitudes varied, combining skepticism about AI replacing human teachers with recognition of its value. While AI tools were used for specific tasks, broader integration in medical education and practice was limited. Barriers included lack of knowledge, access, time constraints, and curriculum gaps. Conclusions: This study highlights the need to enhance medical education with AI topics and address barriers. Students need to be better prepared for AI integration, in order to enable medical education to harness AI's potential for improved patient care and training. © 2023, The Author(s).

Toumeh, A.A.

The Effect of Risk Management Committee Characteristics on Firm Performance: An Empirical Investigation

(2023) Indian Journal of Corporate Governance, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179332738&doi=10.1177%2f09746862231213422&partnerID=40&md5=17d1d4206d80e93349b32fd3a6e1fc58)

[85179332738&doi=10.1177%2f09746862231213422&partnerID=40&md5=17d1d4206d80e93349b32fd3a6e1fc58](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179332738&doi=10.1177%2f09746862231213422&partnerID=40&md5=17d1d4206d80e93349b32fd3a6e1fc58)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This research investigates how the characteristics of a risk management committee (RMC), as a recently emerging sub-committee within the board of directors, impact firm performance indicators. The investigation employs a dataset encompassing service and manufacturing firms that are listed on the Amman Stock Exchange (ASE) over the period 2019–2022, comprising a total of 236 firm-year observations. The primary statistical technique utilised in the study is fixed-effect regression with Huber–White standard errors. The findings demonstrate that RMC attributes such as size, independence and meeting frequency exert a significant and positive effect on return on assets, return on equity and Tobin's Q. These insights hold practical implications for stakeholders, regulators and policymakers in assessing the influence of RMC characteristics on firm performance within the context of the ASE. Understanding these dynamics can inform decision-making and regulatory frameworks, promoting effective risk management practices in publicly traded corporations. The current study represents the initial empirical exploration within the corporate governance literature concerning the nexus between RMC qualities and firm performance in Jordan. © 2023 Institute of Public Enterprise.

Jarab, A.S., Al-Qerem, W., Heshmeh, S.R.A., Alzoubi, K.H., Mukattash, T.L., Akour, A.

Disease control and its associated factors in outpatients with rheumatoid arthritis

(2023) Electronic Journal of General Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178963921&doi=10.29333%2f2fejgm%2f13521&partnerID=40&md5=72fc7d5c2d98cda5c85d8b29a0c9f209)

[85178963921&doi=10.29333%2f2fejgm%2f13521&partnerID=40&md5=72fc7d5c2d98cda5c85d8b29a0c9f209](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178963921&doi=10.29333%2f2fejgm%2f13521&partnerID=40&md5=72fc7d5c2d98cda5c85d8b29a0c9f209)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: The present study aimed to evaluate disease activity and explore the factors associated

with poor disease control among patients with rheumatoid arthritis (RA). This cross-sectional study was conducted at outpatient rheumatology clinics in two teaching hospitals in Jordan. Medication adherence was assessed using the validated five-item compliance questionnaire for rheumatology, and disease activity was assessed using the clinical disease activity Index score. Ordinal regression was performed to explore the factors associated with uncontrolled RA. Most of the participants (n=261) demonstrated moderate to high disease activity (71.2%). Seronegative RA (B=-0.882, CI [-1.584/-0.180], $p < 0.05$) was significantly associated with lower disease activity, while medication non-adherence was significantly associated with poor RA control (B=1.023, CI [0.289-1.756], $p < 0.01$). Future research should explore the factors associated with medication non-adherence. These factors should be targeted in future interventions to improve RA control, particularly in patients who suffer from high disease severity. © 2023 by Author/s and Licensed by Modestum.

Al-Zoubi, M., Sha'ban, M.

Bank performance, capital and size: a comparative analysis in MENA and EU

(2023) Eurasian Economic Review, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178280312&doi=10.1007%2fs40822-023-00248-6&partnerID=40&md5=e62198cccca429c182f894d573543efb>

AFFILIATIONS: Faculty of Business, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, Jordan

ABSTRACT: The debate on optimal bank capital and size and their association with bank performance is still ongoing and high on policy makers' agenda. This study analyzes the impact of capital and size on bank performance for 1053 banks operating in the EU and MENA regions over the period 2009–2020. The results show that capital is an important determinant of bank performance as it is highly significant in both regions; however, banks' performance in MENA seems to be more responsive to changes in the capital ratios. Further, while bank size has a positive non-linear relationship with profitability in the EU region, it does not seem to have a significant impact in the MENA region. This study contributes to the literature by providing a strong empirical evidence that more capital is associated with higher profitability in regions characterized by different levels of development, contrary to the bankers' belief that capital is costly. Regulators may find this conclusion to be useful and in line with their objective of boosting bank resilience and performance. © 2023, The Author(s) under exclusive licence to Eurasia Business and Economics Society.

Abualruz, H., Hayajneh, F.

Effectiveness of a Theory-Based Resiliency Intervention for Nurses

(2023) Journal of Continuing Education in Nursing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177893505&doi=10.3928%2f00220124-20231013-03&partnerID=40&md5=fe903c2cfd0cb71629ed427cd4ee6632>

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Nursing, University of Jordan, Amman, Jordan

ABSTRACT: Background: The stress level among nurses is significantly high, which negatively affects the nurses' well-being and the quality of care provided to patients. The goal of this study was to measure the impact of implementing a resiliency training program on nurses. Method: A pretest-posttest quasi-experimental design was used to measure the impact of nurses' participation in a resiliency training program. The sample was recruited with the convenience sampling technique. Participants were allocated to groups according to their ability to attend all intervention sessions. A total of 137 participants completed all phases of the study. The study was conducted at a private hospital in Amman, Jordan. Data were collected at two time points, before the intervention and 1 week after the intervention. Results: Analysis of covariance was used to measure differences between groups after the intervention. The results indicated that there were statistically significant differences ($p < .001$) in resilience and stress levels between the groups after the intervention. Conclusion: Nurses in the intervention group showed a significant improvement in resilience scores and a significant reduction in stress scores. © 2023, Slack Incorporated. All rights reserved.

Alshogran, O.Y., Al-Shdefat, R., Hailat, M.

Simple and rapid quantification of ribociclib in rat plasma by protein precipitation and LC-MS/MS: An application to pharmacokinetics of ribociclib nanoparticles in rats

(2023) Journal of Mass Spectrometry, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176291404&doi=10.1002%2fjms.4984&partnerID=40&md5=00666da3341cd04ba212edd4c449d1d0>

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, Jadara University, Irbid, Jordan;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Ribociclib is a cyclin-dependent kinase (CDK4/6) inhibitor and is a standard of care for

treating metastatic breast cancer. The drug has moderate oral bioavailability and exhibits permeability-controlled absorption. Novel formulations to enhance ribociclib pharmacokinetics are being developed and tested in rats. This requires developing analytical assays for quantifying ribociclib monitoring in rat plasma. We present a fully validated, sensitive, and simple LC-MS/MS method for measuring ribociclib in rat plasma. Ribociclib-D6 was utilized as an internal standard, and a simple protein precipitation procedure with acetonitrile was used in sample preparation. Excellent assay linearity was observed over a standard curve concentration of 1.008–1027.624 ng/mL. Acceptable intra- and inter-day accuracy and reproductivity were demonstrated for ribociclib quality controls (bias and CV% within $\pm 15\%$). Complete extraction recovery of ribociclib was achieved, and a negligible matrix effect of analyte to internal standard ratio was observed. Ribociclib was stable at various conditions, including bench-top, freeze-thaw, and short-term stability. Overall, the presented method is simple, sensitive, accurate, and precise and was successfully applied to quantify ribociclib in plasma samples from a pharmacokinetic study of ribociclib suspension and nanoparticle formulation in rats. © 2023 John Wiley & Sons, Ltd.

Abushariah, A.A.M., Abushariah, M.A.M., Gunawan, T.S., Chebil, J., Alqudah, A.A.M., Ting, H.-N., Mustafa, M.B.P.

Fusion of speech and handwritten signatures biometrics for person identification

(2023) International Journal of Speech Technology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175376357&doi=10.1007%2fs10772-023-10052-x&partnerID=40&md5=3b1e877b361e30ae60a88215d1b5a82f>

AFFILIATIONS: Faculty of Engineering, University of Malaya, Kuala Lumpur, 50603, Malaysia;

Department of Computer Information Systems, King Abdullah II School of Information Technology, The University of Jordan, Amman, Jordan;

ECE Department, Faculty of Engineering, International Islamic University Malaysia, Kuala Lumpur, 53100, Malaysia;

Department of Computer Science, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biomedical Engineering, Faculty of Engineering, University of Malaya, Kuala Lumpur, 50603, Malaysia;

Department of Software Engineering, Faculty of Computer Science and Information Technology, University of Malaya, Kuala Lumpur, 50603, Malaysia

ABSTRACT: Automatic person identification (API) using human biometrics is essential and highly demanded compared to traditional API methods, where a person is automatically identified using his/her distinct characteristics including speech, fingerprint, iris, handwritten signatures, and others. The fusion of more than one human biometric produces bimodal and multimodal API systems that normally outperform single modality systems. This paper presents our work towards fusing speech and handwritten signatures for developing a bimodal API system, where fusion was conducted at the decision level due to the differences in the type and format of the features extracted. A data set is created that contains recordings of usernames and handwritten signatures of 100 persons (50 males and 50 females), where each person recorded his/her username 30 times and provided his/her handwritten signature 30 times. Consequently, a total of 3000 utterances and 3000 handwritten signatures were collected. The speech API used Mel-Frequency Cepstral Coefficients (MFCC) technique for features extraction and Vector Quantization (VQ) for features training and classification. On the other hand, the handwritten signatures API used global features for reflecting the structure of the hand signature image such as image area, pure height, pure width and signature height and the Multi-Layer Perceptron (MLP) architecture of Artificial Neural Network for features training and classification. Once the best matches for both the speech and the handwritten signatures API are produced, the fusion process takes place at decision level. It computes the difference between the two best matches for each modality and selects the modality of the maximum difference. Based on our experimental results, the bimodal API obtained an average recognition rate of 96.40%, whereas the speech API and the handwritten signatures API obtained average recognition rates of 92.60% and 75.20%, respectively. Therefore, the bimodal API system is able to outperform other single modality API systems. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Daoud, S., Alabed, S.J., Bardaweel, S.K., Taha, M.O.

Discovery of potent maternal embryonic leucine zipper kinase (MELK) inhibitors of novel chemotypes using structure-based pharmacophores

(2023) Medicinal Chemistry Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175055312&doi=10.1007%2fs00044-023-03160-5&partnerID=40&md5=cf7e2b1d498a2374c216a2895da1fccf>

AFFILIATIONS: Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, Jordan
ABSTRACT: Maternal embryonic leucine zipper kinase (MELK) is a serine-threonine kinase. Several studies have revealed its role as a regulator in the tumorigenesis of various cancers. Consequently, MELK has been considered as an attractive therapeutic target for cancer management. Herein, we report pharmacophore models extracted from crystallographic complexes of potent ligands bound to MELK protein. The resulting models were evaluated by Receiver Operating Characteristic (ROC) analysis, and the best models were employed as search queries to screen the national cancer institute for potent inhibitors. The anti-MELK bioactivities of acquired hits were evaluated in vitro. Moreover, best anti-MELK hits were further evaluated against lung and cervical cancer cells (A549 and HeLa, respectively) using cell viability MTT assay. The enzymatic assay identified six potent hits with IC50 values ranging from nanomolar to low micromolar values. The most active hit showed anti-MELK IC50 of 134.6 nM. Likewise, these hits significantly inhibited the growth of tested cancer cell lines. Interestingly, four of the identified inhibitors have chemical scaffolds that are notably different from those of reported MELK inhibitors. This study highlights the use of X-ray crystallographic structures to boost the drug discovery process. [Figure not available: see fulltext.] © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Srouji, A.F., Hamdallah, M.E., Al-Hamadeen, R., Al-Okaily, M., Elamer, A.A.

The impact of green innovation on sustainability and financial performance: Evidence from the Jordanian financial sector

(2023) Business Strategy and Development, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173546130&doi=10.1002%2fbds2.296&partnerID=40&md5=d121a4ebcd5b959382719dfd6580f94b)

[85173546130&doi=10.1002%2fbds2.296&partnerID=40&md5=d121a4ebcd5b959382719dfd6580f94b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173546130&doi=10.1002%2fbds2.296&partnerID=40&md5=d121a4ebcd5b959382719dfd6580f94b)

AFFILIATIONS: King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, Jordan;

Business Faculty, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Business, Jadara University, Irbid, Jordan;

Brunel Business School, Brunel University London, London, United Kingdom;

Faculty of Commerce, Mansoura University, Mansoura, Egypt

ABSTRACT: The purpose of this study is to examine the relationship between sustainability performance (SP) and financial performance (FP), based on performance disclosures (reporting) of the Jordanian financial sector for the period of 2017–2020. The study employs green innovation (GI) indicators as moderating and mediating variables; by using hierarchical regression; as means of unlocking and examining the relationship between SP and FP; through the lens of the stakeholder theory. The hierarchical regression findings suggest that GI indicators partially mediate the relationship between SP and FP, but do not demonstrate a moderating effect. As a main result, it is indicated that Jordanian financial institutions may use SP transparency indicators as an incentive variable, which could influence their overall FP. The research also contributes to the existing literature by adding insight into the use of GI indicators in a developing country and the potential impact on financial institutions markets. These findings lend empirical credence to the generally held belief that increase disclosure benefits for both internal and external users. © 2023 The Authors. Business Strategy and Development published by ERP Environment and John Wiley & Sons Ltd.

Reis, R.A.D., Mahmoud, L.A.M., Ivanovska, E.H., Telford, R., Addicoat, M.A., Terry, L.R., Ting, V.P., Nayak, S.

Biodegradable Polymer-Metal-Organic Framework (MOF) Composites for Controlled and Sustainable Pesticide Delivery

(2023) Advanced Sustainable Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173461733&doi=10.1002%2fadsu.202300269&partnerID=40&md5=f1a87917e0a1b167103db0b8e7761b91)

[85173461733&doi=10.1002%2fadsu.202300269&partnerID=40&md5=f1a87917e0a1b167103db0b8e7761b91](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173461733&doi=10.1002%2fadsu.202300269&partnerID=40&md5=f1a87917e0a1b167103db0b8e7761b91)

AFFILIATIONS: School of Chemistry and Biosciences, University of Bradford, Bradford, BD7 1DP, United Kingdom;

Centro de Ciências Naturais e Humanas, Universidade Federal do ABC, Santo André, SP, 09.210-170, Brazil;

School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Bristol Composites Institute, Department of Mechanical Engineering, University of Bristol, Bristol, BS8 1TR, United Kingdom;

School of Science and Technology, Nottingham Trent University, Clifton Lane, Nottingham, NG11 8NS, United Kingdom;

Research School of Chemistry & College of Engineering, Computing and Cybernetics, The Australian National University, Canberra, ACT 2600, Australia

ABSTRACT: Due to high surface area, loading capacity, and selectivity, Metal-Organic Frameworks (MOFs) have shown much promise recently for potential applications in extraction and delivery of agrochemicals for environmental remediation and sustainable release, respectively. However,

application of MOFs for pesticide delivery in wider agricultural context can be restricted by their granular form. Herein, an alternative approach is studied using biodegradable polymer-MOF composites to address this limitation. The loading and release of a widely used pesticide, 2,4-dichlorophenoxyacetic acid (2,4-D), is studied using two MOFs, UiO-66 and UiO-66-NH₂, and the 2,4-D-loaded MOFs are incorporated into biodegradable polycaprolactone composites for convenient handling and minimizing runoff. The MOFs are loaded by in-situ, and post-synthetic methods, and characterised thoroughly to ensure successful synthesis and loading of 2,4-D. The pesticide release studies are performed on the MOFs and composites in distilled water, and analysed using UV-Vis spectroscopy, demonstrating sustained-release of 2,4-D over 16 days. The loaded MOF samples show high loading capacity, with up to 45 wt% for the in-situ loaded UiO-66. Release kinetics show more sustained release of 2,4-D from UiO-66-NH₂ compared to UiO-66, which can be due to supramolecular interactions between the NH₂ group of UiO-66-NH₂ and 2,4-D. This is further supported by computational studies. © 2023 The Authors. Advanced Sustainable Systems published by Wiley-VCH GmbH.

Hajjo, R., Momani, E., Sabbah, D.A., Baker, N., Tropsha, A.

Identifying a causal link between prolactin signaling pathways and COVID-19 vaccine-induced menstrual changes

(2023) npj Vaccines, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169576134&doi=10.1038%2fs41541-023-00719-6&partnerID=40&md5=0bbbb7453398922ab4c555cb95c4ae5a>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States; Jordan CDC, Amman, Jordan;

Department of Basic Medical sciences, Faculty of Medicine, Al Balqa' Applied University, Al-Salt, Jordan;

Applied Science Research Center, Applied Science Private University, Amman, Jordan;

ParlezChem, 123 W Union St., Hillsborough, NC 27278, United States

ABSTRACT: COVID-19 vaccines have been instrumental tools in the fight against SARS-CoV-2 helping to reduce disease severity and mortality. At the same time, just like any other therapeutic, COVID-19 vaccines were associated with adverse events. Women have reported menstrual cycle irregularity after receiving COVID-19 vaccines, and this led to renewed fears concerning COVID-19 vaccines and their effects on fertility. Herein we devised an informatics workflow to explore the causal drivers of menstrual cycle irregularity in response to vaccination with mRNA COVID-19 vaccine BNT162b2. Our methods relied on gene expression analysis in response to vaccination, followed by network biology analysis to derive testable hypotheses regarding the causal links between BNT162b2 and menstrual cycle irregularity. Five high-confidence transcription factors were identified as causal drivers of BNT162b2-induced menstrual irregularity, namely: IRF1, STAT1, RelA (p65 NF-κB subunit), STAT2 and IRF3. Furthermore, some biomarkers of menstrual irregularity, including TNF, IL6R, IL6ST, LIF, BIRC3, FGF2, ARHGDI, RPS3, RHOU, MIF, were identified as topological genes and predicted as causal drivers of menstrual irregularity. Our network-based mechanism reconstruction results indicated that BNT162b2 exerted biological effects similar to those resulting from prolactin signaling. However, these effects were short-lived and didn't raise concerns about long-term infertility issues. This approach can be applied to interrogate the functional links between drugs/vaccines and other side effects. © 2023, Springer Nature Limited.

Al-Maghaireh, D.F., Kawafha, M.M., Abdullah, K.L., Shawish, N.S., Abu Kamel, A.M., Basyouni, N.R.

Psychological problems among parents of children with congenital anomalies

(2023) Journal of Neonatal Nursing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167827093&doi=10.1016%2fj.jnn.2023.07.005&partnerID=40&md5=e17e964ca39a078b82c6fcaa25f75609>

AFFILIATIONS: Department of Nursing, Faculty of Nursing, Irbid National University, Irbid, Jordan; Department of Nursing Science, Sunway University, Kuala Lumpur, Malaysia;

Pediatric Health Nursing Faculty Member-Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing Faculty Member-Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty Member-Faculty of Nursing, Irbid National University, Irbid, Jordan

ABSTRACT: Having a child with a congenital anomaly is a very stressful event that affects the whole family due to the critical and permanent needs it might impose. This study aimed to assess stress levels among Jordanian parents of children with congenital anomalies and their relationship to three factors: depression, anxiety, and somatization. A cross sectional survey was conducted at three hospitals in Jordan among 360 parents of children with congenital anomalies by using the Perceived Stress Scale and the Portuguese version of the Brief Symptom Inventory. The study found that both

parents experienced high levels of stress, anxiety, and depression, although there was a significant difference in stress level between mothers and fathers, with the mothers experiencing higher stress than the fathers. The correlation between stress levels with anxiety ($r = 0.763$) and depression ($r = 0.829$) were strong and positive, while somatization was moderate ($r = 0.425$). In a conclusion, parents of children with congenital anomalies experience high levels of stress. Parental stress leads to many psychological problems such as somatization, depression, and anxiety. © 2023 Neonatal Nurses Association

Jarab, A.S., Hamam, H.W., Al-Qerem, W.A., Heshmeh, S.R.A., Mukattash, T.L., Alefishat, E.A. Health-related quality of life and its associated factors among outpatients with heart failure: a cross-sectional study

(2023) Health and Quality of Life Outcomes, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164846222&doi=10.1186%2fs12955-023-02142-w&partnerID=40&md5=24d6f94ad5401ec1c7ffb543cc614b9f>

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmacology, College of Medicine and Health Science, Khalifa University of Science and Technology, Abu Dhabi, 127788, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Center For Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, 127788, United Arab Emirates

ABSTRACT: Background: Heart Failure (HF) is a chronic disease associated with life-limiting symptoms that could negatively impact patients' health-related quality of life (HRQOL). This study aimed to evaluate HRQOL and explore the factors associated with poor HRQOL among patients with HF in Jordan. Methods: This cross-sectional study used the validated Arabic version of the Minnesota Living with Heart Failure Questionnaire to assess HRQOL in outpatients with HF visiting cardiology clinics at two public hospitals in Jordan. Variables were collected from medical records and custom-designed questionnaires, including socio-demographics, biomedical variables, and disease and medication characteristics. Ordinal regression analysis was used to explore variables associated with poor HRQOL among HF patients. Results: Ordinal regression analysis showed that the number of HF medications ($P < 0.05$) and not taking a loop diuretic ($P < 0.05$) significantly increased HRQOL, while the number of other chronic diseases ($P < 0.05$), stage III/IV of HF ($P < 0.01$), low monthly income ($P < 0.05$), and being unsatisfied with the prescribed medications ($P < 0.05$) significantly decreased HRQOL of HF patients. Conclusions: Although the current study demonstrated low HRQOL among patients with HF in Jordan, HRQOL has a considerable opportunity for improvement in those patients. Variables identified in the present study, including low monthly income, higher New York Heart Association (NYHA) classes, a higher number of comorbidities, and/or taking a loop diuretic, should be considered in future intervention programs, aiming to improve HRQOL in patients with HF. © 2023, The Author(s).

Oweidat, I., Al-Mugheed, K., Alsenany, S.A., Abdelaliem, S.M.F., Alzoubi, M.M. Awareness of reporting practices and barriers to incident reporting among nurses

(2023) BMC Nursing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164119562&doi=10.1186%2fs12912-023-01376-9&partnerID=40&md5=e9c44449aaa1406a90d89d4aead8be28>

AFFILIATIONS: Nursing Administration at Zarqa University, Zarqa, Jordan;

College of Nursing, Riyadh Elm University, Riyadh, Saudi Arabia;

Department of Community Health Nursing, College of Nursing, Princess Nourah Bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Department of Nursing Management and Education, College of Nursing, Princess Nourah Bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Adequate incident reporting practices for clinical incident among nurses and even all healthcare providers in clinical practice settings is crucial to enhance patient safety and improve the quality of care delivery. This study aimed to investigate the level of awareness of incident reporting practices and identify the barriers that impact incident reporting among Jordanian nurses. Methods: A descriptive design using a cross-sectional survey was employed among 308 nurses in 15 different hospitals in Jordan. Data collection was conducted between November 2019 and July 2020 using an Incident Reporting Scale. Results: The participants showed a high level of awareness of the incident reporting with a mean score of 7.3 (SD = 2.5), representing 94.8% of the highest score. Nurses perceived their reporting practices at the medium level, with a mean score of 2.23 out of 4. The main reporting barriers included worrying about disciplinary actions, fearing being blamed, and

forgetting to make a report. In regard to awareness of incident reporting, there were statistically significant differences in the mean for total awareness of the incident reporting system scores according to the type of hospital ($p < .005^*$). In regard to self-perceived reporting practices, nurses working in accredited hospitals demonstrated statistically significant differences in self-perceived reporting practices ($t = 0.62, p < .005$). Conclusions: The current results provide empirical results about perceived incident reporting practices and perceived barriers to reporting frequently. Recommendations are made to urge nursing policymakers and legislators to provide solutions for those barriers, such as managing staffing issues, nursing shortage, nurses' empowerment, and fear of disciplinary actions by front-line nurse managers. © 2023, The Author(s).

Alshanti, W.G., Batiha, I.M., Hammad, M.A., Khalil, R.

A novel analytical approach for solving partial differential equations via a tensor product theory of Banach spaces

(2023) Partial Differential Equations in Applied Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162100389&doi=10.1016%2fj.padiff.2023.100531&partnerID=40&md5=14b85ec4ca25df3975ef13e5a6404bdf)

[85162100389&doi=10.1016%2fj.padiff.2023.100531&partnerID=40&md5=14b85ec4ca25df3975ef13e5a6404bdf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162100389&doi=10.1016%2fj.padiff.2023.100531&partnerID=40&md5=14b85ec4ca25df3975ef13e5a6404bdf)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates;

Department of Mathematics, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: In this paper, we aim to propose a novel analytical method for obtaining atomic solutions to partial differential equations. A theory of tensor products in Banach spaces is utilized and some properties of atom operators are studied to achieve our goals. The proposed scheme is demonstrated through illustrative examples of inhomogeneous partial differential equations. The approach is indeed quite direct and effective in exactly solving partial differential equations. © 2023 The Author(s)

Zihlif, M., Abusara, O.H., Al-Qerem, W., Al-Ibadah, M., Mahafza, T.M., Al-Akhras, F.M., Mahafza, N.T.

CRHR1 polymorphism at rs242941, rs242940, and rs72834580: Association of symptoms improvement with intranasal corticosteroids in allergic rhinitis Jordanian patients

(2023) Drug Metabolism and Personalized Therapy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160861489&doi=10.1515%2fdmpt-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160861489&doi=10.1515%2fdmpt-2023-0014&partnerID=40&md5=5740fa9ece182af6aa5e8e5f4dc01cc6)

[0014&partnerID=40&md5=5740fa9ece182af6aa5e8e5f4dc01cc6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160861489&doi=10.1515%2fdmpt-2023-0014&partnerID=40&md5=5740fa9ece182af6aa5e8e5f4dc01cc6)

AFFILIATIONS: Department of Pharmacology, School of Medicine, The University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Special Surgery, School of Medicine, The University of Jordan, Amman, Jordan;

Molecular Biology Research Laboratory, School of Medicine, The University of Jordan, Amman, Jordan

ABSTRACT: Objectives: Rhinitis is classified into several types with allergic rhinitis (AR) being the most common. AR is among the inflammatory diseases, such as asthma and chronic obstructive pulmonary disease (COPD), in which corticosteroids are administered to overcome the decrease in cortisol production. The treatment options available for AR vary with 1st line treatment being intranasal corticosteroids (INCS). The responsiveness to corticosteroids is due to their binding to corticotropin-releasing hormone receptor-1 (CRHR1). Various studies have studied the responsiveness to corticosteroids treatment in patients with asthma and COPD in association with CRHR1 gene single nucleotide polymorphisms (SNPs). Methods: In our study, we investigated the association of three SNPs of CRHR1 gene (rs242941, rs242940, and rs72834580) with symptoms improvement post-treatment in AR patients. Blood samples were collected from 103 patients for DNA extraction and gene sequencing. Those patients started to receive INCS for 8 weeks and their symptoms were assessed, through a questionnaire, before treatment and post-treatment to check for symptoms improvement. Results: Our data showed that improvement of eye redness is significantly less following INCS treatment in patients with allele (C) (AOR=0.289, p-value-0.028, 95% CI=0.096-0.873) and genotype (CC) (AOR=0.048, p-value-0.037, 95% CI=0.003-0.832) of rs242941 SNP. There was no correlation with other genotypes, alleles, or haplotypes of the investigated SNPs. Conclusions: Our findings show that there is no correlation between CRHR1 gene polymorphism and symptoms improvement following INCS treatment. Further studies are required to evaluate the association of INCS and symptoms improvement post-treatment with larger sample size. © 2023 Walter de Gruyter GmbH, Berlin/Boston.

Keller, M., Rohlf, K., Glotzbach, A., Leonhardt, G., Lüke, S., Derksen, K., Demirci, Ö., Göçener, D.,

AlWahsh, M., Lambert, J., Lindskog, C., Schmidt, M., Brenner, W., Baumann, M., Zent, E., Zischinsky,

M.-L., Hellwig, B., Madjar, K., Rahnenführer, J., Overbeck, N., Reinders, J., Cadenas, C., Hengstler,

J.G., Edlund, K., Marchan, R.

Inhibiting the glycerophosphodiesterase EDI3 in ER-HER2+ breast cancer cells resistant to HER2-targeted therapy reduces viability and tumour growth

(2023) Journal of Experimental and Clinical Cancer Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146602279&doi=10.1186%2fs13046-022-02578-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146602279&doi=10.1186%2fs13046-022-02578-w&partnerID=40&md5=cd391ac550153ac5c57f6bfd5273d775)

[w&partnerID=40&md5=cd391ac550153ac5c57f6bfd5273d775](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146602279&doi=10.1186%2fs13046-022-02578-w&partnerID=40&md5=cd391ac550153ac5c57f6bfd5273d775)

AFFILIATIONS: Leibniz Research Centre for Working Environment and Human Factors at the TU Dortmund (IfADo), Ardeystrasse 67, Dortmund, 44139, Germany;

Leibniz Institut Für Analytische Wissenschaften - ISAS E.V, Dortmund, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Center Mannheim, Heidelberg University, Mannheim, Germany;

Department of Pharmacy, AlZaytoonah University of Jordan, Amman, Jordan;

Department of Immunology Genetics and Pathology, Uppsala University, Uppsala, Sweden;

Department of Obstetrics and Gynecology, University Medical Center Mainz, Mainz, Germany;

Pharmacology Department, Lead Discovery Center, Dortmund, Germany;

Department of Statistics, TU Dortmund University, Dortmund, Germany

ABSTRACT: Background: Intrinsic or acquired resistance to HER2-targeted therapy is often a problem when small molecule tyrosine kinase inhibitors or antibodies are used to treat patients with HER2 positive breast cancer. Therefore, the identification of new targets and therapies for this patient group is warranted. Activated choline metabolism, characterized by elevated levels of choline-containing compounds, has been previously reported in breast cancer. The glycerophosphodiesterase EDI3 (GPCPD1), which hydrolyses glycerophosphocholine to choline and glycerol-3-phosphate, directly influences choline and phospholipid metabolism, and has been linked to cancer-relevant phenotypes in vitro. While the importance of choline metabolism has been addressed in breast cancer, the role of EDI3 in this cancer type has not been explored. Methods: EDI3 mRNA and protein expression in human breast cancer tissue were investigated using publicly-available Affymetrix gene expression microarray datasets ($n = 540$) and with immunohistochemistry on a tissue microarray ($n = 265$), respectively. A panel of breast cancer cell lines of different molecular subtypes were used to investigate expression and activity of EDI3 in vitro. To determine whether EDI3 expression is regulated by HER2 signalling, the effect of pharmacological inhibition and siRNA silencing of HER2, as well as the influence of inhibiting key components of signalling cascades downstream of HER2 were studied. Finally, the influence of silencing and pharmacologically inhibiting EDI3 on viability was investigated in vitro and on tumour growth in vivo. Results: In the present study, we show that EDI3 expression is highest in ER-HER2 + human breast tumours, and both expression and activity were also highest in ER-HER2 + breast cancer cell lines. Silencing HER2 using siRNA, as well as inhibiting HER2 signalling with lapatinib decreased EDI3 expression. Pathways downstream of PI3K/Akt/mTOR and GSK3 β , and transcription factors, including HIF1 α , CREB and STAT3 were identified as relevant in regulating EDI3 expression. Silencing EDI3 preferentially decreased cell viability in the ER-HER2 + cells. Furthermore, silencing or pharmacologically inhibiting EDI3 using dipyrindamole in ER-HER2 + cells resistant to HER2-targeted therapy decreased cell viability in vitro and tumour growth in vivo. Conclusions: Our results indicate that EDI3 may be a potential novel therapeutic target in patients with HER2-targeted therapy-resistant ER-HER2 + breast cancer that should be further explored. © 2023, The Author(s).

Abu Dayyih, W., Layth, R., Hailat, M., Alkhawaja, B., Al Tamimi, L., Zakaraya, Z., Aburumman, A., Al Dmour, N., Saadh, M.J., Al-Matubsi, H., Aldalaen, S.M.

Effect of date molasses on levetiracetam pharmacokinetics in healthy rats

(2023) Scientific Reports, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146280575&doi=10.1038%2fs41598-023-28074-5&partnerID=40&md5=680a42449864df0682e6025244f598b6>

AFFILIATIONS: Faculty of Pharmacy, Mutah University, Al-Karak, Jordan;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Zarqa University, Zarqa, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Pharmacological and Diagnostic Research Centre, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Agriculture, Mutah University, Al-Karak, Jordan;

Faculty of Pharmacy, Middle East University, Amman, 11831, Jordan;

Department of Pharmacology, Faculty of Medicine, Mutah University, Al-Karak, Jordan

ABSTRACT: Twelve healthy eight-week-old male Wistar rats weighing 200 g were used. Rats were chosen randomly, and their tails were identified and separated into cages/groups. The first group received an oral dose of 11.5 mg of levetiracetam in 5 mL of water, and the second group was given date syrup (250 g mixed with 250 mL water) for seven days, then 11.5 mg LEV in 5 mL water on day 7. One week of preadministered date molasses significantly decreased levetiracetam pharmacokinetic parameters in rats, such as C_{max} (72 vs. 14 ng/mL, $p = 0.01$), T_{max} (1.78 vs. 0.44 h, $p < 0.001$), and AUC (880 vs. 258 ng.h/mL, $p < 0.001$). This decrease in plasma levetiracetam levels caused by date molasses could be attributed to decreased levetiracetam absorption. On the other hand, the current study discovered that rats given date molasses for a week had a reduced rate and extent of absorption. As a result, date molasses might increase the risk of epileptic seizures in oral LEV-treated ones. © 2023, The Author(s).

Alkhawaldah, R.A., Alshalabi, F.S., Alshwabkeh, Z.A.E., Alsha'ar, H.Y.S., Alzoubi, M.Y., Alshwabkeh, R.O., Al Dweiri, M.A.M.

The mediating role of organizational capabilities on the relationship between lean supply chain and operational performance

(2023) Uncertain Supply Chain Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144889167&doi=10.5267%2fj.uscm.2022.12.005&partnerID=40&md5=c8fbc75a889a1cecbf2b6c0508801cf5)

85144889167&doi=10.5267%2fj.uscm.2022.12.005&partnerID=40&md5=c8fbc75a889a1cecbf2b6c0508801cf5

AFFILIATIONS: Business Administration Department, Amman University College for Financial and Administrative Sciences, Al-Balqa Applied University, Jordan;

Management Information System Department, Amman College, Al-Balqa Applied University, Jordan;

Business Administration Department, Faculty of Business, Al-Balqa Applied University, Jordan;

Certified trainer at the Jordanian Institute of Public Administration and in many private training centers, Jordan;

Business Administration Department, Business School, Al-Ahliyya Amman University, Jordan;

Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The aim of the study is to examine The Mediating Role of Organizational Capabilities on the relationship between Lean Supply Chain and Operational Performance. The study population consisted of the managers in the upper and middle management of industrial companies listed on the Amman Stock Exchange, which (84) companies. To achieve the study objectives, a questionnaire was formulated to measure the variables of the study. Data were primarily gathered through self-reported questionnaires created by Google Forms The structural model was used to test the study hypotheses. The study results show that Organizational Capabilities mediate the relationship between Lean Supply Chain and Operational Performance. © 2023 Growing Science Ltd. All rights reserved.

Toume, A.A., Yahya, S., Amran, A.

Surplus Free Cash Flow, Stock Market Segmentations and Earnings Management: The Moderating Role of Independent Audit Committee

(2023) Global Business Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087775802&doi=10.1177%2f0972150920934069&partnerID=40&md5=2d8af2e1123ba57507501fa8230a261a)

85087775802&doi=10.1177%2f0972150920934069&partnerID=40&md5=2d8af2e1123ba57507501fa8230a261a

AFFILIATIONS: Graduate School of Business, Universiti Sains Malaysia, Penang, Malaysia;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Management engages in earnings manipulation for different reasons. This article argues that low-growth firms with high free cash flow will opt for income-increasing earnings management in order to obscure the low profits derived from their investments in negative net present value (NPV) projects. On the other hand, we argue that the listed companies might be interested in being listed in the first market due to its privileges and to preserve the competitiveness, through managing their earnings upwardly, so that they can satisfy the condition of achieving a particular earnings limit. This article should advance the body of earnings management literature in the Jordanian context by examining the effect of the moderating role of an independent audit committee (IAC) in the association between surplus free cash flow (SFCF) and income-increasing discretionary accruals (DAC). Further, this is the initial empirical attempt to investigate the moderation effect of IAC between stock market segmentations (SMS) and positive DAC. The results of this current study offer original and beneficial information for the Jordanian government and other countries with a similar institutional environment because the study promotes the application of applying IAC as an efficient tool to constrain management behaviour towards manipulation of the accruals. On top of that, this research offers information concerning the prevailing situation of earnings management practices and corporate governance in Jordan, in which shareholders, local and international investors, policymakers, regulators and academic researchers are interested. Finally, panel data analyses and various statistical techniques are employed to derive conclusions. © 2020 IMI.

Abu Sumaqa, Y., Hayajneh, F.A., Alnaeem, M., Alhamory, S., Ayasreh, I.R., Abu-Abbas, M.

Exploring the triggers of psychological distress among Jordanian patients with heart failure: a phenomenological study

(2023) Working with Older People, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140829387&doi=10.1108%2fWWOP-09-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140829387&doi=10.1108%2fWWOP-09-2022-0042&partnerID=40&md5=e99535dda4a1265af0ee165c43057391)

0042&partnerID=40&md5=e99535dda4a1265af0ee165c43057391

AFFILIATIONS: Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan;

Faculty of Nursing, The University of Jordan, Amman, Jordan;

Al-zaytoonah University of Jordan, School of Nursing, Amman, Jordan;

Faculty of Nursing, Irbid National University, Irbid, Jordan;

Jerash University, Jerash, Jordan

ABSTRACT: Purpose: This study aims to gain a deeper understanding of triggers of psychological distress among Jordanian patients with heart failure (HF). Design/methodology/approach: A

phenomenological study was adopted. In-depth, semi-structured, audio-taped interviews were conducted for 25 patients with HF. The analysis was done using interpretative phenomenological analysis. Findings: The main theme of the findings can be expressed as "faced with stressors that are unable to cope with", which encompasses circumstances and contexts associated with the psychological distress they faced. The following four sub-themes emerged from the data: being endorsed in significant life changes, feeling guilty about being a burden, financial burden aggravating stress and feeling overwhelmed by the fear of death. Originality/value: The findings revealed that psychological distress is affected directly by many triggers. The findings indicate the need for informing health-care providers to support these patients and address the challenges and develop clinical guidelines to assess psychological distress among these patients. © 2022, Emerald Publishing Limited.

Abu Nuwar, M., Jaradat, D.M.M., Chandrasekaran, B., Natsheh, I., Rasras, A.J., Alzubi, M.S.H., Karpoomath, R., Khalili, F., Hamadneh, L., Dahadha, A.A., Arafat, T.
Design, Synthesis, Anticancer Screening and Molecular Modelling Studies of Novel Thiazoles (2023) ChemistrySelect, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175949562&doi=10.1002%2fslct.202302319&partnerID=40&md5=ad2efd5e13fc296e050747872d447c7e)

[85175949562&doi=10.1002%2fslct.202302319&partnerID=40&md5=ad2efd5e13fc296e050747872d447c7e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175949562&doi=10.1002%2fslct.202302319&partnerID=40&md5=ad2efd5e13fc296e050747872d447c7e)

AFFILIATIONS: Department of Chemistry, Faculty of Science, Al-Balqa Applied University, P.O. Box 206, Al-Salt, 19117, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, Philadelphia University, P.O. Box 1, Amman, 19392, Jordan;

Macromolecular Crystallography, Helmholtz-Zentrum Berlin, Albert-Einstein-Str. 15, Berlin, D-12489, Germany;

Department of Allied Medical Sciences, Zarqa College, Al-Balqa Applied University, P.O. Box 313, Zarqa, 13110, Jordan;

Department of Pharmaceutical Chemistry, College of Health Sciences, University of KwaZulu-Natal, Durban, 4000, South Africa;

Department of Chemistry, Faculty of Sciences, University of Jordan, P.O. Box 11942, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Basic Sciences, Faculty of Science, Philadelphia University, P.O. Box 1, Amman, 19392, Jordan;

Jordan Center for Pharmaceutical Research, P.O. Box 950435, Amman, 11195, Jordan

ABSTRACT: A library of novel benzamide-thiazolyl-chalcone compounds was synthesized via Claisen-Schmidt reaction and spectroscopically characterized using FT-IR, ¹H-NMR, ¹³C-NMR, LC-MS, and HR-MS. The synthesized compounds were biologically evaluated using in vitro MTT assay against different cancer cell lines (MCF-7, MDA-AMB-231, Caco-2, A549, and H1299). Amongst all compounds screened, (E)-N-(5-(3-(4-hydroxyphenyl)-3-oxoprop-1-en-1-yl)thiazol-2-yl)benzamide and (E)-N-(5-(3-(4-methoxyphenyl)-3-oxoprop-1-en-1-yl)thiazol-2-yl)benzamide showed potent anti-proliferation against breast (MCF-7) and colon cancer cell lines reaching 88.56 % and 84.36 % with IC₅₀ values of 44.00 μM and 58.88 μM, respectively. All synthesized compounds exhibited no significant cytotoxicity to normal cells. Structure-activity relationship studies demonstrated the effect of electron-donating and electron-withdrawing groups on the anticancer activity of the molecules under investigation. This was also corroborated by theoretical DFT studies. Thus, these molecules may serve as potential lead candidates for further development of novel anticancer agents against breast and colon cancers. © 2023 Wiley-VCH GmbH.

Marei, Y., Almasarwah, A., Al Bahloul, M., Abu Afifa, M.

Cryptocurrencies in accounting schools?

(2023) Higher Education, Skills and Work-based Learning, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153605643&doi=10.1108%2fHESWBL-12-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153605643&doi=10.1108%2fHESWBL-12-2022-0284&partnerID=40&md5=797b80eebe58074e38cc456e1039ea01)

[0284&partnerID=40&md5=797b80eebe58074e38cc456e1039ea01](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153605643&doi=10.1108%2fHESWBL-12-2022-0284&partnerID=40&md5=797b80eebe58074e38cc456e1039ea01)

AFFILIATIONS: Department of Accounting, Seneca College, Toronto, Canada;

Department of Accounting, Georgia College and State University, Milledgeville, GA, United States;

Accounting Subject Group, Salford University, Manchester, United Kingdom;

Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: This study aims to investigate the extent to which newly certified public accountants (CPAs) and accounting graduate students possess a comprehensive understanding of cryptocurrencies and the skills they have acquired throughout their education.

Design/methodology/approach: A qualitative analysis was used through semi-structured interviews to obtain an in-depth insight into cryptocurrencies, which could not be investigated easily through quantitative methods, and to provide an understanding of the context for cryptocurrencies from CPA and non-CPA students' points of view. This was in addition to focusing on understanding the differences between the students' thoughts. Findings: This study found that recent accounting graduates and CPA members have the least awareness of cryptocurrencies, likely due to a lack of

professors' comprehension or exposure to the concept. However, students involved in forensic courses provided more information about cryptocurrencies compared with other students. Research limitations/implications: The data are limited to only a single country. Given that cryptocurrencies are a relatively new notion in accounting, there is an alarming lack of legislation. Further, the authors found that recent accounting graduates and CPAs had the same level of knowledge of cryptocurrencies, most probably due to a lack of exposure during their education and academics' limited understanding of the concept. Practical implications: The students' differing answers about cryptocurrencies show differences in their current level of understanding of cryptocurrencies. Originality/value: This study has identified that the vast majority of accounting graduates lack adequate knowledge about cryptocurrencies or access to adequate resources, despite understanding the fundamental concepts of cryptocurrency. © 2023, Emerald Publishing Limited.

Khalifeh, A., Al-Adwan, A.S., Alrousan, M.K., Yaseen, H., Mathani, B., Wahsheh, F.R.

Exploring the Nexus of Sustainability and Project Success: A Proposed Framework for the Software Sector

(2023) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183456646&doi=10.3390%2fsu152215957&partnerID=40&md5=e5657c3036ee0a28299aede5d196b679)

85183456646&doi=10.3390%2fsu152215957&partnerID=40&md5=e5657c3036ee0a28299aede5d196b679

AFFILIATIONS: E-Marketing Department, Business Faculty, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Business Technology Department, Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

E-Marketing and Social Media Department, King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, 11941, Jordan;

Electronic Business & Commerce, Middle East University, Amman, 11831, Jordan;

Business Administration Department, Faculty of Business, Ajloun National University, Irbid, 21163, Jordan;

Department of Management Information Systems, Faculty of Business, Ajloun National University, Irbid, 21163, Jordan

ABSTRACT: In the last two decades, there have been many calls to integrate sustainability into projects. However, there are conflicting views about the relationship between sustainability and project success. Some contend that project sustainability could adversely affect project success, while others maintain the contrary. Yet, the exploration of this relationship has been insufficient thus far. Notably, no existing work specifically investigates this relationship within the software domain. Therefore, this paper aims to contribute significantly by introducing a conceptual framework that assists in inspecting the relationships between software project sustainability (SPS) and project success. The proposed framework was developed based on well-defined aspects of both concepts. The findings show that most of the relationships between the two concepts are expected to be significant and positive. Our propositions were built after analysing the best of relevant contributions. However, an empirical examination is needed, especially with the presence of control variables such as country, company size, and project complexity. This work could be an initial motion for future empirical studies and provide a significant theoretical foundation for researchers and practitioners in this domain. © 2023 by the authors.

Merabti, N.L., Batiha, I.M., Rezzoug, I., Ouannas, A., Ouassaeif, T.-E.

On sentinel method of one-phase Stefan problem

(2023) Journal of the Nigerian Society of Physical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180997339&doi=10.46481%2fjnsps.2023.1772&partnerID=40&md5=422bd4a65ace0bb778a80406d9a84a13)

85180997339&doi=10.46481%2fjnsps.2023.1772&partnerID=40&md5=422bd4a65ace0bb778a80406d9a84a13

AFFILIATIONS: Department of Mathematics and Computer Science, University of Oum El Bouaghi, Oum El Bouaghi, 04000, Algeria;

Department of Mathematics, Al Zaytoonah University, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: This paper is interested in studying the one-phase Stefan problem. For this purpose, we use the nonlinear sentinel method, which relies typically on the approximate controllability and the Fanchel-Rockafellar duality of the minimization problem, to prove the existence and uniqueness of a solution to this problem. In particular, our research focuses on the application of the nonlinear sentinel method to the single-phase Stefan problem. This approach aids in identifying an unspecified boundary section within the domain undergoing a liquid-solid phase transition. We track the evolution of the temperature profile in the liquid-solid material and the corresponding movement of its interface over time. Eventually, the local convergence used for the iterative numerical scheme is demonstrated. © 2023 The Author(s).

Ayyad, S., Bani Baker, M., Handam, A., Al-Smadi, T.

Reducing the Highway Networks Energy Bills using Renewable Energy System

(2023) Civil Engineering Journal (Iran), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178939643&doi=10.28991%2fCEJ-2023-09-11-019&partnerID=40&md5=10a5206166501418a56d318011c03c20>

AFFILIATIONS: Faculty of Engineering, Civil Engineering Department, Amman Arab University, Jordan Street-Mubis, Amman, 11953, Jordan;

Faculty of Engineering and Technology, Civil and Infrastructure Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

National University College of Technology (NUCT), Amman, Jordan;

Faculty of Engineering, Jerash University, Jerash, Jordan

ABSTRACT: Jordan has significant renewable energy potential due to its remarkable geographical location and climate conditions. This potential elevates engaging several innovative renewable alternatives in energy development, which may efficiently minimize the excessive import of traditional energy sources. The objective of this research is to study the potential of utilizing clean and affordable solar energy along roadways such as Jordan's Desert Highway-15 to be in line with the United Nations Sustainable Development Goals (UN-SDG's) by installing selected solar panels that possess adequate friction and the ability to allow solar radiation to reach the solar cells, in addition to allowing the load to be bypassed around the cells. The shoulder of the highway, with a length of 315 km and a width of 3.0 meters, has been exploited in order to supply the neighboring areas with energy for those roads, particularly those paved roads, which are poorly lit at night. Furthermore, this study provides direction and guidance concerning the structural performance of non-traditional pavement materials, which are a form of subgrade or pavement reinforcement. The performance of a prototype board on a variety of structural bases has also been evaluated. Overall, this paper found that it is possible to design a solar road panel to withstand traffic loading and that the concrete structural base allows for a significant improvement of the analyzed prototype design, especially in countries with limited energy sources and dependent on imports such as Jordan. © 2023 by the authors. Licensee C.E.J, Tehran, Iran.

Hamadneh, T., Hioual, A., Saadeh, R., Abdoon, M.A., Almutairi, D.K., Khalid, T.A., Ouannas, A. General Methods to Synchronize Fractional Discrete Reaction-Diffusion Systems Applied to the Glycolysis Model

(2023) Fractal and Fractional, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178317433&doi=10.3390%2ffractalfract7110828&partnerID=40&md5=6504446c372dc8d2317228295923c00b)

[85178317433&doi=10.3390%2ffractalfract7110828&partnerID=40&md5=6504446c372dc8d2317228295923c00b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178317433&doi=10.3390%2ffractalfract7110828&partnerID=40&md5=6504446c372dc8d2317228295923c00b)

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Laboratory of Dynamical Systems and Control, University of Oum EL-Bouaghi, Oum El Bouaghi, 04000, Algeria;

Department of Mathematics, Zarqa University, Zarqa, 13110, Jordan;

Department of Basic Sciences, Common First Year Deanship, King Saud University, Riyadh, 12373, Saudi Arabia;

Department of Mathematics, College of Education (Majmaah), Majmaah University, Al-Majmaah, 11952, Saudi Arabia;

Department of Mathematics, Faculty of Science and Arts, Al-Baha University, Baljurashi, 65622, Saudi Arabia;

Department of Mathematics, Academy of Engineering and Medical Sciences, Khartoum, 12045, Sudan;

Department of Mathematics and Computer Science, University of Oum EL-Bouaghi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: Because they are useful for both enabling numerical simulations and containing well-defined physical phenomena, discrete fractional reaction-diffusion models have attracted a great deal of interest from academics. Within the family of fractional reaction-diffusion models, a discrete form is examined in detail in this study. Furthermore, we investigate the complex synchronization dynamics of a suggested discrete master-slave reaction-diffusion system using the accuracy of linear control techniques combined with a fractional discrete Lyapunov approach. This study's deviation from the behavior of equivalents with integer orders makes it very fascinating. Like the non-local nature inherent in Caputo fractional derivatives, it creates a memory Lyapunov function that is closely linked to the historical background of the system. The investigation provides a strong basis to the theoretical results. © 2023 by the authors.

Jaradat, M., Duran, J.L., Murcia, D.H., Buechley, L., Shen, Y.-L., Christodoulou, C., Taha, M.R. Cognizant Fiber-Reinforced Polymer Composites Incorporating Seamlessly Integrated Sensing and Computing Circuitry

(2023) Polymers, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178131569&doi=10.3390%2fpolym15224401&partnerID=40&md5=da99628a3684003e1cc053d0da92417f)

[85178131569&doi=10.3390%2fpolym15224401&partnerID=40&md5=da99628a3684003e1cc053d0da92417f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178131569&doi=10.3390%2fpolym15224401&partnerID=40&md5=da99628a3684003e1cc053d0da92417f)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan,

Amman, 11733, Jordan;

Department of Computer Science, University of New Mexico, Albuquerque, NM 87131, United States;

Gerlad May Department of Civil, Construction & Environmental Engineering, University of New Mexico, Albuquerque, NM 87131, United States;

Department of Mechanical Engineering, University of New Mexico, Albuquerque, NM 87131, United States;

Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM 87131, United States

ABSTRACT: Structural fiber-reinforced polymer (FRP) composite materials consisting of a polymer matrix reinforced with layers of high-strength fibers are used in numerous applications, including but not limited to spacecraft, vehicles, buildings, and bridges. Researchers in the past few decades have suggested the necessary integration of sensors (e.g., fiber optic sensors) in polymer composites to enable health monitoring of composites' performance over their service lives. This work introduces an innovative cognizant composite that can self-sense, compute, and implement decisions based on sensed values. It is a critical step towards smart, resilient infrastructure. We describe a method to fabricate textile sensors with flexible circuitry and a microcontroller within the polymer composite, enabling computational operations to take place in the composite without impacting its integrity. A microstructural investigation of the sensors showed that the amount of oxidative agent and soaking time of the fabric play a major role in the adsorption of polypyrrole (PPy) on fiberglass (FG). XPS results showed that the 10 g ferric chloride solution with 6 h of soaking time had the highest degree of protonation (28%) and, therefore, higher adsorption of PPy on FG. A strain range of 30% was achieved by examining different circuitry and sensor designs for their resistance and strain resolution under mechanical loading. A microcontroller was added to the circuit and then embedded within a composite material. This composite system was tested under flexural loading to demonstrate its self-sensing, computing, and actuation capabilities. The resulting cognizant composite demonstrated the ability to read resistance values and measure strain using the embedded microcontroller and autonomously actuate an LED light when the strain exceeds a predefined limit of 2000 $\mu\epsilon$. The application of the proposed FRP system would provide in situ monitoring of structural composite components with autonomous response capabilities, as well as reduce manufacturing, production, and maintenance costs. © 2023 by the authors.

Al-Qerem, W., Jarab, A., AlBawab, A.Q., Hammad, A., Alazab, B., Abu Husein, D., Eberhardt, J., Alasmari, F.

Examining Influenza Vaccination Patterns and Barriers: Insights into Knowledge, Attitudes, and Practices among Diabetic Adults (A Cross-Sectional Survey)

(2023) Vaccines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178117028&doi=10.3390%2fvaccines11111689&partnerID=40&md5=f3b027dabf2c78bc12f6f600bcfc5484)

[85178117028&doi=10.3390%2fvaccines11111689&partnerID=40&md5=f3b027dabf2c78bc12f6f600bcfc5484](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178117028&doi=10.3390%2fvaccines11111689&partnerID=40&md5=f3b027dabf2c78bc12f6f600bcfc5484)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, 112612, United Arab Emirates;

School of Social Sciences, Humanities and Law, Department of Psychology, Teesside University, Borough 15 Road, Middlesbrough, TS1 3BX, United Kingdom;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 12372, Saudi Arabia

ABSTRACT: Diabetes mellitus is a prevalent global chronic condition affecting individuals of all ages. People with diabetes face an elevated risk of lower respiratory tract infections such as pulmonary tuberculosis, influenza, and pneumonia. Additionally, the influenza virus increases the likelihood of deep venous thrombosis and pulmonary embolism. This study examined the knowledge, attitudes, and practices of diabetic patients regarding the influenza vaccine. This study involved 418 diabetic patients (53.3% female) at Jordanian outpatient respiratory clinics, with an average age of 49 (± 14) years. The results showed that 70.6% had never received the influenza vaccine, and only 23.7% intended to do so in the current year. A positive attitude toward the influenza vaccine significantly reduced hesitancy to get vaccinated (OR = 0.505, 95% CI 0.424–0.601, $p < 0.001$). The duration of diabetes exhibited a positive association with vaccine hesitancy (OR = 1.053, 95% CI 1.006–1.102, $p = 0.028$). The primary reason for not getting vaccinated was a lack of awareness of its benefits (42.6%). Future health education programs should emphasize the importance of the influenza vaccine for diabetic patients and address their concerns. © 2023 by the authors.

Althaher, A.R., Alwahsh, M.

An overview of ATP synthase, inhibitors, and their toxicity

(2023) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177214219&doi=10.1016%2fj.heliyon.2023.e22459&partnerID=40&md5=66ba767508d28f53300a6a571efb2fec)

[85177214219&doi=10.1016%2fj.heliyon.2023.e22459&partnerID=40&md5=66ba767508d28f53300a6a571efb2fec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177214219&doi=10.1016%2fj.heliyon.2023.e22459&partnerID=40&md5=66ba767508d28f53300a6a571efb2fec)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan
ABSTRACT: Mitochondrial complex V (ATP synthase) is a remarkable molecular motor crucial in generating ATP and sustaining mitochondrial function. Its importance in cellular metabolism cannot be overstated, as malfunction of ATP synthase has been linked to various pathological conditions. Both natural and synthetic ATP synthase inhibitors have been extensively studied, revealing their inhibitory sites and modes of action. These findings have opened exciting avenues for developing new therapeutics and discovering new pesticides and herbicides to safeguard global food supplies. However, it is essential to remember that these compounds can also adversely affect human and animal health, impacting vital organs such as the nervous system, heart, and kidneys. This review aims to provide a comprehensive overview of mitochondrial ATP synthase, its structural and functional features, and the most common inhibitors and their potential toxicities. © 2023 The Author(s)

Jarab, A.S., Al-Azzam, S.I., Al-Mutairi, S., Abu Heshmeh, S., Mukattash, T.L., AL-Qerem, W., Beiram, R., Aburuz, S.

Community pharmacists' knowledge and awareness about isotretinoin therapy and its dispensing practice in Jordan (2023) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177068152&doi=10.1016%2fj.heliyon.2023.e22354&partnerID=40&md5=d9b0e43189d985a889b6f3ec7aa182e2)

[85177068152&doi=10.1016%2fj.heliyon.2023.e22354&partnerID=40&md5=d9b0e43189d985a889b6f3ec7aa182e2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177068152&doi=10.1016%2fj.heliyon.2023.e22354&partnerID=40&md5=d9b0e43189d985a889b6f3ec7aa182e2)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Al-Farwaniya Hospital, Ministry of Health, Kuwait City, Kuwait;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: A validated self-reported questionnaire was used to evaluate pharmacists' knowledge about isotretinoin and their awareness of isotretinoin dispensing practice. The majority were not able to recognize the initial dose of isotretinoin, the potential side effects such as dyslipidemia and liver toxicity, the potential interaction with tetracycline and Vitamin A and the contraindications of isotretinoin. Around 41.3 % of the pharmacists dispensed isotretinoin without a prescription, and the majority did not recognize that isotretinoin should be dispensed for only 30 days, should not be dispensed without an emphasis on the appropriate indication, and did not know the appropriate duration of isotretinoin therapy. Male gender and postgraduate degree were associated with better awareness, while increased work experience and postgraduate degree were associated with better knowledge about isotretinoin therapy. Nevertheless, both male and female pharmacists demonstrated equivalent knowledge levels. The current study demonstrates the need to implement educational programs to improve pharmacists' knowledge and awareness about isotretinoin and its dispensing practice. © 2023 The Authors

Qutami, M., Hamdan, Y.

Covid- 19 and gender inequality: A critique of the working woman's struggle

(2023) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177028957&doi=10.1016%2fj.heliyon.2023.e21852&partnerID=40&md5=45fcee350ec0ecf11d1f71f6d2bf0d08)

[85177028957&doi=10.1016%2fj.heliyon.2023.e21852&partnerID=40&md5=45fcee350ec0ecf11d1f71f6d2bf0d08](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177028957&doi=10.1016%2fj.heliyon.2023.e21852&partnerID=40&md5=45fcee350ec0ecf11d1f71f6d2bf0d08)

AFFILIATIONS: Al- Zaytoonah University of Jordan, Department of English Language, Amman, 11733, Jordan;

Applied Science Private University, Department of English Language and Translation, Amman, 11192, Jordan

ABSTRACT: There has been a dramatic change in everyday life due to COVID-19 around the world. The lockdowns, closure of schools and universities, and the loss of jobs has placed a lot of pressure on the family, particularly women. One of the main outcomes of the pandemic in Jordan has been the increase in the workload of women outside and inside the home. Despite the efforts made to empower women throughout the years, they continue to struggle and gender inequality remains overlooked and even normalized in Jordanian society. The aim of the study is to unfold the way Covid- 19 has disrupted women's lives and made gender equality less achievable, and explore the challenges they have faced in terms of the added paid and unpaid work they have been forced to do during the pandemic and to this end, in-depth interviews were carried out with 20 working mothers who were selected using purposive sampling. The study is largely informed by feminist standpoint theory whose main concern is the female voice and making it a valuable instrument in the process of knowledge production. The findings show that most women suffered from traditionally prescribed gender roles imposed by society, pressure and discrimination at work, and a lack of understanding and empathy at home and the workplace. Very few shared responsibilities with their husbands and their burdens with coworkers and

employers, and an even smaller number was able to use the pandemic to their advantage and found ways to regain female power and self-assertion. The findings indicate that serious changes in policies need to be made to protect women's rights at work and in the domestic world, and the institution of marriage reconstructed within the Jordanian imaginary, and gender roles redefined. © 2023

Al-Balas, Q., Altawalbeh, S., Rinaldi, C., Ibrahim, I.

The practice of defensive medicine among Jordanian physicians: A cross sectional study (2023) PLoS ONE, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176387482&doi=10.1371%2fjournal.pone.0289360&partnerID=40&md5=f0034dff4c7f826b70734c38122b851e)

85176387482&doi=10.1371%2fjournal.pone.0289360&partnerID=40&md5=f0034dff4c7f826b70734c38122b851e

AFFILIATIONS: Department of Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy, Jordan

University of Science & Technology, Irbid, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Translational Medicine, University of Piemonte Orientale, Novara, Italy;

Learning and Research Area, AOU Maggiore Della Carità, Novara, Italy;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background Defensive medicine (DM) is a deviation from medical practice that is induced primarily by a threat of liability. While the DM behavior is well studied in the developed countries, little is known in developing countries and never been evaluated in Jordan. Objective To evaluate the prevalence of DM practice in Jordan among physicians and to investigate reasons behind its practice and potential strategies to alleviate this practice. Methods In this Cross-sectional study, self-administered questionnaire was distributed to a sample of physicians in both public and private sectors in Jordan. The collection period was from Jan 2021 to June 2021. The prevalence of DM practice was estimated among the study sample. Frequency scores of different DM behaviors, reasons of DM behaviors, and effectiveness of strategies in changing DM behaviors were summarized as average frequency scores with standard deviations. Multivariable linear regression models were conducted to evaluate potential predictors of total assurance and avoidance behavior scores. Results A total of 175 Jordanian physicians completed the survey. The prevalence of adopting (or witnessing) DM behaviors among the study sample was 68% (n = 119). Diagnostic laboratory exams followed by prescribed medications were the most practiced behaviors in excessive rate during a typical working week. Unfavorable legislation for the physician was reported as the headmost reason for practicing DM, followed by pressure from the public and mass media opinion. Continuous update of knowledge, abilities, and performance and following specific protocols and/or appropriate clinical evidence and appropriate multidisciplinary and multi-professional communication were the most effective strategies that can mitigate DM behaviors. Conclusions Defensive medicine practice is common among Jordanian physicians with concerns about increasing pattern in the future. © 2023 Al-Balas et al.

Chen, T.-C., Almimi, H., Sh. Daoud, M., William Grimaldo Guerrero, J., Chorzępa, R.

Selection of effective combination of time and frequency features using PSO-based technique for monitoring oil pipelines

(2023) Alexandria Engineering Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174692052&doi=10.1016%2fj.aej.2023.10.026&partnerID=40&md5=118323fa305dea855c166247d4765206)

85174692052&doi=10.1016%2fj.aej.2023.10.026&partnerID=40&md5=118323fa305dea855c166247d4765206

AFFILIATIONS: Department of Artificial Intelligence, Tamkang University, New Taipei City, 251301, Taiwan;

Cybersecurity Department, Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Jordan;

College of Engineering, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Energy, Universidad de la Costa, Barranquilla, 080001, Colombia;

Faculty of Electrical and Computer Engineering, Rzeszow University of Technology, Powstancow Warszawy 12, Rzeszow, 35-959, Poland

ABSTRACT: Pipeline installation is a time-consuming and expensive process in the oil sector. Because of this, a pipe is often utilized to carry diverse petroleum products; hence, it is crucial to use a precise and dependable control system to identify the kind and quantity of oil products being transported. This study attempts to identify four petroleum products by using an X-ray tube-based system, feature extraction in the frequency and temporal domains, and feature selection using Particle Swarm Optimization (PSO) in conjunction with a Group Method of Data Handling (GMDH) neural network. A sodium iodide detector, a test pipe that simulates petroleum compounds, and an X-ray source make up the implemented system. The detector's output signals were transmitted to the frequency domain, where the amplitudes of the top five dominant frequencies could be determined. Furthermore, the received signals were analyzed to extract five temporal characteristics-MSR, 4th order moment, skewness, WL, and kurtosis. The PSO system takes into account the extracted time and frequency features as input in order to introduce the optimal combination. Four different GMDH neural networks were constructed, and the chosen characteristics were used as inputs for those networks.

Finding the volume ratio of each product was the responsibility of each neural network. The four designed neural networks were able to predict the amount of ethylene glycol, crude oil, gasoil, and gasoline with RMSE of 0.26, 0.17, 0.19, and 0.23, respectively. One compelling argument for using the proposed approach in the oil industry is that it can calculate the volume ratio of products with a root mean square error of no more than 0.26. The adoption of a feature selection method to choose the best ones is credited with this remarkable degree of precision. By providing appropriate inputs to neural networks, the control system has significantly outperformed its predecessors in terms of precision and efficiency. © 2023 THE AUTHORS

Aljawrneh, B., Albiss, B.A., Abdel Rahman, M., Ocak, Y.S.

Electro-deposited halloysite nanotube/polyaniline nanocomposites for energy storage applications (2023) International Journal of Thermofluids, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172696271&doi=10.1016%2Fj.ijft.2023.100469&partnerID=40&md5=c5963d90813d04dd97295c2a279a0694)

[85172696271&doi=10.1016%2Fj.ijft.2023.100469&partnerID=40&md5=c5963d90813d04dd97295c2a279a0694](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172696271&doi=10.1016%2Fj.ijft.2023.100469&partnerID=40&md5=c5963d90813d04dd97295c2a279a0694)

AFFILIATIONS: Physics Department, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institute of Nanotechnology, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Physics Department, Faculty of Science, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Smart-Lab, Dicle University, Diyarbakir, Turkey

ABSTRACT: A nanocomposite (nanoclay/conductive polymer) was prepared by a template-free method for supercapacitor applications. Halloysite Nanotubes (HNTs) were used as a nanoclay material, and synthesized polyaniline (PANI) by ammonium persulfate-initiated polymerization was used as a conductive polymer. The HNTs/PANI nanocomposite was deposited on an indium tin oxide (ITO) coated glass to obtain a working electrode by an electrochemical deposition method. Morphological and structural examination of the HNTs/PANI nanocomposite proved that the PANI nanoparticles were attached to the HNTs surface. The structural analysis demonstrated that the PANI and HNTs crystal size significantly decreased in the HNTs/PANI as a result of the composition of PANI molecules with HNTs structure. The main characteristic bonds and functional groups of HNT, PANI, and HNTs/PANI nanocomposites were determined by FT-IR analysis. Using cyclic voltammetry (CV), the electrochemical performance of the HNTs//PANI nanocomposite electrode was investigated. The specific capacitance values were reported via the CV curves as 264, 230.22, 175.2, and 154.8 F/g at scan rates of 50, 100, 200, and 300 mV/s respectively. The results showed that the specific capacitance at the slow scan rates revealed higher maximum specific capacitance values. © 2023 The Author(s)

Sha'ban, M., Girardone, C., Sarkisyan, A., Arun, T.

On the relationship between financial inclusion and bank performance

(2023) Economic Notes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167344999&doi=10.1111%2Fecno.12225&partnerID=40&md5=fb457782500322f389a2a30de9ad74bc)

[85167344999&doi=10.1111%2Fecno.12225&partnerID=40&md5=fb457782500322f389a2a30de9ad74bc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167344999&doi=10.1111%2Fecno.12225&partnerID=40&md5=fb457782500322f389a2a30de9ad74bc)

AFFILIATIONS: Faculty of Business, Al Zaytoonah University of Jordan, Amman, Jordan;

Essex Business School, University of Essex, Colchester, United Kingdom

ABSTRACT: This study examines the relationship between various financial inclusion measures and banks' performance across multiple countries with varying institutional, regulatory and income levels. To construct an aggregate bank performance index, we employ principal component analysis, which utilises a set of critical indicators summarised by the CAMEL rating system, including banks' solvency, asset quality, efficiency, profitability and liquidity. Our primary findings indicate that different measures of financial inclusion exhibit varying associations with bank performance. Specifically, there is a trade-off between bank performance and credit deepening, especially in high-income nations. Conversely, in low-income nations, higher financial inclusion, measured by deposits to GDP, number of deposits, and number of borrowers, does not affect bank performance adversely. Banks in low-income nations could achieve significant gains by improving financial access and enhancing regulatory environments. © 2023 Banca Monte dei Paschi di Siena SpA.

Daoud, M.S., Shehab, M., Abualigah, L., Alshinwan, M., Elaziz, M.A., Shambour, M.K.Y., Oliva, D., Alia, M.A., Zitar, R.A.

Recent Advances of Chimp Optimization Algorithm: Variants and Applications

(2023) Journal of Bionic Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165580467&doi=10.1007%2Ffs42235-023-00414-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165580467&doi=10.1007%2Ffs42235-023-00414-1&partnerID=40&md5=df3d7253b84d1f79e29f7ac4c43c917e)

[1&partnerID=40&md5=df3d7253b84d1f79e29f7ac4c43c917e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165580467&doi=10.1007%2Ffs42235-023-00414-1&partnerID=40&md5=df3d7253b84d1f79e29f7ac4c43c917e)

AFFILIATIONS: College of Engineering, Al Ain University, Abu Dhabi, 112612, United Arab Emirates;

College of Computer Sciences and Informatics, Amman Arab University, Amman, 11953, Jordan;

Computer Science Department, Prince Hussein Bin Abdullah Faculty for Information Technology, Al Al-Bayt University, Mafraq, 25113, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;
 MEU Research Unit, Middle East University, Amman, 11831, Jordan;
 Applied Science Research Center, Applied Science Private University, Amman, 11931, Jordan;
 School of Computer Sciences, Universiti Sains Malaysia, Pulau Pinang, 11800, Malaysia;
 Faculty of Information Technology, Applied Science Private University, Amman, 11931, Jordan;
 Department of Mathematics, Faculty of Science, Zagazig University, Zagazig, 7120001, Egypt;
 The Custodian of the Two Holy Mosques Institute for Hajj and Umrah Research, Umm Al-Qura University, Makkah, 24382, Saudi Arabia;
 Depto. de Innovacio´n Basada en la Informacio´n y el Conocimiento, Universidad de Guadalajara, CUCEI, Guadalajara, 45129, Mexico;
 Cyber Security Department, Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;
 Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, 38044, United Arab Emirates;
 School of Engineering and Technology, Sunway University Malaysia, Petaling Jaya, 27500, Malaysia

ABSTRACT: Chimp Optimization Algorithm (ChOA) is one of the recent metaheuristics swarm intelligence methods. It has been widely tailored for a wide variety of optimization problems due to its impressive characteristics over other swarm intelligence methods: it has very few parameters, and no derivation information is required in the initial search. Also, it is simple, easy to use, flexible, scalable, and has a special capability to strike the right balance between exploration and exploitation during the search which leads to favorable convergence. Therefore, the ChOA has recently gained a very big research interest with tremendous audiences from several domains in a very short time. Thus, in this review paper, several research publications using ChOA have been overviewed and summarized. Initially, introductory information about ChOA is provided which illustrates the natural foundation context and its related optimization conceptual framework. The main operations of ChOA are procedurally discussed, and the theoretical foundation is described. Furthermore, the recent versions of ChOA are discussed in detail which are categorized into modified, hybridized, and paralleled versions. The main applications of ChOA are also thoroughly described. The applications belong to the domains of economics, image processing, engineering, neural network, power and energy, networks, etc. Evaluation of ChOA is also provided. The review paper will be helpful for the researchers and practitioners of ChOA belonging to a wide range of audiences from the domains of optimization, engineering, medical, data mining, and clustering. As well, it is wealthy in research on health, environment, and public safety. Also, it will aid those who are interested by providing them with potential future research. © 2023, Jilin University.

Asaad, S., Suleiman, A.

Socio-demographic factors and treated wastewater reuse in the MENA region: Insights and implications (2023) Desalination, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165431334&doi=10.1016%2fj.desal.2023.116830&partnerID=40&md5=37f4eea3134881fbce31ef6416be8046)

[85165431334&doi=10.1016%2fj.desal.2023.116830&partnerID=40&md5=37f4eea3134881fbce31ef6416be8046](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165431334&doi=10.1016%2fj.desal.2023.116830&partnerID=40&md5=37f4eea3134881fbce31ef6416be8046)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Decision-makers in the Middle East and North Africa (MENA) region are looking for ways to recycle wastewater to meet the demand for water amidst scarcity. Reusing treated wastewater is crucial for managing water resources sustainably, particularly in water-stressed nations in arid regions of the world that rely on desalination and groundwater to meet their water needs. This study looks into how socio-demographic factors affect how the general public feels about utilizing wastewater for various purposes. A structured questionnaire was used to collect data from 1206 respondents throughout the MENA region, and descriptive and inferential statistics were used to analyze the results. The MENA region is found to recognize the environmental benefits of reuse, but prefers applications that have less direct human interaction such as flushing toilets, non-food industries, car washes, home cleaning, and firefighting. The public is open to reuse as long as it is approved by professionals such as medical experts, university professors and experts. Gender and wealth did not significantly influence the confidence to use treated wastewater for most reuse applications. Still, age and education level did not have a major impact. All respondents agreed to use treated wastewater for non-food business, car washing, home cleaning, and firefighting. Study findings provide insight into the attitudes and perceptions of individuals toward treated wastewater reuse, and can inform future efforts to promote the acceptance and implementation of these applications. © 2023

Jarab, A.S., Hamam, H.W., Al-Qerem, W.A., Heshmeh, S.R.A., Mukattash, T.L.

Blood pressure control and its associated factors among patients with heart failure in Jordan (2023) Journal of Human Hypertension, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147761165&doi=10.1038%2fs41371-023-00807-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147761165&doi=10.1038%2fs41371-023-00807-z&partnerID=40&md5=1f23f6d2f6329276cf372d9b3f178964)
[z&partnerID=40&md5=1f23f6d2f6329276cf372d9b3f178964](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147761165&doi=10.1038%2fs41371-023-00807-z&partnerID=40&md5=1f23f6d2f6329276cf372d9b3f178964)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;
College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;
Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Uncontrolled blood pressure (BP) has been associated with increased risk of cardiovascular events including heart failure. This study aimed to explore the factors associated with poor BP control among patients with heart failure at two major outpatient cardiology clinics in Jordan. Variables including socio-demographics, biomedical variables, in addition to disease and medication characteristics were collected using medical records and custom-designed questionnaire. The validated 4-item Medication Adherence Scale was used to assess medication adherence. Binary logistic regression analysis was conducted to explore the significant and independent predictors of poor BP control. Regression analysis results revealed that being not satisfied with the prescribed medication (OR = 2.882; 95% CI: 1.458-5.695; $P < 0.01$), reporting moderate medication adherence (OR = 0.203; 95% CI: 22 0.048-0.863; $P < 0.05$), not receiving digoxin (OR = 3.423; 95% CI: 1.346-8.707; $P < 0.05$), and not receiving aldosterone antagonist (OR = 2.044; 95% CI: 1.038-4.025; $P < 0.05$) were associated with poor BP control. Future interventions should focus on increasing medication satisfaction and enhancing medication adherence, in order to improve BP control among patients with heart failure. © 2023, The Author(s), under exclusive licence to Springer Nature Limited.

Yaseen, S.G., El Qirem, I., Nussair, M., Sa'd, H.

Intellectual capital components and entrepreneurial orientation: the mediating role of absorptive capacity

(2023) Business Process Management Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170715989&doi=10.1108%2fBPMJ-03-2023-0194&partnerID=40&md5=713d7483f4458401d95570c1a7364c53>

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah Private University of Jordan, Amman, Jordan;

Department of Digital Marketing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The purpose of this study is to examine the impact of intellectual capital (IC) components and absorptive capacity (ACAP) on entrepreneurial orientation (EO). Furthermore, it attempts to investigate the mediating role of ACAP between intellectual components and EO.

Design/methodology/approach: Using a self-administered survey to sample the Jordanian pharmaceutical industry, the research measurement scale was adapted from previous studies, and data were collected from 24 pharmaceutical companies. The proposed conceptual model and associated hypotheses were tested using structural equation modeling. Findings: The empirical findings indicate that relational capital (RC) and structural capital (SC) have a significant impact on EO and account for 72.2% of this aspect. However, it is somewhat unexpected to find that human capital does not have a significant direct impact on EO. ACAP positively mediates the relationships between RC and SC and EO. Finally, this study has several theoretical and practical implications with regard to the business literature and management practices. Originality/value: This research bridges gaps in the literature and highlights the importance of ACAP in knowledge-based industries. The assessment and estimation of how knowledge ACAP is associated with entrepreneurship orientation has not been previously provided. From a practical perspective, the findings of this research can be used by firms in the pharmaceutical industry to enhance ACAP and better exploit their IC, leading to a more proactive and innovative entrepreneurship orientation. This, in turn, can lead to the development a new products and services. Furthermore, by examining the mediating role of ACAP between intellectual capacity components and EO in the pharmaceutical industry, the research contributes to the growing body of literature on entrepreneurship orientation in developing countries. © 2023, Emerald Publishing Limited.

Mizher, M.A., Sihwail, R., Baker, M.B., Mazhar, A.A., Mizher, M.A., Ibrahim, D.

A review of cybersecurity for internet-of-things based on next generation healthcare networks

(2023) AIP Conference Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177692281&doi=10.1063%2f5.0174729&partnerID=40&md5=a02a1ae5ecdb7ec433d26f4fa04ce434)

[85177692281&doi=10.1063%2f5.0174729&partnerID=40&md5=a02a1ae5ecdb7ec433d26f4fa04ce434](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177692281&doi=10.1063%2f5.0174729&partnerID=40&md5=a02a1ae5ecdb7ec433d26f4fa04ce434)

AFFILIATIONS: Department of Cyber Security, Faculty of Computer Sciences and Informatics, Amman Arab University, Amman, Jordan;

Department of Computer Information System, Faculty of Computer Sciences and Informatics, Amman Arab University, Amman, Jordan;

Department of Mass Communication, University of Sharjah, Sharjah, United Arab Emirates;

Department of Cyber Security, Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The Internet of Things (IoT) plays a well-known role in connecting physical and virtual objects to exchange information. IoT environments can connect billions of devices and objects, and

each one has a unique identity. IoT is regarded as one of the most revolutionary technologies of the last few years. It focuses on many fields, including healthcare, industry, agriculture, military applications, and space science. Consequently, it is more vulnerable to cyber-attacks. This paper presents a comprehensive review and classification of cybersecurity schemes used in IoT-based healthcare and categorizes them based on the cybersecurity techniques applied in each method. Research on cybersecurity for IoT systems in healthcare has been conducted between 2011 and 2022 in the context of this survey © 2023 Author(s).

Abdul Ghani, Y., Makki, Q., Abdalla, A., Tamimi, A.

A multi-buffer congestion resolution scheme using prioritization and shortest path algorithms (2023) AIP Conference Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177680911&doi=10.1063%2f5.0176916&partnerID=40&md5=0e60a8a4d9ca64a43a8b928184f34e0b)

[85177680911&doi=10.1063%2f5.0176916&partnerID=40&md5=0e60a8a4d9ca64a43a8b928184f34e0b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177680911&doi=10.1063%2f5.0176916&partnerID=40&md5=0e60a8a4d9ca64a43a8b928184f34e0b)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: With the spread of the Internet and a large number of network users, the problem of congestion on the network has arisen. This paper presents a strategy to reduce network congestion using clustering algorithms, K-means, and shortest path algorithms. The paper aims to solve the problems of congestion control, access to quality of service, reduce time wasted when sending and receiving network users, take advantage of network devices, and provide quality of service without data loss. The results of the proposed system simulation showed its effectiveness and accuracy through the simulation of the system. © 2023 Author(s).

Makki, Q., Abdelgani, Y., Al Zu'Bi, S.

Developing off-chain system interfaces in health and pharmaceutical blockchain applications (2023) AIP Conference Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177661611&doi=10.1063%2f5.0176908&partnerID=40&md5=83c36330940f67775d4fb377c42b8e65)

[85177661611&doi=10.1063%2f5.0176908&partnerID=40&md5=83c36330940f67775d4fb377c42b8e65](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177661611&doi=10.1063%2f5.0176908&partnerID=40&md5=83c36330940f67775d4fb377c42b8e65)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In the current era, society is searching for the best and most secure ways in the field of health. The biggest role is security and speed in implementation. These challenges are almost completely solved with the applications of blockchain, as they provide a very large and safe field for preserving and accessing information. In this study, we present the idea of having more than one chain in the medical field, and how those chains interblock and interblock communicate decentralized communication through the healthcare systems. © 2023 Author(s).

Hendawi, S., Tamimi, A.A., Zoubi, S.A.

Intelligent recommender system in social media platforms

(2023) AIP Conference Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177642354&doi=10.1063%2f5.0176896&partnerID=40&md5=fec10f894a5a1338ac81f517d9a98714)

[85177642354&doi=10.1063%2f5.0176896&partnerID=40&md5=fec10f894a5a1338ac81f517d9a98714](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177642354&doi=10.1063%2f5.0176896&partnerID=40&md5=fec10f894a5a1338ac81f517d9a98714)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Recommendation systems are an important feature in our computerized world, where users are often stuck with choices most of the time and need help to be able to find what they are looking for. Since we cannot search the website for all the content and products, whether books, clothes, or others, the primary goal of recommendation systems is to help all users on websites find what they are looking for. Artificial intelligence has contributed to the development of recommendation systems to improve prediction accuracy. This paper presents a comparative study of approaches in recommender systems, starting with a general presentation of each, and then addressing the advantages, limitations, and techniques. All the notes in the paper will help researchers to understand new trends and developments in recommender systems. © 2023 AIP Publishing LLC.

Sunoqrot, S., Abusulieh, S., Abusara, O.H.

Identifying synergistic combinations of Doxorubicin-Loaded polyquercetin nanoparticles and natural Products: Implications for breast cancer therapy

(2023) International Journal of Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171138449&doi=10.1016%2fj.ijpharm.2023.123392&partnerID=40&md5=cde4e6abf23f822b5580d6c5eaa133be)

[85171138449&doi=10.1016%2fj.ijpharm.2023.123392&partnerID=40&md5=cde4e6abf23f822b5580d6c5eaa133be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171138449&doi=10.1016%2fj.ijpharm.2023.123392&partnerID=40&md5=cde4e6abf23f822b5580d6c5eaa133be)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Combining chemotherapeutic agents with bioactive natural products is an attractive cancer treatment modality to reduce the dose and side effects of chemotherapy. Combination treatments with drugs having different mechanisms of action can also be beneficial in combatting the development of

drug resistance by cancer cells. Nanoparticle (NP)-mediated drug delivery can further improve the therapeutic index of cytotoxic agents by enabling passive and/or active targeting to tumor tissues in vivo. Using doxorubicin (DOX) as a model chemotherapeutic agent, we developed three NP formulations based on polyquercetin (pQCT), an emerging nanocarrier platform. The NPs were co-assembled with DOX, pQCT, and either Pluronic P123, methoxy poly(ethylene glycol)-amine, or D- α -tocopheryl poly(ethylene glycol) 1000 succinate (TPGS). Physicochemical characterization of the NPs revealed them to have a spherical morphology with high monodispersity, excellent drug loading capacity, and sustained drug release. Then, the NPs were evaluated in vitro to determine their potential synergism when combined with the bioactive natural products curcumin (CUR), tannic acid (TA), and thymoquinone (TQ) against breast cancer cells (MCF-7 and MDA-MB-231). Surprisingly, most of the combinations were found to be antagonistic. However, combinations containing CUR exhibited greater pro-apoptotic effects compared to the single agents, with polymer-modified pQCT NPs presenting as a promising nanoplatfor for enhancing DOX's ability to promote cancer cell apoptosis. Our findings provide insights into the potential application of pQCT in nanomedicine, as well as the use of bioactive natural products in combination with DOX as a free agent and as an NP formulation in the treatment of breast cancer. © 2023 Elsevier B.V.

Elsayed, A., Jaber, N., Al-Remawi, M., Abu-Salah, K.

From cell factories to patients: Stability challenges in biopharmaceuticals manufacturing and administration with mitigation strategies

(2023) International Journal of Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169909280&doi=10.1016%2fj.ijpharm.2023.123360&partnerID=40&md5=798024173d1620d6c5ea64047d1908f7)

[85169909280&doi=10.1016%2fj.ijpharm.2023.123360&partnerID=40&md5=798024173d1620d6c5ea64047d1908f7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169909280&doi=10.1016%2fj.ijpharm.2023.123360&partnerID=40&md5=798024173d1620d6c5ea64047d1908f7)

AFFILIATIONS: College of Pharmacy, Taif University, Taif, 21944, Saudi Arabia;

Faculty of Pharmacy, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Pharmacy & Medical Sciences, University of Petra, Amman, 1196, Jordan;

King Saud Bin Abdulaziz University for Health Sciences, King Abdullah International Medical Research Center, Department of Nanomedicine, Riyadh, Saudi Arabia

ABSTRACT: Active ingredients of biopharmaceuticals consist of a wide array of biomolecular structures, including those of enzymes, monoclonal antibodies, nucleic acids, and recombinant proteins. Recently, these molecules have dominated the pharmaceutical industry owing to their safety and efficacy. However, their manufacturing is hindered by high cost, inadequate batch-to-batch equivalence, inherent instability, and other quality issues. This article is an up-to-date review of the challenges encountered during different stages of biopharmaceutical production and mitigation of problems arising during their development, formulation, manufacturing, and administration. It is a broad overview discussion of stability issues encountered during product life cycle i.e., upstream processing (aggregation, solubility, host cell proteins, color change), downstream bioprocessing (aggregation, fragmentation), formulation, manufacturing, and delivery to patients. © 2023 Elsevier B.V.

Alia, M.A., Jaradat, Y., Alshehadeh, A.R.

Key Analysis of Integer Factorizing based Public-Key Cryptosystems Using Machine Learning

(2023) ACM International Conference Proceeding Series, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183894220&doi=10.1145%2f3633598.3633599&partnerID=40&md5=a01c52aa0a6a1b2fd51b3c009177c66e)

[85183894220&doi=10.1145%2f3633598.3633599&partnerID=40&md5=a01c52aa0a6a1b2fd51b3c009177c66e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183894220&doi=10.1145%2f3633598.3633599&partnerID=40&md5=a01c52aa0a6a1b2fd51b3c009177c66e)

AFFILIATIONS: Faculty of Science and It, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper discusses the possibilities of using machine learning models to analyze the keys in public key encryption algorithms that are based on various mathematical hard problems. Given their distinct domains within computer science, machine learning and public key cryptosystems may appear unrelated at first glance. Nonetheless, there are intriguing correlations and potential points of convergence between these two domains. In general, machine learning models have the potential to help with differential cryptanalysis, a technique that uses statistical differences between plaintext-ciphertext pairs to deduce parts of the key. As a result, breaking encryption keys using machine learning is a complex and evolving research area that investigates cryptanalysis machine learning techniques. While public key encryption algorithms were designed to be secure against various attacks such as brute force, advances in computing power and machine learning have raised concerns about the potential emergence of new attack vectors. © 2023 ACM.

Alzoubi, M.M., Hayati, K.S., Rosliza, A.M., Al-Zoubi, K.M., AL-Mugheed, K., Alsenany, S.A., Oweidat, I., Abdelaliem, S.M.F.

Effect of total quality management intervention on nurse commitment and nurse performance A quasi-experimental study

(2023) Medicine (United States), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173391631&doi=10.1097%2fMD.000000000035390&partnerID=40&md5=5caba15c61b49bc71aed5c9d6417a048)

85173391631&doi=10.1097%2fMD.000000000035390&partnerID=40&md5=5caba15c61b49bc71aed5c9d6417a048

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Medicine and Health Sciences, Community Health Department, Universiti Putra Malaysia, Malaysia;

Department of Banking and Financial Sciences, Irbid National University, Irbid, Jordan;

College of Nursing, Riyadh Elm University, Riyadh, Saudi Arabia;

Department of Community Health Nursing, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia;

Department of Nursing Management, Zarqa University, Zarqa, Jordan;

Department of Nursing Management and Education, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia

ABSTRACT: Background: The purpose of this study is to design, implement, and evaluate the impact of a total quality management intervention on job performance and commitment among Jordanian nurses working in government hospitals. Methods: A quasi-experimental multiple time series was conducted starting in September 2017 and ending in June 2018. 140 nurses were sampled using the proportionate stratified random sampling technique; 132 were completed the study 67 the intervention group, while 65 in the control group. Results: There were no significant differences in nurses' job performance or commitment between the 2 groups (control and intervention). A repeated measure MANOVA test for both groups revealed that the interaction between group and time was statistically significant ($F(4, 127) = 144.841$; $P = .001$; Wilk's $\Lambda = 0.180$; $\eta^2 = .820$), indicating that groups had a significantly different pattern of job performance and commitment over time. A repeated test The MANCOVA test for both groups across time revealed significant differences in nurses' job performance and nurses' commitment at a less than 0.05 significance level ($F(2127) = 320.724$; $P = .001$; Wilk's $\Lambda = 0.165$; $\eta^2 = 0.835$), and the overall effect of time was significant for all dependent variables ($F(4125) = 36.879$; $P = .001$; Wilk's $\Lambda = 0.459$; $\eta^2 = 0.541$). Conclusion: The educational intervention was effective in improving nursing job performance among the study sample. The improved commitment of respondents in the intervention group was attributed to the improvement in job performance. Abbreviations: TQM = total quality management. © 2023 Lippincott Williams and Wilkins. All rights reserved.

Hijazi, R.

The moderating effect of knowledge-sharing on learning organisation and quality improvement practices (2023) Business Process Management Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165616045&doi=10.1108%2fBPMJ-12-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165616045&doi=10.1108%2fBPMJ-12-2022-0647&partnerID=40&md5=d9d10fe9d49efc19250561621d98f2c7)

0647&partnerID=40&md5=d9d10fe9d49efc19250561621d98f2c7

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The aim of this research is to determine the impact of a learning organisation (LO) on developing quality improvement practices (QIPs) and to propose knowledge-sharing (KS) as a moderator which is anticipated to support the beneficial effect of a LO on QIP. A further objective is to establish whether training provision raises the abilities of healthcare organisations (HCOs) to attain greater standards of QIP via a LO and KS. Design/methodology/approach: A total of 240 responses, obtained from employees working at private HCOs in Jordan, comprised the valid dataset. Structural equation modeling (SEM) was utilised for data analysis. Multigroup analysis (MGA) was performed to compare the impact of workers who had or had not undergone training. Findings: The findings indicated that QIP was significantly enhanced by LO. HCOs with the objective of converting a KS-moderated LO could attain improved QIP standards, but within the surveyed establishments, this effect was only appreciated at modest degrees. By performing MGA, no variations were identified in the impact of workers. Practical implications: Managers should place more emphasis on training and learning within HCOs. However, respondents did indicate that their establishments had notable degrees of KS, suggesting a potential strength that could be used positively by the managerial hierarchy. Originality/value: This study encompasses an original contribution to contemporary scholarship in the field of knowledge management and quality through its examination of the moderating effect of KS on LO and QIP. © 2023, Emerald Publishing Limited.

Alqbailat, N.M., Hicham, K.B., Abu Qattam, M.F.

Barriers of Culture Integration Into Distance EFL Teaching: Teachers' Perspectives

(2023) Theory and Practice in Language Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173727237&doi=10.17507%2ftpls.1310.25&partnerID=40&md5=bcf5c1bd54eb95fc01bb2938685a9e32)

85173727237&doi=10.17507%2ftpls.1310.25&partnerID=40&md5=bcf5c1bd54eb95fc01bb2938685a9e32

AFFILIATIONS: Al-Balqa Applied University, Amman, Jordan;

English Department, University Sultan My Slimane, Beni Mellal, Morocco;

Department of Basic Sciences, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The present study aims to investigate teachers' attitudes toward the integration of culture within the distance English language education process. With relevant theoretical background, this

paper will particularly probe EFL teachers' perceptions of the barriers hindering them from integrating culture into their distance learning (DL) classes. Data was collected from 66 teachers of secondary schools in different cities in Morocco and Jordan following the mixed method research design (questionnaires and interviews). The findings demonstrated that teachers exhibited enough willingness to support the cultural objectives, yet limited is the culture integration in the distance teaching of the English language. Based on the study findings, this study offers some inferences and recommendations for curriculum developers, material designers, teachers, and practitioners who already use or are considering using online tools with regard to culture learning and the teaching process. © 2023 ACADEMY PUBLICATION.

Al-Nana, A.A., Batiha, I.M., Momani, S.

A Numerical Approach for Dealing with Fractional Boundary Value Problems

(2023) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175721045&doi=10.3390%2fmath11194082&partnerID=40&md5=c0a2be558b2e7e11e143d543c47ca8d6)

[85175721045&doi=10.3390%2fmath11194082&partnerID=40&md5=c0a2be558b2e7e11e143d543c47ca8d6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175721045&doi=10.3390%2fmath11194082&partnerID=40&md5=c0a2be558b2e7e11e143d543c47ca8d6)

AFFILIATIONS: Department of Mathematics, Prince Sattam Bin Abdulaziz University, Alkharj, 11942, Saudi Arabia;

Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates;

Department of Mathematics, Faculty of Science, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: This paper proposes a novel numerical approach for handling fractional boundary value problems. Such an approach is established on the basis of two numerical formulas; the fractional central formula for approximating the Caputo differentiator of order (Formula presented.) and the fractional central formula for approximating the Caputo differentiator of order (Formula presented.), where (Formula presented.). The first formula is recalled here, whereas the second one is derived based on the generalized Taylor theorem. The stability of the proposed approach is investigated in view of some formulated results. In addition, several numerical examples are included to illustrate the efficiency and applicability of our approach. © 2023 by the authors.

Hammad, M.A., Shah, R., Alotaibi, B.M., Alotiby, M., Tiofack, C.G.L., Alrowaily, A.W., El-Tantawy, S.A.

On the modified versions of $G'G$ -expansion technique for analyzing the fractional coupled Higgs system

(2023) AIP Advances, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175705667&doi=10.1063%2f5.0167916&partnerID=40&md5=566d540ffea879b3802c6f76374baafb)

[85175705667&doi=10.1063%2f5.0167916&partnerID=40&md5=566d540ffea879b3802c6f76374baafb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175705667&doi=10.1063%2f5.0167916&partnerID=40&md5=566d540ffea879b3802c6f76374baafb)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Abdul Wali Khan University, Mardan, 23200, Pakistan;

Department of Computer Science and Mathematics, Lebanese American University, Beirut, Lebanon;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Nuclear Technologies Institute (NTI), King Abdulaziz City for Science & Technology (KACST), P.O. Box 6086, Riyadh, 11442, Saudi Arabia;

Higher Teachers' Training College, University of Maroua, P.O. Box 55, Maroua, Cameroon;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah, Al-Baha University, Al-Baha, 1988, Saudi Arabia

ABSTRACT: In this research, two modified forms of the $G'G$ -expansion method are employed to investigate various kinds of solitary wave solutions that include kink, lump, periodic, and rogue wave solutions within the framework of the fractional coupled Higgs system. The underlying patterns in the targeted model are revealed by using extended and generalized G' -expansion methods. The first step involves converting the model into nonlinear ordinary differential equations via a fractional complex transformation. Following that, the suggested improved versions of the G' -expansion approach are used to provide numerous solitary wave solutions. Some solitary wave solutions are represented by two- and three-dimensional graphs, demonstrating their typical propagating behavior. This research finishes by summarizing the vast findings and exploring their implications for high-energy physics. © 2023 Author(s).

Hammad, M.A., Khalid, M., Alrowaily, A.W., Tiofack, C.G.L., El-Tantawy, S.A.

Ion-acoustic cnoidal waves in a non-Maxwellian plasma with regularized κ -distributed electrons

(2023) AIP Advances, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175399055&doi=10.1063%2f5.0172991&partnerID=40&md5=ba52e503fb1af3716300dfdca17722c5)

[85175399055&doi=10.1063%2f5.0172991&partnerID=40&md5=ba52e503fb1af3716300dfdca17722c5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175399055&doi=10.1063%2f5.0172991&partnerID=40&md5=ba52e503fb1af3716300dfdca17722c5)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Physics, Government Post Graduate College Swabi, Swabi, Khyber Pakhtunkhwa, 23431,

Pakistan;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Faculty of Sciences, University of Maroua, P.O. Box 814, Maroua, Cameroon;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah, Al-Baha University, Al-Baha, 1988, Saudi Arabia

ABSTRACT: This study examines how regularized kappa distributed (RKD) electrons affect the characteristics of the ion-acoustic cnoidal waves (IACWs) in normal plasma. The RKD is a generalized form of the standard kappa distribution that accounts for the impacts of thermal broadening and finite size effects on the plasma particles. By employing the reductive perturbation technique, the Korteweg-de Vries equation is derived, and its nonlinear cnoidal wave (CW) solution is obtained and analyzed both analytically and numerically. It is found that the amplitude of compressive IACWs increases with an enhanced cutoff parameter α and decreases with increasing superthermality κ . Rarefactive IACWs yield opposing results as compared to compressive IACWs under the impact of κ and α . The results provide insight into the behavior of CWs in normal plasmas with non-Maxwellian distributions and contribute to the understanding of wave-particle interactions in laboratory and space plasmas. © 2023 Author(s).

Sunjuk, M., Al-Najjar, L., Shtaiwi, M., El-Eswed, B.I., Sweidan, K., Bernhardt, P.V., Zalloum, H., Al-Essa, L.

Metal Complexes of Schiff Bases Prepared from Quinoline-3-Carbohydrazide with 2-Nitrobenzaldehyde, 2-Chlorobenzaldehyde and 2,4-Dihydroxybenzaldehyde: Structure and Biological Activity

(2023) *Inorganics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175375521&doi=10.3390%2finorganics11100412&partnerID=40&md5=1b72d90e5da7a4eb6fccbcc1a8f296b)

[85175375521&doi=10.3390%2finorganics11100412&partnerID=40&md5=1b72d90e5da7a4eb6fccbcc1a8f296b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175375521&doi=10.3390%2finorganics11100412&partnerID=40&md5=1b72d90e5da7a4eb6fccbcc1a8f296b)

AFFILIATIONS: Department of Chemistry, Faculty of Science, The Hashemite University, Zarqa, 13133, Jordan;

Department of Basic Sciences, Zarqa College, Al-Balqa Applied University, Al Salt, 19117, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan;

School of Chemistry and Molecular Biosciences, University of Queensland, Brisbane, 4072, Australia;

Hamdi Mango Center for Scientific Research (HMCSR), The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Three Schiff base ligands, NQ, CQ and HQ, were prepared from the reaction of quinoline-3-carbohydrazide with 2-nitrobenzaldehyde, 2-chlorobenzaldehyde and 2,4-dihydroxybenzaldehyde, respectively, and were investigated for their coordination to Cu (II), Ni(II), Co(II), Cd(II), Cr(III) and Fe(III) chlorides. The NQ preparation and the X-ray structure of NQ and CQ, as well as the transition metal complexes of NQ, CQ and HQ, were reported for the first time. FTIR, 1H-NMR, magnetic susceptibility and elemental analysis were used to study the coordination of ligands to the metal ions. Based on the magnetic susceptibility and elemental analysis results, octahedral structures of the complexes such as [CuL2Cl(OH)], [FeL2Cl2(OH)] and [CoL2Cl(OH)] were proposed for L = NQ, CQ and HQ. The relatively large Cd(II) exhibited [CdL3(OH)2]. The FTIR study revealed that NQ and CQ are coordinated to the metal ions via azomethine nitrogen and carbonyl oxygen while HQ through azomethine nitrogen and phenolic oxygen. Despite the high solvation power of DMSO solvent in 1H-NMR experiments, the azomethine HC=N peak at 9.3 ppm is the most affected by complexation with metal ions. On the other hand, quinoline nitrogen seems to be a weaker coordinating site than the azomethine nitrogen. The HQ ligand, containing phenolic groups, and its complexes with Cu and Ni were found to have inhibitory effects on human breast adenocarcinoma MCF-7 and human chronic myelogenous leukemia K562. Nevertheless, metal ions did not exhibit a significant synergistic effect on the antiproliferative activity of the ligands investigated. © 2023 by the authors.

Jarrar, Y., Abdul-Wahab, G., Mosleh, R., Abudahab, S., Jarrar, Q., Hamdan, A., Qadous, S.G., Balasmeh, R., Abed, A.F., Ibrahim, Y., Al-Doaiss, A.A., AlShehri, M.A.

Does Ramadan Intermittent Fasting Affect the Fasting Blood Glucose Level among Type II Diabetic Patients?

(2023) *Journal of Clinical Medicine*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175375175&doi=10.3390%2fjcm12206604&partnerID=40&md5=58e02f404ee072eadea9d22cf5e371c3)

[85175375175&doi=10.3390%2fjcm12206604&partnerID=40&md5=58e02f404ee072eadea9d22cf5e371c3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175375175&doi=10.3390%2fjcm12206604&partnerID=40&md5=58e02f404ee072eadea9d22cf5e371c3)

AFFILIATIONS: Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Oral Surgery and Periodontology, College of Dentistry, Al-Mustansiryia University, Baghdad, 10052, Iraq;

Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, 00970, Palestine;

Department of Pharmacotherapy and Outcomes Science, School of Pharmacy, Virginia Commonwealth

University, Richmond, VA 23284, United States;
 Department of Pharmaceutical Science, Al-Isra'a University, Amman, 11622, Jordan;
 Department of Anesthesia and Resuscitation Technology, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, 00970, Palestine;
 Department of Nursing and Midwifery, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, 00970, Palestine;
 Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
 AlSaidaly Scientific Bureau, Baghdad, 10542, Iraq;
 Biology Department, College of Science, King Khalid University, Abha, 61413, Saudi Arabia

ABSTRACT: Background: The level of fasting blood glucose (FBG) is influenced by several factors, including health status, genetics, and diet. Some studies have reported a beneficial effect of Ramadan Intermittent Fasting (RIF) on diabetic patients. However, clinical observations have shown that diabetes is exacerbated in some patients. Aim: This study aims to investigate the influence of RIF on the FBG level, a biomarker of hyperglycemia and diabetes, and to identify factors associated with variations in FBG levels during RIF among diabetic patients. Methods: This study is a cross-sectional study. We monitored the FBG levels of 181 type II diabetic patients over a two-month period, from 20 February to 20 April 2023, which represents the Islamic lunar months of Shaban (8th month) and Ramadan (9th month). Ramadan provides a prominent month of intermittent fasting practice for studying its physiological effects on diabetes. We collected clinical data from each participant, including demographic information, co-morbidities, and medications used during this period. Results: Based on our findings, diabetic patients were classified into three groups depending on the influence of RIF on FBG levels: the positively affected group (44%), whose average FBG levels were reduced; the neutrally affected group (24%), whose average FBG levels did not change; and the negatively affected group (32%), whose average FBG levels increased during the fasting month of Ramadan compared to the previous month. Furthermore, we found that the positive effect of RIF was more frequent among obese, non-geriatric, and male diabetic patients, while the negative effect of RIF was more frequent among patients who were not adhering to the medication. Conclusions: This study concludes that RIF affects FBG levels differently among diabetic patients. These findings should be taken into consideration when treating diabetic patients during the fasting month of Ramadan, and further studies are needed to identify (1) factors associated with inter-individual variation in the response to RIF and (2) those who are great candidates for RIF. © 2023 by the authors.

Jarab, A.S., Al-Qerem, W., Alzoubi, K.H., Abu Heshmeh, S., Mukattash, T.L., Naser, A.Y., Al Hamarneh, Y.N.

Health-related quality of life and its associated factors in patients with chronic obstructive pulmonary disease

(2023) PLoS ONE, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175273651&doi=10.1371%2fjournal.pone.0293342&partnerID=40&md5=5be16ae2bdfb995d0b0ac924f716891f)

[85175273651&doi=10.1371%2fjournal.pone.0293342&partnerID=40&md5=5be16ae2bdfb995d0b0ac924f716891f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175273651&doi=10.1371%2fjournal.pone.0293342&partnerID=40&md5=5be16ae2bdfb995d0b0ac924f716891f)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Applied Pharmaceutical Sciences and Clinical Pharmacy, Faculty of Pharmacy, Isra University, Amman, Jordan;

Department of Pharmacology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Canada

ABSTRACT: Objective The present study aimed to evaluate HRQOL and to explore the factors associated with poor HRQOL among patients with COPD. Methods In the present cross-sectional study, the validated St George's Respiratory Questionnaire for COPD patients (SGRQ-C) was used to evaluate HRQOL among 702 patients with COPD at two major hospitals in Jordan in the period between January and April 2022. Quantile regression analysis was used to explore the factors associated with HRQOL among the study participants. Results According to SGRQ-C, the HRQOL of the study participants was greatly impaired with a total SGRQ of 55.2 (34-67.8). The highest impairment in the HRQOL was in the impact domain with a median of 58.7 (29-76.3). Increased number of prescribed medications ($\beta = 1.157$, $P < 0.01$), older age ($\beta = 0.487$, $P < 0.001$), male gender ($\beta = 5.364$, $P < 0.01$), low education level ($\beta = 9.313$, $P < 0.001$), low and moderate average income ($\beta = 6.440$, $P < 0.05$, and $\beta = 6.997$, $P < 0.01$, respectively) were associated with poorer HRQOL. On the other hand, being married ($\beta = -17.122$, $P < 0.001$), living in rural area ($\beta = -6.994$, $P < 0.01$), non-use of steroids inhalers ($\beta = -3.859$, $P < 0.05$), not receiving long acting muscarinic antagonists (LAMA) ($\beta = -9.269$, $P < 0.001$), not receiving LABA ($\beta = -8.243$, $P < 0.001$) and being adherent to the prescribed medications ($\beta = -6.016$, $P < 0.001$) were associated with improved HRQOL. Furthermore, lower disease severity (stage A, B, and C) ($\beta = -23.252$, -10.389 , and

-9.696 respectively, $P < 0.001$), and the absence of comorbidities ($\beta = -14.303$, $P < 0.001$) were associated with better HRQOL. Conclusions In order to maximize HRQOL in patients with COPD, future COPD management interventions should adopt a multidisciplinary approach involving different healthcare providers, which aims to provide patient-centered care, implement personalized interventions, and improve medication adherence, particularly for patients who are elderly, males, have low socioeconomic status, receive multiple medications and have multiple comorbid diseases. © 2023 Jarab et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abu Dayyih, W., Rasras, A.A., Hailat, M., Karaki, R., Deeb, A.A., Al-Ani, I., AlTamimi, L.N., Zakaraya, Z., Matalqah, S.M., Mareekh, B., Alkhader, E., Abu-Nameh, E.S.M.
Determination of Five Phosphodiesterase-5 Inhibitors in Multiple Honey-Based Consumer Products by Chromatographic Technique in Rat Plasma
(2023) Processes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175146952&doi=10.3390%2fpr11103019&partnerID=40&md5=06f4420923d05bd49ad1babb6cb0f71b)

[85175146952&doi=10.3390%2fpr11103019&partnerID=40&md5=06f4420923d05bd49ad1babb6cb0f71b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175146952&doi=10.3390%2fpr11103019&partnerID=40&md5=06f4420923d05bd49ad1babb6cb0f71b)

AFFILIATIONS: Faculty of Pharmacy, Mutah University, Al-Karak, 61710, Jordan;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Faculty of Science, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Faculty of Pharmacy, Zarqa University, Al Zarqa, 13110, Jordan;

Pharmacological and Diagnostic Research Centre, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Planning and Resource Development Department, Al Anbar Health Directorate, Ministry of Health, Al Anbar31001, Iraq;

Faculty of Pharmacy, Middle East University, Amman, 11831, Jordan

ABSTRACT: This study aimed to develop and verify a simple HPLC-based quantitative approach to simultaneously determine the phosphodiesterase-5 inhibitors (PDE5Is) sildenafil, vardenafil, udenafil, avanafil, and tadalafil in a tablet dosage form mixed with honey obtained from Jordanian market in rat plasma. PDE5Is block phosphodiesterase-5 (PDE-5). This blockage, in turn, triggers vasodilation by phosphorylating downstream effector molecules. Chromatographic separation was performed on a Hypersil™ C18 column (150 mm × 4.6 mm, 5 μm, Thermo Fisher Inc., Waltham, MA, USA). An acetonitrile:10% Triethylamine solution (57:43) at pH 5.5 (adjusted with orthophosphoric acid), 20 μL injection volume, 1 mL/min flow rate, 25 °C temperature, and eluent monitoring at 250 nm was used to execute the current approach. Linearity was observed in the 9.6–14.4 μg/mL concentration ranges for sildenafil, udenafil, avanafil, and tadalafil, and 2.4–3.6 μg/mL for vardenafil. Each dosage form was recovered within acceptable limits at three distinct concentrations, and the assay selectivity indicated no interference from the inactive substances in the formulation. Sildenafil, vardenafil, udenafil, avanafil, and tadalafil had retention times of 3.5, 4.3, 6.2, 9.7, and 12.8 min, respectively, and tadalafil was 12.8 min. The present analytical method is comprehensive and universal for measuring the five drugs. Such an analytical method can be routinely used to detect the combination of these drugs. © 2023 by the authors.

Ikhmais, B.A., Hammad, A.M., Abusara, O.H., Hamadneh, L., Abumansour, H., Abdallah, Q.M., Ibrahim, A.I.M., Elsalem, L., Awad, M., Alshehada, R.

Investigating Carvedilol's Repurposing for the Treatment of Non-Small Cell Lung Cancer via Aldehyde Dehydrogenase Activity Modulation in the Presence of β-Adrenergic Agonists

(2023) Current Issues in Molecular Biology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175084668&doi=10.3390%2fcimb45100505&partnerID=40&md5=1465d95427bec76fd28c8afad6ea2763)

[85175084668&doi=10.3390%2fcimb45100505&partnerID=40&md5=1465d95427bec76fd28c8afad6ea2763](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175084668&doi=10.3390%2fcimb45100505&partnerID=40&md5=1465d95427bec76fd28c8afad6ea2763)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, P.O. Box 206, Al-Salt, 19117, Jordan;

Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, P.O. Box 961343, Amman, 11196, Jordan;

Department of Pharmacology, Faculty of Medicine, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan

ABSTRACT: Repurposing existing drugs appears to be a potential solution for addressing the challenges in the treatment of non-small cell lung cancer (NSCLC). β-adrenoceptor antagonist drugs (β-blockers) have tumor-inhibiting effects, making them promising candidates for potential NSCLC treatment. This study investigates the anticancer potential of a subset of β-blockers in NSCLC cell lines; A549 and H1299. Additionally, it investigates the underlying mechanism behind β-blockers' anticancer effect by

influencing a potential novel target named aldehyde dehydrogenase (ALDH). The MTT assay assessed β -blockers' cytotoxicity on both cell lines, while Western blot and NADH fluorescence assays evaluated their influence on ALDH protein expression and activity. Carvedilol (CAR) was the most effective blocker in reducing cell survival of A549 and H1299 with IC50 of 18 μ M and 13.7 μ M, respectively. Significantly, CAR led to a 50% reduction in ALDH expression and 80% decrease in ALDH activity in A549 cells, especially when combined with β -agonists, in comparison to the control. This effect might be attributed to β -agonist blockade or an alternative pathway. This novel finding adds to our understanding of CAR's multifaceted anticancer properties, implying that combining CAR with β -agonists could be a useful strategy for lung cancer treatment. © 2023 by the authors.

Hamadneh, T., Ahmed, S.B., Al-Tarawneh, H., Alsayyed, O., Gharib, G.M., Al Soudi, M.S., Abbes, A., Ouannas, A.

The New Four-Dimensional Fractional Chaotic Map with Constant and Variable-Order: Chaos, Control and Synchronization

(2023) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175076141&doi=10.3390%2fmath11204332&partnerID=40&md5=19547d5ac29023483fa3f9b4a44e402c)

[85175076141&doi=10.3390%2fmath11204332&partnerID=40&md5=19547d5ac29023483fa3f9b4a44e402c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175076141&doi=10.3390%2fmath11204332&partnerID=40&md5=19547d5ac29023483fa3f9b4a44e402c)

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11931, Jordan;

Department of Mathematics, The University of Jordan, Amman, 11942, Jordan;

Department of Data Sciences and Artificial Intelligence, Al-Ahliyya Amman University, Amman, 11942, Jordan;

Department of Mathematics, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Department of Mathematics, Faculty of Science, Zarqa University, Zarqa, 13110, Jordan;

Department of Basic Scientific Sciences, Applied Science Private University, Amman, 11942, Jordan;

Laboratory of Mathematics, Dynamics and Modelization, Badji Mokhtar-Annaba University, Annaba, 23000, Algeria;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: Using fractional difference equations to describe fractional and variable-order maps, this manuscript discusses the dynamics of the discrete 4D sinusoidal feedback sine iterative chaotic map with infinite collapse (ICMIC) modulation map (SF-SIMM) with fractional-order. Also, it presents a novel variable-order version of SF-SIMM and discusses their chaotic dynamic behavior by employing a distinct function for the variable fractional-order. To establish the existence of chaos in the suggested discrete SF-SIMM, some numerical methods such as phase plots, bifurcation and largest Lyapunov exponent diagrams, (Formula presented.) complexity and θ -1 test are utilized. After that, two different control schemes are used for the conceived discrete system. The states are stabilized and asymptotically forced towards zero by the first controller. The second controller is used to synchronize a pair of maps with non-identical parameters. Finally, MATLAB simulations will be executed to confirm the results provided. © 2023 by the authors.

Alharbi, R., Oudetallah, J., Shatnawi, M., Batiha, I.M.

On c-Compactness in Topological and Bitopological Spaces

(2023) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175044300&doi=10.3390%2fmath11204251&partnerID=40&md5=dee3e762c027281bc276d4078f9cc284)

[85175044300&doi=10.3390%2fmath11204251&partnerID=40&md5=dee3e762c027281bc276d4078f9cc284](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175044300&doi=10.3390%2fmath11204251&partnerID=40&md5=dee3e762c027281bc276d4078f9cc284)

AFFILIATIONS: Department of Mathematics, Jazan University, Jazan, 2097, Saudi Arabia;

Department of Mathematics, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman 346, United Arab Emirates

ABSTRACT: The primary goal of this research is to initiate the pairwise c-compact concept in topological and bitopological spaces. This would make us to define the concept of c-compact space with some of its generalization, and present some necessary notions such as the H-closed, the quasi compact and extremely disconnected compact spaces in topological and bitopological spaces. As a consequence, we derive numerous theoretical results that demonstrate the relations between c-separation axioms and the c-compact spaces. © 2023 by the authors

Hamadneh, T., Abbes, A., Al-Tarawneh, H., Gharib, G.M., Salameh, W.M.M., Al Soudi, M.S., Ouannas, A.

On Chaos and Complexity Analysis for a New Sine-Based Memristor Map with Commensurate and Incommensurate Fractional Orders

(2023) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175036940&doi=10.3390%2fmath11204308&partnerID=40&md5=c9b64b0d48a8b41bac87b848ca55beb1)

[85175036940&doi=10.3390%2fmath11204308&partnerID=40&md5=c9b64b0d48a8b41bac87b848ca55beb1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175036940&doi=10.3390%2fmath11204308&partnerID=40&md5=c9b64b0d48a8b41bac87b848ca55beb1)

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan,

Amman, 11931, Jordan;
 Laboratory of Mathematics, Dynamics and Modelization, Badji Mokhtar-Annaba University, Annaba, 23000, Algeria;
 Department of Data Sciences and Artificial Intelligence, Al-Ahliyya Amman University, Amman, 11931, Jordan;
 Department of Mathematics, Faculty of Science, Zarqa University, Zarqa, 13110, Jordan;
 Faculty of Information Technology, Abu Dhabi University, Abu Dhabi, 59911, United Arab Emirates;
 Department of Basic Scientific Sciences, Applied Science Private University, Amman, 11931, Jordan;
 Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: In this study, we expand a 2D sine map via adding the discrete memristor to introduce a new 3D fractional-order sine-based memristor map. Under commensurate and incommensurate orders, we conduct an extensive exploration and analysis of its nonlinear dynamic behaviors, employing diverse numerical techniques, such as analyzing Lyapunov exponents, visualizing phase portraits, and plotting bifurcation diagrams. The results emphasize the sine-based memristor map's sensitivity to fractional-order parameters, resulting in the emergence of distinct and diverse dynamic patterns. In addition, we employ the sample entropy ((Formula presented.)) method and (Formula presented.) complexity to quantitatively measure complexity, and we also utilize the 0-1 test to validate the presence of chaos in the proposed fractional-order sine-based memristor map. Finally, MATLAB simulations are be executed to confirm the results provided. © 2023 by the authors.

Albalawi, W., Hammad, M.A., Khalid, M., Kabir, A., Tiofack, C.G.L., El-Tantawy, S.A.
 On the shock wave structures in anisotropy magnetoplasmas
 (2023) AIP Advances, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174288221&doi=10.1063%2f5.0173000&partnerID=40&md5=6a3b1f6013a6104e119389823bb7428e)

[85174288221&doi=10.1063%2f5.0173000&partnerID=40&md5=6a3b1f6013a6104e119389823bb7428e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174288221&doi=10.1063%2f5.0173000&partnerID=40&md5=6a3b1f6013a6104e119389823bb7428e)

AFFILIATIONS: Department of Mathematical Sciences, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Physics, Government Post Graduate College Swabi, Khyber Pakhtunkhwa, Swabi, 23431, Pakistan;

GNSS Research Lab National Center of GIS & Space Applications Department of Space Science Institute of Space Technology, Islamabad, Pakistan;

Faculty of Sciences, University of Maroua, P.O. Box 814, Maroua, Cameroon;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah, Al-Baha University, Al-Baha, 1988, Saudi Arabia

ABSTRACT: In this work, the propagation of nonlinear electrostatic shock wave structures in an anisotropy pressure magnetoplasma composed of warm inertial ions and inertia-less Maxwellian electrons is reported. For this purpose, the technique of reductive perturbation is applied for reducing fluid equations of the current model to the Korteweg-de Vries Burgers (KdVB) equation with a second-order dissipative term and the KdVB-Kuramoto (KBK) equation with both second- and fourth-order dissipative terms. The impact of various plasma parameters, including the parallel ion pressure, perpendicular ion pressure, and dissipation parameter, on the significant characteristics of the shock wave profile is examined and discussed. In addition, a comparison between the profiles of KdVB shocks and KdVB-Kuramoto shocks is reported. We expect that KBK shock wave amplitudes become larger than the KdVB ones by taking the fourth-order dissipative into consideration. Thus, the results of the KBK equation may treat the difference between the theoretical and laboratory results or satellite observations. © 2023 Author(s).

Alqsass, M., Jaradat, H., Rexhepi, B.R., Zureigat, B.N., Al-Gasawneh, J., Maali, H.

The Impact of Dividends Per Share and Retained Earnings Per Share on Share Price: A Study Based On Jordanian Companies

(2023) Quality - Access to Success, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174279572&doi=10.47750%2fQAS%2f24.197.08&partnerID=40&md5=1c95e2d24f08fb6f2b31e73770cc23f2)

[85174279572&doi=10.47750%2fQAS%2f24.197.08&partnerID=40&md5=1c95e2d24f08fb6f2b31e73770cc23f2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174279572&doi=10.47750%2fQAS%2f24.197.08&partnerID=40&md5=1c95e2d24f08fb6f2b31e73770cc23f2)

AFFILIATIONS: Accounting Department, Faculty of Business, Applied Science Private University, MEU Research Unit, Middle East University, Amman, Jordan;

Department of Finance, Faculty of Business, Al Zaytoonah University of Jordan, Amman, Jordan;

Department of Business Administration and Economics, UBT College, Kosovo;

Department of Accounting, Faculty of Business, Amman Arab University, Amman, Jordan;

Department of Marketing, Faculty of Business, Applied Science Private University, Amman, Jordan;

Business department, al istiqlal university, Jericho, Palestine

ABSTRACT: The goal of this study is to see if there is a link between dividends per share, retained profits per share, and Jordanian stock prices. Previous studies examined these factors separately;

however, in this study, all of these variables were included, in addition to financial leverage, which served as the control variable. The sample used for this purpose was acquired as panel data from 9 Jordanian enterprises from 2015 to 2019. To assess data, fixed effect models were used. The share price was employed as the dependent variable in this study. As independent variables, dividends per share and retained earnings per share were used. In addition, financial leverage is used as a control variable. The results show that share price has been positively impacted by dividends per share, while it has been insignificantly impacted by retained earnings per share and financial leverage. © 2023, SRAC - Romanian Society for Quality. All rights reserved.

Anim, A., Mahmoud, L.A.M., Kelly, A.L., Katsikogianni, M.G., Nayak, S.
Biodegradable Polymer Composites of Metal Organic Framework-5 (MOF-5) for the Efficient and Sustained Delivery of Cephalexin and Metronidazole

(2023) Applied Sciences (Switzerland), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

[85174142288&doi=10.3390%2fapp131910611&partnerID=40&md5=de2f8d03ae100a981678458743b4f57d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174142288&doi=10.3390%2fapp131910611&partnerID=40&md5=de2f8d03ae100a981678458743b4f57d)

AFFILIATIONS: School of Chemistry and Biosciences, University of Bradford, Bradford, BD7 1DP, United Kingdom;

School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Polymer IRC, Faculty of Engineering and Informatics, University of Bradford, Bradford, BD7 1DP, United Kingdom

ABSTRACT: The sustained and controlled delivery of antimicrobial drugs has been largely studied using nanomaterials, like metal organic frameworks (MOFs), and various polymers. However, not much attention has been given to combining MOFs and biodegradable polymers towards the potentially more sustained release of active pharmaceutical ingredients. Herein, we report a comparative study of two widely used antimicrobial drugs, cephalexin and metronidazole, from zinc-based MOF-5 incorporated into biodegradable polycaprolactone (PCL) and poly-lactic glycolic acid (PLGA) composites. Cephalexin and metronidazole were separately loaded into MOF-5 post-synthetically, followed by their integration into biodegradable PLGA and PCL composites. The pristine MOF-5 and the loaded MOFs were thoroughly characterised using Fourier-transformed infrared (FT-IR) spectroscopy, scanning electron microscopy (SEM), thermogravimetric analysis (TGA) and powder X-ray diffraction (PXRD). Ultraviolet-visible (UV-Vis) spectroscopy studies were carried out to assess the release of the drugs in PBS for up to 72 h, showing a cumulative release of 24.95 wt% and 27.84 wt% for cephalexin and metronidazole, respectively. The antibacterial properties of the pristine MOF, pure drugs, drug-loaded MOFs and the loaded composites were assessed against Gram-positive and Gram-negative bacterial strains, *Staphylococcus aureus* or *Staphylococcus epidermidis* and *Escherichia coli* or *Acinetobacter baumannii*, respectively. A cephalexin-loaded MOF-5 composite of PCL (PCL-ceph@MOF-5) showed the best efficiency for the controlled release of drugs to inhibit the growth of the bacteria compared to the other composites. This study demonstrates that the combination of MOFs with biodegradable polymers can provide an efficient platform for the sustained release of antimicrobial drugs and can be a promising tool to manage antimicrobial resistance (AMR). © 2023 by the authors.

Jarab, A.S., Al-Qerem, W.A., Hamam, H., Heshmeh, S.A., Al-Azzam, S., Mukattash, T.L., Alefishat, E.A.
Glycemic control and its associated factors among diabetic heart failure outpatients at two major hospitals in Jordan

(2023) PLoS ONE, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

[85173660914&doi=10.1371%2fjournal.pone.0285142&partnerID=40&md5=6c8b3ffc046dae76598b2b32a17aa1a6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173660914&doi=10.1371%2fjournal.pone.0285142&partnerID=40&md5=6c8b3ffc046dae76598b2b32a17aa1a6)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, College of Medicine and Health Science, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;

Department Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, University of Jordan, Amman, Jordan;

Center for Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates

ABSTRACT: Patients with heart failure (HF) are generally at higher risk of developing type 2 diabetes and having uncontrolled blood glucose. Furthermore, the prevalence of uncontrolled blood glucose in patients with HF is largely unknown. Identifying the factors associated with poor blood glucose control is a preliminary step in the development of effective intervention programs. The current cross-sectional study was conducted at two major hospitals to explore the factors associated with blood glucose control among patients with heart failure and type 2 diabetes. In addition to sociodemographic, medical records were used to collect medical information and a validated questionnaire was used to evaluate medication adherence. Regression analysis showed that poor

medication adherence (OR = 0.432; 95%CI 0.204-0.912; $P < 0.05$) and increased white blood cells count (OR = 1.12; 95%CI 1.033-1.213; $P < 0.01$) were associated with poor glycemic control. For enhancing blood glucose control among patients with HF and diabetes, future intervention programs should specifically target patients who have high WBC counts and poor medication. © 2023 S. Jarab et al.

Al-Rbaihat, R., Alahmer, H., Alahmer, A., Altork, Y., Al-Manea, A., Awwad, K.Y.E.

Energy and exergy analysis of a subfreezing evaporator environment ammonia-water absorption refrigeration cycle: Machine learning and parametric optimization [Analyse énergétique et exergétique d'un cycle frigorifique à absorption d'ammoniac-eau dans un environnement d'évaporation sous le point de congélation : apprentissage automatique et optimisation paramétrique]

(2023) International Journal of Refrigeration, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173164831&doi=10.1016%2Fj.ijrefrig.2023.07.010&partnerID=40&md5=f7152293fda6f090e6620fb2572ef388)

[85173164831&doi=10.1016%2Fj.ijrefrig.2023.07.010&partnerID=40&md5=f7152293fda6f090e6620fb2572ef388](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173164831&doi=10.1016%2Fj.ijrefrig.2023.07.010&partnerID=40&md5=f7152293fda6f090e6620fb2572ef388)

AFFILIATIONS: Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P. O. Box 179, Tafila, 66110, Jordan;

Department of Automated Systems, Faculty of Artificial Intelligence, Al-Balqa Applied University, Al, Salt, 19117, Jordan;

Department of Industrial and Systems Engineering, Auburn University, Auburn, AL 36849, United States;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Al-Samawah Technical Institute, Al-Furat Al-Awsat Technical University, Iraq

ABSTRACT: The coefficient of performance (COP) and exergy efficiency of a single and double-effect ammonia-water absorption refrigeration system powered by compound parabolic concentrating collectors were analyzed under various operating situations. A novel method was proposed using support vector machine regression and particle swarm optimization to identify optimal operating parameters. The optimal pressure-temperature conditions, including evaporator pressure (P_e), generator pressure (P_g), and absorber temperature (T_a) that maximize the COP and exergy efficiency while minimizing generator temperature (T_g) and evaporator temperature (T_e), were investigated. The generator temperature was the main independent variable, ranging from 370 to 470 K. The findings demonstrated that the gain in COP and exergy efficiency caused by raising the generator temperature to more than 430 K is not cost-effective. The COP increased when the evaporator temperature increased along the investigated range of generator temperatures but yielded lower exergy efficiency in all cases. The exergy destruction rate in condenser, pump, re-cooler, reheater, and expansion valves is insignificant compared to other components. The generator has the highest exergy destruction rate regardless of operating conditions, making it the most crucial component of the absorption system. The optimization process findings showed that, at $P_e = 2.8$ bar, $P_g = 14.5$ bar, and $T_a = 303.15$ K, the maximum COP and exergy efficiency were 0.8483 and 0.3605, respectively, concerning the minimization of T_g and T_e , which were 408 and 267 K, respectively. The model produced an acceptable performance with a high prediction accuracy (coefficient of determination > 0.99 and mean square error < 0.0064). © 2023 Elsevier Ltd and IIR

Aden, S.F., Mahmoud, L.A.M., Ivanovska, E.H., Terry, L.R., Ting, V.P., Katsikogianni, M.G., Nayak, S. Controlled delivery of ciprofloxacin using zirconium-based MOFs and poly-caprolactone composites (2023) Journal of Drug Delivery Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169841840&doi=10.1016%2Fj.jddst.2023.104894&partnerID=40&md5=be965d4dc2aed3c8980f8cd8dad5abab)

[85169841840&doi=10.1016%2Fj.jddst.2023.104894&partnerID=40&md5=be965d4dc2aed3c8980f8cd8dad5abab](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169841840&doi=10.1016%2Fj.jddst.2023.104894&partnerID=40&md5=be965d4dc2aed3c8980f8cd8dad5abab)

AFFILIATIONS: School of Chemistry and Biosciences, University of Bradford, Bradford, BD7 1DP, United Kingdom;

School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Bristol Composites Institute, Department of Mechanical Engineering, University of Bristol BS8 1TR, United Kingdom;

Research School of Chemistry & College of Engineering, Computing and Cybernetics, The Australian National University ACT 2600, Australia

ABSTRACT: With antimicrobial resistance (AMR) increasing at an alarming rate, there is a need to develop better antibiotic delivery platforms at the point of need, to reduce over-exposure to antibiotics that are delivered systemically. Recent studies have suggested the use of metal-organic frameworks (MOFs) as potential vehicles for controlled and efficient delivery of various active pharmaceutical ingredients (APIs). Development of MOF-polymer composite materials can assist in the development of medical devices that can deliver APIs to local sites in a targeted approach. This study reports the encapsulation of a widely used antibiotic - ciprofloxacin (CIP) - into two Zr-based MOFs (UiO-66 and UiO-66-NH₂) and their subsequent integration into a biodegradable polymer; polycaprolactone (PCL), via solvent casting, to obtain a PCL-MOF composite membrane. The MOFs and PCL-MOF composites were characterised by Fourier-transformed infrared (FT-IR) spectroscopy, powder X-ray diffraction (PXRD), thermogravimetric analysis (TGA) and scanning electron microscopy (SEM). The results demonstrated that the structural integrity of the pristine MOFs was maintained after drug

loading and incorporation into the PCL membranes. The ciprofloxacin release was studied using ultraviolet-visible (UV-Vis) spectroscopy, and the results showed that the PCL-MOF composites had a more controlled drug release profile compared to the MOF alone, when monitored for seven days in phosphate buffered saline (PBS) and accelerated ageing (AA) release media. In addition, release studies showed pH-dependence with faster release of ciprofloxacin at both acidic and basic conditions. Antimicrobial assay showed excellent efficacy for both CIP-loaded MOFs and their PCL composites against *S. aureus* and *E. coli*, a Gram-negative and Gram-positive bacterium, respectively, with inhibition zone as high as ≥ 50 mm against *E. coli* for UiO-66-NH₂-CIP, indicating their potential applications in purpose-specific medical devices. © 2023 The Authors

Jarab, A.S., Al-Qerem, W., Heshmeh, S.A., Mukattash, T.L., Beiram, R., Aburuz, S.

Factors associated with poor health-related quality of life among patients with asthma: A hospital-based study from Jordan

(2023) Electronic Journal of General Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163627635&doi=10.29333%2fjg%2f13384&partnerID=40&md5=f80cd02353ad577aa9630ee6928c4436)

[85163627635&doi=10.29333%2fjg%2f13384&partnerID=40&md5=f80cd02353ad577aa9630ee6928c4436](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163627635&doi=10.29333%2fjg%2f13384&partnerID=40&md5=f80cd02353ad577aa9630ee6928c4436)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: Purpose: Exploring the factors that are associated with diminished health-related quality of life (HRQOL) in patients with asthma is essential to reach the optimal HRQOL. This study aim to assess HRQOL and its associated factors in patients with asthma in Jordan. Methods: This cross-sectional study was conducted on patients with asthma attending King Abdullah University Hospital and Jordan University Hospital in Jordan. In addition to socio-demographic variables, the study survey included mini asthma quality of life questionnaire (mini AQLQ) to measure HRQOL and asthma control test (ACT) to assess the degree of asthma control in asthmatic patients. Binary logistic regression was used to build a model of the independent predictors of poor HRQOL in the study participants. Results: Of the 314 participating patients, 70.1% were females, with a mean age of 51.47 ± 16.37 years. 61.1% of the participants had low HRQOL, with a total mean mini AQLQ score of 4.30 ± 1.30 . Results revealed that advanced age (OR=0.961; 95% CI: 0.936-0.986; $p < 0.05$) and lack of daily exercise (OR=0.233; 95% CI: 0.085-0.637; $p < 0.01$) were significant predictors of poor HRQOL in patients with asthma, while better controlled disease, manifested by higher ACT score was associated with better HRQOL in these patients (OR=1.499; 95% CI: 1.344-1.672; $p < 0.01$). Conclusions: HRQOL represents an area for improvement in patients with asthma. The current study provides insight on the factors associated with poor HRQOL. Future interventions and asthma management programs should focus on improving asthma control and encouraging physical activity, particularly for older patients, with the aim of improving HRQOL among patients with asthma. © 2023 by Author/s and Licensed by Modestum.

Sweidan, O.D., Elbargathi, K.

Economic diversification in Saudi Arabia: Comparing the impact of oil prices, geopolitical risk, and government expenditures

(2023) International Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160783655&doi=10.1016%2fj.inteco.2023.05.003&partnerID=40&md5=94eb4048e128ceb67bdf71b98ed8e10f)

[85160783655&doi=10.1016%2fj.inteco.2023.05.003&partnerID=40&md5=94eb4048e128ceb67bdf71b98ed8e10f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160783655&doi=10.1016%2fj.inteco.2023.05.003&partnerID=40&md5=94eb4048e128ceb67bdf71b98ed8e10f)

AFFILIATIONS: Department of Innovation in Government and Society, College of Business and Economics, United Arab Emirates University, P.O. Box 15551, Al-Ain, United Arab Emirates;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Our paper examines and compares the influence of oil prices, international geopolitical risks, and government expenditures on Saudi Arabia's economic diversification during 1970-2020. We employ the bounds testing approach to cointegration to estimate the parameters of the Autoregressive Distributed Lag model to attain the paper's goal. Our results show that oil prices and international geopolitical risk harm the KSA diversification process in the short run. The destructive effect of oil prices continues in the long run, while the impact of the international geopolitical risk does not persist. On the other hand, government expenditures encourage the diversification attitude in the short and long run. This outcome highlights the capability of the KSA government to stimulate the diversification process. It is a positive sign of the state capitalism doctrine's impact on the KSA economic diversification mechanism. From a policy implication perspective, our paper suggests prioritizing economic diversification clearly on the KSA government's agenda. Simultaneously, strengthening the KSA institutional framework and developing new forms of the social contract are critical to motivating the diversification process. © 2023

Jaradat, Y., Masoud, M., Jannoud, I., Alia, M., Alheyasat, O., Jebiril, I.

Analysis of the optimal number of clusters and probability in homogeneous unreliable WSNs

(2023) Multimedia Tools and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135284998&doi=10.1007%2fs11042-022-13510-x&partnerID=40&md5=cd3d66a08833625e0410f2b59251237d>

AFFILIATIONS: Communications and Computer Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Information Systems Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Engineering Department, AlBalqa' Applied University, Salt, Jordan;

Mathematics Department, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this paper, we propose a simple simulation model for analyzing and evaluating the low energy adaptive clustering hierarchy (LEACH) protocol's performance in a noisy realistic wireless environment. A general parameter called probability of reception (pr) describes the noise level in this model. The success or failure of packet reception between sender and receiver can be used to assess the impact of network noise. The LEACH algorithm's energy model has been modified to include the noise factor (pr). Based on the new modified energy model, new analytical formulas for the optimal number of clusters and the optimal probability of a node becoming a cluster head are derived. Furthermore, we investigate what network dimensions are required to achieve the optimal number of clusters in a noisy environment, as this will increase the network's lifetime. It is demonstrated that the optimal number of clusters, and thus the optimal probability of CHs, are shown to be achieved by two factors: short wireless links formed within the clusters and equal network layout dimensions. Noise is shown to have a significant negative impact on the LEACH protocol's operation, particularly on network life time, throughput, and the protocol's stability and instability periods. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Abusukhon, A.

Intelligent Shoes for Detecting Blind Falls Using the Internet of Things

(2023) KSII Transactions on Internet and Information Systems, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173609984&doi=10.3837%2ftiis.2023.09.005&partnerID=40&md5=1951529ba581ef5409e2d3cf4171437c>

AFFILIATIONS: Computer Science Department., Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In our daily lives, we engage in a variety of tasks that rely on our senses, such as seeing. Blindness is the absence of the sense of vision. According to the World Health Organization, 2.2 billion people worldwide suffer from various forms of vision impairment. Unfortunately, blind people face a variety of indoor and outdoor challenges on a daily basis, limiting their mobility and preventing them from engaging in other activities. Blind people are very vulnerable to a variety of hazards, including falls. Various barriers, such as stairs, can cause a fall. The Internet of Things (IoT) is used to track falls and send a warning message to the blind caretakers. One of the gaps in the previous works is that they were unable to differentiate between falls true and false. Treating false falls as true falls results in many false alarms being sent to the blind caretakers and thus, they may reject the IoT system. As a means of bridging this chasm, this paper proposes an intelligent shoe that is able to precisely distinguish between false and true falls based on three sensors, namely, the load scale sensor, the light sensor, and the Flex sensor. The proposed IoT system is tested in an indoor environment for various scenarios of falls using four models of machine learning. The results from our system showed an accuracy of 0.96%. Compared to the state-of-the-art, our system is simpler and more accurate since it avoids sending false alarms to the blind caretakers. © 2023 Korean Society for Internet Information. All rights reserved.

Alhrerat, K.A., Zakaraya, Z., Dayyih, W.A., Hailat, M., Hamad, M., Alabbadi, I.

Decriminalization of Narcotics in Jordanian Legislation: Theory and Practice

(2023) Jordan Journal of Pharmaceutical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172264177&doi=10.35516%2fjpps.v16i3.722&partnerID=40&md5=8385cf2fb40a98edfd200af8bd73b3d4>

AFFILIATIONS: Faculty of law, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Jordan;

Faculty of Pharmacy, Mutah University, Karak, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Basic Medical Science, Faculty of Medicine, Al-Balqa Applied University, As-Salt, Jordan;

Faculty of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: This study delves into recent legislation in Jordan regarding the decriminalization of narcotics and traces the evolution of related legislation in the country. It explores the definition and underlying philosophy of decriminalization while examining arguments from both proponents and opponents of drug decriminalization from a jurisprudential perspective. Additionally, the research

sheds light on practices that have emerged in response to the decriminalization of narcotics in other jurisdictions. The study thoroughly examines the advantages and disadvantages of decriminalizing narcotics, analyzing its potential impact on drug consumption. Finally, the researcher proposes the implementation of a gradual and partial systematic plan within Jordanian legislation to address the growing trend of drug decriminalization. The paper also provides insights into the stances of the United States and other countries on this issue and how their legislations have addressed it. © 2023 DSR Publishers/The University of Jordan. All Rights Reserved.

Hajipour, M.J., Safavi-Sohi, R., Sharifi, S., Mahmoud, N., Ashkarran, A.A., Voke, E., Serpooshan, V., Ramezankhani, M., Milani, A.S., Landry, M.P., Mahmoudi, M.

An Overview of Nanoparticle Protein Corona Literature
(2023) Small, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153778527&doi=10.1002%2fsmll.202301838&partnerID=40&md5=44c5a46ad6f6c4afdb42c0e751283c42)

[85153778527&doi=10.1002%2fsmll.202301838&partnerID=40&md5=44c5a46ad6f6c4afdb42c0e751283c42](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153778527&doi=10.1002%2fsmll.202301838&partnerID=40&md5=44c5a46ad6f6c4afdb42c0e751283c42)

AFFILIATIONS: Department of Radiology and Precision Health Program, Michigan State University, East Lansing, MI 48824, United States;

Department of Radiology, Stanford University, Stanford, CA 94304, United States;

Department of Chemistry and Biochemistry, University of Notre Dame, Notre Dame, IN 46556, United States;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Airport Rd., Amman, 11733, Jordan;

Department of Biomedical Sciences, College of Health Sciences, QU Health, Qatar University, Doha, 2713, Qatar;

Department of Chemical and Biomolecular Engineering, University of California, Berkeley, CA 94720, United States;

Wallace H. Coulter Department of Biomedical Engineering, Emory University School of Medicine and Georgia Institute of Technology, Atlanta, GA 30322, United States;

Department of Pediatrics, Emory University, Atlanta, GA 30322, United States;

Children's Healthcare of Atlanta, Atlanta, GA 30322, United States;

School of Engineering, University of British Columbia, Kelowna, BC V1V 1V7, Canada;

Innovative Genomics Institute, Berkeley, CA 94720, United States;

California Institute for Quantitative Biosciences, University of California Berkeley, Berkeley, CA 94720, United States;

Chan Zuckerberg Biohub, San Francisco, CA 94158, United States

ABSTRACT: The protein corona forms spontaneously on nanoparticle surfaces when nanomaterials are introduced into any biological system/fluid. Reliable characterization of the protein corona is, therefore, a vital step in the development of safe and efficient diagnostic and therapeutic nanomedicine products. 2134 published manuscripts on the protein corona are reviewed and a down-selection of 470 papers spanning 2000–2021, comprising 1702 nanoparticle (NP) systems is analyzed. This analysis reveals: i) most corona studies have been conducted on metal and metal oxide nanoparticles; ii) despite their overwhelming presence in clinical practice, lipid-based NPs are underrepresented in protein corona research, iii) studies use new methods to improve reliability and reproducibility in protein corona research; iv) studies use more specific protein sources toward personalized medicine; and v) careful characterization of nanoparticles after corona formation is imperative to minimize the role of aggregation and protein contamination on corona outcomes. As nanoparticles used in biomedicine become increasingly prevalent and biochemically complex, the field of protein corona research will need to focus on developing analytical approaches and characterization techniques appropriate for each unique nanoparticle formulation. Achieving such characterization of the nano-bio interface of nanobiotechnologies will enable more seamless development and safe implementation of nanoparticles in medicine. © 2023 The Authors. Small published by Wiley-VCH GmbH.

Alsakarneh, A., Tabaza, T., sunny, T., Jyothishmathi, D., Qudah, N., Afghani, A.

Design, Development and Control of Dual-Axis Solar Tracking System

(2023) International Journal of Renewable Energy Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173117100&doi=10.20508%2fijrer.v13i3.13674.g8787&partnerID=40&md5=0b796d4bedd81a202cb021340524e826)

[85173117100&doi=10.20508%2fijrer.v13i3.13674.g8787&partnerID=40&md5=0b796d4bedd81a202cb021340524e826](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173117100&doi=10.20508%2fijrer.v13i3.13674.g8787&partnerID=40&md5=0b796d4bedd81a202cb021340524e826)

AFFILIATIONS: Department of Mechanical Engineering, Hijjawi Faculty for Engineering Technology, Yarmouk University, Irbid, Jordan;

Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman, Jordan;

Department of Mechanical Engineering, Fujairah Men College, HCT, Fujairah, United Arab Emirates;

Department of Mechanical Engineering, School of Engineering Technology, Al-Hussein Technical University, KHBP, Amman, Jordan

ABSTRACT: A tremendous number of solar tracking systems are available in the market, no design however offers a fully autonomous operation that could track the sun with no prior information about

the location, or the season. The proposed paper presents a design, development and control of dual-axes solar tracking systems. The tracking system consists of two DC-motor for two different axes, the incidence and declination angles, and a set of solar sensors. A set of sensors is employed to acquire the required data to compute the optimum zenith and azimuth angles. The advantage of the proposed that it can be used anywhere with no information needed regarding latitude nor longitude coordinates. The experimental results show a significant improving, like 76%, of performance obtained using dual axes tracking system compared with the fixed horizontal surfaces in the summer in Jordan, and 41% in winter. © (2023), (International Journal of Renewable Energy Research). All Rights Reserved.

Magwaza, R.N., Abubaker, M., Hussain, B., Haley, M., Couper, K., Freeman, S., Nirmalan, N.J. Evaluation of 4-Aminoquinoline Hydrazone Analogues as Potential Leads for Drug-Resistant Malaria (2023) *Molecules*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172792367&doi=10.3390%2fmolecules28186471&partnerID=40&md5=ee850713d44f5caf4bcbab8ecfd41011)

[85172792367&doi=10.3390%2fmolecules28186471&partnerID=40&md5=ee850713d44f5caf4bcbab8ecfd41011](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172792367&doi=10.3390%2fmolecules28186471&partnerID=40&md5=ee850713d44f5caf4bcbab8ecfd41011)

AFFILIATIONS: Division of Pharmacy and Optometry, School of Health Sciences, University of Manchester, Manchester, M13 9PT, United Kingdom;

School of Science, Engineering and Environment, University of Salford, Manchester, M5 4WT, United Kingdom;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 17138, Jordan;

School of Biological Sciences, Lydia Becker Institute of Immunology and Infection, University of Manchester, Manchester, M13 9PT, United Kingdom

ABSTRACT: The emergence of resistance to first-line antimalarial drugs calls for the development of new therapies for drug-resistant malaria. The efficacy of quinoline-based antimalarial drugs has prompted the development of novel quinolines. A panel of 4-aminoquinoline hydrazone analogues were tested on the multidrug-resistant K1 strain of *Plasmodium falciparum*: IC₅₀ values after a 48 h cycle ranged from 0.60 to 49 μM, while the 72 h cycle ranged from 0.026 to 0.219 μM. Time-course assays were carried out to define the activity of the lead compounds, which inhibited over 50% growth in 24 h and 90% growth in 72 h. Cytotoxicity assays with HepG2 cells showed IC₅₀ values of 0.87–11.1 μM, whereas in MDBK cells, IC₅₀ values ranged from 1.66 to 11.7 μM. High selectivity indices were observed for the lead compounds screened at 72 h on *P. falciparum*. Analyses of stage specificity revealed that the ring stages of the parasite life cycle were most affected. Based on antimalarial efficacy and in vitro safety profiles, lead compound 4-(2-benzylidenehydrazinyl)-6-methoxy-2-methylquinoline 2 was progressed to drug combination studies for the detection of synergism, with a combinatory index of 0.599 at IC₉₀ for the combination with artemether, indicating a synergistic antimalarial activity. Compound 2 was screened on different strains of *P. falciparum* (3D7, Dd2), which maintained similar activity to K1, suggesting no cross-resistance between multidrug resistance and sensitive parasite strains. In vivo analysis with 2 showed the suppression of parasitaemia with *P. yoelii* NL (non-lethal)-treated mice (20 mg/kg and 5 mg/kg). © 2023 by the authors.

Karki, A., Biswas, D., Gonzalez, F.A., Henry, W., Morean, C., Nadeeshani, A., Sun, A., Abrams, D., Ahmed, Z., Aljawrneh, B., Alsalmi, S., Ambrose, R., Androic, D., Armstrong, W., Arrington, J., Asaturyan, A., Assumin-Gyimah, K., Ayerbe Gayoso, C., Bandari, A., Bane, J., Barrow, J., Basnet, S., Berdnikov, V., Bhatt, H., Bhetuwal, D., Boeglin, W.U., Bosted, P., Brash, E., Bukhari, M.H.S., Chen, H., Chen, J.P., Chen, M., Christy, M.E., Covrig, S., Craycraft, K., Danagouljian, S., Day, D., Diefenthaler, M., Dlamini, M., Dunne, J., Duran, B., Dutta, D., Elliott, C., Ent, R., Fenker, H., Fomin, N., Fuchey, E., Gaskell, D., Gautam, T.N., Hansen, J.O., Hauenstein, F., Hernandez, A.V., Horn, T., Huber, G.M., Jones, M.K., Joosten, S., Kabir, M.L., Kalantarians, N., Keppel, C., Khanal, A., King, P.M., Kinney, E., Ko, H.S., Kohl, M., Lashley-Colthirst, N., Li, S., Li, W.B., Liyanage, A.H., Mack, D., Malace, S., Markowitz, P., Matter, J., Meekins, D., Michaels, R., Mkrtchyan, A., Mkrtchyan, H., Nanda, S., Nguyen, D., Niculescu, G., Niculescu, I., Nuruzzaman, Pandey, B., Park, S., Pooser, E., Puckett, A.J.R., Rehfuß, M., Reinhold, J., Santiesteban, N., Sawatzky, B., Smith, G.R., Szumila-Vance, H., Tadeipalli, A.S., Tadevosyan, V., Trotta, R., Wood, S.A., Yero, C., Zhang, J., Hall C Collaboration

First Measurement of the EMC effect in B 10 and B 11 (2023) *Physical Review C*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172690016&doi=10.1103%2fPhysRevC.108.035201&partnerID=40&md5=b00ad95a9bf12d71c55f147976ca16bf)

[85172690016&doi=10.1103%2fPhysRevC.108.035201&partnerID=40&md5=b00ad95a9bf12d71c55f147976ca16bf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172690016&doi=10.1103%2fPhysRevC.108.035201&partnerID=40&md5=b00ad95a9bf12d71c55f147976ca16bf)

AFFILIATIONS: Mississippi State University, Mississippi State, MS 39762, United States;

Hampton University, Hampton, VA 23669, United States;

Stony Brook University, Stony Brook, NY 11794, United States;

Thomas Jefferson National Accelerator Facility, Newport News, VA 23606, United States;

University of Tennessee, Knoxville, TN 37996, United States;

Carnegie Mellon University, Pittsburgh, PA 15213, United States;

University of Virginia, Charlottesville, VA 22903, United States;

University of Regina, Regina, SK S4S 0A2, Canada;

North Carolina A and T State University, Greensboro, NC 27411, United States;
 Kent State University, Kent, OH 44240, United States;
 University of Zagreb, Zagreb, Croatia;
 Argonne National Laboratory, Lemont, IL 60439, United States;
 Lawrence Berkeley National Laboratory, Berkeley, CA 94720, United States;
 A.I. Alikhanyan National Science Laboratory, Yerevan Physics Institute, Yerevan, 0036, Armenia;
 The College of William and Mary, Williamsburg, VA 23185, United States;
 Catholic University of America, Washington, DC 20064, United States;
 Florida International University, University Park, FL 33199, United States;
 Christopher Newport University, Newport News, VA 23606, United States;
 Jazan University, Jazan, 45142, Saudi Arabia;
 Ohio University, Athens, OH 45701, United States;
 Temple University, Philadelphia, PA 19122, United States;
 University of Connecticut, Storrs, CT 06269, United States;
 Old Dominion University, Norfolk, VA 23529, United States;
 Department of Natural Sciences, Virginia Union University, Richmond, VA 23220, United States;
 University of Colorado Boulder, Boulder, CO 80309, United States;
 Institut de Physique Nucleaire, Orsay, France;
 University of New Hampshire, Durham, NH 03824, United States;
 James Madison University, Harrisonburg, VA 22807, United States;
 Rutgers University, New Brunswick, NJ 08854, United States;
 Virginia Tech, Blacksburg, VA 24061, United States;
 Physics Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
 Shandong University, Shandong, Qingdao, 266237, China

ABSTRACT: The nuclear dependence of the inclusive inelastic electron scattering cross section (the EMC effect) has been measured for the first time in B10 and B11. Previous measurements of the EMC effect in $A \leq 12$ nuclei showed an unexpected nuclear dependence; B10 and B11 were measured to explore the EMC effect in this region in more detail. Results are presented for Be9, B10, B11, and C12 at an incident beam energy of 10.6 GeV. The EMC effect in the boron isotopes was found to be similar to that for Be9 and C12, yielding almost no nuclear dependence in the EMC effect in the range $A=4-12$. This represents important new data supporting the hypothesis that the EMC effect depends primarily on the local nuclear environment due to the cluster structure of these nuclei. © 2023 American Physical Society.

Abuarqoub, D., Mahmoud, N., Alshaer, W., Mohammad, M., Ibrahim, A.A., Al-Mrahleh, M., Alnatour, M., Alqudah, D.A., Esawi, E., Awidi, A.

Biological Performance of Primary Dental Pulp Stem Cells Treated with Gold Nanoparticles (2023) Biomedicines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172450205&doi=10.3390%2fbiomedicines11092490&partnerID=40&md5=3efa29a46fef233d73768612775a0b80)

85172450205&doi=10.3390%2fbiomedicines11092490&partnerID=40&md5=3efa29a46fef233d73768612775a0b80

AFFILIATIONS: Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Cell Therapy Center, University of Jordan, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biomedical Sciences, College of Health Sciences, QU Health, Qatar University, Doha, 2713, Qatar;

Department of Nanoscience, Joint School of Nanoscience and Nanoengineering, University of North Carolina at Greensboro, 2907 E. Gate City Blvd, Greensboro, NC 27401, United States;

Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

School of Medicine, University of Jordan, Amman, 11942, Jordan;

Department of Internal Medicine, Hospital of Jordan University, Amman University, Amman, 11942, Jordan

ABSTRACT: Gold nanoparticles (AuNPs) are one of the most stable nanoparticles that have been prevalently used as examples for biological and biomedical applications. Herein, we evaluate the effect of AuNPs on the biological processes of dental pulp stem cells derived from exfoliated deciduous teeth (SHED). Two different shapes of PEGylated AuNPs, rods (AuNR-PEG) and spheres (AuNS-PEG), were prepared and characterized. SHED cells were treated with different concentrations of AuNR-PEG and AuNS-PEG to determine their effect on the stemness profile of stem cells (SCs), proliferation, cytotoxicity, cellular uptake, and reactive oxygen species (ROS), for cells cultured in media containing-fetal bovine serum (FBS) and serum-free media (SFM). Our results showed that both nanoparticle shapes maintained the expression profile of MSC surface markers. Moreover, AuNS-PEG showed a stimulatory effect on the proliferation rate and lower toxicity on SHED, compared to AuNR-PEG. Higher concentrations of 0.5–0.125 nM of AuNR-PEG have been demonstrated to cause more toxicity in cells. Additionally, cells treated with AuNPs and cultured in FBS showed a higher proliferative

rate and lower toxicity when compared to the SFM. For cellular uptake, both AuNS-PEG and AuNR-PEG were uptaken by treated cells efficiently. However, cells cultured in SFM media showed a higher percentage of cellular uptake. For ROS, AuNR-PEG showed a significant reduction in ROS at lower concentrations (<0.03 nM), while AuNS-PEG did not show any significant difference compared to the control untreated cells. Thus, our results give evidence about the optimum concentration and shape of AuNPs that can be used for the differentiation of stem cells into specific cell lineages in tissue engineering and regenerative medicine. © 2023 by the authors.

Salah, M., Abdalla, A., Abdallah, M., Mazhar, A.A., Alokush, B., Jebril, I.
Using Virtual Tours as a University Campus Guide: Al-Zaytoonah University Case Study
(2023) Information Sciences Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172293204&doi=10.18576%2f1s1%2f120906&partnerID=40&md5=9bf55d4eb70c824b07bddd3bb5a01525)

[85172293204&doi=10.18576%2f1s1%2f120906&partnerID=40&md5=9bf55d4eb70c824b07bddd3bb5a01525](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172293204&doi=10.18576%2f1s1%2f120906&partnerID=40&md5=9bf55d4eb70c824b07bddd3bb5a01525)

AFFILIATIONS: Department of Multimedia Technology, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Software Engineering, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Communication, University of Sharjah, Sharjah, United Arab Emirates;

Department of Mathematics, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Most university campuses, such as the campus of Al-Zaytoonah University of Jordan (ZUJ), are usually large and comprise many buildings. Finding the location of an office, a lecture hall, a service center, etc. is not an easy task for most visitors and even for many students and employees. Therefore, a virtual tour of the campus and its buildings will provide a valuable tool that eases this task, especially when it is available on a public website and accessible without the need for special virtual reality devices. Previous studies on virtual tours focused on their important marketing aspect. On the other hand, this study is focused on using virtual tours as a guide for finding the specific locations that different users seek to visit. Consequently, a virtual tour of ZUJ has been designed and provided via the university website. The building names and numbers are provided on the website in Arabic and English with links to their tours. The tours that lead to the important locations include many significant details inside the buildings such as room numbers, bathroom signs, and door signs. The study showed user satisfaction with the tours and the efficacy of using the website without special virtual reality devices. © 2023 NSP.

Batiha, I.M., Abubaker, A.A., Jebril, I.H., Al-Shaikh, S.B., Matarneh, K., Almuzini, M.
A Mathematical Study on a Fractional-Order SEIR Mpox Model: Analysis and Vaccination Influence
(2023) Algorithms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172177406&doi=10.3390%2fa16090418&partnerID=40&md5=53a1fa49445842baa06d44b75758327e)

[85172177406&doi=10.3390%2fa16090418&partnerID=40&md5=53a1fa49445842baa06d44b75758327e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172177406&doi=10.3390%2fa16090418&partnerID=40&md5=53a1fa49445842baa06d44b75758327e)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates;

Faculty of Computer Studies, Arab Open University, Riyadh, 11681, Saudi Arabia;

School of Mathematical Sciences, Universiti Sains Malaysia, Penang, 11800, Malaysia;

Department of Mathematics and Statistics, American University of Sharjah, Sharjah, 26666, United Arab Emirates

ABSTRACT: This paper establishes a novel fractional-order version of a recently expanded form of the Susceptible-Exposed-Infectious-Recovery (SEIR) Mpox model. This model is investigated by means of demonstrating some significant findings connected with the stability analysis and the vaccination impact, as well. In particular, we analyze the fractional-order Mpox model in terms of its invariant region, boundedness of solution, equilibria, basic reproductive number, and its elasticity. In accordance with an effective vaccine, we study the progression and dynamics of the Mpox disease in compliance with various scenarios of the vaccination ratio through the proposed fractional-order Mpox model. Accordingly, several numerical findings of the proposed model are depicted with the use of two numerical methods; the Fractional Euler Method (FEM) and Modified Fractional Euler Method (MFEM). Such findings demonstrate the influence of the fractional-order values coupled with the vaccination rate on the dynamics of the established disease model. © 2023 by the authors.

Hamadneh, T., Hioual, A., Alsayyed, O., Al-Khassawneh, Y.A., Al-Husban, A., Ouannas, A.
The FitzHugh-Nagumo Model Described by Fractional Difference Equations: Stability and Numerical Simulation
(2023) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172116368&doi=10.3390%2f1s12090806&partnerID=40&md5=faecdcbce951fb3d485003a8d946a8677)

[85172116368&doi=10.3390%2f1s12090806&partnerID=40&md5=faecdcbce951fb3d485003a8d946a8677](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172116368&doi=10.3390%2f1s12090806&partnerID=40&md5=faecdcbce951fb3d485003a8d946a8677)

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;
Laboratory of Dynamical Systems and Control, University of Oum EL-Bouaghi, Oum El Bouaghi, 04000, Algeria;
Department of Mathematics, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;
Data Science and Artificial Intelligence Department, Zarqa University, Zarqa, 13110, Jordan;
Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 21110, Jordan;
Department of Mathematics and Computer Science, University of Oum EL-Bouaghi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: The aim of this work is to describe the dynamics of a discrete fractional-order reaction-diffusion FitzHugh-Nagumo model. We established acceptable requirements for the local asymptotic stability of the system's unique equilibrium. Moreover, we employed a Lyapunov functional to show that the constant equilibrium solution is globally asymptotically stable. Furthermore, numerical simulations are shown to clarify and exemplify the theoretical results. © 2023 by the authors.

Hawawsheh, L., Qazza, A., Saadeh, R., Zraiqat, A., Batiha, I.M.
Lp-Mapping Properties of a Class of Spherical Integral Operators
(2023) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172099728&doi=10.3390%2faxioms12090802&partnerID=40&md5=69008666b443269866543547456428da)

[85172099728&doi=10.3390%2faxioms12090802&partnerID=40&md5=69008666b443269866543547456428da](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172099728&doi=10.3390%2faxioms12090802&partnerID=40&md5=69008666b443269866543547456428da)

AFFILIATIONS: School of Basic Sciences and Humanities, German Jordanian University, Amman, 11180, Jordan;

Department of Mathematics, Faculty of Science, Zarqa University, Zarga, 13110, Jordan;

Department of Mathematics, Al Zaytoonah University, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: In this paper, we study a class of spherical integral operators (Formula presented.). We prove an inequality that relates this class of operators with some well-known Marcinkiewicz integral operators by using the classical Hardy inequality. We also attain the boundedness of the operator (Formula presented.) for some (Formula presented.) whenever (Formula presented.) belongs to a certain class of Lebesgue spaces. In addition, we introduce a new proof of the optimality condition on (Formula presented.) in order to obtain the (Formula presented.) -boundedness of (Formula presented.). Generally, the purpose of this work is to set up new proofs and extend several known results connected with a class of spherical integral operators. © 2023 by the authors.

Allowh, S.N., Malak, M.Z., Alnawafleh, A.H., Ta'Amnha, M.

The relationship between perceived management commitment to safety, psychological empowerment, and safety performance among emergency nurses in Jordan

(2023) International Emergency Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170669062&doi=10.1016%2fj.ienj.2023.101343&partnerID=40&md5=035f18a27f97ae7034826601dbc83efc)

[85170669062&doi=10.1016%2fj.ienj.2023.101343&partnerID=40&md5=035f18a27f97ae7034826601dbc83efc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170669062&doi=10.1016%2fj.ienj.2023.101343&partnerID=40&md5=035f18a27f97ae7034826601dbc83efc)

AFFILIATIONS: Adult Health Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Associate Professor, Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Associate Professor, Faculty of Nursing, Mutah University, AlKarak, Jordan;

Assistant Professor, Bussiness School, German Jordanian University, Amman, Jordan

ABSTRACT: Purpose: Nurses are susceptible to unfavorable effects of workplace accidents and injuries, therefore, perceived management commitment to safety and psychological empowerment can help nurses to participate in safety measures and adhere to safety performance. Thus, this study aimed to examine the relationship between perceived management commitment to safety, psychological empowerment, and safety performance among emergency nurses in Jordan. Methods: A cross-sectional, descriptive correlational design was used and 306 registered nurses working in the emergency department in Jordanian governmental hospitals were recruited. A self-structured questionnaire consisting of the perceived management commitment to safety scale, psychological empowerment scale, and safety performance scale was used to collect data during the period from July 2022 to August 2022. Results: The findings demonstrated that the levels of study variables revealed as follows: the perceived management commitment to safety mean was 3.1 (SD = 0.66) out of 5, which indicated an acceptable level, the mean score of psychological empowerment was 5.37 (SD = 0.94) out of 7, which reflected that the nurses perceived the work environment to be psychologically empowered, and the mean score for safety performance was 4.02 (SD = 0.56) out of 5, which indicated an acceptable level of safety performance among the participants, and the mean for subscales (safety compliance and participation) was 4.07 (SD = 0.57) and 3.93 (SD = 0.69) out of 5, respectively. Also, there was a positive correlation between safety performance and perceived management commitment to safety ($r = 0.334$, $p < 0.001$), and psychological empowerment ($r = 0.592$, $p < 0.001$). Conclusion: It is necessary to

implement continuous interventions centered on empowering emergency nurses psychologically, which has a positive effect on safety performance. Given management's commitment to safety as a priority topic of discussion at group meetings creating a work environment that encourages nurses' safety performance should be encouraged. © 2023 Elsevier Ltd

Abu Helal, A.-R.H.

Anti-Locality and Covert Movement in Arabic

(2023) Theory and Practice in Language Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170552833&doi=10.17507%2ftpls.1309.05&partnerID=40&md5=91cefcaf5ea091ecf86616a82993a19a)

[85170552833&doi=10.17507%2ftpls.1309.05&partnerID=40&md5=91cefcaf5ea091ecf86616a82993a19a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170552833&doi=10.17507%2ftpls.1309.05&partnerID=40&md5=91cefcaf5ea091ecf86616a82993a19a)

AFFILIATIONS: Department of English language and literature at Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: –This paper provides a new argument for the specifier-to-specifier anti-locality constraint from covert movement. The argument is based on an observed asymmetry behavior of the Quantifier Raising (QR) of the superlative morpheme in two superlative adjectives modifying relative clauses in Levantine Arabic (LA): the two superlative modifiers give rise to different paradigms of high and low interpretations.1 The paper shows that a configuration restricted by the specifier-to-specifier anti-locality constraint straightforwardly explains the asymmetry lending further evidence supporting this syntax-economy condition from covert movement. © 2023 ACADEMY PUBLICATION.

Alhadid, I., Abu-Taieh, E.M., Al Rawajbeh, M., Alkhaldeh, R.S., Khwal-Deh, S., Afaneh, S.,

Alrowwad, A., Alrwashdeh, D.F.

Evaluating the influence of security considerations on information dissemination via social networks

(2023) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169338494&doi=10.5267%2fj.ijdns.2023.8.015&partnerID=40&md5=3cf7948abb5d5818dc74fb8f30b13102)

[85169338494&doi=10.5267%2fj.ijdns.2023.8.015&partnerID=40&md5=3cf7948abb5d5818dc74fb8f30b13102](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169338494&doi=10.5267%2fj.ijdns.2023.8.015&partnerID=40&md5=3cf7948abb5d5818dc74fb8f30b13102)

AFFILIATIONS: Faculty of Information Technology and Systems, University of Jordan, Aqaba, 77110, Jordan;

Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Information Technology, University of Fujairah, Fujairah, 2202, United Arab Emirates;

Faculty of Information Technology, Zarka University, Zarka, 13110, Jordan;

School of Business, University of Jordan, Aqaba, 77110, Jordan

ABSTRACT: This study investigates the factors that influence the sharing of information on social media platforms and examines the effects of perceived security, perceived privacy, and user awareness on users' trust in social media platforms, as well as the moderating effects of age, gender, educational attainment, and internet proficiency on information sharing. The study collected data from 837 social media users in Jordan and analyzed them using structural equation modeling (SEM), con-firmatory factor analysis (CFA), and machine learning (ML) methods. The findings of the study indicate that perceived security, perceived privacy, and user awareness all have a significant impact on users' trust in social media platforms. Trust, in turn, has a significant impact on the amount of information shared on these platforms. Also, the findings of this study provide valuable insights into the dynamics of information sharing on social networks. This knowledge will be of interest to managers, policymakers, and developers of social media platforms. In addition, the findings of the study also have implications for the privacy and security of social media users. For example, social media users can be more careful about the information they share on social media platforms, and they can take steps to protect their privacy. © 2023 by the authors; licensee Growing Science, Canada.

Alqudah, A.M.A., Alqudah, D., Aldaoud, W.Y.A., Alobaydi, B.A.A., Shari, A.J.A., Abdulraheem, A.I.O.

The impact of creative thinking of marketing ideas on the design structure of the modern Jordanian advertisement: Evidence from the Jordanian telecommunications companies

(2023) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169097898&doi=10.5267%2fj.ijdns.2023.7.005&partnerID=40&md5=00ea1f7cb9969ef639e2f0d0f70451bd)

[85169097898&doi=10.5267%2fj.ijdns.2023.7.005&partnerID=40&md5=00ea1f7cb9969ef639e2f0d0f70451bd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169097898&doi=10.5267%2fj.ijdns.2023.7.005&partnerID=40&md5=00ea1f7cb9969ef639e2f0d0f70451bd)

AFFILIATIONS: Al-zaytoonah University of Jordan, Faculty of Architecture and Design, Jordan;

Applied Science Private University, Department of Visual Communication Design, Faculty of Art and Design, Jordan;

Al-Zaytoonah University of Jordan, Graphic design Department, Faculty of Architecture and Design, Jordan;

Al-Zaytoonah University of Jordan, Faculty of architecture and Design, Graphic Design Department, Jordan

ABSTRACT: The study aimed to investigate the impact of creative thinking on marketing ideas and their influence on the structure of modern Jordanian advertisements for telecommunications companies. The methodology involved developing a survey instrument with four independent variables and one dependent variable. The independent variables were Creative Marketing (CM), Marketing Strategy (MS), Online

Marketing (OM), and Social Media Marketing (SMM). The dependent variable was the Structure of the Modern Jordanian Advertisement (SMJA). The study population is customers of Jordanian telecommunications companies who reside in Jordan. A sample size of 270 respondents was selected through a convenience sampling method. The data were analyzed using statistical software, such as SPSS and AMOS 27 version, to test the research hypotheses. The results indicate that all four paths are statistically significant. The first hypothesis, which relates to creative marketing, has the highest estimated result of 0.62, while the second, third and the fourth hypotheses have estimated results of 0.152, 0.133, and 0.111, respectively. Overall, the results support the hypothesis that all four marketing domains have a significant impact on SMJA. © 2023 by the authors; licensee Growing Science, Canada.

Ababneh, A.M., Almarashdah, M.A., Jebril, I., Al-Zaqeba, M.A.A., Assaf, N.

Driving sustainable supply chains: Blockchain-enabled eco-efficiency for resilient customs ports (2023) *Uncertain Supply Chain Management*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168972564&doi=10.5267%2fj.uscm.2023.6.018&partnerID=40&md5=a655f02a29ce0ce2ef978ca6ca82a371)

[85168972564&doi=10.5267%2fj.uscm.2023.6.018&partnerID=40&md5=a655f02a29ce0ce2ef978ca6ca82a371](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168972564&doi=10.5267%2fj.uscm.2023.6.018&partnerID=40&md5=a655f02a29ce0ce2ef978ca6ca82a371)

AFFILIATIONS: Business Administration, School of Creative Media Industry-SAE, Luminus Technical University College, Jordan;

School of Business, Jadara University, Irbid, 733, Jordan;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Economics and Muamalat (FEM), Universiti Sains Islam Malaysia (USIM), Negeri Sembilan, Nilai, Malaysia;

Talal Abu-Ghazaleh University College for Innovation (TAGUCI), Jordan

ABSTRACT: This paper investigates the driving factors behind sustainable supply chains in Jordan, focusing on the implementation of blockchain technology, customs ports practices, and technological infrastructure. The primary data for the study was collected through questionnaires distributed to employees working in the Jordanian customs. A random sampling method was employed to select participants, and a total of 184 valid questionnaires were retrieved for analysis. The collected data was analyzed using the statistical software Smartpls PLS4. The results of quantitative research reveal that the implementation of blockchain technology and technological infrastructure positively affects the driving of sustainable supply chains in Jordan, also customs ports practices also have a positive impact on driving sustainable supply chains, emphasizing the significance of efficient and resilient customs operations for sustainability. Additionally, compliance with environmental regulations enhances the effectiveness of blockchain technology in achieving sustainability objectives. Moreover, underscoring the role of robust technological capabilities in supporting sustainable operations within customs ports. The study contributes to the understanding of the key drivers of sustainable supply chains in Jordan, providing valuable insights for policymakers, supply chain managers, and other stakeholders involved in promoting sustainability within the customs ports industry. The findings can guide decision-making and inform strategies aimed at enhancing eco-efficiency and resilience in supply chain operations. © 2023 Growing Science Ltd. All rights reserved and 2023 by the authors; licensee Growing Science, Canada.

Alshehadeh, A.R., Elrefae, G.A., Belarbi, A.K., Qasim, A., Al-Khawaja, H.A.

The impact of business intelligence tools on sustaining financial report quality in Jordanian commercial banks

(2023) *Uncertain Supply Chain Management*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168958968&doi=10.5267%2fj.uscm.2023.7.002&partnerID=40&md5=295250d1db03bd557e48ad1538110542)

[85168958968&doi=10.5267%2fj.uscm.2023.7.002&partnerID=40&md5=295250d1db03bd557e48ad1538110542](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168958968&doi=10.5267%2fj.uscm.2023.7.002&partnerID=40&md5=295250d1db03bd557e48ad1538110542)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Business, Al Ain University, Al Ain, United Arab Emirates;

Faculty of Business, Amman Arab University, Amman, Jordan;

Swiss FinTech Innovation Lab, University of Zurich, Switzerland

ABSTRACT: The objective of this study was to showcase the influence of Business Intelligence (BI) tools, such as Online Analytical Processing (OLAP), Extract, Transform, Load (ETL) processes, Data Mining (DM), Relational Database Management Systems (RDBMS), and Document Management Systems (DMS), on maintaining the quality of financial reports in Jordanian commercial banks listed on the Amman Stock Exchange. Two approaches were employed to achieve the research objectives: a descriptive-analytical approach involving the development of a questionnaire to gather primary data on the independent variables associated with BI tools (OLAP, ETL, DM, RDBMS, DMS), and an applied approach to evaluate the dependent variable represented by the sustainability of financial report quality, utilizing the financial statements of commercial banks listed on the Amman Stock Exchange from (2016 to 2021). Data analysis and hypothesis testing were conducted using statistical software (SPSS) through multiple regression analysis. The results of the statistical data analysis and input from the research community indicated that the sustainability of financial report quality, as a valuable asset for banks, relies on the utilization of Business Intelligence tools. IT professionals in commercial

banks perceive a statistically significant impact of BI tools on maintaining the quality of financial reports. Consequently, the management of commercial banks listed on the Amman Stock Exchange should prioritize the effective utilization of Business Intelligence tools, as their potential lies in aiding the accounting process to achieve its objectives, which ultimately contribute to the sustainability of financial reports. By employing these tools accurately and efficiently in accounting practices, all stages of the accounting process can be influenced, enabling the transformation of available data into information that benefits decision-makers both internally and externally within the banking environment. © 2023 Growing Science Ltd. All rights reserved.

Soda, M.Z., Makhoulf, M.H., Oroud, Y., Alshehadeh, A.R., Omari, R.A., Al-Khawaja, H.A.

Does the audit quality have any moderating impact on the relationship between ownership structure and dividends? Evidence from Jordan

(2023) Uncertain Supply Chain Management, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85168928870&doi=10.5267%2fj.uscm.2023.6.012&partnerID=40&md5=ff922a50669589873109565e35252504

AFFILIATIONS: Accounting Department, faculty of Business, Isra University, Amman, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Accounting, the University of Jordan, Aqaba, Jordan;

Faculty of Business, Amman Arab University, Amman, Jordan

ABSTRACT: The article aims at investigating whether audit quality impacts the relationship between ownership structure and dividends in companies listed on the Amman Stock Exchange (ASE). The article is constructed on the analysis of time-series-cross-section (TSCS) (Panel Data). The study sample comprises 34 companies listed on the Amman Stock Exchange between 2016 and 2021. The study sample's content of the financial reports is analyzed to attain appropriate data for the study. The Findings indicate that family ownership and ownership of board members negatively impact dividends. In contrast, institutional ownership and concentrated ownership positively impact dividends, as no effect of foreign ownership is found on dividends. By introducing audit quality as a modified variable on the relationship between ownership structure and dividends, the findings demonstrate that audit quality positively enhances and strengthens this relationship. This article with its results is of great significance to future stockholders and shareholders, as they help in selecting companies capable of distributing higher dividends than other companies and achieving satisfactory investment returns. The findings of the study also focus on the significance of audit quality as a guarantor for regulating the relationship between forms of ownership structure and the distribution of dividends. This study is regarded among the little research investigating the factors that would impact the relationship between ownership structure and dividends. This article plays a key role in bridging the research gap related to the lack of studies dealing with the relationship between ownership structure and dividends in emerging markets. © 2023 Growing Science Ltd. All rights reserved.

Jarab, A.S., Al-Qerem, W., Alzoubi, K.H., Tharf, M., Abu Heshmeh, S., Al-Azayzih, A., Mukattash, T.L., Akour, A., Al Hamarneh, Y.N.

Patterns of drug-related problems and the services provided to optimize drug therapy in the community pharmacy setting

(2023) Saudi Pharmaceutical Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85168625664&doi=10.1016%2fj.jsps.2023.101746&partnerID=40&md5=cfffc9c01ecbf1c8853888efcc5bb28e

AFFILIATIONS: College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, Al Ain, United Arab Emirates;

Department of Pharmacology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Canada

ABSTRACT: Introduction: Drug-related problems (DRPs) are events or circumstances involving drug therapy that actually or potentially interferes with desired health outcomes. Objectives: To assess community pharmacists' knowledge and practice regarding DRP-reduction services, as well as the barriers and factors associated with decreased provision of these services. Methods: This cross-sectional study utilized a validated questionnaire to assess pharmacists' knowledge, practice, and barriers to the provision of DRP-reduction services in the community pharmacy setting. Binary regression model was used to assess the variables associated with the practice of DRP-reduction services. Results: A total of 412 pharmacists participated in the study. The pharmacists demonstrated

strong knowledge but inadequate practice of DRP-reduction services. The most reported DRPs were inappropriate combination of drugs, or drugs and herbal medications, or drugs and dietary supplements (52.4%), patients' inability to understand instructions properly (46.1%), inappropriate drug according to guidelines (43.7%), and too high dose (40.3%). The most common barriers to these services were increased workload (60.5%), limited time (53.2%), and lack of good communication skills (49.8%). The presence of a counselling area in the pharmacy increased the practice of DRP-reduction services (OR: 3.532, 95%CI: 2.010-5.590, $P < 0.001$), while increased weekly working hours (OR: 0.966, 95%CI: 0.947-0.986), $P < 0.01$) and serving < 10 patients daily (OR = 0.208, 95%CI: 0.072-0.601, $P < 0.01$) decreased it. Conclusions: Community pharmacists' practice of DRP-reduction services showed a scope for improvement. Future pharmaceutical care initiatives should increase the number of personnel working in the pharmacy and provide them with opportunities for continued education and training in order to improve the provision of DRP services and optimize patients' outcomes. © 2023 The Author(s)

Abdelhafez, E., Hamdan, M., AL-Maghalseh, M.

Enhancing photovoltaic panel efficiency using a combination of Zinc Oxide and Titanium Oxide water-based nanofluids

(2023) Case Studies in Thermal Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168085165&doi=10.1016%2fj.csite.2023.103382&partnerID=40&md5=4e38f045ceb0d70ac40cecf26d7690a2)

[85168085165&doi=10.1016%2fj.csite.2023.103382&partnerID=40&md5=4e38f045ceb0d70ac40cecf26d7690a2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168085165&doi=10.1016%2fj.csite.2023.103382&partnerID=40&md5=4e38f045ceb0d70ac40cecf26d7690a2)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Alternative Energy Technology, P.O. Box 130, Amman, 11733, Jordan;

Applied Science Private University, Renewable Energy Technology Department, P.O. Box 541350, Amman, 11937, Jordan;

Middle East University, Faculty of Engineering, Amman, 11831, Jordan;

Palestine Polytechnic University, Electrical Engineering Department, Hebron, Palestine

ABSTRACT: The efficiency of a photovoltaic (PV) panel decreases as its temperature increases, which is caused by an increase in solar irradiation. To maintain high electricity efficiency, it is necessary to keep the PV's operating temperature low. Therefore, a cooling system is needed to decrease the temperature of PV panels, especially when solar irradiation is high. Hybrid nanoparticles have attracted considerable interest in the field of PV cooling because of their distinctive characteristics and potential uses. They have the ability to significantly improve the performance and efficiency of solar panels. By offering advantages such as effective heat dissipation, improved heat transfer, favorable optical properties, increased stability, and cost-effectiveness, hybrid nanoparticles play a critical role in enhancing PV cooling. Leveraging these unique attributes, hybrid nanoparticles hold the potential to elevate the efficiency, reliability, and overall performance of photovoltaic systems. This study involved a three-stage process. The initial two stages focused on identifying the optimal concentration of Zinc oxide water-based nanofluid and Titanium oxide water-based nanofluid. The third stage sought to determine the ideal combination of these two nanofluids. Throughout each stage, five identical PV modules were utilized and placed adjacent to one another. During the experiment, one PV module was used as a base, while the other four were coated on their backside with a specific concentration of the corresponding nanofluid type. During the study, K-type thermocouples were employed to measure the hourly averaged backside temperature of each module. These thermocouples were attached to the backside of the modules to obtain accurate readings. Additionally, a GL 220 midi logger was utilized to record the voltage, current, and power of each PV throughout the duration of the experiment. Based on the findings of the study, it was found that in general, the performance of each PV was improved upon the coating process, with the best PV panel performance obtained when using a mixture of 0.4% TiO₂ and 0.2% ZnO concentration by increasing the output power by 22.81% and increasing the efficiency by 29.47%. © 2023

Jararweh, Y., Fatima, S., Jarrah, M., AlZu'bi, S.

Smart and sustainable agriculture: Fundamentals, enabling technologies, and future directions

(2023) Computers and Electrical Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162138528&doi=10.1016%2fj.compeleceng.2023.108799&partnerID=40&md5=7e20761eb741caa737c5e662f1ed5e02)

[85162138528&doi=10.1016%2fj.compeleceng.2023.108799&partnerID=40&md5=7e20761eb741caa737c5e662f1ed5e02](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162138528&doi=10.1016%2fj.compeleceng.2023.108799&partnerID=40&md5=7e20761eb741caa737c5e662f1ed5e02)

AFFILIATIONS: Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Computer Science, Duquesne University, Pittsburgh, PA 15282, United States;

School of Technology, Eastern Illinois University (EIU), Charleston, IL 61920, United States;

Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Agriculture is an important sector that plays a key role in the economic growth of countries. Innovative agricultural advancements has undoubtedly supported the expansion of the capacity and efficiency of different agricultural activities. According to the United Nations Food and Agriculture Organization assessment, the world's population is expected to reach 8.5 billion by 2030, and 9.6 billion by 2050 which will result in an unprecedented demand for food and agriculture products. It is estimated that the food production should increase by 70 percent to meet such a

demand. Given the limited farming space, lack of water, climate change, and constantly changing environmental conditions, new and innovative smart agriculture solutions must be developed. In general, there has been an increase in the agricultural production volume over the time to ensure the food security. Efforts are being made to increase the quality and quantity of agribusiness products by transforming them into smart and connected products through a smart agriculture industry. Smart and precision agriculture refers to the integration of technology, such as the Internet of things, sensors, robotics, artificial intelligence, smart supply chains, big data analytics, and blockchain, into the agriculture industry. The Internet of things era is the umbrella that covers and enables the other technological tools. Smart technology integration can lead to a more productive and efficient agriculture via reducing the need for manual human interactions and making proactive intelligent decisions. This article aims at providing a survey on smart and sustainable agriculture focusing on its enabling technologies while providing future directions for improvement. © 2023 Elsevier Ltd

Abu Sabra, M.A., Al Kalaldehy, M., Khalil, M., Abualruz, H., Hamdan-Mansour, A.M.

The efficacy of using psychotherapy treatments for obsessive-compulsive disorder on minimizing suicidal thoughts and behaviours: A scoping review

(2023) *Clinical Psychology and Psychotherapy*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159906094&doi=10.1002%2fcpp.2871&partnerID=40&md5=e72ddbfa1053f37e0171667a5359d83a)

[85159906094&doi=10.1002%2fcpp.2871&partnerID=40&md5=e72ddbfa1053f37e0171667a5359d83a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159906094&doi=10.1002%2fcpp.2871&partnerID=40&md5=e72ddbfa1053f37e0171667a5359d83a)

AFFILIATIONS: School of Nursing, The University of Jordan-Aqaba Campus, Aqaba, Jordan;

Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Nursing, The University of Jordan, Amman, Jordan

ABSTRACT: Background: Suicidal thoughts and behaviours (STBs) are significant public health challenges that affect a variety of individuals and communities. Despite numerous efforts to discover and refine psychotherapy treatments to minimize STBs, the efficacy of STB treatments remains unclear. Objective: Conduct a scoping review to assess the efficacy of using psychotherapy treatments to minimize STBs among individuals with obsessive-compulsive disorder (OCD). Method: A scoping review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews guidelines (PRISMA-ScR) to screen 163 studies published between 2010 and 2021. Results: A total of seven articles that fulfil the eligibility criteria reported that psychotherapy treatments for obsessive-compulsive disorder were found to be effective and applicable approaches to minimize the severity of the OCD symptoms and STBs, despite variance in studies' target samples, types of interventions, periods and indicators. Conclusion: The current review has provided evidence showing the significant effects of psychotherapy treatments on various health-related aspects of life for individuals diagnosed with obsessive-compulsive disorder, and it is recommended to use them for enhancing treatment outcomes and minimizing STBs. Implication for Practice: This scoping review verifies the formalization and incorporation of psychotherapy treatments for OCD to minimize STBs into standard practice and highlights the importance of mental health professionals being part of the implementation of these treatments. © 2023 John Wiley & Sons Ltd.

Wahdan, M.M., Malak, M.Z., Al-Amer, R., Ayed, A., Russo, S., Berte, D.Z.

Effect of incredible years autism spectrum and language delays (IY-ASD) program on stress and behavioral management skills among parents of children with autism spectrum disorder in Palestine

(2023) *Journal of Pediatric Nursing*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151644300&doi=10.1016%2fj.pedn.2023.03.018&partnerID=40&md5=f60004d8feb2746647f5e1c769b6ed18)

[85151644300&doi=10.1016%2fj.pedn.2023.03.018&partnerID=40&md5=f60004d8feb2746647f5e1c769b6ed18](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151644300&doi=10.1016%2fj.pedn.2023.03.018&partnerID=40&md5=f60004d8feb2746647f5e1c769b6ed18)

AFFILIATIONS: Saint John of Jerusalem Eye Hospital Group / Anabta branch Tulkarm, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

Pediatric Health Nursing, Faculty of Nursing, Arab American University Palestine, Jenin, Palestine;

Clinical psychology, Birzeit University, Palestine;

Clinical Psychology, An-Najah National University, Palestine;

Western Sydney University, School of Nursing and Midwifery, Australia

ABSTRACT: Purpose: This study purposed to evaluate the effect of the Incredible Years Autism Spectrum and Language Delays (IY-ASD) program in reducing parents' stress and improving aggressive and disruptive behaviors in the parents among parents of children with autism spectrum disorder in Palestine. Design and methods: A one-group pre-posttest design was used. Thirty-four parents who enrolled in the Palestinian Child Institute in Nablus were recruited. Results: Findings revealed a significant difference between parents' total stress pre and post-IY-ASD ($t = 1.2$, $p < 0.01$ and parents' behavioral management skills toward their children with autism spectrum disorder. The study demonstrated that the IY-ASD program for 16 sessions reduced stress among parents of children with autism spectrum disorder in Palestine and improved aggressive and disruptive behaviors in the parents. Conclusion: The IY-ASD program can be successfully implemented for parents of this cohort group. Practice implications: Healthcare providers can adopt such a program for enhancing parenting

roles with their children experiencing autism spectrum disorder. © 2023 Elsevier Inc.

Halloush, S., Alkhatib, N.S., Almutairi, A.R., Calamia, M., Halawah, H., Obeng-Kusi, M., Hoyle, M., Rashdan, O., Koeller, J., Abraham, I.

Economic Evaluation of Three BRAF + MEK Inhibitors for the Treatment of Advanced Unresectable Melanoma With BRAF Mutation From a US Payer Perspective (2023) *Annals of Pharmacotherapy*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146578696&doi=10.1177%2f10600280221146878&partnerID=40&md5=79ad705431383a89ba8d42a7880b4509)

[85146578696&doi=10.1177%2f10600280221146878&partnerID=40&md5=79ad705431383a89ba8d42a7880b4509](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146578696&doi=10.1177%2f10600280221146878&partnerID=40&md5=79ad705431383a89ba8d42a7880b4509)

AFFILIATIONS: Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pi Pharma Intelligence, Amman, Jordan;

Center for Health Outcomes and PharmacoEconomic Research, The University of Arizona, Tucson, AZ, United States;

Drug Sector, Saudi Food & Drug Authority, Riyadh, Saudi Arabia;

Centre for the Health Economy, Macquarie University, Sydney, NSW, Australia;

College of Pharmacy, Middle East University, Amman, Jordan;

College of Pharmacy, University of Texas at Austin, Austin, TX, United States;

Pharmacotherapy Education & Research Center, UT Health, San Antonio, TX, United States;

Department of Pharmacy Practice & Science, R. Ken Coit College of Pharmacy, The University of Arizona, Tucson, AZ, United States

ABSTRACT: Background: The combinations of BRAF + MEK inhibitors—encorafenib (ENC) + binimetinib (BIN), cobimetinib (COB) + vemurafenib (VEM), and dabrafenib (DAB) + trametinib (TRA)—are recommended for the treatment of BRAF-mutated advanced melanoma. Objective: To assess the cost-effectiveness and cost-utility of ENC + BIN versus COB + VEM versus DAB + TRA from a US payer perspective. Methods: A Markov model was constructed to simulate a hypothetical cohort over a time horizon of 10 years. The overall survival (OS) and progression-free survival (PFS) curves were independently digitized from a randomized controlled trial for ENC + BIN and fitted using R software. Published and indirectly estimated hazard ratios were used to fit OS and PFS curves for COB + VEM and DAB + TRA. Costs, life-year gains, and quality-adjusted life years (QALYs) associated with the 3 treatment combinations were estimated. A base case analysis and probabilistic sensitivity analysis (PSA) were conducted to estimate the incremental cost-utility ratio (ICUR). A discount rate of 3.5% was applied on cost and outcomes. Results: The ENC + BIN versus COB + VEM comparison was associated with an ICUR of \$656 233 per QALY gained. The ENC + BIN versus DAB + TRA comparison was associated with an ICUR of \$3 135 269 per QALY gained. The DAB + TRA combination dominated COB + VEM. The base case analysis estimates were confirmed by the PSA estimates. ENC + BIN was the most cost-effective combination at a high willingness-to-pay (WTP) threshold of \$573 000 per QALY and \$1.5 million/QALY when compared to COB + VEM and DAB + TRA, respectively. Conclusion and Relevance: Given current prices and acceptable WTP thresholds, our study suggests that DAB + TRA is the optimum treatment. In this study, ENC + BIN was cost-effective only at a very high WTP per QALY threshold. © The Author(s) 2023.

Hijazi, R., Abu Daabes, A., Al-Ajlouni, M.I.

Mobile payment service quality: a new approach for continuance intention

(2023) *International Journal of Quality and Reliability Management*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146221193&doi=10.1108%2fIJQRM-05-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146221193&doi=10.1108%2fIJQRM-05-2022-0151&partnerID=40&md5=6eb655c63ee1c5ea0b24044e66f7e6b7)

[0151&partnerID=40&md5=6eb655c63ee1c5ea0b24044e66f7e6b7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146221193&doi=10.1108%2fIJQRM-05-2022-0151&partnerID=40&md5=6eb655c63ee1c5ea0b24044e66f7e6b7)
AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan;

Management Department, Liwa College of Technology, Abu Dhabi, United Arab Emirates

ABSTRACT: Purpose: This paper assesses the continuance intention (CI) for mobile-based payment (M-payment) services following the COVID-19 pandemic by combining the self-efficacy construct with the electronic service quality model. Design/methodology/approach: This exploratory, cross-sectional research employs qualitative and quantitative research methods; specifically, a questionnaire and interviews. A total of 403 Jordanian participants completed valid questionnaires. Mediation and moderation evaluations assessed the M-payment service quality (MPSQ), self-efficacy and health concerns (HC) to determine CI. Findings: The results verify the significance of MPSQ and self-efficacy in developing CI and show the mediating influence of self-efficacy between MPSQ and CI. Moreover, HC negatively impact the self-efficacy/CI link. Practical implications: This research benefits M-payment service providers seeking to secure customer loyalty via improved M-payment services. The behavioral intention investigation will provide rich information about potential customers' CI and illuminate areas for development. Originality/value: This research makes an original contribution to the existing M-payment literature by investigating the impact of customers' perception of service quality on their CI to utilize M-payment services, balanced with self-efficacy and HC. © 2022, Emerald Publishing Limited.

Almajali, M.H., Ghazwi, M.F., Alqudah, F.T., Almahasnah, M.J., Alajarmeh, H.H., Masarweh, A.A.
The Legal Aspects and the Enhanced Role of Cybersecurity in Protecting the Electronic Voting Process
in the Context of Jordan Parliament Election Law No. (4) of 2022

(2023) Information Sciences Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173508891&doi=10.18576%2fISL%2f120832&partnerID=40&md5=4794a15edb11a62a22bbe574b0b4f1f9)

85173508891&doi=10.18576%2fISL%2f120832&partnerID=40&md5=4794a15edb11a62a22bbe574b0b4f1f9

AFFILIATIONS: Faculty of Law, Department of Law, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Law, Department of Law, Isra University, Amman, Jordan;

King Hussein School of Computing Sciences, Princess Sumaya University for Technology, Amman, Jordan

ABSTRACT: This study, entitled: "The legal aspects and the enhanced role of cybersecurity in protecting the electronic voting process", dealt with the concept of the electronic voting process, in addition to the most important characteristics of that process, as well as highlighting the pros and cons related to the electronic voting system. Then, the researchers singled out a proposed approach for the electronic voting process in terms of the adopted mechanism and cyber protection in accordance with the provisions of the Jordanian Election Law No. (4) of 2022. At the end of the research, the researchers recommended activating the text of Article 40 of the electoral law by issuing legislation that regulates the electronic voting process and enhances the protection of cyber security, and then updating the technical and legislative system of the Independent Election Commission and the Ministry of Political Development. © 2023 NSP Natural Sciences Publishing Cor.

Batiha, I.M., Talafha, O., Ababneh, O.Y., Alshorm, S., Momani, S.

Handling a Commensurate, Incommensurate, and Singular Fractional-Order Linear Time-Invariant System
(2023) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169146580&doi=10.3390%2faxioms12080771&partnerID=40&md5=3fe41fac41d91c95b9babe03c867ccc6)

85169146580&doi=10.3390%2faxioms12080771&partnerID=40&md5=3fe41fac41d91c95b9babe03c867ccc6

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, P.O. Box 346, Ajman, United Arab Emirates;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics, Faculty of Science, Zarqa University, Zarqa, 13110, Jordan;

Department of Mathematics, Faculty of Science, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: From the perspective of the importance of the fractional-order linear time-invariant (FoLTI) system in plenty of applied science fields, such as control theory, signal processing, and communications, this work aims to provide certain generic solutions for commensurate and incommensurate cases of these systems in light of the Adomian decomposition method. Accordingly, we also generate another general solution of the singular FoLTI system with the use of the same methodology. Several more numerical examples are given to illustrate the core points of the perturbations of the considered singular FoLTI systems that can ultimately generate a variety of corresponding solutions. © 2023 by the authors.

Abu Falahah, I., Hioual, A., Al-Qadri, M.O., AL-Khassawneh, Y.A., Al-Husban, A., Hamadneh, T., Ouannas, A.

Synchronization of Fractional Partial Difference Equations via Linear Methods

(2023) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169138838&doi=10.3390%2faxioms12080728&partnerID=40&md5=c1a9cb6c14eb644b3cb2016e017041c7)

85169138838&doi=10.3390%2faxioms12080728&partnerID=40&md5=c1a9cb6c14eb644b3cb2016e017041c7

AFFILIATIONS: Department of Mathematics, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Laboratory of Dynamical Systems and Control, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria;

Department of Mathematics, Jerash University, Jerash, 26150, Jordan;

Data Science and Artificial Intelligence Department, Zarqa University, Zarqa, 13110, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: Discrete fractional models with reaction-diffusion have gained significance in the scientific field in recent years, not only due to the need for numerical simulation but also due to the stated biological processes. In this paper, we investigate the problem of synchronization-control in a fractional discrete nonlinear bacterial culture reaction-diffusion model using the Caputo h-difference operator and a second-order central difference scheme and an L1 finite difference scheme after deriving the discrete fractional version of the well-known Degn-Harrison system and Lengyel-

Epstein system. Using appropriate techniques and the direct Lyapunov method, the conditions for full synchronization are determined. Furthermore, this research shows that the L1 finite difference scheme and the second-order central difference scheme may successfully retain the properties of the related continuous system. The conclusions are proven throughout the paper using two major biological models, and numerical simulations are carried out to demonstrate the practical use of the recommended technique. © 2023 by the authors.

Abu Qalbin, R., Rabayah, H., Darwish, M., Abende, R.

Assessment of Construction Risks in Projects Funded by External Sources in Jordan during the COVID-19 Pandemic

(2023) Buildings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85169096851&doi=10.3390%2fbuildings13081885&partnerID=40&md5=49fd771a5a4ef352548112838481f704

AFFILIATIONS: Department of Civil Engineering, Middle East University, Amman, 11831, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Applied Science Research Center, Applied Science Private University, Amman, 11435, Jordan

ABSTRACT: In general, construction projects are vulnerable to various risks during their life cycle. These risks may negatively affect the project cost and duration, in addition to other factors, including environmental impact, health and safety, and quality of construction work. The COVID-19 pandemic has brought more challenges to construction projects. This study presents an assessment of 47 major risks affecting construction projects. The research investigates and assesses the risk factors associated with a special type of construction project, namely, projects funded by external sources, due to their importance, characteristics, and sensitivity. Furthermore, the study was carried out under the impact of the special conditions and constraints associated with the COVID-19 health pandemic. These conditions provided specific types of risks, results of risk assessment, and recommended responses to the risks. The studied risks were categorized using the PESTLE technique, an external factor analysis technique, which includes six groups of Political, Economic, Social, Technological, Legal, and Environmental risks. A questionnaire survey was conducted on 34 construction organizations that implemented or supervised projects funded by external sources. The aim of the survey was to assess the risks affecting the construction projects in terms of probability of occurrence and severity on the projects' cost and time schedule. Then, the importance of each risk was calculated, and the risks were ranked according to their importance. The results showed the high importance of environmental and legal risks and indicated that the most important risk factors are the difficulty of issuing licenses and permits and the inappropriate definition of the scope of work. This study would help managers and fund providers make decisions regarding risks during uncontrolled pandemic or disastrous circumstances. Although the current study was conducted in Jordan, its procedures and results can be useful in other locations with different properties and conditions. © 2023 by the authors.

Hamadneh, T., Hiuoual, A., Alsayyed, O., AL-Khassawneh, Y.A., Al-Husban, A., Ouannas, A.

Local Stability, Global Stability, and Simulations in a Fractional Discrete Glycolysis Reaction-Diffusion Model

(2023) Fractal and Fractional, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85169062927&doi=10.3390%2ffractalfract7080587&partnerID=40&md5=e61b9149eb0615a0cfd17689995fa326

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Laboratory of Dynamical Systems and Control, University of Oum EL-Bouaghi, Oum El Bouaghi, 04000, Algeria;

Department of Mathematics, Faculty of Science, The Hashemite University, Zarqa, 13133, Jordan;

Data Science and Artificial Intelligence Department, Zarqa University, Zarqa, 13110, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics and Computer Science, University of Oum EL-Bouaghi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: In the last few years, reaction-diffusion models associated with discrete fractional calculus have risen in prominence in scientific fields, not just due to the requirement for numerical simulation but also due to the described biological phenomena. This work investigates a discrete equivalent of the fractional reaction-diffusion glycolysis model. The discrete fractional calculus tool is introduced to the discrete modeling of diffusion problems in the Caputo-like delta sense, and a fractional discretization diffusion model is described. The local stability of the equilibrium points in the proposed discrete system is examined. We additionally investigate the global stability of the equilibrium point by developing a Lyapunov function. Furthermore, this study indicates that the L1 finite difference scheme and the second-order central difference scheme can successfully

preserve the characteristics of the associated continuous system. Finally, an equivalent summation representing the model's numerical formula is shown. The diffusion concentration is further investigated for different fractional orders, and examples with simulations are presented to corroborate the theoretical findings. © 2023 by the authors.

Hamadneh, T., Hioual, A., Alsayyed, O., Al-Khassawneh, Y.A., Al-Husban, A., Ouannas, A.
Finite Time Stability Results for Neural Networks Described by Variable-Order Fractional Difference Equations

(2023) Fractal and Fractional, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169030524&doi=10.3390%2ffractalfract7080616&partnerID=40&md5=a28287c2a6cf393c343fad9d0d21025)

85169030524&doi=10.3390%2ffractalfract7080616&partnerID=40&md5=a28287c2a6cf393c343fad9d0d21025

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Laboratory of Dynamical Systems and Control, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria;

Department of Mathematics, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Data Science and Artificial Intelligence Department, Zarqa University, Zarqa, 13110, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, P.O. Box 2600, Irbid, 21110, Jordan;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: Variable-order fractional discrete calculus is a new and unexplored part of calculus that provides extraordinary capabilities for simulating multidisciplinary processes. Recognizing this incredible potential, the scientific community has been researching variable-order fractional discrete calculus applications to the modeling of engineering and physical systems. This research makes a contribution to the topic by describing and establishing the first generalized discrete fractional variable order Gronwall inequality that we employ to examine the finite time stability of nonlinear Nabla fractional variable-order discrete neural networks. This is followed by a specific version of a generalized variable-order fractional discrete Gronwall inequality described using discrete Mittag-Leffler functions. A specific version of a generalized variable-order fractional discrete Gronwall inequality represented using discrete Mittag-Leffler functions is shown. As an application, utilizing the contracting mapping principle and inequality approaches, sufficient conditions are developed to assure the existence, uniqueness, and finite-time stability of the equilibrium point of the suggested neural networks. Numerical examples, as well as simulations, are provided to show how the key findings can be applied. © 2023 by the authors.

Hamadneh, T., Chebana, Z., Abu Falahah, I., Al-Khassawneh, Y.A., Al-Husban, A., Oussaeif, T.-E., Ouannas, A., Abbas, A.

On Finite-Time Blow-Up Problem for Nonlinear Fractional Reaction Diffusion Equation: Analytical Results and Numerical Simulations

(2023) Fractal and Fractional, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169018862&doi=10.3390%2ffractalfract7080589&partnerID=40&md5=023e04859791cef5ac38aa9ce099f9c2)

85169018862&doi=10.3390%2ffractalfract7080589&partnerID=40&md5=023e04859791cef5ac38aa9ce099f9c2

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria;

Department of Mathematics, Faculty of Science, The Hashemite University, Zarqa, 13133, Jordan;

Data Science and Artificial Intelligence Department, Zarqa University, Zarqa, 13133, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics, Badji Mokhtar-Annaba University, Annaba, 23000, Algeria;

Laboratory of Mathematics, Dynamics and Modelization, Badji Mokhtar-Annaba University, Annaba, 23000, Algeria

ABSTRACT: The study of the blow-up phenomenon for fractional reaction-diffusion problems is generally deemed of great importance in dealing with several situations that impact our daily lives, and it is applied in many areas such as finance and economics. In this article, we expand on some previous blow-up results for the explicit values and numerical simulation of finite-time blow-up solutions for a semilinear fractional partial differential problem involving a positive power of the solution. We show the behavior solution of the fractional problem, and the numerical solution of the finite-time blow-up solution is also considered. Finally, some illustrative examples and comparisons with the classical problem with integer order are presented, and the validity of the results is demonstrated. © 2023 by the authors.

Hamadneh, T., Ibrahim, H.Z., Abualhomos, M., Saeed, M.M., Gharib, G., Al Soudi, M., Al-Husban, A. Novel Approach to Multi-Criteria Decision-Making Based on the n,mPR-Fuzzy Weighted Power Average Operator

(2023) Symmetry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168863472&doi=10.3390%2fsym15081617&partnerID=40&md5=fde1646bf78171c080043d3053e30249)

85168863472&doi=10.3390%2fsym15081617&partnerID=40&md5=fde1646bf78171c080043d3053e30249

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Faculty of Education, University of Zakho, Zakho, 42002, Iraq;

Department Basic Science, Applied Science Private University Applied Science Research Center (ASRC), Amman, 11733, Jordan;

Department of Mathematics, Faculty of Sciences, King Abdulaziz University, Jeddah, 21589, Saudi Arabia;

Department of Mathematics, Faculty of Science, Zarqa University, Zarqa, 13110, Jordan;

Department of Basic Scientific Sciences, Applied Science Private University, Amman, 11931, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 21110, Jordan

ABSTRACT: A significant addition to fuzzy set theory for expressing uncertain data is an n,m-th power root fuzzy set. Compared to the nth power root, Fermatean, Pythagorean, and intuitionistic fuzzy sets, n,m-th power root fuzzy sets can cover more uncertain situations due to their greater range of displayed membership grades. When discussing the symmetry between two or more objects, the innovative concept of an n,m-th power root fuzzy set over dual universes is more flexible than the current notion of an intuitionistic fuzzy set, a Pythagorean fuzzy set, and a nth power root fuzzy set. In this study, we demonstrate a number of additional operations on n,m-th power root fuzzy sets along with a number of their special aspects. Additionally, to deal with choice information, we create a novel weighted aggregated operator called the n,m-th power root fuzzy weighted power average (FWPA (Formula presented.)) across n,m-th power root fuzzy sets and demonstrate some of its fundamental features. To rank n,m-th power root fuzzy sets, we also define the score and accuracy functions. Moreover, we use this operator to identify the countries with the best standards of living and show how we can select the best option by contrasting aggregate results using score values. Finally, we contrast the results of the FWPA (Formula presented.) operator with the square-root fuzzy weighted power average (SR-FWPA), the nth power root fuzzy weighted power average (nPR-FWPA), the Fermatean fuzzy weighted power average (FFWPA), and the n,m-rung orthopair fuzzy weighted power average (n,m-ROFWPA) operators. © 2023 by the authors.

Wang, X., Yin, J., Yang, Y., Muda, I., Abduvaxitovna, S.Z., AlWadi, B.M., Castillo-Picon, J., Abdul-Samad, Z.

Relationship between the resource curse, Forest management and sustainable development and the importance of R&D Projects

(2023) Resources Policy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167982826&doi=10.1016%2fj.resourpol.2023.103997&partnerID=40&md5=0579089c48ad6c0994cdc1b68266dbb7)

85167982826&doi=10.1016%2fj.resourpol.2023.103997&partnerID=40&md5=0579089c48ad6c0994cdc1b68266dbb7

AFFILIATIONS: College of Political Science and Law, Jiangxi Normal University, Jiangxi, Nanchang, 330000, China;

Department of Civil Engineering University: University of Nottingham Malaysia Campus, Jalan Broga, Semenyih, Selangor43500, Malaysia;

Nature Reserve Projects and Wild Fauna and Flora Conservation Center of Hebei Province, Hebei, Shijiazhuang, 050081, China;

Universitas Sumatera Utara, Medan, Indonesia;

Associate Professor at Department of Finance, Tashkent State University of Economics, Uzbekistan;

Assistant Professor of Management and Entrepreneurship, Al-Zaytoonah University of Jordan, Jordan;

Universidad Nacional Santiago Antúnez de Mayolo, Huaraz, Peru;

Department of Quantity Surveying, Faculty of Built Environment, University of Malaya, Kuala Lumpur, 50603, Malaysia

ABSTRACT: This study's objective is to examine the role of natural resources (NRS) in promoting sustainable development in industrialized economies, with a focus on G7 member states. Using data from 1990 to 2020, we employ rigorous panel data approaches, including second-generation unit root testing, slope heterogeneity analysis, an error correction cointegration approach, and cross-section dependency concerns. Given the nonlinear nature of the data distribution, we employ a cutting-edge approach known as moment quantile regression to accurately capture the correlations. The results indicate that NRS plays a significant role in promoting economic growth in the G7 nations. Alternative forms of energy and expenditure on research and development have been shown to have a negative effect on long-term economic growth. In contrast, forests have a long-term positive impact on sustainable performance. The findings, which are supported by quantile regression analysis, emphasize the significance of each factor in determining the aggregate results. Based on these

findings, the report makes recommendations for increasing investments in R&D and maximizing the use of NRS and forests to improve the sustainable performance of regional ecosystems. In addition, it highlights the importance of confronting forestry and forest management practices to advance sustainability initiatives. These evidence-based recommendations aim to mitigate several aspects of environmental deterioration in the considered setting. © 2023

Zeidan, M., Al-soud, M., Dmour, M., Alakayleh, Z., Al-qawabah, S.
Integrating a Solar PV System with Pumped Hydroelectric Storage at the Mutah University of Jordan (2023) Energies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167798819&doi=10.3390%2fen16155769&partnerID=40&md5=f66f76553f7656952e6369569df2adec)

85167798819&doi=10.3390%2fen16155769&partnerID=40&md5=f66f76553f7656952e6369569df2adec

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Electrical Power Engineering and Mechatronics, Tafila Technical University, Tafila, 66110, Jordan;

Civil and Environmental Engineering Department, College of Engineering, Mutah University, Karak, 61710, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This paper focuses on designing and assessing Pumped Hydroelectric Energy Storage Systems (PHESs) connected to the grid and a PV system for self-consumption constructed at Mutah University in an area of high solar potential. By focusing on the PHES and PV literature, data in the field were acquired based on the grid code needed in Jordan. Next, a search to find a suitable location for installation was conducted. Afterwards, a load profile was added to calculate the energy demand of the university. Then the productivity of the solar power plant of Mutah University was included. Finally, MATLAB software was used to realize the amount of energy to be stored; these data were used to implement the system that was chosen and dimensioned. A PHES layout was created to find the most accurate values for parameters to optimize system performance and to investigate loss analysis. The main finding is that the system attains 9230.89 MWh/year. An annual load yields 4430 MWh/year, which covers the Mutah University demand with an estimated saving of USD 287,607,993. © 2023 by the authors.

Wazwaz, A.-M., Abu Hammad, M., Al-Ghamdi, A.O., Alshehri, M.H., El-Tantawy, S.A.

New (3+1)-Dimensional Kadomtsev-Petviashvili-Sawada-Kotera-Ramani Equation: Multiple-Soliton and Lump Solutions

(2023) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167591495&doi=10.3390%2fmath11153395&partnerID=40&md5=d6a0b2f113b6559cba170e71e340126d)

85167591495&doi=10.3390%2fmath11153395&partnerID=40&md5=d6a0b2f113b6559cba170e71e340126d

AFFILIATIONS: Department of Mathematics, Saint Xavier University, Chicago, IL 60655, United States;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Biology Department, Faculty of Science and Arts, Al-Baha University, Al-Mikhwah, Al-Baha, 1988, Saudi Arabia;

Department of Mathematics, College of Science, King Saud University, P.O. Box 2455, Riyadh, 11451, Saudi Arabia;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt

ABSTRACT: In this investigation, a novel (3+1)-dimensional Lax integrable Kadomtsev-Petviashvili-Sawada-Kotera-Ramani equation is constructed and analyzed analytically. The Painlevé integrability for the mentioned model is examined. The bilinear form is applied for investigating multiple-soliton solutions. Moreover, we employ the positive quadratic function method to create a class of lump solutions using distinct parameters values. The current study serves as a guide to explain many nonlinear phenomena that arise in numerous scientific domains, such as fluid mechanics; physics of plasmas, oceans, and seas; and so on. © 2023 by the authors.

Al-Jabra, A.A., Alnuhait, H., Almanasra, S., Al-Khawaja, H.A.

A Vision Towards the Future of Cryptocurrencies Rooting, its Financial Significance, and Legal Challenges in its Use

(2023) Information Sciences Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167575139&doi=10.18576%2fisl%2f120811&partnerID=40&md5=05187c3a05c5437b1f485140b4aba1a0)

85167575139&doi=10.18576%2fisl%2f120811&partnerID=40&md5=05187c3a05c5437b1f485140b4aba1a0

AFFILIATIONS: Faculty of Law, Department of Law, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Computer Studies, Department of Computer Studies, Arab Open University, Riyadh, Saudi Arabia;

Faculty of Business, Department of Computer Studies, Amman Arab University, Amman, Jordan;

Swiss FinTech Innovation Lab, University of Zurich, Zurich, Switzerland

ABSTRACT: Encrypted currencies have become an undeniable reality among investors and speculators in various countries around the world, which necessitates standing on the most prominent issues raised

by these currencies, so the researchers decided to discuss in detail the theoretical side of encrypted currencies from various perspectives such as the concept, history, reality, future, and the Islamic perspective on it. In this article, we discuss the notion of financial technology, how it began, and where it has reached, coinciding with the business world seeing a new revolution symbolized by the birth of cryptocurrencies and how the world is rapidly approaching it. Furthermore, we discuss the types of currencies and the most famous cryptocurrencies with their advantages and disadvantages in dealing with their applications, their legal regulation, and the extent of legal liability arising from their misuse, followed by a detailed presentation about the blockchain, we also talk about the relationship between cryptocurrencies, their requirements, risks, and struggles, and finally we will talk about cryptocurrencies from the point of view of investors. © 2023 NSP Natural Sciences Publishing Cor.

Jarab, A.S., Al-Qerem, W., Alzoubi, K.H., Obeidat, H., Abu Heshmeh, S., Mukattash, T.L., Naser, Y.A., Al-Azayzih, A.

Artificial intelligence in pharmacy practice: Attitude and willingness of the community pharmacists and the barriers for its implementation

(2023) Saudi Pharmaceutical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165323930&doi=10.1016%2Fj.jsps.2023.101700&partnerID=40&md5=c9dfc0e3b6b44bff31ea31cf3d95edfc)

[85165323930&doi=10.1016%2Fj.jsps.2023.101700&partnerID=40&md5=c9dfc0e3b6b44bff31ea31cf3d95edfc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165323930&doi=10.1016%2Fj.jsps.2023.101700&partnerID=40&md5=c9dfc0e3b6b44bff31ea31cf3d95edfc)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030., Irbid, 22110, Jordan;

College of Pharmacy, AL Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

School of Pharmacy, Queen's University Belfast, Medical Biology Centre, 97 Lisburn Road, Northern Ireland, Belfast, BT9 7BL, United Kingdom

ABSTRACT: Background: Artificial intelligence (AI) is the capacity of machines to perform tasks that ordinarily require human intelligence. AI can be utilized in various pharmaceutical applications with less time and cost. Objectives: To evaluate community pharmacists' willingness and attitudes towards the adoption of AI technology at pharmacy settings, and the barriers that hinder AI implementation. Methods: This cross-sectional study was conducted among community pharmacists in Jordan using an online-based questionnaire. In addition to socio-demographics, the survey assessed pharmacists' willingness, attitudes, and barriers to AI adoption in pharmacy. Binary logistic regression was conducted to find the variables that are independently associated with willingness and attitude towards AI implementation. Results: The present study enrolled 401 pharmacist participants. The median age was 30 (29–33) years. Most of the pharmacists were females (66.6%), had bachelor's degree of pharmacy (56.1%), had low-income (54.6%), and had one to five years of experience (35.9%). The pharmacists showed good willingness and attitude towards AI implementation at pharmacy (n = 401). The most common barriers to AI were lack of AI-related software and hardware (79.2%), the need for human supervision (76.4%), and the high running cost of AI (74.6%). Longer weekly working hours (attitude: OR = 1.072, 95% C.I (1.040–1.104), P < 0.001, willingness: OR = 1.069, 95% C.I. 1.039–1.009, P-value = 0.011), and higher knowledge of AI applications (attitude: OR = 1.697, 95% C.I (1.327–2.170), willingness: OR = 1.790, 95% C.I. (1.396–2.297), P-value < 0.001 for both) were significantly associated with better willingness and attitude towards AI, whereas greater years of experience (OR = 20.859, 95% C.I (5.241–83.017), P-value < 0.001) were associated with higher willingness. In contrast, pharmacists with high income (OR = 0.382, 95% C.I. (0.183–0.795), P-value = 0.010), and those with <10 visitors (OR = 0.172, 95% C.I. (0.035–0.838), P-value = 0.029) or 31–50 visitors daily (OR = 0.392, 95% C.I. (0.162–0.944), P-value = 0.037) had less willingness to adopt AI. Conclusions: Despite the pharmacists' positive willingness and attitudes toward AI, several barriers were identified, highlighting the importance of providing educational and training programs to improve pharmacists' knowledge of AI, as well as ensuring adequate funding support to overcome the issue of AI high operating costs. © 2023 The Author(s)

El-Tantawy, S.A., Abu Hammad, M., Alotaibi, B.M., Tag-Eldin, E., Ismaeel, S.M.E., El-Awady, E.I.

On the modulational of Schamel nonlinear Schrödinger equation and the associated envelope excitations in a degenerate relativistic quantum complex plasma

(2023) Results in Physics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164749133&doi=10.1016%2Fj.rinp.2023.106702&partnerID=40&md5=24a8ed7db532f0f9e162813c7f610c08)

[85164749133&doi=10.1016%2Fj.rinp.2023.106702&partnerID=40&md5=24a8ed7db532f0f9e162813c7f610c08](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164749133&doi=10.1016%2Fj.rinp.2023.106702&partnerID=40&md5=24a8ed7db532f0f9e162813c7f610c08)

AFFILIATIONS: Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah,

Al-Baha University, Saudi Arabia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Faculty of Engineering and Technology, Future University in Egypt, New Cairo11835, Egypt;

Department of Physics, College of Science and Humanities in Al-Kharj, Prince Sattam bin Abdulaziz University, Al-Kharj, 11942, Saudi Arabia;

Department of Physics, Faculty of Science, Ain Shams University, Cairo, Egypt

ABSTRACT: The modulational instability (MI) of Schamel/modified nonlinear Schrödinger equation (SNLSE) or (mNLSE) and the associated envelope excitations, including bright solitons in a multicomponent dense plasma consisting of relativistically degenerate electrons, trapped ions, and non-degenerate dust species are reported. A conventional multiple scales perturbative technique is utilized to get a SNLSE. This equation is different from the standard NLSE which the SNLSE has a nonlinear term with fractional order (3/2). The MI criteria are derived in detail. Also, the occurrence of envelope solitary wave and the effects of the different physical parameters on its profile are briefly discussed. The current results are advantageous to understand the mechanism of the propagation of the envelope excitations in complex plasmas with trapped ions and relativistically degenerate electrons, such as those observed in space observations and laboratory complex plasma. © 2023 The Author(s)

Malak, M.Z., Shuhaiber, A.H., Alsswey, A., Tarawneh, A.

Social support as the mediator for the relationship between internet gaming disorder and psychological problems among university students

(2023) Journal of Psychiatric Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163452905&doi=10.1016%2Fj.jpsychires.2023.06.007&partnerID=40&md5=47d6b8490a7c1d7ff2effe6565f08d1a)

[85163452905&doi=10.1016%2Fj.jpsychires.2023.06.007&partnerID=40&md5=47d6b8490a7c1d7ff2effe6565f08d1a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163452905&doi=10.1016%2Fj.jpsychires.2023.06.007&partnerID=40&md5=47d6b8490a7c1d7ff2effe6565f08d1a)

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah. University of Jordan, Amman, Jordan;

College of Technological Innovation, Zayed University, Abu Dhabi, United Arab Emirates;

Multimedia Technology Department, Faculty of Architecture and Design, AL-Zaytoonah University of Jordan, Amman, Jordan;

Civil and Infrastructure Engineering Department, Faculty of Engineering and Technology AL-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: There has been increasing recognition of internet gaming disorder as a psychiatric problem that is linked with serious impairment and distress and correlated with psychological reactions and social consequences. Thus, this study proposed that psychological problems (stress, anxiety, and depression) and social support could be associated with IGD and social support had a mediating role between these psychological problems and IGD among university students in Jordan. Methods: A cross-sectional, descriptive correlational design was adopted. The university students (N = 1020) were selected randomly from four universities (two public and two private) in Jordan. A self-structured questionnaire was used to collect data using the Internet Gaming Disorder Test (IGD-20 Test), Depression Anxiety Stress Scales-21 (DASS-21), Multidimensional Social Support Scale (MSPSS), and sociodemographic data. Findings: Findings of this study found that the mean age of the participants was 21.38 (S.D ± 2.12) and 55.9% of them were males. The prevalence of internet gaming disorder was 12.16% among the participants, where the cut-off point for internet gaming disorder was 71 out of 100. Internet gaming disorder was significantly correlated with stress, anxiety, social support, and depression. However, stress, anxiety, and social support had a direct effect on internet gaming disorder, while social support had the strongest effect on internet gaming disorder. It was found that social support had a mediating role between anxiety and stress ($\beta = -0.172$, T-Statistics = 3.92, $p < 0.001$; $\beta = -0.268$, T-Statistics = 5.45, $p < 0.001$, respectively) and internet gaming disorder ($p < 0.001$). Conclusion: This study can help policymakers and instructors develop health education programs and/or health training programs that focus on using social support as a coping method when experiencing psychological problems including stress and anxiety and adopt social support in management programs for excessive use of internet gaming. © 2023 Elsevier Ltd

Abusara, O.H., Bishtawi, S., Al-Qerem, W., Jarrar, W., Al-Khareisha, L., Khedair, S.I.

Pharmacists' knowledge, familiarity, and attitudes towards biosimilar drugs among practicing Jordanian pharmacists: A cross sectional study

(2023) Journal of King Saud University - Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163452329&doi=10.1016%2Fj.jksus.2023.102767&partnerID=40&md5=b19ae84690c5667126a6ba2054e7a953)

[85163452329&doi=10.1016%2Fj.jksus.2023.102767&partnerID=40&md5=b19ae84690c5667126a6ba2054e7a953](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163452329&doi=10.1016%2Fj.jksus.2023.102767&partnerID=40&md5=b19ae84690c5667126a6ba2054e7a953)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacy, Al-Bashir Hospital, Amman, Jordan

ABSTRACT: Objective: Biosimilar (BSM) drugs are currently being manufactured and dispensed in several pharmaceutical markets worldwide, including Jordan. They are clinically similar to biological drugs

in terms of safety, purity, and potency, but with lower cost, hence they are of great interest. Pharmacists play a fundamental role as health care providers, due to their direct contact with patients, in terms of providing information and guidance about BSM drugs and their use for patients. Thus, the aim of this study was to assess the knowledge, familiarity, and attitude with BSM drugs among practicing Jordanian pharmacists. Materials and Methods: A questionnaire which was composed of 25 close-ended questions, was distributed via email and various social media applications to Jordanian pharmacists working in different fields. Results: A total of 400 pharmacists responded to the questionnaire. Overall, the level of knowledge and familiarity about BSM drugs among Jordanian pharmacists was low, as 75% of the respondents had a knowledge score of 66.7%. Poor knowledge was noticed in terms of variability of biological drug formulation lots and the BSM drug, the approval process of BSM drugs, and their cost, with correct answers of the respondents being 30.8%, 16%, and 7.5%, respectively. Nevertheless, the attitude of respondents towards BSM drug dispensing, and increasing patients' access to a variety of treatment options (73.8% and 82.3%, respectively) was rather favorable. Conclusions: The results of our study recognized three knowledge gaps: the variability between the biological drug formulation lots and the BSM drug, the cost of biological and BSM drugs, and understanding the approval process of biological and BSM drugs. So, these findings highlight a significant need for evidence-based education about BSM drugs among Jordanian pharmacists. © 2023 The Author(s)

Al Marahla, R.H., Shehzad, M.K., Garcia-Taengua, E.

Flexural and deflection behaviour of synthetic fibre reinforced concrete beams reinforced with glass fibre reinforced polymers bars under sustained service load (2023) Structures, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-8516343044&doi=10.1016%2Fj.istruc.2023.05.134&partnerID=40&md5=fe676caaf57fefda12e30bcbee9e9f5f)

[8516343044&doi=10.1016%2Fj.istruc.2023.05.134&partnerID=40&md5=fe676caaf57fefda12e30bcbee9e9f5f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-8516343044&doi=10.1016%2Fj.istruc.2023.05.134&partnerID=40&md5=fe676caaf57fefda12e30bcbee9e9f5f)

AFFILIATIONS: School of Civil Engineering, Al Zaytoonah University of Jordan, Jordan;

School of Civil Engineering, University of Leeds, United Kingdom

ABSTRACT: Glass fibre reinforced polymers (GFRP) bars have attracted increasing interest as a promising alternative for conventional steel reinforcement for its contribution towards sustainability and significantly improving the flexural performance of structural members. To mitigate the excessive deflections and crack widths exhibited by the FRP reinforced concrete members, fibre reinforced concrete (FRC) is employed which improves the toughness and cracking capacity of members. However, available research on the structural performance of FRC has focused on metallic fibres. The research presented in this paper is aimed at experimentally evaluating the influence of synthetic fibres on the time-dependent flexural behaviour of FRC beams reinforced with GFRP bars. Eight simply supported beams with varying synthetic fibre contents and GFRP bar diameters (but same reinforcement ratio) were tested under sustained service load. Creep under compression, concrete shrinkage, cracking moment, and deflection behaviour over 90 days were monitored and analyzed. Investigation revealed that the inclusion of synthetic fibres reduced the concrete deformations under creep and shrinkage by up to 22% and 26% respectively, increased the cracking capacity by 27%, increased the effective moment of inertia by 75%, and also resulted in up to 43% lower deflections. Suitability of several codes to predict the deformations and deflections under short and long-term conditions was also evaluated through comparison of the prediction models to the experimental results. Model proposed by ACI 440.1R-15 was found to predict the instantaneous deflection in beams without fibres with reasonable accuracy, however in FRC-GFRP beams, all models tend to overestimate the deflection. Presented research highlights the need for further investigation on non-metallic fibres and their contribution towards improvement of residual and flexural performance of FRC members to improve the validity of existing analytical prediction models. © 2023

El-Qirem, F.A., Malak, M.Z., Bani Salameh, A.K., Ali, R., Alsswey, A.

Effect of virtual reality therapy on stress and anxiety symptoms, and physiological measures among University students: an experimental study in Jordan (2023) Current Psychology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127685618&doi=10.1007%2F12144-022-02939-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127685618&doi=10.1007%2F12144-022-02939-w&partnerID=40&md5=87af5736665f0928b9180641c4b0cbe8)

[w&partnerID=40&md5=87af5736665f0928b9180641c4b0cbe8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127685618&doi=10.1007%2F12144-022-02939-w&partnerID=40&md5=87af5736665f0928b9180641c4b0cbe8)

AFFILIATIONS: Multimedia, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, A-Zaytoonah University of Jordan, P.O. Box: 130, Amman, 11733, Jordan;

Pediatric Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study assessed the effect of virtual reality therapy on the stress and anxiety symptoms, in addition to physiological measures, including mean arterial pressure (MAP) and pulse rate among university students. A one group pretest-posttest design was used. The participants were baccalaureate students who enrolled in all faculties at Al-Zaytoonah University of Jordan, Amman

Governorate. This study was conducted between December and January, 2019. The intervention involved an experience as a therapy called River Relaxation virtual reality (VR), which downloaded through Stream VR. The participants attended eight sessions for 15 min two sessions weekly over one month in the VR laboratory. There was a significant difference between the pre-post virtual reality therapy intervention for perceived stress ($t = 8.411$, $p < 0.001$), anxiety ($t = 10.145$, $p < 0.001$), MAP ($t = 6.393$, $p < 0.001$), and pulse ($t = 2.571$, $p < 0.05$). There was a statistically significant lowering in perceived stress, anxiety, and physiological measures including, MAP and pulse as a result of the Virtual Reality Therapy. The findings suggest the importance of integrating virtual reality therapy as an effective intervention to minimize stress and anxiety, and enhance physiological measures among university students. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Aljamal, S., Sotari, S., Tarawneh, O., Al-Hashimi, N., Hamed, S., Al-Hussein, M., Alkhatib, H.S. Preparation and characterization of drug-loaded, electrospun nanofiber mats formulated with zein or zein-based mixtures for wound healing applications (2023) *Jordan Journal of Pharmaceutical Sciences*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181498428&doi=10.35516%2fjpps.v16i2.1532&partnerID=40&md5=6598fcce7e246b95265098f04bba559b)

[85181498428&doi=10.35516%2fjpps.v16i2.1532&partnerID=40&md5=6598fcce7e246b95265098f04bba559b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181498428&doi=10.35516%2fjpps.v16i2.1532&partnerID=40&md5=6598fcce7e246b95265098f04bba559b)

AFFILIATIONS: School of Pharmacy, The University of Jordan, Amman, Jordan;

Cell Therapy Center, The University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Pharmaceutical Sciences, The Hashemite University, Jordan;

Physics Department and Hamdi Mango Center for Scientific Research, The University of Jordan, Amman, Jordan

ABSTRACT: Electrospun zein mats are known to have poor mechanical and water uptake properties limiting their usefulness as wound dressings. In this study, the effects of the solvent system used, the incorporation of the polymeric additives; polyethylene glycol 20000 (PEG20K) and polyvinylpyrrolidone K30 (PVPK30); and the crosslinking agent Tannic Acid (TA) on the mechanical and water uptake characteristics of zein - based nanofiber mats were investigated. The incorporation of either PEG20K or PVPK30 resulted in an improvement in water vapor sorption and a reduction in water contact-angle of the nanofiber mats. In addition, the incorporation of PEG20K and PVPK30 reduced the ultimate tensile strength, and Young's modulus while increasing the percent elongation of the nanofiber mats. The use of tannic acid as a crosslinking agent led to an increase in the water vapor sorption, ultimate tensile strength, and Young's modulus of the nanofiber mats. Mats with smaller average fiber diameter, greater ultimate tensile strength, higher Young's modulus, and greater water vapor sorption were obtained when using 80% (v/v) aqueous ethanol as a solvent system during the preparation of the nanofiber mats when compared to those produced using 60% (v/v) aqueous ethanol. In addition, using solutions with lower zein concentration resulted in mats with lower average fiber diameter, lower ultimate tensile strength and Young's modulus, and higher percent elongation. Selected formulations were loaded with tetracycline hydrochloride and drug release was evaluated in bulk liquid and using Franz diffusion cells. The use of Franz diffusion cells allowed the discrimination between formulation performance as a function of composition and water uptake properties. Drug release from nanofiber mats was also confirmed by observing the formation of an inhibition zone in cultures of *E. coli* and *S. aureus* using the agar diffusion assay. Improved performance of zein nanofiber mats was achieved using polymeric modifiers and crosslinking with tannic acid improving their suitability for wound dressing applications. © 2023 DSR Publishers/The University of Jordan. All Rights Reserved.

Al-Jammal, B., Hussein, B., Al-Hiari, Y., Al-Qirim, T., Al-Najdawi, M., Hamadneh, L., Alwahsh, M., Ikhmais, B.

Synthesis of microwave-assisted carboxamides in Triton WR-1339-induced hyperlipidemic rats: possible hypolipidemic heterocyclic compounds

(2023) *RSC Advances*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169298424&doi=10.1039%2fd3ra03581f&partnerID=40&md5=e4b0d76d533d271faf12e72d585a0716)

[85169298424&doi=10.1039%2fd3ra03581f&partnerID=40&md5=e4b0d76d533d271faf12e72d585a0716](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169298424&doi=10.1039%2fd3ra03581f&partnerID=40&md5=e4b0d76d533d271faf12e72d585a0716)

AFFILIATIONS: Department of Pharmaceutical Sciences/Faculty of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 17138, Jordan;

Faculty of Pharmacy, Isra University, Amman, 11622, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, Jordan

ABSTRACT: The hypolipidemic effect of furan carboxamide derivatives was investigated using the Triton WR-1339 rat model. Nineteen compounds were synthesized, including furan-2-carboxamides of benzophenones and acetophenones (a(1-4)), anilines and amine derivatives (a(5-9)), picolinic-2-carboxamide derivatives of benzophenones and acetophenone (a(10-12)) and furan-2-carboxylate esters

of benzophenones and acetophenones, substituted phenols and alcohols (b(1-7)). All the necessary steps were taken to synthesize, purify, and characterize these compounds. They were synthesized by reacting acyl chlorides of the heterocycles with their corresponding amines in the presence of pyridine and tert-butyl acetate. While the conventional heating method yielded acceptable yields for some of the reactions under reflux, the microwave synthesis reactor achieved significantly higher yields for others. Rats with hyperlipidemia were induced with Triton WR-1339 and then subjected to in vivo testing via an intraperitoneal injection of 200 mg kg⁻¹ Triton WR-1339. The model was tested using an oral dose of bezafibrate (100 mg kg⁻¹). After 7 hours of treatment with Triton, the new derivatives represented by compounds a(1-2), a(4-5), a7, and a(10-12) showed significant activity against the complete lipid profile, including a decrease in triglyceride, total cholesterol, and low-density lipoprotein cholesterol and an increase in high-density lipoprotein cholesterol plasma levels. At 20 mg kg⁻¹ dose, these compounds were superior to other lipid-lowering agents in reducing triglyceride levels and slightly increased high-density lipoprotein cholesterol levels. These results indicate a mutual mechanism of action of novel compounds with fibrates, where they have a marked effect on triglyceride and high-density lipoprotein cholesterol levels; for example, a5 causes a significant reduction (p 0.0001) of triglyceride levels by 86%, and a remarkable increase (p 0.0001) in high-density lipoprotein cholesterol plasma levels by 65% as compared to hyperlipidemic rats. © 2023 The Royal Society of Chemistry.

Aborayya, R., Abu Kwaik, A., Aladhami, Y., Naser, M., Tarawneh, O., Hamed, R.
Development and Physiochemical Characteristics of Vitamin C-loaded Microneedles
(2023) Jordan Journal of Pharmaceutical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85169044317&doi=10.35516%2fjpps.v16i2.1539&partnerID=40&md5=baddeff2d9848e406249f5381f776cab

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan
ABSTRACT: Vitamin C, ascorbic acid, is a water-soluble vitamin that is considered as one of the most potent antioxidant agent. It delays early skin aging, protects against harmful free radicals, improves wrinkles appearance under-eye circles, and reduces redness and hyperpigmentation. One of the most common way to deliver vitamin C to the body's tissue is through skin layers. Nevertheless, the effect of such ingredient might be limited due to the stratum corneum barrier which decreases the ability to reach the site of action. In this study, we provide an innovative strategy of utilization dissolving microneedles (MNs) to enhance skin-drug delivery system and overcome problems associated with the conventional formulations. A delivery system of micro-molds which provide a diverse range of three-dimensional (3D) MNs were used for the fabrication of vitamin C patches. Vitamin C MNs were examined for mechanical force tolerance, drug release, dimensional evaluation, dissolution, insertion, and permeation tests. Drug, polymers, and stabilizers were mixed at different ratios. Hydrogels were filled into the molds, centrifuged and left for air dry for 24-48 h. Appearance was visualized under light microscope. Patches were analyzed to determine percent assay of drug loaded, mechanical force, and penetration through the skin. The amount of vitamin C loaded into MNs was found to be 102%. MNs were easily inserted and dissolved through skin within 30 s. The dissolution rate of MNs were tested by using rat skin to determine the release of vitamin C within several time intervals. The in vitro release of vitamin C loaded MNs showed cumulative release percentage up to 70% in 9-10 h. Therefore, MNs as dermal drug delivery system was successfully developed, providing efficient release of vitamin C through the skin. © 2023 DSR Publishers/The University of Jordan. All Rights Reserved.

Sabbah, D.A.

Progress in the Design and Development of Phosphoinositide-3-Kinase (PI3K α) Inhibitors

(2023) Jordan Journal of Pharmaceutical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85169039508&doi=10.35516%2fjpps.v16i2.1489&partnerID=40&md5=88a8c71b73b52b35110cfabb8a7c344b

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan
ABSTRACT: Background: The phosphatidylinositol 3-kinase (PI3K α) has been spotlighted as a potential oncogene and therapeutic target for anticancer drug design. Objective: Target compounds were designed employing ligand- and structure-based drug design approaches to address the effect of the compounds' backbones and functionalities on their biological activity. Methods: Synthesis of the targeted compounds, biological evaluation tests against human cancer cell lines, and molecular docking studies. Results: Fortunately, 20 novel series of diverse scaffolds were prepared and characterized by means of FT-IR, ¹H and ¹³C NMR, HRMS, and elemental analysis. In addition, the identity of one core nucleus was successfully interpreted with the aid of X-ray crystallography. Biological activity of prepared compounds was investigated in vitro against human cancer cell lines. Results that these compounds inhibit cell proliferation and induce apoptosis through an increase in caspase-3 activity and a decrease in DNA cellular content. Furthermore, ligand-based pharmacophore modeling showed that the newly synthesized analogues match PI3K α inhibitors fingerprint and the molecular docking studies against PI3K α revealed that the analogues fit PI3K α kinase catalytic domain and form H-bonding with

key binding residues. Conclusion: The harvested series exhibited a potential PI3K α inhibitory activity in human cancer cell lines. © 2023 DSR Publishers/The University of Jordan. All Rights Reserved.

Khalaf, R.A., Nasrallah, A., Albadawi, G.

Cholesteryl Ester Transfer Protein Inhibitory Activity of New 4-Bromophenethyl Benzamides (2023) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166275059&doi=10.35516%2fjfps.v16i2.1465&partnerID=40&md5=54a29ab4aa21aac02cd5ea012b2d9be0)

85166275059&doi=10.35516%2fjfps.v16i2.1465&partnerID=40&md5=54a29ab4aa21aac02cd5ea012b2d9be0

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Cardiovascular diseases, as coronary heart disease, heart failure, and hypertension are the first leading cause of death in the United States and the third globally. CETP is a glycoprotein excreted mainly from the liver and found in plasma. Normal plasma CETP concentration is 1-4 $\mu\text{g/ml}$, while the ratio increased 70-80% in dyslipidemic patients. There is a growing need for new CETP inhibitors which encourages us to conduct this research. In this work, synthesis and in vitro study for four new 4-bromophenethylbenzamides 9a-d were carried out. In vitro study showed that the targeted compounds 9a-d exhibit acceptable activity against CETP, where compound 9a has a % inhibition of 40.7 at 10 μM concentration. It was found that the presence of the oxy group in both 9a and 9c enhances their activity which could be attributed to Hydrogen-bond formation with the amino acid residues of the CETP binding site. © 2023, University of Jordan, Deanship of Scientific Research. All rights reserved.

Ismail, W.H., Abusara, O.H., Ikhmais, B., Abul-Futouh, H., Sunoqrot, S., Ibrahim, A.I.M.

Design, Synthesis, and Biological Activity of Coniferyl Aldehyde Derivatives as Potential Anticancer and Antioxidant Agents

(2023) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166229958&doi=10.35516%2fjfps.v16i2.1463&partnerID=40&md5=0277a27528aaa7872d78e0b763a58f5a)

85166229958&doi=10.35516%2fjfps.v16i2.1463&partnerID=40&md5=0277a27528aaa7872d78e0b763a58f5a

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Department of Chemistry, Faculty of Science, The Hashemite University, Jordan

ABSTRACT: Natural products are known to exhibit antimicrobial, anticancer, and antioxidant activities. Among these natural products is cinnamon which contains cinnamaldehyde. Cinnamaldehyde and its derivatives have been reported to have anticancer and antioxidant activities. Coniferyl aldehyde, a non-cytotoxic compound and a cinnamaldehyde derivative, has also been shown to have anticancer activity. In this study, several derivatives of coniferyl aldehyde were synthesized and evaluated for their anticancer and antioxidant activities. Compounds 1, 2, 4, and 8-11 showed cytotoxic activity against H1299 cell line, a non-small cell lung cancer cells, with 4 being the most potent with IC₅₀ value of 6.7 μM . The antioxidant assay experiment showed that compounds 1, 2, and 4 resulted in half the scavenging activity of vitamin C at all tested concentrations. The coniferyl aldehyde itself showed dose-dependent antioxidant activity, with a proposed free radical stabilization mechanism. Thus, our study showed that the synthesized coniferyl aldehyde derivatives exhibit anticancer and antioxidant activities, which might act as potential therapeutic agents. © 2023, University of Jordan, Deanship of Scientific Research. All rights reserved.

Alwahsh, M., Knitsch, R., Marchan, R., Lambert, J., Tolstik, E., Raschke, H., Mahadaly, D., Marx, A., Belharazem, D., Hergenröder, R.

Novel NMR Technique for In-Vitro Toxicity Testing of a 3D Cancer Model

(2023) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166222365&doi=10.35516%2fjfps.v16i2.1529&partnerID=40&md5=9f4f0781aa630b59f29f60bd7f8e170f)

85166222365&doi=10.35516%2fjfps.v16i2.1529&partnerID=40&md5=9f4f0781aa630b59f29f60bd7f8e170f

AFFILIATIONS: Leibniz-Institut für Analytische Wissenschaften-*ISAS*-e.V, Dortmund, 44139, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Center Mannheim, Heidelberg University, Germany;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Department of Toxicology, Leibniz Research Center for Working Environment and Human Factors at the TU Dortmund (IfADO), Germany

ABSTRACT: The metabolic pathogenesis of thymic carcinomas (TCs) is poorly understood and adjuvant therapy has limited success in metastatic disease and tumor recurrence. Most studies on TCs use two-dimensional (2D) cell culture models, which are not considered as physiologically relevant, and consequently translation to the in-vivo situation remains challenging. Tissue-specific architecture, based in part on interactions with the microenvironment is an essential component of tumors and may be better recapitulated in three-dimensional (3D) cell culture models. Therefore, our goal is to establish 3D thymoma models which will then be used to understand the pharmacokinetics and pharmacodynamics of anticancer drug therapy via metabolic profiling of living cells. Our novel approach using NMR allows for the measurement of small tissue-like models, which are normally not

feasible with standard analytical techniques. The currently-available methods only provide a “snapshot” of the measured time point and tend to be destructive, e.g. dissecting or optical cleaning of the specimen to gain 3D Information – a limitation we overcome with our current method using NMR spectroscopy. In addition, anticancer therapy is only partially effective, mainly due to inherent or drug-induced resistance of tumor cells to standard chemotherapeutics and radiotherapy. Therefore, novel therapeutic strategies are urgently needed. © 2023 DSR Publishers/The University of Jordan. All Rights Reserved.

Alhusban, A.A., Ata, S.A., Hamadneh, L.A., Tarawneh, O.A., Abuzaid, H., Albustanji, S., Awad, M.K. Toxic Metals Transfer from Heating Coils to e-liquids: Safety Assessment of Popular e-cigarettes in Jordan

(2023) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166194291&doi=10.35516%2fjpps.v16i2.1466&partnerID=40&md5=d0a4ed3ce476f8ab60792f9d6af8c442)

[85166194291&doi=10.35516%2fjpps.v16i2.1466&partnerID=40&md5=d0a4ed3ce476f8ab60792f9d6af8c442](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166194291&doi=10.35516%2fjpps.v16i2.1466&partnerID=40&md5=d0a4ed3ce476f8ab60792f9d6af8c442)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The rate of smokers in Jordan has been among the highest globally. Electronic Nicotine Delivery systems (ENDs) are considered helpful in smoking cessation but also have the potential for metals exposure resulting from their transfer from the metallic coils to the e-liquid upon use. Metal exposure is associated with severe health outcomes. We sought to assess the levels of toxic metals (Cr, Cd, Pb, Ni and Al) transfer from two of the most popular coils used in ENDs among users in Jordan. The validated inductively coupled plasma-optical emission spectroscopy (ICP-OES) with limit of detections (LODs) of 0.10, 0.90, 0.15, 0.13 and 1.00 mg.kg⁻¹ was employed to measure the levels of toxic metals in the e-liquid samples. Following a repetitive usage of coils in both tank and pod systems for five continuous days, the cumulative amount of toxic metals; Ni, Cr, Al and Pb levels were significantly increased in all e-liquids used ($p \leq 0.0001$) compared to the fresh unheated samples. The obtained results showed a time-dependent increase of metals transfer from coils to e-liquids, thus highlighting the need for additional studies to re-assess the safety claims of using ENDs for smoking cessation. © 2023, University of Jordan, Deanship of Scientific Research. All rights reserved.

Hussein, B., Bourghli, L.M.S., Alzweiri, M., Al-Hiari, Y., Sini, M.A., Alnabulsi, S., Al-Ghwairi, B. Synthesis and Biological Evaluation of Carbonic Anhydrase III and IX Inhibitors using Gas Chromatography with Modified pH-Sensitive Pellets

(2023) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166192835&doi=10.35516%2fjpps.v16i2.1470&partnerID=40&md5=7cf168c69f74baf6f0599be9cf2a429d)

[85166192835&doi=10.35516%2fjpps.v16i2.1470&partnerID=40&md5=7cf168c69f74baf6f0599be9cf2a429d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166192835&doi=10.35516%2fjpps.v16i2.1470&partnerID=40&md5=7cf168c69f74baf6f0599be9cf2a429d)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan; Department of Pharmaceutical Sciences, Faculty of Pharmacy, The University of Jordan, Amman, Jordan; Department of Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy, Jordan University of Science and Technology, Jordan

ABSTRACT: Fifteen compounds were synthesized and tested as potential carbonic anhydrase III (CAIII) and carbonic anhydrase IX (CAIX) inhibitors, six of which are novel. Amides (a1-4), hydroxamic acids (b1-2), and imines (c1-9) derivatives were evaluated for their inhibitory activity against CAII and CAIX using gas chromatography with modified pH-sensitive pellets. The derivatives showed inhibition percentages between 12-56% for CAIII and 44-59% for CAIX, compared to 49% and 63% for captopril (the positive control), respectively. Imines showed the best inhibition of CAIII, while all derivatives showed comparable activity against CAIX. It is hypothesized that the nitrogen atom in imine, amide, or hydroxamic acid moieties in the vicinity of an ionizable group is in coordination with the zinc ion in the active site. Furthermore, the candidates were tested for their antimicrobial and antifungal activity. Generally, they showed low to zero activity against some gram-positive and negative bacteria. This supports the theory of their ability to bind to human carbonic anhydrase but not to bacterial one. These compounds could serve as useful scaffolds to develop more potent and selective carbonic anhydrase inhibitors as anti-obesity and anticancer candidates. © 2023, University of Jordan, Deanship of Scientific Research. All rights reserved.

Al-Hiari, Y., Arabiyat, S., Kasabri, V., Hamdan, I., Almasri, I., Yasin, M., Al-Saad, D.

Metal Chelators as Anticancer Approach: Part I; Novel 7-Anisidine Derivatives with Multidentate at 7-8 Carbons of Fluoroquinolone Scaffold as Potential Chelator Anticancer and Antilipolytic Candidates

(2023) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166059715&doi=10.35516%2fjpps.v16i2.1467&partnerID=40&md5=55e459737a048425710627bf65bfa755)

[85166059715&doi=10.35516%2fjpps.v16i2.1467&partnerID=40&md5=55e459737a048425710627bf65bfa755](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166059715&doi=10.35516%2fjpps.v16i2.1467&partnerID=40&md5=55e459737a048425710627bf65bfa755)

AFFILIATIONS: School of Pharmacy, The University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Al-Balqa Applied University, Jordan;

Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, AL Azhar University-

Gaza, Palestine;

Faculty of Pharmacy, Aqaba University of Technology, Jordan;

Department of Basic Sciences and Humanities, Faculty of Science, The American University of Madaba, Jordan

ABSTRACT: Background: Cancer is one of the greatest troubling maladies currently. It is believed that it is the second reason for death following cardiovascular maladies. Owing to the multiplicity of its types, stages and genetic basis, there is no existing drug to cure all types of cancer. Resistance to present drugs and severe adverse effects are other challenges in the struggle against cancer. In such pursuit, fluoroquinolones (FQs) have the potential as antiproliferative compounds due to safety, low cost, and absence of resistance. Aims: In this study, we aim to synthesize biologically active compounds that have dual anticancer and anti-lipase potential. Sixteen compounds were prepared, fully characterized, and studied through identification of IC₅₀ values against the highly susceptible cancer cell lines. Methods: In this work we are concerned with synthesizing biologically active compounds that belong to fluoroquinolones (FQs) with dual anti-colorectal cancer and anti-lipase activity, owing to association between cancer and obesity, conduct titration and docking experiments to validate our hypothesis. Results: In vitro findings indicated that these compounds demonstrated promising anticancer activity against tested cell lines in micromolar range with a potency comparable to cisplatin. Compound 11 exhibited approximately doubled potency compared to cisplatin against SW620 colorectal cancer cell line with IC₅₀ 3.2 μ M which proposes FQs as potent antiproliferative agents. The synthesized Fluoroquinolone (FQ) compounds were further screened for their in vitro anti-lipase potential. The findings demonstrated that all the screened compounds have demonstrated remarkable anti-lipase activity, as compared to control molecule orlistat. Compound 9 exhibited comparable activity to orlistat against pancreatic lipase with IC₅₀ 0.4 μ M which proposes FQs as potent pancreatic lipase inhibitors. Conclusions: The anticancer potential of these derivatives is referred to their ability to inhibit Topo II which indicates that chelation is the mechanism of inhibition of Topo II emphasized with titration and docking experiments. © 2023 DSR Publishers/The University of Jordan. All Rights Reserved.

Hamadneh, T., Abu-Falahah, I., Hamadneh, M.D., Zraiqat, A.

Bernstein Coefficients for Computing Rational Lyapunov and Control Functions of Dynamical Systems (2023) ACM International Conference Proceeding Series, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85180793816&doi=10.1145%2f3613347.3613365&partnerID=40&md5=c104fb07971c9a7402aeb733a7b7c518

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

The Hashemite University, Department of Mathematics, Faculty of Science, P.O box 330127, Zarqa, 13133, Jordan;

Jordan University of Science and Technology, Department of Mathematics and Statistics, Irbid, 22110, Jordan

ABSTRACT: In this paper, we address the Bernstein expansion of rational polynomial continuous dynamical systems over simplices. We consider rational Lyapunov functions and controllers both expanded into rational Bernstein form. Rational control functions are optimized by the smallest and largest rational Bernstein coefficients of maximum degree. Bounds for certifying the existence of rational functions in the monomial and Bernstein forms are given. Subsequently, the maximum degree of Bernstein basis is sufficiently optimized. © 2023 ACM.

Al-Qerem, W., Jarab, A., Shawabkeh, Y., Ling, J., Hammad, A., Alazab, B., Alasmari, F.

COVID-19 Vaccination Booster Dose: Knowledge, Practices, and Intention among Pregnant/Planning to Get Pregnant and Lactating Women

(2023) Vaccines, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85166397069&doi=10.3390%2fvaccines11071249&partnerID=40&md5=b0a7e8dacf2ce0f88999ad9fd3b3c7af

AFFILIATIONS: Department of Pharmacy, AlZaytoonah University of Jordan, Amman, 11733, Jordan;

College of Pharmacy, Al Ain University, P.O. Box 64141, Abu Dhabi, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Faculty of Science and Wellbeing, University of Sunderland, Sunderland, SR1 3SD, United Kingdom;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 12372, Saudi Arabia

ABSTRACT: Pregnant women are at higher risk of developing severe COVID-19 symptoms. Therefore, booster dose against COVID-19 was recommended for this special population in Jordan. However, vaccine hesitancy/refusal remains the main obstacle to providing immunity against the spread of COVID-19. Thus, the aim of this study is to examine the intention of pregnant/planning to get pregnant and lactating women towards receiving a booster dose against COVID-19 and its associated factors. A questionnaire was given to Jordanian pregnant/planning to get pregnant and lactating females. A total of 695 females were enrolled in the study. Older age, having a chronic disease, high education, high

income, and high perceived risk of COVID-19 were significantly associated with higher knowledge about COVID-19. High perceived risk of COVID-19 was significantly associated with better practice. Participants who anticipated they might contract COVID-19 in the next six months, had high perceived risk of COVID-19, had high knowledge, had received the COVID-19 vaccine based on conviction, and smokers had higher intention to receive a booster dose of the COVID-19 vaccination. In order to increase pregnant and lactating women's intention to receive a booster dose of the COVID-19 vaccine, public health organizations should consider developing comprehensive health education campaigns. © 2023 by the authors.

Hamed, R., Abu Alata, W., Abu-Sini, M., Abulebdah, D.H., Hammad, A.M., Aburayya, R.
Development and Comparative Evaluation of Ciprofloxacin Nanoemulsion-Loaded Bigels Prepared Using Different Ratios of Oleogel to Hydrogels (2023) Gels, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166304839&doi=10.3390%2fgels9070592&partnerID=40&md5=7b2bd20244656ca35e91f4abefc83a11)

[85166304839&doi=10.3390%2fgels9070592&partnerID=40&md5=7b2bd20244656ca35e91f4abefc83a11](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166304839&doi=10.3390%2fgels9070592&partnerID=40&md5=7b2bd20244656ca35e91f4abefc83a11)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Nanoemulsions and bigels are biphasic delivery systems that can be used for topical applications. The aim of this study was to incorporate an oil-in-water ciprofloxacin hydrochloride nanoemulsion (CIP.HCl NE) into two types of bigels, Type I (oleogel (OL)-in-hydrogel (WH)) and Type II (WH-in-OL) to enhance drug penetration into skin and treat topical bacterial infections. Bigels were prepared at various ratios of OL and WH (1:1, 1:2, and 1:4). Initially, CIP.HCl NE was prepared and characterized in terms of droplet size, zeta potential, polydispersity index, morphology, and thermodynamic and chemical stability. Then CIP.HCl NE was dispersed into the OL or WH phase of the bigel. The primary physical stability studies showed that Type I bigels were physically stable, showing no phase separation. Whereas Type II bigels were physically unstable, hence excluded from the study. Type I bigels were subjected to microstructural, rheological, in vitro release, antimicrobial, and stability studies. The microscopic images showed a highly structured bigel network with nanoemulsion droplets dispersed within the bigel network. Additionally, bigels exhibited pseudoplastic flow and viscoelastic properties. A complete drug release was achieved after 4–5 h. The in vitro and ex vivo antimicrobial studies revealed that bigels exhibited antimicrobial activity against different bacterial strains. Moreover, stability studies showed that the rheological properties and physical and chemical stability varied based on the bigel composition over three months. Therefore, the physicochemical and rheological properties, drug release rate, and antimicrobial activity of Type I bigels could be modified by altering the OL to WH ratio and the phase in which the nanoemulsion dispersed in. © 2023 by the authors.

Noor, S., Hammad, M.A., Shah, R., Alrowaily, A.W., El-Tantawy, S.A.

Numerical Investigation of Fractional-Order Fornberg-Whitham Equations in the Framework of Aboodh Transformation (2023) Symmetry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166299776&doi=10.3390%2fsym15071353&partnerID=40&md5=e6c5eb5b178ff0a4be9ef5df9f7ff81a)

[85166299776&doi=10.3390%2fsym15071353&partnerID=40&md5=e6c5eb5b178ff0a4be9ef5df9f7ff81a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166299776&doi=10.3390%2fsym15071353&partnerID=40&md5=e6c5eb5b178ff0a4be9ef5df9f7ff81a)

AFFILIATIONS: Department of Basic Sciences, Preparatory Year Deanship, King Faisal University, Al Ahsa31982, Saudi Arabia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Abdul Wali Khan University Mardan, Mardan, 23200, Pakistan;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, Riyadh, 11671, Saudi Arabia;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Baha University, Al-Mikhwah, Al-Baha, 65431, Saudi Arabia

ABSTRACT: In this investigation, the fractional Fornberg-Whitham equation (FFWE) is solved and analyzed via the variational iteration method (VIM) and Adomian decomposition method (ADM) with the help of the Aboodh transformation (AT). The FFWE is an important model for describing several nonlinear wave propagations in various fields of science and plasma physics. The AT provides a powerful tool for transforming fractional-order differential equations (DEs) into integer-order ones, making them more amenable to analytical solutions. Accordingly, the main objective of this investigation is to demonstrate the effectiveness and accuracy of ADM and VIM in deriving some approximations for the FFWE. Furthermore, we highlight the advantages and potential applications of these methods in solving other fractional-order nonlinear problems in several scientific fields, especially in plasma physics and some engineering problems. © 2023 by the authors.

Almutairi, S., Kalloush, H.M., Manoon, N.A., Bardaweel, S.K.

Matrix Metalloproteinases Inhibitors in Cancer Treatment: An Updated Review (2013–2023)

(2023) *Molecules*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165998436&doi=10.3390%2fmolecules28145567&partnerID=40&md5=0c8d45fdb48add75643cbe145ffcf11a)

85165998436&doi=10.3390%2fmolecules28145567&partnerID=40&md5=0c8d45fdb48add75643cbe145ffcf11a

AFFILIATIONS: Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Matrix metalloproteinases (MMPs) are identifiable members of proteolytic enzymes that can degrade a wide range of proteins in the extracellular matrix (ECM). MMPs can be categorized into six groups based on their substrate specificity and structural differences: collagenases, gelatinases, stromelysins, matrilysins, metalloelastase, and membrane-type MMPs. MMPs have been linked to a wide variety of biological processes, such as cell transformation and carcinogenesis. Over time, MMPs have been evaluated for their role in cancer progression, migration, and metastasis. Accordingly, various MMPs have become attractive therapeutic targets for anticancer drug development. The first generations of broad-spectrum MMP inhibitors displayed effective inhibitory activities but failed in clinical trials due to poor selectivity. Thanks to the evolution of X-ray crystallography, NMR analysis, and homology modeling studies, it has been possible to characterize the active sites of various MMPs and, consequently, to develop more selective, second-generation MMP inhibitors. In this review, we summarize the computational and synthesis approaches used in the development of MMP inhibitors and their evaluation as potential anticancer agents. © 2023 by the authors.

Al-Ghalith, A., Nashwan, A., Al-Ghammaz, S.A.-D., Alzghoul, M., Al-Salti, M.

The Treatment of Women in Selected Works by Bessie Head

(2023) *Journal of Language Teaching and Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165516240&doi=10.17507%2fjltr.1404.14&partnerID=40&md5=e5bedcd5f6f72e1c08ec6ff253b7be48)

85165516240&doi=10.17507%2fjltr.1404.14&partnerID=40&md5=e5bedcd5f6f72e1c08ec6ff253b7be48

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The role of women in Africa is one of the most notable issues in modern African literature. African novelists focus on roles held by women in the pre-colonial, colonial, and post-colonial periods, alongside the effect of colonization on African women. This study is a serious attempt at providing a comprehensive analytical investigation of the role of women in Bessie Head's selected works: *When Rain Clouds Gather* (1969), *The Collector of Treasures*, and *Other Botswana Village Tales* (1977). It demonstrates how traditional societies and colonizers treat African women and the influence of Head's personal life and background on her literary works. Various studies focus on the issue of women using the feminist approach. This study, however, concentrates on women's issues using feminist and post-colonial theories. © 2023 ACADEMY PUBLICATION.

Aljboor, A., Imam, R., Alawneh, R.

Barriers to Achieving Sustainability in Highway Construction Projects: The Case of Jordan

(2023) *Sustainability (Switzerland)*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165071704&doi=10.3390%2fsu151310081&partnerID=40&md5=22d9b57da4599ead6b2b166027746eb8)

85165071704&doi=10.3390%2fsu151310081&partnerID=40&md5=22d9b57da4599ead6b2b166027746eb8

AFFILIATIONS: Department of Civil Engineering, The University of Jordan, Amman, 11942, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Despite the importance of sustainable highway construction projects in achieving sustainable development, unsustainable construction highway projects still prevail in Jordan. Therefore, this article aims to identify barriers affecting sustainability implementation in Jordan's highway construction projects. These barriers were identified from the previous literature. Questionnaire surveys were developed and distributed to experts to rank the degree of importance of each barrier. Moreover, a case study was assessed to evaluate the sustainability level of highway projects in Jordan. The research found that the sustainability concept should be supported financially to protect the environment by using a legislative framework to implement sustainability principles. There are several barriers to implementing the concept, like the lack of sustainability education, improper communication amongst team members, and the lack of familiarity with the techniques and the necessary skills to employ them properly. The use of sustainability assessment tools is needed to evaluate the sustainability level for highway projects. For the case study, a sustainability assessment tool was applied to the most recent important highway project in Jordan, "Bus Rapid Transit project," to determine its sustainability level and to show how the barriers affect the implementation of the sustainable highway project and lower the sustainability level in the project. © 2023 by the authors.

Salem, Y., Rajha, H.N., Sunoqrot, S., Hammad, A.M., Castangia, I., Manconi, M., Manca, M.L., Al Lababidi, D., Touma, J.A., Maroun, R.G., Louka, N.

Exhausted Grape Seed Residues as a Valuable Source of Antioxidant Molecules for the Formulation of Biocompatible Cosmetic Scrubs

(2023) *Molecules*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164846669&doi=10.3390%2fmolecules28135049&partnerID=40&md5=0aa36af1f694cd78beac4c8af5053b5d)

85164846669&doi=10.3390%2fmolecules28135049&partnerID=40&md5=0aa36af1f694cd78beac4c8af5053b5d

AFFILIATIONS: Centre d'Analyses et de Recherche, Unité de Recherche Technologies et Valorisation Agro-Alimentaire, Faculté des Sciences, Université Saint-Joseph de Beyrouth, Riad El Solh, P.O. Box 17-5208, Beirut, 1104 2020, Lebanon;

Département de Génie Chimique et Pétrochimique, Faculté d'Ingénierie, Ecole Supérieure d'Ingénieurs de Beyrouth (ESIB), Université Saint-Joseph de Beyrouth, CST Mkalles Mar Roukos, Riad El Solh, Beirut, 1107 2050, Lebanon;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Life and Environmental Sciences, University of Cagliari, University Campus, S.P. Monserrato-Sestu Km 0.700, CA, Monserrato, 09042, Italy;

Château Saint Thomas, Bekaa Valley, Kab Elias, Lebanon

ABSTRACT: Grape seed of Obeidi, a white Lebanese autochthonous variety, was previously tested in different studies as a valuable source of bioactive molecules such as polyphenols, oils, and proteins by means of extraction procedures for the development of cosmetic and therapeutic products. However, an un-valorized, exhausted grape seed residue remains as "secondary waste" after the extraction processes. In this study, the exhausted seeds have been further exploited to produce cosmetic scrubs capable of releasing antioxidant molecules during the exfoliation process, in accordance with the principles of the circular economy and going toward a zero-waste process. The deep characterization of the exhausted seeds confirmed the presence of antioxidant phenolic molecules including gallic acid, catechins and protocatechuic acid (0.13, 0.126, and 0.089 mg/g of dry matter DM), and a high phenolic content (11.85 mg gallic acid equivalents (GAE)/g of dry matter (DM)). Moreover, these residues were shown to possess a sandy texture (Hausner ratio (HR): 1.154, Carr index (CI): 0.133, and angle of repose: 31.62 (°) degrees), similar to commercial natural exfoliants. In this respect, exhausted Obeidi grape seed residues were incorporated at increasing concentrations (0.5, 1, 1.5, and 2% w/w) in a cosmetic scrub, and stored for 5 weeks at 4, 25, and 50 °C for stability testing. All tested scrub formulations exhibited good spreadability with a spread diameter of 3.6–4.7 cm and excellent physical stability, as no phase separation or color change were observed after four cycles of heat shock at 4 and 50 °C. Finally, an in vivo skin irritation test showed that the scrub enriched with 1.5% of exhausted Obeidi grape seed residues was the most promising formulation, as it possessed a high amount of phenolic molecules (0.042 ± 0.001 mg GAE/mL of scrub) and good stability and could be safely applied to the skin with no irritation phenomena. Overall results underlined that exhausted grape seed residues can be transformed into promising systems for both physical and chemical exfoliation, thus confirming the importance of the effective exploitation of agro-industrial by-products for the development of high value cosmeceutics towards a more sustainable and zero-waste approach. © 2023 by the authors.

Shatnawi, M.T., Khennaoui, A.A., Ouannas, A., Grassi, G., Radogna, A.V., Bataihah, A., Batiha, I.M. A Multistable Discrete Memristor and Its Application to Discrete-Time FitzHugh-Nagumo Model

(2023) *Electronics* (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164818779&doi=10.3390%2felectronics12132929&partnerID=40&md5=0a6289fe4fb06f1e63a6e19c5bbb61ad)

85164818779&doi=10.3390%2felectronics12132929&partnerID=40&md5=0a6289fe4fb06f1e63a6e19c5bbb61ad

AFFILIATIONS: Department of Basic Science, Al-Huson University College, Al-Balqa Applied University, Irbid, 21510, Jordan;

TLSI Department, NTIC Faculty, University of Constantine 2, Constantine, 25000, Algeria;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria;

Dipartimento Ingegneria Innovazione, Università del Salento, Lecce, 73100, Italy;

Ministry of Education, Amman, 11118, Jordan;

Department of Mathematics, Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: This paper presents a multistable discrete memristor that is based on the discretization of a continuous-time model. It has been observed that the discrete memristor model is capable of preserving the characteristics of the continuous memristor model. Furthermore, a three-dimensional memristor discrete-time FitzHugh-Nagumo model is constructed by integrating the discrete memristor into a two-dimensional FitzHugh-Nagumo (FN) neuron model. Subsequently, the dynamic behavior of the proposed neuron model is analyzed through Lyapunov exponents, phase portraits, and bifurcation diagrams. The results show multiple kinds of coexisting hidden attractor behaviors generated by this neuron model. The proposed approach is expected to have significant implications for the design of advanced neural networks and other computational systems, with potential applications in various fields, including robotics, control, and optimization. © 2023 by the authors.

Chodakowska, E., Nazarko, J., Nazarko, Ł., Rabayah, H.S., Abendeh, R.M., Alawneh, R.
ARIMA Models in Solar Radiation Forecasting in Different Geographic Locations
(2023) Energies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164800430&doi=10.3390%2fen16135029&partnerID=40&md5=ae469f8dde450c323c206012df4525ad)

85164800430&doi=10.3390%2fen16135029&partnerID=40&md5=ae469f8dde450c323c206012df4525ad

AFFILIATIONS: Faculty of Engineering Management, Bialystok University of Technology, Wiejska 45A,
Bialystok, 15-351, Poland;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, P.O. Box 130,
Amman, 11733, Jordan

ABSTRACT: The increasing demand for clean energy and the global shift towards renewable sources necessitate reliable solar radiation forecasting for the effective integration of solar energy into the energy system. Reliable solar radiation forecasting has become crucial for the design, planning, and operational management of energy systems, especially in the context of ambitious greenhouse gas emission goals. This paper presents a study on the application of auto-regressive integrated moving average (ARIMA) models for the seasonal forecasting of solar radiation in different climatic conditions. The performance and prediction capacity of ARIMA models are evaluated using data from Jordan and Poland. The essence of ARIMA modeling and analysis of the use of ARIMA models both as a reference model for evaluating other approaches and as a basic forecasting model for forecasting renewable energy generation are presented. The current state of renewable energy source utilization in selected countries and the adopted transition strategies to a more sustainable energy system are investigated. ARIMA models of two time series (for monthly and hourly data) are built for two locations and a forecast is developed. The research findings demonstrate that ARIMA models are suitable for solar radiation forecasting and can contribute to the stable long-term integration of solar energy into countries' systems. However, it is crucial to develop location-specific models due to the variability of solar radiation characteristics. This study provides insights into the use of ARIMA models for solar radiation forecasting and highlights their potential for supporting the planning and operation of energy systems. © 2023 by the authors.

Al-Shdefat, R., Hailat, M., Alshogran, O.Y., Abu Dayyih, W., Gardouh, A., Al Meanazel, O.

Ribociclib Hybrid Lipid-Polymer Nanoparticle Preparation and Characterization for Cancer Treatment
(2023) Polymers, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164688583&doi=10.3390%2fpolym15132844&partnerID=40&md5=0b3a27a069e32d09f09f02eb3166c716)

85164688583&doi=10.3390%2fpolym15132844&partnerID=40&md5=0b3a27a069e32d09f09f02eb3166c716

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Jadara University, Irbid, 21110, Jordan;
College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology,
Irbid, 22110, Jordan;

Faculty of Pharmacy, Mutah University, Al-Karak, 61710, Jordan;

Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Suez Canal University,
Ismailia, 41522, Egypt;

Michael Sayegh Faculty of Pharmacy, Aqaba University of Technology, Aqaba, 77110, Jordan

ABSTRACT: Ribociclib is a newly approved orally administered drug for breast cancer. This study aimed to prepare, characterize, and evaluate hybrid lipid-polymer nanoparticles (PLNs) of ribociclib to enhance its in vitro dissolution rate, pharmacokinetics, and anticancer efficacy. Ribociclib-loaded PLNs were prepared by solvent evaporation using the Box-Behnken design to optimize formulation variables. Particle size, entrapment efficiency, differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), Fourier transform infrared spectroscopy (FTIR), atomic force microscopy (AFM), in vitro release cytotoxicity, molecular modeling, and pharmacokinetic studies were examined. The ribociclib-loaded PLN (formula 1, F1) was optimized in terms of particle size (266.9 ± 4.61 nm) and encapsulation efficiency (59.1 ± 2.57 mg/mL). DSC and thermogravimetric characterization showed the absence of a crystalline structure in the prepared PLNs, confirmed by FTIR, and showed no interactions between the components and the drug. AFM showed well-dispersed heterogeneously shaped nanoparticles. The in vitro release profile exhibited significant results for the optimized formula, reaching 100% at 600 and 90 min at pH 6.8 and 1.2, respectively. The low IC50 obtained by the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-2H-tetrazolium bromide (MTT) assay suggests that optimized PLN might serve as an effective delivery vehicle for cancer treatment, especially breast and lung cancer. Molecular modeling revealed several hydrogen bonds. A pharmacokinetic study in rats showed that the ribociclib formula had a 6.5-fold increase in maximum concentration (Cmax) and a 5.6-fold increase in area under the curve (AUC). Regarding the everted intestinal sac absorption, formula 1 increased ribociclib penetration relative to the physical combination and pure medication. In conclusion, optimized PLNs with enhanced physicochemical and cytotoxic properties and improved pharmacokinetic parameters were successfully prepared. © 2023 by the authors.

Jarab, A.S., Al-Qerem, W., Shattat, G., Abu Heshmeh, S., Mukattash, T.L., Aburuz, S.

Adverse-drug reaction reporting by Pharm D students during hospital training

(2023) Saudi Pharmaceutical Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160528609&doi=10.1016%2fj.jsps.2023.05.012&partnerID=40&md5=f95f10d9044947284303d4f920bf05ff>

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

College of Science and Health Profession, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, University of Jordan, Amman, Jordan

ABSTRACT: Background: Hospital pharmacists can play an important role in the detection, prevention, and reporting of adverse drug reaction (ADR) since they interact with patients in hospital settings. The ADR reporting practice by Pharm D students, who represent the future hospital pharmacists, has not been adequately investigated in the literature. Objective: To evaluate Pharm D students' knowledge, attitude, and practice regarding ADR reporting, and the associated barriers and motivators to ADR reporting during clinical training at different hospital sites in Jordan. Methods: The present cross-sectional study was conducted on sixth year pharm D students during clinical training at different hospital departments in different hospital sites Jordan. In addition to socio-demographic variables, a structured self-reported questionnaire was used to assess students' knowledge, attitude, practice, barriers, and motivators towards ADR reporting. Binary logistic regression was used to explore the variables associated with the study outcomes. Results: A total of 497 students participated in the study. The participants showed inadequate knowledge regarding ADR reporting, with a mean knowledge score of 3.20 (± 1.78). On the other hand, the study participants showed positive attitude towards ADR reporting with a total mean score of 13.6 (± 1.96). However, the ADR reporting practice was low with a mean score of 5.78 (± 1.88). Not knowing how to report (60.2%) and not knowing where to report (55.9%) were the most common barriers to ADR reporting, while the most reported motivators for ADR reporting were seriousness of reaction (84.1%) and involvement of new drug (51.1%). Logistic regression analysis showed that time from the start of training (OR = 0.510; 95%CI = 0.305-0.852; P = 0.010), female gender (OR = 1.759; 95%CI = 1.083-2.857; P = 0.022), and attending a course/workshop about pharmacovigilance (OR = 0.213; 95%CI = 0.137-0.332; P = 0.00) were significant predictors of knowledge about ADR reporting. Increased age (OR = 0.93; 95%CI = 0.880-0.997; P = 0.041) and low knowledge (OR = 0.564; 95%CI = 0.380-0.837; P = 0.004) were significantly associated with negative attitude toward ADR reporting. Female gender (OR = 0.481; 95%CI = 0.302-0.766; P = 0.002) and attitude level (OR = 1.837; 95%CI = 1.205-2.802; P = 0.005) were significant predictors of ADR reporting practice. Conclusions: Pharm D students showed positive attitude towards ADR reporting, however, the knowledge and practice of ADR reporting were inadequate and the participants reported several barriers. Therefore, the topic of ADR reporting and pharmacovigilance, as well as, educational training programs need to be included in future pharmacy curriculum in order to improve students' awareness and practice of ADR reporting. © 2023 The Author(s)

Raheel, M., Zafar, A., Razzaq, W., Qousini, M., Almusawa, M.Y.

New analytical wave solitons and some other wave solutions of truncated M-fractional LPD equation along parabolic law of non-linearity

(2023) Optical and Quantum Electronics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159182664&doi=10.1007%2fs11082-023-04868-9&partnerID=40&md5=f1e91761521b3cc1ecb79ee2b357165b>

AFFILIATIONS: Department of Mathematics, COMSATS University Islamabad, Vehari Campus, Vehari, Pakistan;

Math Center, Rahmanyia Colony, Vehari, Pakistan;

Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mathematics, Faculty of Science, Jazan University, Jazan, 45142, Saudi Arabia

ABSTRACT: This article is about, the new analytical wave solitons, breather-wave, lump-kink and interaction between lump-kink and rogue wave solutions of Laksmanan-Porsezian-Daniel equation with parabolic law along a new definition of derivative has been explored. For this purpose, the exp a function, the extended sinh-Gordon equation expansion scheme and Hirota bilinear schemes have been utilized. The resulting solutions are dark, bright, dark-bright, periodic, singular and other kinds of solitons. These results are obtained and also verified by Mathematica and Maple tools. Our gained solutions are newer than the existing results in the literature. Some of the gained results are explained by 2-dimensional, 3-dimensional and contour plots. Results may be useful for the progress of the model in further study. The schemes used in this research are effective, easy and reliable to handle the other fractional nonlinear partial differential equations. © 2023, The Author(s), under

exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Hammad, A.M., Alzaghari, L.F., Alfaraj, M., Al-Shawaf, L., Sunoqrot, S.

Nanoassemblies from the aqueous extract of roasted coffee beans modulate the behavioral and molecular effects of smoking withdrawal-induced anxiety in female rats

(2023) Drug Delivery and Translational Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153049903&doi=10.1007%2fs13346-023-01331-w&partnerID=40&md5=bebbaaa3ba5c87a7015b01c776c4154d>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Psychology, University of Colorado, Colorado Springs, CO 80309, United States

ABSTRACT: Antioxidant-rich plant extracts have demonstrated tremendous value as inflammatory modulators and as nanomaterial precursors. Chronic cigarette smoking alters neurotransmitter systems, particularly the glutamatergic system, and produces neuroinflammation. This study aimed to investigate the behavioral and molecular correlates of cigarette smoking withdrawal-induced anxiety-like behavior in rats, and whether these effects could be mitigated by the administration of antioxidant nanoassemblies prepared by spontaneous oxidation of dark-roasted Arabica coffee bean aqueous extracts. Four experimental groups of female Sprague-Dawley rats were randomly assigned to: (i) a control group that was only exposed to room air, (ii) a COF group that was administered 20 mg/kg of the coffee nanoassemblies by oral gavage, (iii) a SMOK group that was exposed to cigarette smoke and was given an oral gavage of distilled water, (iv) and a SMOK + COF group that was exposed to cigarette smoke and administered 20 mg/kg of the coffee nanoassemblies. Animals were exposed to cigarette smoke for 2 h per day, five days per week, with a 2-day withdrawal period each week. At the end of the 4th week, rats began receiving either distilled water or the coffee nanoassemblies before being exposed to cigarette smoke for 21 additional days. Weekly behavioral tests revealed that cigarette smoking withdrawal exacerbated anxiety, while the administration of the coffee nanoassemblies reduced this effect. The effect of cigarette smoking on astroglial glutamate transporters and nuclear factor kappa B (NF- κ B) expression in brain subregions was also measured. Smoking reduced the relative mRNA and protein levels of the glutamate transporter 1 (GLT-1) and the cystine/glutamate antiporter (xCT), and increased the levels of NF- κ B, but these effects were attenuated by the coffee nanoassemblies. Thus, administration of the antioxidant nanoassemblies decreased the negative effects of cigarette smoke, which included neuroinflammation, changes in glutamate transporters' expression, and a rise in anxiety-like behavior. Graphical Abstract: [Figure not available: see fulltext.] © 2023, Controlled Release Society.

Mughaid, A., Obeidat, I., AlZu'bi, S., Elsoud, E.A., Alnajjar, A., Alsoud, A.R., Abualigah, L.

A novel machine learning and face recognition technique for fake accounts detection system on cyber social networks

(2023) Multimedia Tools and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147108700&doi=10.1007%2fs11042-023-14347-8&partnerID=40&md5=215297bd7eb1a33351a60123172a7ab6>

AFFILIATIONS: Department of Information Technology, Faculty of Prince Al-Hussien bin Abdullah for IT The Hashemite University, Zarqa, P.O. Box 330127, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Center for Engineering Application & Technology Solutions, Ho Chi Minh City Open University, Ho Chi Minh, Viet Nam;

Computer Science Department, Prince Hussein Bin Abdullah Faculty for Information Technology, Al al-Bayt University, Mafraq, 25113, Jordan;

Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;

Applied Science Research Center, Applied Science Private University, Amman, 11931, Jordan;

School of Computer Sciences, Universiti Sains Malaysia, Pulau Pinang, 11800, Malaysia

ABSTRACT: Online Social Networks (OSN) such as Facebook, Instagram, Twitter, and others have seen rapid growth in recent years. Such applications provide attractive online social networks and communications with the opportunity to connect with relatives and acquaintances, meet new people, enter communities, talk, exchange photos, organize events, and network with others who are close to real-life; unfortunately, on the other hand, they also raise privacy and security issues. We identified OSN threats in this paper and recommended a digital face-processing authentication method as a double-factor authentication after entering the password using Matlab. After applying deep learning classification by attending to a real dataset from the live webcam to train the model, we achieved the best accuracy rate of 95%. However, such methods have yet to be deployed to all social networks, so we also mentioned the problem of fake accounts, which is one of the most significant problems in OSN. These are effective tools for executing spam campaigns and spreading malware and phishing attacks. Fake accounts could lead to the loss of money for businesses, loss of reputation, stealing information for malicious purposes, and much more. This study is related to detecting fake

and legitimate profiles on OSN. For this purpose, we chose two datasets that contain fake and legitimate accounts on Facebook and Instagram. Each contains different features after applying machine learning using Naive Bayes, Logistic Regression, Support Vector Machines, K-Nearest Neighbour, Boosted Tree, Neural Networks, SVM Kernel, and Logistic Regression Kernel. SVM achieved the highest classification accuracy for the Fake Profiles detection datasets with 97.1%. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Braik, M.S., Awadallah, M.A., Al-Betar, M.A., Hammouri, A.I., Zitar, R.A.

A non-convex economic load dispatch problem using chameleon swarm algorithm with roulette wheel and Levy flight methods

(2023) Applied Intelligence, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85145732799&doi=10.1007%2fs10489-022-04363-w&partnerID=40&md5=542780fd6e67cfb1fb87dbfa5aa79bb0>

AFFILIATIONS: Department of Computer Science, Al-Balqa Applied University, Salt, Jordan;

Department of Computer Science, Al-Aqsa University, Gaza, P.O. Box 4051, Palestine;

Artificial Intelligence Research Center (AIRC), Ajman University, Ajman, United Arab Emirates;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Artificial Intelligence Research Center (AIRC), College of Engineering and Information Technology, Ajman University, Ajman, United Arab Emirates;

Department of Information Technology, Al-Huson University College, Al-Balqa Applied University, Al-Salt, Jordan;

Sorbonne Center of Artificial Intelligence, Sorbonne University, Abu Dhabi, United Arab Emirates

ABSTRACT: An Enhanced Chameleon Swarm Algorithm (ECSA) by integrating roulette wheel selection and Lévy flight methods is presented to solve non-convex Economic Load Dispatch (ELD) problems. CSA has diverse strategies to move towards the optimal solution. Even so, this algorithm's performance faces some hurdles, such as early convergence and slumping into local optimum. In this paper, several enhancements were made to this algorithm. First, its position updating process was slightly tweaked and took advantage of the chameleons' randomization as well as adopting several time-varying functions. Second, the Lévy flight operator is integrated with roulette wheel selection method and both are combined with ECSA to augment the exploration behavior and lessen its bias towards exploitation. Finally, an add-on position updating strategy is proposed to develop a further balance between exploration and exploitation conducts. The optimization performance of ECSA is shown by testing it on five various real ELD cases with a generator having 3, 13, 40, 80 and 140 units, each with different constraints. The results of the ELD systems' analysis depict that ECSA is better than the parent CSA and other state-of-the-art methods. Further, the efficacy of ECSA was experimented on several benchmark test functions, and its performance was compared to other well-known optimization methods. Experimental results show that ECSA surpasses other methods on complex benchmark functions with modest computational burdens. The superiority and practicality of ECSA is demonstrated by getting new best solutions for large-scale ELD cases such as 40-unit and 140-unit test systems. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Toqan, D., Malak, M.Z., Ayed, A., Hamaideh, S.H., Al-amer, R.

Perception of Nurses' Knowledge about Palliative Care in West Bank/ Palestine: Levels and Influencing Factors

(2023) Journal of Palliative Care, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141014901&doi=10.1177%2f08258597221133958&partnerID=40&md5=60113a032410b056a3270f2faf6fa3ca>

AFFILIATIONS: Nursing Education, Faculty of Nursing, Arab American University of Palestine (AAUP),

Jenin, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pediatric Health Nursing, Faculty of Nursing, Arab American University of Palestine (AAUP), Jenin, Palestine;

Community and Mental Health Nursing Department, Faculty of Nursing, The Hashemite University, Zarqa, Jordan;

Psychiatric Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

School of Nursing and Midwifery, Western Sydney University, Sydney, NSW, Australia

ABSTRACT: Objective: Healthcare professionals particularly nurses should be professionally prepared with knowledge about the standards of palliative care and their roles in providing palliative care. Nurses' knowledge about palliative care and influencing factors has not been examined adequately in Arab countries including Palestine. Thus, this study aimed to assess the adequacy of knowledge level and influencing factors (socio-demographic) about palliative care among nurses in West Bank/ Palestine. Methods: A descriptive-correlational design was utilized. A cluster random sampling method was applied to select 12 hospitals from the three regions in West Bank. Then, four hospitals were selected from each region using a simple random method. All registered nurses working in critical

care units and medical and surgical wards in the selected hospitals were recruited. The sample consists of 424 registered nurses and data were collected using Palliative Care Quiz for Nursing (PCQN). Results: The Findings revealed that nurses' level of knowledge about palliative care was low/inadequate ($M = 7.75$, $SD = 2.96$). Knowledge about palliative care was influenced by age ($B = -.106$; $p < 0.05$), gender ($B = -.223$; $p < 0.001$), and hospital ward ($B = -.597$; $p < 0.001$), in which younger nurses, females, and those who work in critical care units reported higher levels of knowledge about palliative care. Conclusions: Findings of this study emphasized the need for developing educational and training courses, seminars, and workshops on palliative care to increase nurses' knowledge in order to enhance the quality of patient care. Also, policymakers should develop national strategic plans and policies regarding palliative care and apply these plans in all hospitals in West Bank/ Palestine. © The Author(s) 2022.

Ahmad, M., Alhalaiqa, F., Subih, M.

Constructing and testing the psychometrics of an instrument to measure the attitudes, benefits, and threats associated with the use of Artificial Intelligence tools in higher education (2023) *Journal of Applied Learning and Teaching*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178892749&doi=10.37074%2fjalt.2023.6.2.36&partnerID=40&md5=a8361c7bd34715e061a43d261fe81938)

[85178892749&doi=10.37074%2fjalt.2023.6.2.36&partnerID=40&md5=a8361c7bd34715e061a43d261fe81938](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178892749&doi=10.37074%2fjalt.2023.6.2.36&partnerID=40&md5=a8361c7bd34715e061a43d261fe81938)

AFFILIATIONS: Clinical Nursing Department, School of Nursing, University of Jordan, Jordan;

Psychiatric/Mental Health Nursing, College of Nursing, Qatar University, Qatar;

School of Nursing, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Under the acceleration in the body of information regarding AI technology and the paucity of instruments that assess the views and reactions of consumers, we have constructed this instrument to measure the attitudes, benefits, and threats (ABT) toward using Artificial Intelligence (AI) tools in higher education. Google Form was used in August of 2023 to collect data from students and teachers at higher education institutions in 11 Asian and African countries. After the ABT instrument obtained a sufficient score in content validity, additional statistical analyses were done.

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed. This study included 503 participants who are familiar with AI tools. Over 56% have Bachelor's degrees and 35% have Master's or Doctoral degrees. The most popular AI tool was ChatGPT. One model out of six models created for the factor structure of the 35 items that measure attitudes, benefits, and threats was chosen. The selected model provides the highest explained variance (55.6%). The CFA, using AMOS software, demonstrated that the fit indices were satisfactory for the adopted model. Attitude (15), benefits (6), and threats (14 items) are the three factors of the model. The CFA supports the EFA with the ABT three-factor structure model. The high factor loadings and communalities suggest that the factors are reliable and valid measures of the attitude, benefits, and threats toward AI tools among highly educated personnel. © 2023. Muayyad Ahmad, Fadwa Alhalaiqa and Maha Subih.

Hammad, A.M., Al-Qerem, W., Abu Zaid, A., Khair, S.I., Hall, F.S.

Misconceptions Related to COVID 19 Vaccines among the Jordanian Population: Myth and Public Health (2023) *Disaster Medicine and Public Health Preparedness*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131929404&doi=10.1017%2fdmp.2022.143&partnerID=40&md5=eec74d61834fa4f373eebe27ba5891a)

[85131929404&doi=10.1017%2fdmp.2022.143&partnerID=40&md5=eec74d61834fa4f373eebe27ba5891a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131929404&doi=10.1017%2fdmp.2022.143&partnerID=40&md5=eec74d61834fa4f373eebe27ba5891a)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Applied Science Department, Al-Balqa Applied University, Aqaba, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States

ABSTRACT: Objective: This study assesses misconceptions about coronavirus disease 2019 (COVID-19) vaccine and the factors associated with misconception among Jordanians. Methods: A cross-sectional online survey was conducted. The survey was formulated on Google Forms, and was hosted on an online platform. These questions were created based on extensive review of online information about the vaccines. Frequencies and percentages (%) were used for categorical variables, while means and standard deviations (SDs) were used for continuous variables. Stepwise binary logistic regression was conducted to evaluate variables associated with participant's misconception questions. Results: Of 1195 survey respondents who participated in the study, 41.3% had received the COVID-19 vaccine. The mean misconception score was (60.0 ± 19.1). The statement with the highest mean was The vaccine hasn't been tested on enough people (3.6 ± 1.0). The statement with the lowest mean was The COVID-19 vaccine includes a microchip to control us (2.2 ± 1.1) in the conspiracy theory portion. Females, 18- to 29-age group, higher educational level, living in a city, the participants who took lectures about the COVID-19 vaccine and vaccinated participants had higher odds of being in the low misconception level group. Conclusion: Targeted campaigns and vaccine safety information should be part of a broader health education campaign to alleviate vaccination safety concerns. © The Author(s), 2022. Published by Cambridge University Press on behalf of Society for Disaster Medicine and Public Health, Inc.

Dabbour, L.M.

LEARNING FROM THE PAST: THE RECONSTRUCTION OF THE MINBAR OF SALAH AL-DIN IN AL-AQSA MOSQUE

(2023) International Journal of Conservation Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168509831&doi=10.36868%2fIJCS.2023.02.03&partnerID=40&md5=76f3ef3282378b886300ed0d7d46db33)

[85168509831&doi=10.36868%2fIJCS.2023.02.03&partnerID=40&md5=76f3ef3282378b886300ed0d7d46db33](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168509831&doi=10.36868%2fIJCS.2023.02.03&partnerID=40&md5=76f3ef3282378b886300ed0d7d46db33)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Architecture and Design, Department of Architecture, Amman, Jordan

ABSTRACT: The Minbar of Salah Al-Din is considered a masterpiece of traditional Islamic arts and crafts heritage. It stood in Al-Aqsa Mosque in Jerusalem for nearly 800 years until it was burned down completely in 1969. In 1993, King Hussein of Jordan gave instructions to initiate the process of reconstructing the Minbar based on old photos of the original one and small wooden pieces that remained after the fire. The reconstruction job was commissioned in 2002 and finished in 2006 as a replica of the original one. This paper discusses the lessons learned from the reconstruction process through the analysis of geometric principles and features of the design process and construction of the Minbar, towards the rekindling of this artistic heritage. The Minbar geometric patterns are constructed of many interlocking pieces of wood, each carefully carved to fit together like a three-dimensional puzzle. The novel contribution of this study is in the relationship between the geometric construction of the patterns and the Interlock (ta'sheeq) construction methodology. Which will hopefully provide a deeper understanding of the structure of the Minbar, allowing architects and craftsmen to achieve improved control over their new design's compositions and structure. © 2023 Universitatea "Alexandru Ioan Cuza" din Iasi. All rights reserved.

Subih, M.M., Abu Saleh, F., Malak, M.Z.

Medication adherence among patients with cardiovascular diseases: a cross-sectional study

(2023) Journal of Research in Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166534883&doi=10.1177%2f17449871231175737&partnerID=40&md5=12be1ac1b5891a90980ad5625a356c13)

[85166534883&doi=10.1177%2f17449871231175737&partnerID=40&md5=12be1ac1b5891a90980ad5625a356c13](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166534883&doi=10.1177%2f17449871231175737&partnerID=40&md5=12be1ac1b5891a90980ad5625a356c13)

AFFILIATIONS: Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Royal Medical Services, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Medication adherence has been recognised as one of the greatest areas to improve health outcomes and reduce health expenditure. Poor medication adherence has multifactorial causes that need to be understood. Aim: To determine the levels of medication adherence and examine the factors associated with medication adherence among patients with cardiovascular diseases (CVDs) in Jordan. Methods: A cross-sectional, descriptive correlational design was used to conduct this study. A convenience sample was used to recruit 250 patients with CVDs from outpatient clinics of Jordanian hospitals. Data were collected using the Multidimensional Scale of Perceived Social Support and Morisky Medication Adherence Scale, in addition to sociodemographic and clinical-related factors during the period from June to September 2019. Results: It was found that the total mean score of medication adherence was 2.84 (standard deviation = 1.9), which reflected low adherence. A significant positive correlation was found between medication adherence and marital status and the number of diseases. However, smoking was negatively correlated with medication adherence. Smoking was the predictor of medication adherence. Conclusions: Medication adherence among patients with CVDs needs to be improved. Thus, healthcare professionals should develop strategies and interventions based on identifying factors to enhance medication adherence among those patients. © The Author(s) 2023.

Abd-Rabbo, M., Zalloum, G., Nemrawi, Z.

DECOLONIZING IMPERIALIST DISCOURSE IN JANE AUSTEN'S PERSUASION A Saidian perspective

(2023) Arab Studies Quarterly, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166406207&doi=10.13169%2ffarabstudquar.45.3.0229&partnerID=40&md5=f09b16253c8bd05a648762c494c11c8b)

[85166406207&doi=10.13169%2ffarabstudquar.45.3.0229&partnerID=40&md5=f09b16253c8bd05a648762c494c11c8b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166406207&doi=10.13169%2ffarabstudquar.45.3.0229&partnerID=40&md5=f09b16253c8bd05a648762c494c11c8b)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In his highly influential work *Culture and Imperialism*, Edward Said unravels the imperialist undertones in Jane Austen's *Mansfield Park*. Throughout the chapter entitled "Jane Austen and the Empire," Said demonstrates how this seemingly domestic novel of manners, not normally associated with imperialism, is actually densely saturated with colonialist discourse. For Said, the marginalized representation of the colonized territory of Antigua as simply a "colonial garden" for the British imperial patriarch further accentuates the superior sense of colonialist entitlement. Thus, Said's approach in decolonizing the imperialist discourse in *Mansfield Park* may be extended to other canonical works not generally considered imperialist in nature. In this article, the researchers utilize Said's strategies involved in his reading of *Mansfield Park* to probe the imperialist nuances in Austen's *Persuasion*, a novel usually categorized as a romance/novel of manners

which depicts two lovers' second chance at happiness despite all the social obstacles in their way. The researchers attempt to foreground the imperialist rhetoric in this novel, specifically Austen's tendency to romanticize and glorify the rising British naval society as the champions of the Empire. Furthermore, this article investigates the absent, peripheral representation of colonial terrains as opposed to the privileged, central position of the British Empire in the narrative. © 2023 Pluto Journals. All rights reserved.

Jarrar, Y., Alnajjar, D., Jarrar, Q., Alaani, R., Abaalkhail, S.J., Naser, W., Abudahab, S., Lee, S.-J.

Effects of Sex and Androgenic Drugs on the Expression of Angiotensin-Converting Enzyme 2 Receptor, Cathepsin 1 and Transmembrane Serine Protease in Mouse Lungs

(2023) Jordan Medical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166082853&doi=10.35516%2fj.mj.v57i2.1361&partnerID=40&md5=612526869956a7ed55ae901ad9a5e49f)

[85166082853&doi=10.35516%2fj.mj.v57i2.1361&partnerID=40&md5=612526869956a7ed55ae901ad9a5e49f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166082853&doi=10.35516%2fj.mj.v57i2.1361&partnerID=40&md5=612526869956a7ed55ae901ad9a5e49f)

AFFILIATIONS: Department of Basic Medical Sciences, Al-Balqa Applied University, As-salt, Jordan;

Department of Pharmaceutical Science, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Science, Al-Isra'a University, Amman, Jordan;

Department of Pharmacotherapy and Outcomes Science, Virginia Commonwealth University, Richmond, VA, United States;

Department of Pharmacology and Pharmacogenomics Research Center, College of Medicine, Inje University, Busan, 50834, South Korea

ABSTRACT: Introduction: Although males and females have the same prevalence of COVID-19, a variation in the severity of symptoms between males and females has been observed. We hypothesize that this variation can partly be explained by the effect of androgens on the infectious activity of the SARS-Cov2 virus. Aims: This study investigated the effect of sex and two androgenic drugs testosterone and oxandrolone on the mRNA expression of several SARS-Cov2 entry genes: angiotensin-converting enzyme 2 (ACE2), transmembrane protease serine 2 (TMPRSS2), and cathepsin 1 (CatL) in mouse lungs. Methods: Twenty-eight BALB/c mice were divided into four groups; the first three groups (all male mice) were treated with the vehicle, testosterone, and oxandrolone, respectively, while the fourth group consisted of untreated female mice. The androgenic drugs were administered for 21 days in doses equivalent to the human one. Accordingly, the expressions of ACE2, TMPRESS2, and CatL genes were measured using real-time PCR assay. In addition, the histopathological alterations in the lungs and the levels of total serum testosterone were analyzed. Results: We found that the expression of ACE2 was significantly upregulated in the lungs of the testosterone-treated group by 2.5 times. The expression of TMPRSS2 was also significantly upregulated in the lungs of oxandrolone-treated mice by 6.6 times. Moreover, these molecular alterations were associated with a high elevation of the serum testosterone and the induction of inflammation and oxidative stress. In addition, we found that the mRNA levels of ACE2, TMPRSS2, and CatL were significantly higher in the lungs of the female compared to male mice. Conclusion: We found several significant differences between the mRNA expression of ACE2, TMPRSS2, and CatL genes in the lungs of male and female mice. We showed how the administration of testosterone and oxandrolone to male mice upregulated the lungs' mRNA expression of ACE2 and TMPRSS2, respectively. These results can expand our molecular understanding of the roles of sex and androgenic drugs on the expression of SARS-Cov2 entry genes. © 2023 DSR Publishers / The University of Jordan. All Rights Reserved.

Al Momani, D., Al Turk, Y., Abuashour, M.I., Khalid, H.M., Muyeen, S.M., Sweidan, T.O., Said, Z., Hasanuzzaman, M.

Corrigendum to "Energy saving potential analysis applying factory scale energy audit - A case study of food production" [Heliyon 9 (3), (March 2023) Article e14216] (Heliyon (2023) 9(3), (S2405844023014238), (10.1016/j.heliyon.2023.e14216))

(2023) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164708540&doi=10.1016%2fj.heliyon.2023.e16551&partnerID=40&md5=245fe4686060a7c419e65b472a7e36c4)

[85164708540&doi=10.1016%2fj.heliyon.2023.e16551&partnerID=40&md5=245fe4686060a7c419e65b472a7e36c4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164708540&doi=10.1016%2fj.heliyon.2023.e16551&partnerID=40&md5=245fe4686060a7c419e65b472a7e36c4)

AFFILIATIONS: Department of Allied Engineering Sciences, Faculty of Engineering, The Hashemite University, Zarqa, Jordan;

Alternative Energy Technology Department, Al-Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, Jordan;

Renewable Energy Center, Electrical Engineering Department, Faculty of Engineering, The Hashemite University, Zarqa, Jordan;

Department of Electrical and Electronics Engineering, Higher Colleges of Technology, Sharjah, 7947, United Arab Emirates;

Department of Electrical and Electronic Engineering Science, University of Johannesburg, Auckland Park2006, South Africa;

Department of Electrical Engineering, University of Santiago, Avenida Libertador, RM, Santiago, 3363, Chile;

Department of Electrical Engineering, Qatar University, Doha, 2713, Qatar;
Sustainable and Renewable Energy Engineering Department, College of Engineering, University of Sharjah, PO Box 27272, Sharjah, United Arab Emirates;
U.S.-Pakistan Center for Advanced Studies in Energy (USPCAS-E), National University of Sciences and Technology (NUST), Islamabad, Pakistan;
Department of Industrial and Mechanical Engineering, Lebanese American University (LAU), Byblos, Lebanon;
Higher Institution Center of Excellence (HICoE), UM Power Energy Dedicated Advanced Center (UMPEDAC), University of Malaya, Jalan Pantai Baharu, Kuala Lumpur, 59990, Malaysia;
College of Engineering and Information Technology, University of Dubai, Academic City, Dubai, 14143, United Arab Emirates

ABSTRACT: In the original published version of this article, the authors have requested to change the institutional information. The institutional information of the authors have been updated. The correct version of the institutional information of the authors can be found below: Mohammed I. Abuashour institutional information has been changed from: Renewable Energy Centre, The Hashemite University, Zarqa, 13115, Jordan to: Renewable Energy Centre, Electrical Engineering Department, Faculty of Engineering, The Hashemite University, Zarqa, Jordan. And. Haris M. Khalid L institutional information has been changed from: Department of Electrical and Electronics Engineering, Higher Colleges of Technology, Sharjah 7947, United Arab Emirates To. College of Engineering and Information Technology, University of Dubai, Academic City 14143, Dubai, United Arab Emirates The authors/publisher apologize for the errors. Both the HTML and PDF versions of the article have been updated to correct the errors. © 2023 The Author(s)

Al Adem, K., Ferreira, J.C., Fadl, S., Mustafa, M., Rabeh, W.M.

Key allosteric and active site residues of SARS-CoV-2 3CLpro are promising drug targets (2023) Biochemical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163809755&doi=10.1042%2fBCJ20230027&partnerID=40&md5=bda036f27aca76356ba5e0fd3151d1b1)

[85163809755&doi=10.1042%2fBCJ20230027&partnerID=40&md5=bda036f27aca76356ba5e0fd3151d1b1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163809755&doi=10.1042%2fBCJ20230027&partnerID=40&md5=bda036f27aca76356ba5e0fd3151d1b1)

AFFILIATIONS: Science Division, New York University Abu Dhabi, PO Box 129188, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Al-Zaytoonah University of Jordan, PO Box 130, Amman, 11733, Jordan

ABSTRACT: The main protease of SARS-CoV-2, 3-chymotrypsin-like protease (3CLpro), is a prominent target for antiviral development due to its essential role in the viral life cycle. Research has largely focused on competitive inhibitors of 3CLpro that target the active site. However, allosteric sites distal to the peptide substrate-binding region are also potential targets for the design of reversible noncompetitive inhibitors. Computational analyses have examined the importance of key contacts at allosteric sites of 3CLpro, but these contacts have not been validated experimentally. In this work, four druggable pockets spanning the surface of SARS-CoV-2 3CLpro were predicted: pocket 1 is the active site, whereas pockets 2, 3 and 4 are located away from the active site at the interface of domains II and III. Site-directed alanine mutagenesis of selected residues with important structural interactions revealed that 7 of 13 active site residues (N28, R40, Y54, S147, Y161, D187 and Q192) and 7 of 12 allosteric site residues (T111, R131, N133, D197, N203, D289 and D295) are essential for maintaining catalytically active and thermodynamically stable 3CLpro. Alanine substitution at these key amino acid residues inactivated or reduced the activity of 3CLpro. In addition, the thermodynamic stability of 3CLpro decreased in the presence of some of these mutations. This work provides experimental validation of essential contacts in the active and allosteric sites of 3CLpro that could be targeted with competitive and noncompetitive inhibitors as new therapeutics against COVID-19. © 2023 The Author(s). Published by Portland Press Limited on behalf of the Biochemical Society.

Hamadneh, T., Abbes, A., Falahah, I.A., AL-Khassawneh, Y.A., Heilat, A.S., Al-Husban, A., Ouannas, A. Complexity and Chaos Analysis for Two-Dimensional Discrete-Time Predator-Prey Leslie-Gower Model with Fractional Orders

(2023) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163678863&doi=10.3390%2faxioms12060561&partnerID=40&md5=c97f2173aa2db21b5d60ed58ef8036e5)

[85163678863&doi=10.3390%2faxioms12060561&partnerID=40&md5=c97f2173aa2db21b5d60ed58ef8036e5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163678863&doi=10.3390%2faxioms12060561&partnerID=40&md5=c97f2173aa2db21b5d60ed58ef8036e5)

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, University Badji Mokhtar, Annaba, 23000, Algeria;

Laboratory of Mathematics, Dynamics and Modelization, University Badji Mokhtar, Annaba, 23000, Algeria;

Department of Mathematics, Faculty of Science, The Hashemite University, Zarqa, 13133, Jordan;

Data Science and Artificial Intelligence Department, Zarqa University, Zarqa, 13133, Jordan;

Department of Mathematics, Faculty of Science and Information Technology, Jadara University, Irbid, 21110, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria

ABSTRACT: The paper introduces a novel two-dimensional fractional discrete-time predator-prey Leslie-Gower model with an Allee effect on the predator population. The model's nonlinear dynamics are explored using various numerical techniques, including phase portraits, bifurcations and maximum Lyapunov exponent, with consideration given to both commensurate and incommensurate fractional orders. These techniques reveal that the fractional-order predator-prey Leslie-Gower model exhibits intricate and diverse dynamical characteristics, including stable trajectories, periodic motion, and chaotic attractors, which are affected by the variance of the system parameters, the commensurate fractional order, and the incommensurate fractional order. Finally, we employ the θ -1 method, the approximate entropy test and the (Formula presented.) algorithm to measure complexity and confirm chaos in the proposed system. © 2023 by the authors.

Al-Qerem, W., Jarab, A., Hammad, A., Alasmari, F., Ling, J., Al-Zayadneh, E., Al-Iede, M., Alazab, B., Hajeer, L.

Knowledge, Attitudes, and Practices of Influenza Vaccination among Parents of Children with Asthma: A Cross-Sectional Study

(2023) Vaccines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163643839&doi=10.3390%2fvaccines11061074&partnerID=40&md5=3531d8b84ea984a071814ec1ffaa8136)

[85163643839&doi=10.3390%2fvaccines11061074&partnerID=40&md5=3531d8b84ea984a071814ec1ffaa8136](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163643839&doi=10.3390%2fvaccines11061074&partnerID=40&md5=3531d8b84ea984a071814ec1ffaa8136)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, 64141, United Arab Emirates;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 12372, Saudi Arabia;

Faculty of Science and Wellbeing, University of Sunderland, Sunderland, SR1 3SD, United Kingdom;

Department of Pediatrics, School of Medicine, University of Jordan, Amman, 11910, Jordan;

School of Medicine, University of Jordan, Amman, 11910, Jordan

ABSTRACT: Asthma is the most common chronic disease in childhood. Exacerbation is a significant problem for asthmatic patients, and viral infections remain the most frequent triggers of asthma exacerbations. This study explored knowledge, attitudes, and practices (KAP) of parents of asthmatic children towards providing influenza vaccine to their children. This cross-sectional study enrolled parents of asthmatic children who visited the outpatient respiratory clinics of two Jordanian hospitals. The present study enrolled 667 parents of asthmatic children (62.8% female). The median age of the participants' children was 7 years. The results showed that 60.4% of the children with asthma never received a flu vaccine. Most of those who had received the flu vaccine reported that the side effects were mild (62.7%). Asthma duration was positively and significantly associated with increased vaccine hesitancy/rejection (OR = 1.093, 95% CI = (1.004-1.190), $p = 0.04$; and OR = 1.092, 95% CI = (1.002-1.189), $p = 0.044$, respectively). As the attitude towards flu vaccine score increases, odds of vaccination hesitancy/rejection decreased (OR = 0.735, 95% CI = (0.676-0.800), $p < 0.001$; and OR = 0.571, 95% CI = (0.514-0.634), $p < 0.001$, respectively). The main reasons for vaccination hesitancy/refusal included "I don't think my child needs it" (22.3%) followed by "I forget it" (19.5%). The rate of vaccination among children was low and emphasized the necessity of encouraging parents with asthmatic children to vaccinate their children by conducting health awareness campaigns and also emphasized the role of doctors and other healthcare professionals. © 2023 by the authors.

Albustanji, R.N., Elmanaseer, S., Alkhatib, A.A.A.

Robotics: Five Senses plus One—An Overview

(2023) Robotics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163589317&doi=10.3390%2frobotics12030068&partnerID=40&md5=66641156a08a89e6532d70dcca6ed868)

[85163589317&doi=10.3390%2frobotics12030068&partnerID=40&md5=66641156a08a89e6532d70dcca6ed868](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163589317&doi=10.3390%2frobotics12030068&partnerID=40&md5=66641156a08a89e6532d70dcca6ed868)

AFFILIATIONS: Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, 11931, Jordan;

Department of Computer Information Systems, Al-Zaytoonah University of Jordan, Amman, 11931, Jordan

ABSTRACT: Robots can be equipped with a range of senses to allow them to perceive and interact with the world in a more natural and intuitive way. These senses can include vision, hearing, touch, smell, and taste. Vision allows the robot to see and recognize objects and navigate its environment. Hearing enables the robot to recognize sounds and respond to vocal commands. Touch allows the robot to perceive information about the texture, shape, and temperature of objects through the sense of touch. Smell enables the robot to recognize and classify different odors. Taste enables the robot to

identify the chemical composition of materials. The specific senses used in a robot will depend on the needs of the application, and many robots use a combination of different senses to perceive and interact with the environment. This paper reviews the five senses used in robots, their types, how they work, and other related information, while also discussing the possibility of a Sixth Sense. © 2023 by the authors.

Al Rawajbeh, M., Alzyadat, W., Kaabneh, K., Afaneh, S., Alrwashdeh, D.F., Albayaydah, H.S., Alhadid, I.H.

A new model for security analysis of network anomalies for IoT devices

(2023) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163218472&doi=10.5267%2fj.ijdns.2023.5.001&partnerID=40&md5=2799d990691f49989c995d9198880a6c)

[85163218472&doi=10.5267%2fj.ijdns.2023.5.001&partnerID=40&md5=2799d990691f49989c995d9198880a6c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163218472&doi=10.5267%2fj.ijdns.2023.5.001&partnerID=40&md5=2799d990691f49989c995d9198880a6c)

AFFILIATIONS: Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Information Technology, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Information Technology, Zarka University, Zarka, Jordan;

Faculty of Information Technology and Systems, University of Jordan, Aqaba, Jordan;

MIS, Faculty of MIS, Aqaba University of Technology, Aqaba, Jordan

ABSTRACT: In the era of IoT gaining traction, attacks on IoT-enabled devices are the order of the day that emanates the need for more protected IoT networks. IoT's key feature deals with massive amounts of data sensed by numerous heterogeneous IoT devices. Numerous machine learning techniques are used to collect data from different types of sensors on the objects and transform them into information relevant to the application. Furthermore, business and data analytics algorithms help in event prediction based on observed behavior and information. Routing information securely over the internet with limited resources in IoT applications is a key problem. The study proposes a model for detecting network anomalies in IoT devices to enhance the security of the devices. The study employed the IoT Botnet dataset, and K-fold cross-validation tests were used for validating the values of evaluation metrics. The average values of Accuracy, Precision, Recall, and F Score was 97.4. © 2023, Growing Science. All rights reserved.

Abahre, J., Al-Rimmawi, H., Abu Raida, L., Alkhateeb, M., Bishawi, W., Mahmoud, S., Suleiman, A., Khlaif, Z.N.

Impact of political instability on 1948-Palestinian shoppers' satisfaction: Palestinian tourist destination as a case study

(2023) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163047096&doi=10.1016%2fj.heliyon.2023.e17235&partnerID=40&md5=356e4998cadb55b5399d14b301d35b2d)

[85163047096&doi=10.1016%2fj.heliyon.2023.e17235&partnerID=40&md5=356e4998cadb55b5399d14b301d35b2d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163047096&doi=10.1016%2fj.heliyon.2023.e17235&partnerID=40&md5=356e4998cadb55b5399d14b301d35b2d)

AFFILIATIONS: Department of Tourism and Archaeology, Faculty of Humanities, An-Najah National University, Palestine;

Department of Geography, Birzeit University, Palestine;

Department of Geography, Faculty of Economics and Social Sciences, An-Najah National University, Palestine;

Department of History, Faculty of Humanities, An-Najah National University, Palestine;

Department of French Language, Faculty of Humanities, An-Najah National University, Palestine;

Department of English, Faculty of Humanities, An-Najah National University, Palestine;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Educational Sciences and Preparing Teachers, An Najah National University, Nablus, Palestine

ABSTRACT: This study examines tourist satisfaction and its relationship with demographic variables in Nablus, Palestine. Two hundred two tourists were surveyed using a structured questionnaire to collect data on their satisfaction level and demographic information. The results reveal that the overall tourist satisfaction level in Nablus is high. However, significant differences in satisfaction were found based on gender, education level, number of family members, occupation, and income. The study highlights the importance of considering demographic factors in shaping visitor satisfaction and tailoring tourism services to meet the needs and preferences of diverse clients. The findings also shed light on the negative impact of tourist blackmailing, which is the exploitation of tourists by various stakeholders, and the role of positive perceptions of the destination in attracting tourists and mitigating the impact of security threats. The study provides valuable insights for tourism service providers and stakeholders in promoting sustainable and competitive tourism in Nablus and the West Bank region. © 2023

Alshehadeh, A.R., Alia, M.A., Jaradat, Y., Injadat, E., Al-Khawaja, H.

Big data analytics techniques and their impacts on reducing information asymmetry: Evidence from Jordan

(2023) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162818578&doi=10.5267%2fj.ijdns.2023.4.012&partnerID=40&md5=53c8a25f265b6f58e376aba3a627b388)

85162818578&doi=10.5267%2fj.ijdns.2023.4.012&partnerID=40&md5=53c8a25f265b6f58e376aba3a627b388

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Sciences and Information Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Business, The world Islamic Science& Education University, Amman, Jordan;

Faculty of Business, Amman Arab University, Amman, 11953, Jordan

ABSTRACT: This study aimed to demonstrate the impact of big data analytics techniques on reducing information asymmetry in industrial companies listed on the Amman Stock Exchange from the point of view of workers in Jordanian financial intermediation companies. Two approaches have been adopted to achieve the target of this research. The first approach is the analytical descriptive approach through a survey to collect primary data that measures the elements of the independent variable related to big data analytics techniques (Volume, Velocity, Variety, and Veracity). The second approach is an applied approach that measures the dependent variable of information asymmetry based on the financial statements of industrial companies listed on Amman Stock Exchange for the period (2015-2021). The statistical program (SPSS) has been used to analyze data and test the hypotheses through multiple regression testing. Based on the results of the statistical analysis of the data and the opinions of the research community, it was found that the huge volume of big data has become difficult to process using traditional data processing applications. Further-more, there is a statistically significant relationship between big data analytics techniques and the reduction of information asymmetry from the point of view of employees in intermediation firms in Jordan. Consequently, it is necessary for those in charge of the industrial companies listed on the Amman Stock Exchange to develop modern techniques capable of analyzing big data with high efficiency. It can also assist in providing target groups including investors, stakeholders, and other beneficiaries with reliable and efficient data required to make rational decisions, as well as to reduce the risks of information asymmetry. © 2023, Growing Science. All rights reserved.

Al Ghammaz, S.A.D.L.A.

Revisiting William J. Shakespeare's The Tempest From a Colonial and Postcolonial Lens

(2023) Theory and Practice in Language Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161911812&doi=10.17507%2ftpls.1306.05&partnerID=40&md5=bfcf7fa9353ca9b62425ae425f707b9a)

85161911812&doi=10.17507%2ftpls.1306.05&partnerID=40&md5=bfcf7fa9353ca9b62425ae425f707b9a

AFFILIATIONS: Department of English Literature, Faculty of Arts, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The current paper shows colonialism as a concept and how European countries have created colonies in Australia, Asia, Africa, and America, capturing and overexploiting the colonies' natural resources and dominating the colonies' natives. The new nation discoveries accomplished by Europeans stuck in Shakespeare's mind, naming these discoveries the "New World". Shakespeare's The Tempest approaches Prospero's colonial attitude and Caliban's postcolonial standpoint. With that being said, this paper aims to demonstrate that Shakespeare stands in the middle making no approval or disapproval of the European colonization. The Tempest by Shakespeare can be reviewed from a colonial and postcolonial lens. Fanon (1991) establishes that violence-based struggle is a component of the decolonization process represented by Caliban. Towards the end of the paper, key related interpretations of India's overexploitation by Great Britain are adopted to make a piece of evidence that one of the deadly sins of European history rests in colonialism. © 2023 ACADEMY PUBLICATION.

Jebril, I., Almaslmani, R., Jarah, B.A.F., Mugableh, M.I., Zaqeaba, N.

The impact of strategic intelligence and asset management on enhancing competitive advantage: The mediating role of cybersecurity

(2023) Uncertain Supply Chain Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161906883&doi=10.5267%2fj.uscm.2023.4.018&partnerID=40&md5=b7252a554d58d40b917668e887e36379)

85161906883&doi=10.5267%2fj.uscm.2023.4.018&partnerID=40&md5=b7252a554d58d40b917668e887e36379

AFFILIATIONS: Faculty of Science, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

HR Consultant, Amman, Jordan;

Faculty of Business, Amman Arab University, Amman, 11953, Jordan;

Administration and financial sciences, Department of Finance & Banking Science, Irbid National University, Irbid, 21110, Jordan

ABSTRACT: Companies utilize competitive advantage as a tool to assist them gain more value for their products at a cheaper cost without sacrificing quality to provide greater features and services. Companies and services must use cybersecurity tools, training, and risk management strategies, as well as regularly upgrade systems as technology changes and evolves, to secure organizations, employees, and individuals. As a result, with the mediating function of cybersecurity, this study clarified the influence of strategic intelligence and asset management on boosting competitive advantage. A questionnaire was designed, and 300 questionnaires were collected out of 350 distributed to respondents working in Jordanian telecom companies. The study found a positive impact of both

strategic intelligence and asset management on enhancing competitive advantage through the presence of the mediating role of cybersecurity. © 2023 Growing Science Ltd. All rights reserved. and by the authors; licensee Growing Science, Canada.

Suleiman, A., Almasaeid, H., Hussein, N., Abahre, J.

Addressing the Causes and Effects of Poor Communication in the Jordanian Construction Industry: A Study on Improving Project Performance

(2023) Civil and Environmental Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161635569&doi=10.2478%2fce-2023-0014&partnerID=40&md5=17871794a880e80e99bba45e7396050b>

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al Zaytoonah University of Jordan, Amman, Jordan;

Civil Engineering Department, Faculty of Engineering, Al Albayt University, Mafraq, Jordan;

Civil Engineering Department, Faculty of Engineering, Petra University, Jordan;

Department of Tourism and Archaeology, Faculty of Humanities, An-Najah National University, Nablus, Palestine

ABSTRACT: The construction sector in Jordan faces various obstacles, one of the most significant being poor communication, which negatively impacts project performance and can even lead to project failure. The primary objective of this study is to identify and evaluate the causes and effects of poor communication in Jordan. A questionnaire containing 32 causes and 21 effects of poor communication was used to gather data. The top ten causes of poor communication are; possessing different levels of education among construction teams; a lack of communication plan; a lack of an appropriate communications medium; a lack of communication procedures and training; a slow flow of information between parties; diversity of culture among construction teams; construction teams possessing different skill levels; contractual barriers; the unavailability of information at the time of need, and a lack of understanding among parties. Poor communication is a prevalent issue in the Jordanian construction industry, Jordan's construction industry needs to improve its current communication state. Both contractors and consultants are affected by this issue and there is a high level of agreement between them on the causes and effects of poor communication. © 2023 Akram Suleiman et al., published by Sciendo.

Hasan Ibrahim, A.S., Barry, H.E., Hughes, C.M.

GPs' and pharmacists' views of integrating pharmacists into general practices: a qualitative study (2023) British Journal of General Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160455523&doi=10.3399%2fBJGP.2022.0518&partnerID=40&md5=569a881564c56c77410bca5288cd5067)

[85160455523&doi=10.3399%2fBJGP.2022.0518&partnerID=40&md5=569a881564c56c77410bca5288cd5067](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160455523&doi=10.3399%2fBJGP.2022.0518&partnerID=40&md5=569a881564c56c77410bca5288cd5067)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Primary Care Research Group, School of Pharmacy, Queen's University Belfast, Belfast, United Kingdom;

School of Pharmacy, Queen's University Belfast, Belfast, United Kingdom

ABSTRACT: Background Practice-based pharmacists (PBPs) have been introduced into general practice across the UK to relieve some of the pressures within primary care. However, there is little existing UK literature that has explored healthcare professionals' (HCPs') views about PBP integration and how this role has evolved. Aim To explore the views and experiences of GPs, PBPs, and community pharmacists (CPs) about PBPs' integration into general practice and their impact on primary healthcare delivery. Design and setting A qualitative interview study in primary care in Northern Ireland. Method Purposive and snowball sampling were used to recruit triads (a GP, a PBP, and a CP) from across five administrative healthcare areas in Northern Ireland. Sampling of practices to recruit GPs and PBPs commenced in August 2020. These HCPs identified the CPs who had most contact with the general practices in which the recruited GPs and PBPs were working. Semi-structured interviews were recorded, transcribed verbatim, and analysed using thematic analysis. Results Eleven triads were recruited from across the five administrative areas. Four main themes in relation to PBPs' integration into general practices were revealed: evolution of the role; PBP attributes; collaboration and communication; and impact on care. Areas for development were identified such as patient awareness of the PBP role. Many saw PBPs as a 'central hub-middleman' between general practice and community pharmacies. Conclusion Participants reported that PBPs had integrated well and perceived a positive impact on primary healthcare delivery. Further work is needed to increase patient awareness of the PBP role. © The Authors.

Awwad, O., AlMuhaisen, S.A., Al-Kharouf, M., Al-Nashwan, A., Abdeljalil, M., Al-Qerem, W.

Validation of the Arabic Version of the Health Literacy (HLS-Q12) Questionnaire in chronically ill patients

(2023) Health Promotion International, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159544441&doi=10.1093%2fheapro%2fdaad037&partnerID=40&md5=508a11ae0cbaf8672d6b70767440d00b)

[85159544441&doi=10.1093%2fheapro%2fdaad037&partnerID=40&md5=508a11ae0cbaf8672d6b70767440d00b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159544441&doi=10.1093%2fheapro%2fdaad037&partnerID=40&md5=508a11ae0cbaf8672d6b70767440d00b)

AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, the

University of Jordan, Amman, Jordan;
Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, University of Jordan, Amman, Jordan;
Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Health literacy (HL) is an essential component of public health. Few tools are used to measure HL in Arabic-speaking countries, essentially the ShortTest of Functional Health Literacy in Adults and the Single Item Literacy Screener. The new 12-item version of the European Health Literacy Survey Questionnaire (HLS-Q12), has not been validated in the Arabic language. This study aimed to translate the English version of HLS-Q12 into Arabic, test its structure and explain any variance in HLS-Q12 scores, allowing its use in Arabic-speaking healthcare contexts. A forward-backward translation was adopted. Reliability was assessed using Cronbach's α . Confirmatory factor analysis (CFA) and Rasch Model evaluated the model fit of the Arabic version of HLS-12. The effects of different patient-related variables on HLS-Q12 scores were tested using linear regression. A total of 389 patients visiting the site hospital outpatient clinics participated in the study. HLS-Q12 mean \pm SD score was 35.8 ± 5.0 , 50.9% of the participants showed an intermediate HL score. Good reliability ($\alpha = 0.832$) was observed. CFA confirmed the scale unidimensionality. Rasch analysis indicated HLS-Q12 items to be within the fit acceptable thresholds except for Item 12. The only item that displayed unordered response categories was Item 4. Most of the items were considered relatively easy by respondents. Linear regression revealed age, education, healthcare-related education and income to have effects significantly different from zero on HLS-Q12 score. Interventions targeting the most health-disparate groups of individuals with characteristics contributing to lower HL, are needed. © The Author(s) 2023. Published by Oxford University Press. All rights reserved.

Sunoqrot, S., Alkurdi, M., Al Bawab, A.Q., Hammad, A.M., Tayyem, R., Abu Obeed, A., Abufara, M. Encapsulation of morin in lipid core/PLGA shell nanoparticles significantly enhances its anti-inflammatory activity and oral bioavailability (2023) Saudi Pharmaceutical Journal, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159442959&doi=10.1016%2fj.jsps.2023.04.010&partnerID=40&md5=4a4a5852b1b8a9de4d089dc034a0d379>
AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
ACDIMA Biocenter, Amman, 11190, Jordan
ABSTRACT: Morin (3,5,7,2',4'-pentahydroxyflavone; MR) is a bioactive plant polyphenol whose therapeutic efficacy is hindered by its poor biopharmaceutical properties. The purpose of this study was to develop a nanoparticle (NP) formulation to enhance the bioactivity and oral bioavailability of MR. The nanoprecipitation technique was employed to encapsulate MR in lipid-cored poly(lactide-co-glycolide) (PLGA) NPs. The optimal NPs were about 200 nm in size with an almost neutral surface charge and a loading efficiency of 82%. The NPs exhibited sustained release of MR within 24 h. In vitro antioxidant assays showed that MR encapsulation did not affect its antioxidant activity. On the other hand, anti-inflammatory assays in lipopolysaccharide-stimulated macrophages revealed a superior anti-inflammatory activity of MR NPs compared to free MR. Furthermore, oral administration of MR NPs to mice at a single dose of 20 mg/kg MR achieved a 5.6-fold enhancement in bioavailability and a prolongation of plasma half-life from 0.13 to 0.98 h. The results of this study present a promising NP formulation for MR which can enhance its oral bioavailability and bioactivity for the treatment of different diseases such as inflammation. © 2023 The Author(s)

Rahman, R.U., Qousini, M.M.M., Alshehri, A., Eldin, S.M., El-Rashidy, K., Osman, M.S. Evaluation of the performance of fractional evolution equations based on fractional operators and sensitivity assessment (2023) Results in Physics, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159430192&doi=10.1016%2fj.rinp.2023.106537&partnerID=40&md5=1ec68cc199772cb2146aade3a55f32de>
AFFILIATIONS: Institute for Advanced Study, Shenzhen University, Shenzhen, Guangdong, 518060, China; Faculty of Science and Information Technology, Department of Mathematics, Al-Zaytoonah University of Jordan, Jordan;
Department of Mathematics, Faculty of Science, King Abdulaziz University, Jeddah, 21589, Saudi Arabia;
Center of Research, Faculty of Engineering, Future University in Egypt, New Cairo, 11835, Egypt; Technology and Science Department, Ranyah University College, Taif University, Saudi Arabia;
Department of Mathematics, Faculty of Science, Cairo University, Giza, 12613, Egypt
ABSTRACT: In this article, the nonlinear fractional Kudryashov's equation and the space-time fractional nonlinear Tzitzeica-Dodd-Bullough (TDB) equation are solved using the new auxiliary equation method, which yields innovative analytical solutions using β and M-Truncated fractional derivatives. The fractional wave and Painlevé transformations are implemented to transform the space and time fractional nonlinear equations into a nonlinear ordinary differential equation. The model

solutions are compared by utilizing the two fractional derivatives. Hyperbolic, trigonometric, rational, exponential, and other sorts of soliton solutions are discovered, and these forms of the outcomes illustrate the superiority of the method's uniqueness. The solutions provided in this piece are sophisticated and comprehensive, and the results of the literature review are one instance of the findings. The key advantage of this approach over remedies is that it possesses higher options with flexible constraints. By plotting 3D as well as 2D graphs of the acquired results and analyzing the effect of the fractional parameter ρ on the wave profiles of the phenomenon, it has been determined that the fractional parameter significantly affects the wave profiles. The findings are carried out in such a way as to showcase the applicability and expertise of fractional derivatives and the proposed approach to evaluate several nonlinear fractional partial differential equations. Finally, the comprehensive sensitivity analysis of the proposed models is done by first transforming it into the format of a planer dynamical system using the Galilean transformation. © 2023 The Author(s)

Batiha, I.M., Bataihah, A., Al-Nana, A.A., Alshorm, S., Jebril, I.H., Zraiqat, A.

A NUMERICAL SCHEME FOR DEALING WITH FRACTIONAL INITIAL VALUE PROBLEM

(2023) ICIC Express Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85158820230&doi=10.24507%2fijicic.19.03.763&partnerID=40&md5=0a16bc0210edf87ba5fbec66411687cf)

[85158820230&doi=10.24507%2fijicic.19.03.763&partnerID=40&md5=0a16bc0210edf87ba5fbec66411687cf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85158820230&doi=10.24507%2fijicic.19.03.763&partnerID=40&md5=0a16bc0210edf87ba5fbec66411687cf)

AFFILIATIONS: Department of Mathematics Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC) Ajman University, Ajman, 346, United Arab Emirates;

Ministry of Education Amman11118, Jordan;

Department of Mathematics Prince Sattam Bin Abdulaziz University, Alkharj, 11942, Saudi Arabia

ABSTRACT: This paper aims to present a new numerical modification for solving fractional initial value problem. The proposed modification, which is named Modified Fractional Euler Method (MFEM), attempts to further improve the Fractional Euler Method (FEM) in terms of attaining more accuracy. The error bound generated by the proposed method is analysed and estimated by demonstrating a specific theoretical result. In order to validate the efficiency of the proposed method, several numerical comparisons are performed using MATLAB routines. © 2023 ICIC International. All rights reserved.

Awwad, O., Aboalhaja, N., Abaza, I., Abbassi, R., Kailani, M.H., Al-Jaber, H., Afifi, F.U.

Chromatographic (LC-MS and GC-MS) and biological (antiproliferative) evaluation of a naturalized plant in Jordan: *Parkinsonia aculeata* L.

(2023) Journal of Herbal Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153309328&doi=10.1016%2fj.hermed.2023.100659&partnerID=40&md5=6f9a59124d3df9227ca54b37b6d6e0e6)

[85153309328&doi=10.1016%2fj.hermed.2023.100659&partnerID=40&md5=6f9a59124d3df9227ca54b37b6d6e0e6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153309328&doi=10.1016%2fj.hermed.2023.100659&partnerID=40&md5=6f9a59124d3df9227ca54b37b6d6e0e6)

AFFILIATIONS: Department of Clinical Pharmacy and Biopharmaceutics, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Chemistry, School of Science, The University of Jordan, Amman, Jordan;

Department of Chemistry, Faculty of Science, Al-Balqa Applied University, Al-Salt, Jordan;

Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan

ABSTRACT: Introduction: *Parkinsonia aculeata* L. (Caesalpiniaceae), native to the Sonoran and Chihuahuan deserts of southwestern USA and northern Mexico, has been introduced and successfully propagated in Jordan within the Greening the Desert Project. No phytochemical or biological studies have been carried out with this species grown in Jordan. Methods: The hydrodistilled essential oils of *P. aculeata*, from the fresh leaves and flowers (fully grown and at the pre-flowering stage), as well as their spontaneous emitted volatiles, were determined by Solid-Phase-Micro-Extraction (SPME), and analyzed by GC and GC-MS. Water and ethanol extracts were screened by LC-MS and evaluated for their antiproliferative activities on two colorectal- (Caco2 and HCT116) and two breast cancer- (MCF7 and T47D) cell lines. Results: The monoterpene trans-ocimene appeared as the major compound of the aroma profile of all the studied organs while the hydro-distilled oils contained larger percentages of non-terpenoid volatile substances. LC-MS analyses of the water extract of the aerial parts revealed the presence of sixteen compounds, with 4-methylumbelliferone, succinic acid, vitexin, and hyperoside being the major identified compounds. In the ethanol extract of the aerial parts eleven compounds were identified, with iso-orientin and chrysoeriol-7-glucoside as the major compounds. Biologically, the water extract of the *P. aculeata* showed promising antiproliferative activity against the four tested cell lines with IC50s ranging between 17.5 and 77 $\mu\text{g/mL}$. Conclusion: Findings encourage future studies to isolate the water extract components of *P. aculeata* to investigate their anticancer activities against different cancer cell lines and to consider it as a complementary therapy for colorectal cancer. © 2023 Elsevier GmbH

Abu Afifa, M., Nguyen, N.M.

Impact of risk-taking tendency and transformational leadership style on the use of management accounting system information: a direct-mediation model

(2023) *Baltic Journal of Management*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152300149&doi=10.1108%2fBJM-01-2022-0003&partnerID=40&md5=d05f63a44805143080ff62900244fbb1>

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Accounting, Tien Giang University, My Tho, Viet Nam

ABSTRACT: Purpose: This research aims to determine the impact of the CEO's risk-taking tendencies and the transformational leadership style on the use of the management accounting system information, as well as the mediating impact of product creativeness and organizational citizenship behavior in this context. It also provides empirical evidence from Vietnamese enterprises.

Design/methodology/approach: The current research was conducted using quantitative methods. It was conducted during the ongoing Covid-19 pandemic in Vietnam. The study population is represented by all of the Vietnamese enterprises listed on stock exchanges. Therefore, an online email questionnaire was used for data collection. Specifically, 670 emails were sent to CEOs and 146 complete responses were collected (21.79% rate). Findings: By using the partial least squares structural equation modeling (PLS-SEM), the study results show that the CEO's risk-taking tendencies and transformational leadership style have a significant positive effect on the use of the management accounting system information. Additionally, product creativeness mediates the relationship between the CEO's risk-taking tendency, and the use of the management accounting system information. Also, organizational citizenship behavior mediates the relationship between transformational leadership style and the use of the management accounting system information. Research limitations/implications: Despite attempts to overcome by GDP contribution ratio, convenience sampling tends to cause common method bias.

Furthermore, small sample sizes can lead to heterogeneity and unstable estimates of the parameter. Causality issues may also arise because the model has no control variables. Therefore, later studies should take the necessary additional steps when sampling to stay consistent with the study population, possibly conducting surveys in several batches to determine the correlation between changes in variables, and allowing the ability to discover and add any necessary control variables. Originality/value: This research acts as a bridge between management and management accounting, confirming the importance of this combination when efficiently using the management accounting system. © 2023, Emerald Publishing Limited.

Jarab, A.S., Al-Qerem, W., Alqudah, S., Abu Heshmeh, S.R., Mukattash, T.L., Alzoubi, K.H.

Blood pressure control and its associated factors in patients with hypertension and type 2 diabetes (2023) *Electronic Journal of General Medicine*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151931834&doi=10.29333%2fejgm%2f13028&partnerID=40&md5=437b3c3eb0dd3d6fc526ea0581d4aa33>

AFFILIATIONS: College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates; Department of Clinical Pharmacy, Jordan University of Science and Technology, Irbid, Jordan; Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Pharmacy, Jordanian Royal Medical Services, Amman, Jordan; Department of Pharmacy Practice and Pharmacotherapeutics, University of Sharjah, Sharjah, United Arab Emirates;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: In this retrospective study, the medical records of hypertensive patients with type 2 diabetes attending two major hospitals were reviewed to find the factors associated with poor blood pressure control in patients who have diabetes as a comorbid disease with hypertension. Binary regression analysis was conducted to find the factors independently associated with BP control. A total of 522 participants were included in the study. Most of the participants had uncontrolled hypertension (63.4%) and uncontrolled type 2 diabetes (51.3%). Regression results revealed that having retinopathy (OR=1.468 (95% CI: 1.020-2.113), $p<0.05$), and not receiving dipeptidyl-peptidase 4 (DPP4) inhibitors were independently associated with uncontrolled BP (OR=0.633 (95%CI 0.423-0.946), $p<0.05$). Therefore, greater efforts should be exerted to improve BP control in hypertensive patients with type 2 diabetes, particularly in those suffering from retinopathy. © 2023 by Author/s and Licensed by Modestum.

Khattabi, A.M., Al-Dabash, S., Mahmoud, N.N.

Quercetin Loaded Silica and Gold - Coated Silica Nanoparticles: Characterization, Evaluation and Comparison of Their in vitro Characteristics (2023) *Journal of Pharmaceutical Sciences*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151569519&doi=10.1016%2fj.xphs.2023.03.015&partnerID=40&md5=a75c5ad1bffcbe5b8f3e105d26f134e>

AFFILIATIONS: Department of Pharmaceutical Sciences and Pharmaceutics, Applied Science Private

University, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biomedical Sciences, College of Health Sciences, QU Health, Qatar University, Doha, 2713, Qatar

ABSTRACT: Herein, silica nanoparticles (NPs) and gold-silica NPs were loaded with the anti-cancer agent quercetin (QC) to produce silica NPs-QC and gold coated silica NPs-QC, respectively. The nanosystems were characterized using transmission electron microscopy (TEM), dynamic light scattering (DLS) and Fourier transform infrared (FTIR). Drug encapsulation efficiency (EE), loading capacity (LC) and release rate were measured using UV spectrophotometer. The drug was encapsulated in silica NPs in a high percentage (71%) and reduced by about 16% after gold coating. The mean particle size increased after coating and QC loading with a polydispersity index (PDI) between ($\sim 0.2 - 0.6$) and negative zeta potential (-13 to -15 mV). The intensity of FTIR peaks of silica NPs has been significantly decreased upon gold coating indicating a successful attachment of the gold thin layer. The drug release was slightly faster from coated compared to uncoated NPs but both slower than free QC. The percentages of their cell toxicity were almost the same but lower than free QC and generally were higher against HeLa cells compared to fibroblast cells. Both nanosystems could be considered as promising nanocarriers with reasonable EE, slower release rate and lower toxicity compared to the free drug. © 2023 American Pharmacists Association

Abu Kamel, A.M., Alnazly, E., Shawish, N.S.

Predictors of COVID-19 vaccine hesitancy among Jordanian older adults

(2023) International Journal of Nursing Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150391356&doi=10.1111%2fijn.13144&partnerID=40&md5=d3f51f780e7d30e29941ef22a76a96b0)

[85150391356&doi=10.1111%2fijn.13144&partnerID=40&md5=d3f51f780e7d30e29941ef22a76a96b0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150391356&doi=10.1111%2fijn.13144&partnerID=40&md5=d3f51f780e7d30e29941ef22a76a96b0)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Nursing Department, Al-Ahliyya Amman University, Amman, Jordan

ABSTRACT: Aims: We examined the predictive factors of COVID-19 vaccine hesitancy among Jordanian older adults. Background: Vaccine hesitancy among older adults is influenced by several factors. Design: This study employed a cross-sectional design. Methods: Online surveys were conducted between November 2021 and April 2022. The surveys included socio-demographic variables, COVID-19 vaccine-related information, the Vaccine Attitude Examination Scale and the Fear of COVID-19 Scale. Results: Participants were 350 older adults (aged 68.1 ± 7.21 years; 62.9% females). Linear regression analyses were performed to assess the impact of correlated variables on the explanation of anti-vaccination attitudes. Participants reported a moderate level of fear of COVID-19 and a moderate level of hesitancy towards receiving the COVID-19 vaccine. The linear regression model revealed that several chronic illnesses, fear of COVID-19 and number of family incidences of COVID-19 explained vaccine hesitancy. Conclusions: Raising awareness among older adults about the desired effect of the COVID-19 vaccine in terms of minimizing hospitalization, disease consequences and mortality rate is required. Well-tailored interventions are essential to reduce vaccine hesitancy among older adults and reinforce the importance of receiving the vaccine for those with multi-morbidities. © 2023 John Wiley & Sons Australia, Ltd.

Al-Betar, M.A., Awadallah, M.A., Doush, I.A., Alomari, O.A., Abasi, A.K., Makhadmeh, S.N., Alyasseri, Z.A.A.

Boosting the training of neural networks through hybrid metaheuristics

(2023) Cluster Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137070714&doi=10.1007%2fs10586-022-03708-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137070714&doi=10.1007%2fs10586-022-03708-x&partnerID=40&md5=46b4eb7262cad8f9dad677bd94d539b1)

AFFILIATIONS: Artificial Intelligence Research Center (AIRC), College of Engineering and Information Technology, Ajman University, Ajman, United Arab Emirates;

Department of Information Technology, Al-Huson University College, Al-Balqa Applied University, Irbid, Jordan;

Department of Computer Science, Al-Aqsa University, P.O. Box 4051, Gaza, Palestine;

Artificial Intelligence Research Center (AIRC), Ajman University, Ajman, United Arab Emirates;

Department of Computing, College of Engineering and Applied Sciences, American University of Kuwait, Salmiya, Kuwait;

Computer Science Department, Yarmouk University, Irbid, Jordan;

MLALP Research Group, University of Sharjah, Sharjah, United Arab Emirates;

Machine Learning Department, Mohamed Bin Zayed University of Artificial Intelligence (MBZUAI), Abu Dhabi, United Arab Emirates;

Information Technology Research and Development Center (ITRDC), University of Kufa, Najaf, Iraq;

Department of Business Administration, College of Administration and Financial Sciences, Imam Ja'afar Al-Sadiq University, Baghdad, Iraq;

ECE Department, Faculty of Engineering, University of Kufa, Najaf, Iraq;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this paper, the learning process of multilayer perceptron (MLP) neural network is boosted using hybrid metaheuristic optimization algorithms. Normally, the learning process in MLP requires suitable settings of its weight and bias parameters. In the original version of MLP, the gradient descent algorithm is used as a learner in MLP which suffers from two chronic problems: local minima and slow convergence. In this paper, six versions of memetic algorithms (MAs) are proposed to replace gradient descent learning mechanism of MLP where adaptive β -hill climbing (ABHC) as a local search algorithm is hybridized with six population-based metaheuristics which are hybrid flower pollination algorithm, hybrid salp swarm algorithm, hybrid crow search algorithm, hybrid grey wolf optimization (HGWO), hybrid particle swarm optimization, and hybrid JAYA algorithm. This is to show the effect of the proposed MA versions on the performance of MLP. To evaluate the proposed MA versions for MLP, 15 classification benchmark problems with different size and complexity are used. The ABHC algorithm is invoked in the improvement loop of any MA version with a probability of Br parameter, which is investigated to monitor its effect on the behavior of the proposed MA versions. The Br setting which obtains the most promising results is then used to set the hybrid MA. The results show that the proposed MA versions excel the original algorithms. Moreover, HGWO outperforms all other MA versions in almost all the datasets. In a nutshell, MAs are a good choice for training MLP to produce results with high accuracy. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Abu Afifa, M.M., Saleh, I.H., Haniah, F.F.

Does earnings management mediate the relationship between audit quality and company performance? Evidence from Jordan

(2023) Journal of Financial Reporting and Accounting, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121456279&doi=10.1108%2fJFRA-08-2021-0245&partnerID=40&md5=bad3ec929a4e779e03fab93964b4ae1d>

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Accounting, The World Islamic Sciences and Education University, Amman, Jordan

ABSTRACT: Purpose: The purpose of this study is to look at the direct relationship between audit quality, earnings management (EM) practices and company performance, as well as the indirect influence (mediation) of EM practices in the relationship between audit quality and company performance. It offers empirical evidence from the Jordanian market, which is considered an emerging market. Design/methodology/approach: The population of this study is represented in Jordanian service companies listed on the Amman Stock Exchange (ASE), with a total of 344 company-year observations. Furthermore, panel data analysis was used in this study, and data for the study were acquired from yearly reports as well as the ASE's database. Findings: Based on generalized method of moments model, the present findings demonstrate that the size of the audit firm and the tenure of the audit firm have a positive and negative influence on EM practices, respectively, but that industry-specialist audit firm has a negative and insignificant effect. EM practices have a negative impact on two company performance proxies (ROA and ROE), but have no effect on earnings per share (EPS). Furthermore, the size of the audit firm has a positive and significant influence on the performance proxies of the company [i.e. return on assets (ROA) and return on equity (ROE)]. The presence of an industry-specialist audit firm has a positive and significant influence on two proxies of company performance (ROE and EPS), but a negative and significant impact on ROA. An audit firm's tenure has a negative and significant impact on two performance proxies (ROA and EPS), but a positive and significant impact on ROE. Then, EM practices either fully or partially mediate the relationship between audit quality proxies and company performance as assessed by ROA, ROE and EPS. Research limitations/implications: The current study's limitation is that it only searched in Jordanian service companies listed on ASE from 2012 to 2019 to meet the study's objectives; thus, the authors recommend that future work investigate the study model for other sectors, whether in Jordan or other emerging markets such as the Middle East and North Africa. Another limitation of this study is that the study models lack important variables, which may affect EM and company performance, such as corporate governance and ownership structure characteristics; as a result, the authors recommend that future work includes such variables in future research models to have more explanations in this context. Practical implications: Analysts, investors and other strategic decision makers may use the findings of this study to improve the efficiency and efficacy of Jordan's financial market. These findings will enhance policymakers' willingness to establish appropriate regulations, which might improve Jordan's financial market performance and efficacy. These findings may help investors make better judgments by using audit quality proxies and EM indicators, which can forecast business success. Originality/value: First, this study distinguishes itself from prior studies through establishing a new research model, by investigating the mediating effect of EM in the relationship between audit quality and company performance. It provides empirical evidence from the Jordanian market; hence, it increases the body of the knowledge in this context. Second, to the best of the authors' knowledge, this is the first study to look into the link between audit quality, EM and company performance together; hence, the model of this study is developed using agency theory and information asymmetry theory. Third, the current study adds new evidence to the role of audit quality

and EM in companies, as well as how audit quality and EM practices affect company performance in emerging markets such as Jordan. © 2021, Emerald Publishing Limited.

Abu Afifa, M.M., Saleh, I., Taqatqah, F.

Mediating influence of earnings management in the nexus between audit quality and company value: new proof from Jordanian market

(2023) Accounting Research Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152265900&doi=10.1108%2fARJ-03-2021-0102&partnerID=40&md5=ed3bead9bf63e92b58f3cbabbca04f67>

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: This paper aims to recognize the direct influence of audit quality (AQ) on earnings management practices (EMP) and company value (CV), as well as the mediating role of EMP in the link between AQ and CV. It presents new factual proof from the Jordanian market, which is still in its early stages. Design/methodology/approach: A pattern of 43 service firms listed on the Amman Stock Exchange (ASE) was collected for the timeframe (2012-2019), giving an amount of 344 firm-year observances. The data was collected from the annual reports extracted from the ASE's database and tested with panel data analysis. Findings: The results show that audit firm industry specialization positively affects EMP while its size and tenure do not, which implies that its industry specialization does not restrict earnings management but rather leads to an increase in opportunistic behaviors. Audit firm size and audit firm industry specialization positively affect CV, whilst audit firm tenure does not. Additionally, the findings indicate that EMP negatively affect CV, and EMP act as a mediator for the AQ-CV nexus. Research limitations/implications: Stakeholders can use the findings to enhance the capacity and effectiveness of Jordan's fiscal market. For example, our results will boost policymakers' eagerness to institute suitable statutes improving Jordan's fiscal market performance. Besides, the results can assist existing and potential investors make sound adjudication by using AQ proxies and earnings management as signals to predict future company's value. Originality/value: The paper differentiates itself from previous papers through initiating a new proposed model by exploring the role of earnings management as a mediator in the nexus between AQ and CV by presenting new factual proof from the Jordanian market. © 2023, Emerald Publishing Limited.

Flynn, K., Mahmoud, N.N., Sharifi, S., Gould, L.J., Mahmoudi, M.

Chronic Wound Healing Models

(2023) ACS Pharmacology and Translational Science, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85154529968&doi=10.1021%2facpts.3c00030&partnerID=40&md5=853fc74091ccd02f0a173f4fcedb4f32>

AFFILIATIONS: Department of Radiology and Precision Health Program, Michigan State University, East Lansing, MI 48824-1312, United States;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biomedical Sciences, College of Health Sciences, QU Health, Qatar University, Doha, 2713, Qatar;

Department of Surgery, South Shore Hospital, South Weymouth, MA 02190, United States

ABSTRACT: In this paper, we review and analyze the commonly available wound healing models reported in the literature and discuss their advantages and issues, considering their relevance and translational potential to humans. Our analysis includes different in vitro and in silico as well as in vivo models and experimental techniques. We further explore the new technologies in the study of wound healing to provide an all encompassing review of the most efficient ways to proceed with wound healing experiments. We revealed that there is not one model of wound healing that is superior and can give translatable results to human research. Rather, there are many different models that have specific uses for studying certain processes or stages of wound healing. Our analysis suggests that when performing an experiment to assess stages of wound healing or different therapies to enhance healing, one must consider not only the species that will be used but also the type of model and how this can best replicate the physiology or pathophysiology in humans. © 2023 American Chemical Society

Alamayreh, M.I., Bazlamit, S.M., Alhorani, R.A.M.

Cryogenic cooling using liquid nitrogen to produce massive concrete: temperature, setting time and compressive strength

(2023) Advances in Cement Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159582644&doi=10.1680%2fjadcr.23.00003&partnerID=40&md5=50a87469690f2ba4b40016b2ac55a34c>

AFFILIATIONS: Department of the Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Indiana Department of Transportation, Indianapolis, IN, United States;

Civil and Infrastructure Engineering Department, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Mixing cement with water in mass concrete production is associated with hydration heat

generation, which may cause concrete mixes to dry out and crack. The experimental work aims to evaluate the effects of using liquid nitrogen (LN) in cooling mortar mixes and concrete. LN was used in doses of 0, 25, 50, 75 and 100% by water volume to either cool the mixing water at $T = 4^{\circ}\text{C}$ or to inject it into concrete mixtures directly. The concrete mix proportions were based on ACI PRC-207.1-21 for mass concrete. The mortars' initial and final setting times and temperatures indicated that a greater percentage of LN delayed the hardening process and the peak hardening rates, exhibiting slower cement hydration. LN cooling enhances the compressive strength of mortar and concrete cubes when $V_{LN}/V_{water} \leq 1$. However, concrete compressive strength decreased due to ice formation that turned into voids when $V_{LN}/V_{water} > 1$. Cooling concrete with chilled water ($T = 4^{\circ}\text{C}$) showed a 30% and 34.51% increase in mortar and concrete cubes' compressive strength, respectively, and a maximum of 16.45% and 12.97% when LN was injected into mortars and concrete mixes. Cooling the concrete with chilled water ($T = 4^{\circ}\text{C}$) showed a slower cooling process, which improved cement hydration results. © 2023 ICE Publishing. All rights reserved.

Er, M.J., Jebril, I.H.

Guest Editorial - Fuzzy Optimization and Algorithms in Autonomous Systems

(2023) International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161188173&doi=10.1142%2fS0218488523020014&partnerID=40&md5=7b08af627a5265bc8af3792065964538)

[85161188173&doi=10.1142%2fS0218488523020014&partnerID=40&md5=7b08af627a5265bc8af3792065964538](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161188173&doi=10.1142%2fS0218488523020014&partnerID=40&md5=7b08af627a5265bc8af3792065964538)

AFFILIATIONS: School of Electrical & Electronic Engineering, Nanyang Technological University, Singapore;

Dalian Maritime University, China;

Bharath University, India;

Mathematics Department, Al-Zaytoonah University of Jordan, Jordan

Alhorani, R.A., Rabayah, H.S., Abendeh, R.M., Salman, D.G.

Assessment of Flexural Performance of Reinforced Concrete Beams Strengthened with Internal and External AR-Glass Textile Systems

(2023) Buildings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160647974&doi=10.3390%2fbuildings13051135&partnerID=40&md5=233fd5f1aa77f7d41083966026e9a9a4)

[85160647974&doi=10.3390%2fbuildings13051135&partnerID=40&md5=233fd5f1aa77f7d41083966026e9a9a4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160647974&doi=10.3390%2fbuildings13051135&partnerID=40&md5=233fd5f1aa77f7d41083966026e9a9a4)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Civil Engineering, University of Mississippi, Oxford, MS 38677, United States

ABSTRACT: This paper is an experimental study of the effectiveness of using internal and external alkali-resistant glass fabric textile (AR-GT) layers for flexural strengthening of reinforced concrete (RC) beams. The experimental work compares internal single and triple layers of AR-GT as supplemental flexural reinforcement with textile-reinforced mortar (TRM) in RC beams subjected to four-point bending loading. In addition, a control beam specimen is cast with no AR-GT fabric. Monitoring the load-deflection curves, crack patterns, and strengthening layer performance showed that using AR-GT for internal and external layers increased the load-carrying capacity of RC beams. The failure patterns of beams with one external AR-GT layer and three internal AR-GT layers showed a similar trend, with higher loading capacity and lower deflections than the other beams. Three internal textile AR-GT layers recorded higher flexural strength (52%) than one internal layer (6.3%), compared to the control beam specimen. Moreover, using one layer of external AR-GT fabric exhibited higher flexural strength than using one or three internal layers (56.8%). © 2023 by the authors.

Hamadneh, T., Alomari, M.W., Al-Shbeil, I., Alaqad, H., Hatamleh, R., Heilat, A.S., Al-Husban, A. Refinements of the Euclidean Operator Radius and Davis-Wielandt Radius-Type Inequalities

(2023) Symmetry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160513202&doi=10.3390%2fsym15051061&partnerID=40&md5=a913bf832fc817ee80e0b7916f403e6b)

[85160513202&doi=10.3390%2fsym15051061&partnerID=40&md5=a913bf832fc817ee80e0b7916f403e6b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160513202&doi=10.3390%2fsym15051061&partnerID=40&md5=a913bf832fc817ee80e0b7916f403e6b)

AFFILIATIONS: Department of Mathematics, Faculty of Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Faculty of Science and Information Technology, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics, Faculty of Science, University of Jordan, Amman, 11940, Jordan;

Department of Mathematical Sciences, United Arab Emirates University, Al Ain, 15551, United Arab Emirates;

Department of Mathematics, Faculty of Science and Information Technology, Jadara University, Irbid, 21110, Jordan

ABSTRACT: This paper proves several new inequalities for the Euclidean operator radius, which refine some recent results. It is shown that the new results are much more accurate than the related, recently published results. Moreover, inequalities for both symmetric and non-symmetric Hilbert space operators are studied. © 2023 by the authors.

Batiha, I.M., Abubaker, A.A., Jebril, I.H., Al-Shaikh, S.B., Matarneh, K.

New Algorithms for Dealing with Fractional Initial Value Problems

(2023) *Axioms*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160259953&doi=10.3390%2faxioms12050488&partnerID=40&md5=d41fe79a9ccfcb54287f3cd1889480ff)

85160259953&doi=10.3390%2faxioms12050488&partnerID=40&md5=d41fe79a9ccfcb54287f3cd1889480ff

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates;

Faculty of Computer Studies, Arab Open University, Riyadh, 11681, Saudi Arabia

ABSTRACT: This work purposes to establish two small numerical modifications for the Fractional Euler method (FEM) and the Modified Fractional Euler Method (MFEM) to deal with fractional initial value problems. Two such modifications, which are named Improved Modified Fractional Euler Method 1 (IMFEM 1) and Improved Modified Fractional Euler Method 2 (IMFEM 2), endeavor to further enhance FEM and MFEM in terms of attaining more accuracy. By utilizing certain theoretical results, the resultant error bounds of the proposed methods are analyzed and estimated. Several numerical comparisons are carried out to validate the efficiency of our proposed methods. © 2023 by the authors.

Hamadneh, T., Abu Falahah, I., AL-Khassawneh, Y.A., Al-Husban, A., Wanas, A.K., Bulboacă, T.

Initial Coefficients Upper Bounds for Certain Subclasses of Bi-Prestarlike Functions

(2023) *Axioms*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160218568&doi=10.3390%2faxioms12050453&partnerID=40&md5=c758b4a5bdb10d3d5a2eed8577fe30f2)

85160218568&doi=10.3390%2faxioms12050453&partnerID=40&md5=c758b4a5bdb10d3d5a2eed8577fe30f2

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa,

13133, Jordan;

Data Science and Artificial Intelligence Department, Zarqa University, Zarqa, 13110, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, P.O. Box

2600, Irbid, 21110, Jordan;

Department of Mathematics, College of Science, University of Al-Qadisiyah, Al Diwaniyah, 58001, Iraq;

Faculty of Mathematics and Computer Science, Babeş-Bolyai University, Cluj-Napoca, 400084, Romania

ABSTRACT: In this article, we introduce and study the behavior of the modules of the first two coefficients for the classes (Formula presented.) and (Formula presented.) of normalized holomorphic and bi-univalent functions that are connected with the prestarlike functions. We determine the upper bounds for the initial Taylor-Maclaurin coefficients (Formula presented.) and (Formula presented.) for the functions of each of these families, and we also point out some special cases and consequences of our main results. The study of these classes is closely connected with those of Ruscheweyh who in 1977 introduced the classes of prestarlike functions of order (Formula presented.) using a convolution operator and the proofs of our results are based on the well-known Carathéodory's inequality for the functions with real positive part in the open unit disk. Our results generalize a few of the earlier ones obtained by Li and Wang, Murugusundaramoorthy et al., Brannan and Taha, and could be useful for those that work with the geometric function theory of one-variable functions. © 2023 by the authors.

Abu Helal, A.-R.H., Hay, A.W.S.A.

On the Source of U-Shape Learning in Interlanguage Processing: A Pilot Study on the L2 Acquisition of

Number Agreement in French by Jordanian Arabic Learners

(2023) *Theory and Practice in Language Studies*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159615929&doi=10.17507%2ftpls.1305.29&partnerID=40&md5=3317e37b09bb3f7014a271af398c4273)

85159615929&doi=10.17507%2ftpls.1305.29&partnerID=40&md5=3317e37b09bb3f7014a271af398c4273

AFFILIATIONS: Department of English language and literature, Al-Zaytoonah University of Jordan,

Jordan;

Department of French language, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: –This paper investigates the L2 acquisition of the morphosyntax of number agreement of French by L1 learners. The study is based on a pilot study that investigates learners' knowledge of number agreement of two paradigms of subject-verb number agreement in French: the so-called matching paradigm in which agreement in number is expressed audibly via an alternation of the verb stem between a singular and plural forms and the mismatching paradigm in which the number agreement is not audible realized via singular vs. plural alternation. We discussed our sample's proficiency in (de-)normalizing number agreement and the implications it has for the theory of corrective feedback and linguistic input in L2 processing in Language acquisition. © 2023 ACADEMY PUBLICATION.

Alkhatib, W.Y.

Feminist Reading of Leila Aboulela's "The Ostrich"

(2023) *Theory and Practice in Language Studies*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85159586878&doi=10.17507%2ftpls.1305.23&partnerID=40&md5=d3bc454d9400f9d5915998f79864c906

AFFILIATIONS: Department of English Literature, Faculty of Arts, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, Jordan

ABSTRACT: The marginalized and oppressed women in Sudan, alongside the subaltern women living on the margin, are depicted in the current work. "The Ostrich" by Laila Aboulela shows the protagonist's life of Sumra both in Khartoum, Sudan, and London in the UK. Sumra represents Sudanese women struggling hard to find their place in a patriarchal society. The structure of this article can be articulated in two arguments; the empowerment of patriarchal supremacy and the power of tradition implanted in Sudan and most third-world countries to marginalize and silence the role of women so that they can never be heard. Although women have got their studies at universities, they are still marginalized and have no full right to decide for themselves. Appropriating the analytical descriptive approach, the current study aims to demonstrate the marginalization and oppression of women in Sudan. © 2023 ACADEMY PUBLICATION.

Qatawneh, A.M.

The Role of Employee Empowerment in Supporting Accounting Information Systems Outcomes: A Mediated Model

(2023) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159324532&doi=10.3390%2fsu15097155&partnerID=40&md5=f72ffd266eac870c4fd4811fc4673a09)

85159324532&doi=10.3390%2fsu15097155&partnerID=40&md5=f72ffd266eac870c4fd4811fc4673a09

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: The current research study was carried out to explore the mediating influence of management awareness on the relationship between employee empowerment and accounting information systems (AIS) outcomes. A quantitative approach was adopted through the distribution of an online questionnaire to (97) financial managers and accounting managers within banks in Jordan. SPSS was used in order to analyze the primary data, and it was seen that management awareness mediates the relationship between employee empowerment and AIS outcomes, which is attributed to the fact that management needs to be aware of organizational goals and the financial information needed to achieve these goals. This includes an understanding of the latest accounting technology that is available to assist in this process. Additionally, management needs to be aware of the costs associated with the implementation of new systems, and any potential risks that could arise. By being actively involved in the implementation and decision-making process, management can ensure that AIS is efficient and produces the desired results. Finally, management should ensure that appropriate user training is available for all users of the information system. This ensures that the system can be utilized in the most efficient manner possible and produces the desired financial results. This study recommended the need to utilize integrated cloud-based systems to increase the availability of information and reduce the need for manual data entry. Further recommendations were presented in the study. © 2023 by the author.

Tarawneh, N., Hamadneh, L., Abu-Irmaileh, B., Shraideh, Z., Bustanji, Y., Abdalla, S.

Berberine Inhibited Growth and Migration of Human Colon Cancer Cell Lines by Increasing Phosphatase and Tensin and Inhibiting Aquaporins 1, 3 and 5 Expressions

(2023) Molecules, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159323632&doi=10.3390%2fmolecules28093823&partnerID=40&md5=3da2d70b9e0afba239b56097573f44ba)

85159323632&doi=10.3390%2fmolecules28093823&partnerID=40&md5=3da2d70b9e0afba239b56097573f44ba

AFFILIATIONS: Department of Biological Sciences, School of Science, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University, Amman, 11733, Jordan;

Department of Basic Medical Sciences, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Hamdi Mango Center for Scientific Research, The University of Jordan, Amman, 11942, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Basic Medical Sciences, College of Medicine, University of Sharjah, Sharjah, 27272, United Arab Emirates

ABSTRACT: Introduction: Berberine is a natural isoquinoline alkaloid with anti-cancer properties. Nevertheless, the underlying mechanism of its action in human colorectal cancer (CRC) has not been thoroughly elucidated. We investigated the anti-cancer effect of berberine on HT-29, SW-480 and HCT-116 human CRC cell lines. Methods: Cell proliferation, migration and invasion were studied by MTT assay, wound healing, transwell chambers and flow cytometry. Reverse transcription-quantitative polymerase chain reaction (RT-qPCR) and immunostaining were used to evaluate the expression of aquaporins (AQPs) 1, 3 and 5 in colon cancer cell lines before and after treatment with berberine (10, 30 and 100 µM). RT-qPCR and Western blotting were used to further explore the PI3K/AKT signaling pathway and the molecular mechanisms underlying berberine-induced inhibition of cell proliferation. Results: We demonstrated that treatment of these CRC cell lines with berberine inhibited cell proliferation, migration and invasion through induction of apoptosis and necrosis. HT-29, SW-480 and

HCT-116 stained positively for AQP 1, 3 and 5, and berberine treatment down-regulated the expression of all three types of AQPs. Berberine also modulated PI3K/AKT pathway activity through up-regulating PTEN and down-regulating PI3K, AKT and p-AKT expression as well as suppressing its downstream targets, mTOR and p-mTOR at the protein level. Discussion/Conclusions: These findings indicate that berberine inhibited growth, migration and invasion of these colon cancer cell lines via down-regulation of AQP 1, 3 and 5 expressions, up-regulating PTEN which inhibited the PI3K/AKT pathway at the gene and protein levels, and that AQP 1, 3 and 5 expression level can be used as prognostic biomarkers for colon cancer metastasis. © 2023 by the authors.

Alhawamdeh, L.N., Alsaaidh, M., Al-Gasawneh, J.A., Alsmadi, A.A., Alqireh, R.M.M.

Do E-Service Quality and Digital Content Moderate the Relationship between Website Design and the Intention to visit the Museum?

(2023) Quality - Access to Success, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153373370&doi=10.47750%2fQAS%2f24.194.17&partnerID=40&md5=27cd5b501ae4f8952d0b2cd80e566f98)

[85153373370&doi=10.47750%2fQAS%2f24.194.17&partnerID=40&md5=27cd5b501ae4f8952d0b2cd80e566f98](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153373370&doi=10.47750%2fQAS%2f24.194.17&partnerID=40&md5=27cd5b501ae4f8952d0b2cd80e566f98)

AFFILIATIONS: University of Petra, Jordan;

Management information systems, Isra University, Amman, Jordan;

Applied Science Private University, Amman, Jordan;

Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study assessed the effects of website design on the intention to visit the Museum of Parliamentary Life, and the moderating role of E-service quality and digital content in the relationship between website design and the intention to visit the Museum of Parliamentary life. This study utilized two theories namely the technology acceptance model and planned behavior. A total of 153 responses from visitors were analyzed using Smart Partial Least Squares. The findings reported that website design positively impacts the intention to visit the Museum of Parliamentary life. Additionally, E-service quality and digital content moderate the relationship between website design and the intention to visit the Museum of Parliamentary life. The study focused on visitors' motivation which forms their intention to visit the Museum of Parliamentary life. The goal here is to guide relevant organizations in increasing-service quality and enhancing digital content to encourage people to visit the museum. © 2023, SRAC - Romanian Society for Quality. All rights reserved.

Alamayreh, M.I., Alahmer, A.

Design a solar harvester system capturing light and thermal energy coupled with a novel direct thermal energy storage and nanoparticles

(2023) International Journal of Thermofluids, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150907789&doi=10.1016%2fj.ijft.2023.100328&partnerID=40&md5=c97a3175139e04a697c6a4026d391e5f)

[85150907789&doi=10.1016%2fj.ijft.2023.100328&partnerID=40&md5=c97a3175139e04a697c6a4026d391e5f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150907789&doi=10.1016%2fj.ijft.2023.100328&partnerID=40&md5=c97a3175139e04a697c6a4026d391e5f)

AFFILIATIONS: Department of the Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman P.O. Box 130, 11733, Jordan;

Department of Industrial and Systems Engineering, Auburn University, Auburn, AL 36849, United States;

Department of Mechanical Engineering, Tafila Technical University, Tafila, P.O. Box 179, 66110, Jordan

ABSTRACT: The use of direct thermal energy storage can improve the reliability of solar dish technology by providing a steady source of heat, even when solar radiation levels are low or intermittent. In this experimental study, a solar-thermal hybrid system that transmits light to interior photovoltaic panels through an optical fiber while producing hot household water was developed. The system employs a parabolic solar dish (PSD) with a cylindrical solar receiver designed to capture both heat and solar radiation. Fiber optics are used to transport light from the solar collector to the building as a source of illumination. To improve the system efficiency, a design of a direct storage system with phase change material (PCM) of petroleum Jelly was employed in this experimental work to heat water for a longer discharge duration. Furthermore, Al₂O₃ nanoparticles account for 1% of the total volume of the PCM material are added to the PCM material to improve heat transfer during heat charge and discharge. In addition, a low-cost two-axis tracking system for a PSD was developed. The study examined the efficiency of the system and analyzed the temperature profiles inside the solar receiver using a direct energy storage system. The discharge time is approximately six hours with a water temperature of more than 30 °C. The results revealed that the use of Al₂O₃ nanoparticles boosted thermal efficiency by around 5.68%. The proposed system could assist in solving the limited space challenges by utilizing the roof of the building. © 2023 The Author(s)

Alahmer, H., Alahmer, A., Alkhazaleh, R., Al-Amayreh, M.I.

Modeling, polynomial regression, and artificial bee colony optimization of SI engine performance improvement powered by acetone-gasoline fuel blends

(2023) Energy Reports, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85145355697&doi=10.1016%2fj.egyr.2022.12.102&partnerID=40&md5=029ab3c8ae148b9d83b7f520afb94f0f
AFFILIATIONS: Department of Automated Systems, Faculty of Artificial Intelligence, Al-Balqa Applied University, Al-Salt, 19117, Jordan;
Department of Industrial and Systems Engineering, Auburn University, Auburn, AL 36849, United States;
Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;
Department of the Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The current study attempts to improve the performance of SI engines by employing two alternative acetone-gasoline mixtures. This investigation applies the Artificial Bees Colony Algorithm (ABC) to determine the optimum acetone-gasoline blends and engine speed to increase engine performance further and minimize fuel consumption. The SI engine performance of one-cylinder, four-stroke powered by neat gasoline fuel (AC0), 5% of acetone by volume (AC5), and 10 % of acetone by volume (AC10) has been investigated experimentally. Tests were carried out at speed rates from 1,000 to 3,600 rpm. The gasoline engine was integrated into an eddy-current dynamometer to evaluate the performance indexes. It was revealed that the overall performance of the gasoline engine is enhanced when acetone is blended with gasoline. The AC10 exhibited better engine brake torque (BT) and brake thermal efficiency (BTE) than pure gasoline, with 4.39 % and 6.9 %, respectively. According to the optimization findings, a 10% acetone concentration and engine speeds of 2889 rpm and 2769 rpm produced the best results in terms of BT and BTE, which were 7.776 N.m and 29.992%, respectively. However, at 2401 rpm of engine speed, a minimum BSFC of 0.2986 was reached without acetone. This result demonstrates that the ABC algorithm can precisely forecast the optimal position in terms of engine effectiveness and fuel consumption. © 2022 The Author(s)

Daoud, M.S., Shehab, M., Al-Mimi, H.M., Abualigah, L., Zitar, R.A., Shambour, M.K.Y.

Gradient-Based Optimizer (GBO): A Review, Theory, Variants, and Applications

(2023) Archives of Computational Methods in Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85145286887&doi=10.1007%2fs11831-022-09872-y&partnerID=40&md5=80b8cb9c7c0c84d71b9e0abcab1663a7>

AFFILIATIONS: Al Ain University, Abu Dhabi, United Arab Emirates;

Faculty of Computer Sciences and Informatics, Amman Arab University, Amman, 11953, Jordan;

Department of Cybersecurity, Al-Zaytoonah University, Amman, Jordan;

Computer Science Department, Prince Hussein Bin Abdullah Faculty for Information Technology, Al Al-Bayt University, Mafraq, 25113, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;

Applied Science Research Center, Applied Science Private University, Amman, 11931, Jordan;

School of Computer Sciences, Universiti Sains Malaysia, Pulau Pinang, George Town, 11800, Malaysia;

Center for Engineering Application & Technology Solutions, Ho Chi Minh City Open University, Ho Chi Minh, Viet Nam;

Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, United Arab Emirates;

The Custodian of the Two Holy Mosques Institute for Hajj and Umrah Research, Umm Al-Qura University, Mecca, Saudi Arabia

ABSTRACT: This paper introduces a comprehensive survey of a new population-based algorithm so-called gradient-based optimizer (GBO) and analyzes its major features. GBO considers as one of the most effective optimization algorithm where it was utilized in different problems and domains, successfully. This review introduces set of related works of GBO where distributed into; GBO variants, GBO applications, and evaluate the efficiency of GBO compared with other metaheuristic algorithms. Finally, the conclusions concentrate on the existing work on GBO, showing its disadvantages, and propose future works. The review paper will be helpful for the researchers and practitioners of GBO belonging to a wide range of audiences from the domains of optimization, engineering, medical, data mining and clustering. As well, it is wealthy in research on health, environment and public safety. Also, it will aid those who are interested by providing them with potential future research. © 2022, The Author(s) under exclusive licence to International Center for Numerical Methods in Engineering (CIMNE).

Al Omari, O., Al Sabei, S., Al Rawajfah, O., Abu Sharour, L., Al-Hashmi, I., Al Qadire, M., Khalaf, A.

Prevalence and Predictors of Loneliness Among Youth During the Time of COVID-19: A Multinational Study

(2023) Journal of the American Psychiatric Nurses Association, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106690148&doi=10.1177%2f10783903211017640&partnerID=40&md5=85f4c8e337691faa37dc49b03a6e653)

[85106690148&doi=10.1177%2f10783903211017640&partnerID=40&md5=85f4c8e337691faa37dc49b03a6e653](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106690148&doi=10.1177%2f10783903211017640&partnerID=40&md5=85f4c8e337691faa37dc49b03a6e653)

AFFILIATIONS: Sultan Qaboos University, Muscat, Oman;
 ALZaytoonah University of Jordan, Amman, Jordan;
 Al al-Bayt University, Mafraq, Jordan;
 Kristianstad University, Kristianstad, Sweden;
 Curtin University, Perth, WA, Australia

ABSTRACT: BACKGROUND: Given the restrictions associated with COVID-19, feelings of loneliness among youth may increase. AIMS: The aims of the current study were to assess the prevalence of loneliness among young people at the time of COVID-19 and to identify whether selected variables related to the pandemic predicted the level of loneliness. METHOD: A cross-sectional study using WhatsApp and Facebook social media platforms was conducted to survey 1,057 young people aged 15 to 24 years from six Middle Eastern countries. Participants completed survey items including demographic and COVID-19-related questions; the Depression, Anxiety and Stress Scale (DASS); the Satisfaction With Life Scale (SWLS); and the UCLA Loneliness Scale. RESULTS: The prevalence of experienced loneliness was 1 (0.1%), 625 (59.1%), 429 (40.6%), and 2 (0.2%), reflecting low, moderate, moderately high, and high experiences for loneliness, respectively. History of depression or anxiety, being dissatisfied with life, and having depression at the time of COVID-19 were significant predictors of loneliness among youth. The model was significant ($F = 44.95$, $p < .05$) and accounted for 29.8% of the variance in UCLA Loneliness Scale scores. CONCLUSIONS: We found that the high prevalence rate of loneliness during the COVID-19 pandemic was correlated with depression and impaired life satisfaction among Middle Eastern youth. Thus, special attention and interventional action plans need to be developed taking into consideration the youths' special situation during COVID-19. © The Author(s) 2021.

Althaher, A.R.

In vitro Assessment of the Antidiabetic Activity of Aqueous and Ethanolic Extracts from the Aerial Parts of *Ajuga orientalis* L.

(2023) Research Journal of Pharmacy and Technology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164601561&doi=10.52711%2f0974-360X.2023.00300&partnerID=40&md5=91f27259d3a7cc2120a1c041b8773045>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: *Ajuga orientalis* L. is a member of the Lamiaceae family. Many biological properties of *A. orientalis*, such as antibacterial, anticancer, antioxidant, and anti-inflammatory activities, have been documented. The current study aims to assess the in vitro antidiabetic efficacy of aerial parts *A. orientalis* extracts through digestive enzymes inhibition assay (α -amylase and α -glucosidase), which are responsible for the digestion of poly and oligosaccharides. Acarbose, aqueous, and ethanolic extracts of *A. orientalis* were utilized in various concentrations (100, 200, 300, 400, and 500 μ g/ml). The absorbance values for the enzymes α -amylase and α -glucosidase at 540nm and 400nm, respectively, were measured using a spectrophotometer. Both extracts demonstrated significant inhibition of α -amylase and α -glucosidase enzymes in a dose-dependent manner. Furthermore, the ethanolic extract showed more inhibitory activity than the aqueous extract. In conclusion, *A. orientalis* extracts exhibited in vitro antidiabetic activity. © 2023, Research Journal of Pharmacy and Technology. All rights reserved.

Alshanti, W.G., Batiha, I.M., Alshanty, A., Zraiqat, A., Jebril, I.H., Hammad, M.A.

Perturbed Trapezoid Like Inequalities

(2023) Science and Technology Indonesia, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85158114431&doi=10.26554%2fsti.2023.8.2.205-211&partnerID=40&md5=37628adae8506470e10c7a230a0b5484>

AFFILIATIONS: Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates;
 Cyber Security Department, Isra University, Amman, 11622, Jordan

ABSTRACT: In our current research article, based on a general configuration of a 3-step Peano kernel, new versions of integral inequality of Ostrowski's type are developed for differentiable mappings that have second derivatives belong to L_∞ . Then we utilized these versions to generate new perturbed trapezoid like inequalities. These new perturbed trapezoid like inequalities are proposed with error bounds smaller than and similar to those reported by previous studies. Moreover, some of the obtained perturbed trapezoid like inequalities reveal the relationship between the Euler-Maclaurin summation and the trapezoidal rule. Finally, certain implementations to numerical composite quadrature rules are provided for completeness. © 2023 The Authors.

Amawi, H., Arabyat, R.M., Al-Azzam, S., AlZu'bi, T., U'wais, H.T., Hammad, A.M., Amawi, R., Nusair, M.B.

The Length of Hospital Stay of Patients with Venous Thromboembolism: A Cross-Sectional Study from Jordan

(2023) Medicina (Lithuania), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85156184725&doi=10.3390%2fmedicina59040727&partnerID=40&md5=3ed13657910c02e4f16681b9273d7af6>

AFFILIATIONS: Department of Pharmacy Practice and Clinical Pharmacy, Faculty of Pharmacy, Yarmouk University, Irbid, 22110, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; The Ministry of Health, Amman, 11118, Jordan;

Department of Sociobehavioral and Administrative Pharmacy, College of Pharmacy, Nova Southeastern University, Fort Lauderdale, FL 33328, United States

ABSTRACT: Background and Objectives: Venous thromboembolism is one of the leading causes of mortality and disability worldwide. Treatment with anticoagulation therapy is essential and requires a delicate approach to select the most appropriate option to improve patient outcomes, including the length of hospital stay (LOS). The aim of this study was to determine the LOS among patients with acute onset of VTE in several public hospitals in Jordan. Materials and Methods: In this study, we recruited hospitalized patients with a confirmed diagnosis of VTE. We reviewed the electronic medical records and charts of VTE admitted patients in addition to a detailed survey to collect the patients' self-reported data. Hospital LOS was categorized into three levels: 1-3 days, 4-6 days, and ≥ 7 days. An ordered logistic regression model was used to study the significant predictors of LOS. Results: A total of 317 VTE patients were recruited, with 52.4% of them were male and 35.3% aged between 50 and 69 years. Most patients had a deep vein thrombosis (DVT) diagnosis (84.2%), and most of the VTE cases were admitted for the first-time (64.6%). The majority of the patients were smokers (57.2%), overweight/obese (66.3%), and hypertensive (59%). Most of the VTE patients received Warfarin overlapped with low molecular weight heparins as their treatment regimen ($>70\%$). Almost half of the admitted VTE patients (45%) were hospitalized for at least 7 days. Longer LOS was significantly associated with hypertension. Conclusions: We recommend using therapies that have been proven to reduce hospital LOS, such as non-vitamin K antagonist oral anticoagulants or direct oral anticoagulants, to treat VTE patients in Jordan. Additionally, preventing and controlling comorbidities such as hypertension is essential. © 2023 by the authors.

Batiha, I.M., Alshorm, S., Al-Husban, A., Saadeh, R., Gharib, G., Momani, S.
The n-Point Composite Fractional Formula for Approximating Riemann-Liouville Integrator (2023) Symmetry, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85156100908&doi=10.3390%2fmsym15040938&partnerID=40&md5=5afbb4f14f45d63a11283fa5a44bdb03>
AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan; Nonlinear Dynamics Research Center (NDRC), Ajman University, P.O. Box 346, Ajman, United Arab Emirates;
Department of Mathematics, Faculty of Science and Technology, Irbid National University, P.O. Box 2600, Irbid, Jordan;
Department of Mathematics, Faculty of Science, Zarqa University, Zarqa, 13110, Jordan;
Department of Mathematics, The University of Jordan, Amman, 11942, Jordan
ABSTRACT: In this paper, we aim to present a novel n-point composite fractional formula for approximating a Riemann-Liouville fractional integral operator. With the use of the definite fractional integral's definition coupled with the generalized Taylor's formula, a novel three-point central fractional formula is established for approximating a Riemann-Liouville fractional integrator. Such a new formula, which emerges clearly from the symmetrical aspects of the proposed numerical approach, is then further extended to formulate an n-point composite fractional formula for approximating the same operator. Several numerical examples are introduced to validate our findings. © 2023 by the authors.

Mohamed, E.M., Dharani, S., Khuroo, T., Hamed, R., Khan, M.A., Rahman, Z.

In Vitro and In Vivo Characterization of the Transdermal Gel Formulation of Desloratadine for

Prevention of Obesity and Metabolic Syndrome

(2023) Pharmaceuticals, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85154608932&doi=10.3390%2fph16040578&partnerID=40&md5=2b5644aeedfa41c539059f9c06d2e7b8>

AFFILIATIONS: Irma Lerma Rangel College of Pharmacy, Texas A&M Health Science Center, Texas A&M University, College Station, TX 77843, United States;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

ABSTRACT: Chronic use of antihistamines can induce abnormalities in lipid absorption with potential excessive accumulation of lipids in the mesentery that can lead to the development of obesity and a metabolic syndrome. The focus of the present work was to develop a transdermal gel formulation of desloratadine (DES) to prevent/reduce obesity and metabolic syndromes. Nine formulations were

prepared to contain hydroxypropyl methylcellulose (2–3%), DES (2.5–5.0%), and Transcutol® (15–20%). The formulations were evaluated for cohesive and adhesive properties, viscosity, drug diffusion through synthetic and pig ear skin, and pharmacokinetics in New Zealand white rabbits. Drug permeation was faster through the skin compared to synthetic membranes. The drug had good permeation, as indicated by very short lag time (0.08–0.47 h) and high flux (59.3–230.7 $\mu\text{g}/\text{cm}^2\cdot\text{h}$). The maximum plasma concentration (C_{max}) and area under the curve (AUC) of transdermal gel formulations were 2.4 and 3.2 fold that of the Clarinex tablet formulation. In conclusion, as indicated by the higher bioavailability, transdermal gel formulation of DES may decrease the dose of the drug, compared to commercial formulation. It has the potential to reduce or eliminate metabolic syndromes associated with oral antihistamine therapy. © 2023 by the authors.

Igried, B., AlZu'bi, S., Aqel, D., Mughaid, A., Ghaith, I., Abualigah, L.

An Intelligent and Precise Agriculture Model in Sustainable Cities Based on Visualized Symptoms (2023) Agriculture (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153779838&doi=10.3390%2fagriculture13040889&partnerID=40&md5=ae53d983ebb99183c0908e69bb8abbc)

85153779838&doi=10.3390%2fagriculture13040889&partnerID=40&md5=ae53d983ebb99183c0908e69bb8abbc

AFFILIATIONS: Department of Information Technology, Faculty of Prince Al-Hussien Bin Abdullah II for IT, The Hashemite University, Zarqa, 13133, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Computer Science Department, Prince Hussein Bin Abdullah Faculty for Information Technology, Al al-Bayt University, Mafraq, 25113, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

MEU Research Unit, Middle East University, Amman, 11831, Jordan

ABSTRACT: Plant diseases represent one of the critical issues which lead to a major decrease in the quantity and quality of crops. Therefore, the early detection of plant diseases can avoid any losses or damage to these crops. This paper presents an image processing and a deep learning-based automatic approach that classifies the diseases that strike the apple leaves. The proposed system has been tested using over 18,000 images from the Apple Diseases Dataset by PlantVillage, including images of healthy and affected apple leaves. We applied the VGG-16 architecture to a pre-trained unlabeled dataset of plant leaf images. Then, we used some other deep learning pre-trained architectures, including Inception-V3, ResNet-50, and VGG-19, to solve the visualization-related problems in computer vision, including object classification. These networks can train the images dataset and compare the achieved results, including accuracy and error rate between those architectures. The preliminary results demonstrate the effectiveness of the proposed Inception V3 and VGG-16 approaches. The obtained results demonstrate that Inception V3 achieves an accuracy of 92.42% with an error rate of 0.3037%, while the VGG-16 network achieves an accuracy of 91.53% with an error rate of 0.4785%. The experiments show that these two deep learning networks can achieve satisfying results under various conditions, including lighting, background scene, camera resolution, size, viewpoint, and scene direction. © 2023 by the authors.

Batiha, I.M., Abubaker, A.A., Jebril, I.H., Al-Shaikh, S.B., Matarneh, K.

A Numerical Approach of Handling Fractional Stochastic Differential Equations

(2023) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153779111&doi=10.3390%2faxioms12040388&partnerID=40&md5=8ab19642864628eeda571ec39fefb3a4)

85153779111&doi=10.3390%2faxioms12040388&partnerID=40&md5=8ab19642864628eeda571ec39fefb3a4

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center, Ajman University, Ajman, 346, United Arab Emirates;

Faculty of Computer Studies, Arab Open University, Riyadh, 11681, Saudi Arabia

ABSTRACT: This work proposes a new numerical approach for dealing with fractional stochastic differential equations. In particular, a novel three-point fractional formula for approximating the Riemann-Liouville integrator is established, and then it is applied to generate approximate solutions for fractional stochastic differential equations. Such a formula is derived with the use of the generalized Taylor theorem coupled with a recent definition of the definite fractional integral. Our approach is compared with the approximate solution generated by the Euler-Maruyama method and the exact solution for the purpose of verifying our findings. © 2023 by the authors.

Ghadi, M.Q., Ahmad, H., Jannoud, I.

Influence of Traffic Characteristics on Pavement Performance of Parking Lots

(2023) Infrastructures, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153778802&doi=10.3390%2finfrastructures8040065&partnerID=40&md5=56e0380f8006567f8866812c9904956f)

85153778802&doi=10.3390%2finfrastructures8040065&partnerID=40&md5=56e0380f8006567f8866812c9904956f

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This research aims to identify and interpret the main traffic characteristics affecting the pavement condition index (PCI) of asphalt within parking areas. The study also examines the effect of

severity and type of asphalt pavement distress on parking decisions. Previous literature examines the impact of the environment on asphalt pavement deterioration. This paper will focus on the shape of traffic operations within a parking area. The methodology includes applying a multilevel mixed regression model to reveal the hidden hierarchical relationship between traffic activities and the different types of pavement distresses and then discovering their effect on asphalt PCI. The resulting models showed that parking lots are aging faster than the common traveling roads due to the increased impact of axial loads on their surfaces at low and static speeds and some distinctive traffic characteristics. Moreover, some types of pavement distress, such as alligator cracks, potholes and depressions, appear more widely than others on the parking lot surface and significantly influence the parking decision. The conclusion of the research may significantly impact pavement design and maintenance management for parking lots. © 2023 by the authors.

Hammad, A.M., Alhusban, A.A., Alzaghari, L.F., Alasmari, F., Sari, Y.

Effect of Cigarette Smoke Exposure and Aspirin Treatment on Neurotransmitters' Tissue Content in Rats' Hippocampus and Amygdala

(2023) *Metabolites*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153740177&doi=10.3390%2fmetabo13040515&partnerID=40&md5=4be5899fc7707b31911caec98fd1c24d)

[85153740177&doi=10.3390%2fmetabo13040515&partnerID=40&md5=4be5899fc7707b31911caec98fd1c24d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153740177&doi=10.3390%2fmetabo13040515&partnerID=40&md5=4be5899fc7707b31911caec98fd1c24d)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 11451, Saudi Arabia;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH 43606, United States

ABSTRACT: Cigarette smoke withdrawal can cause anxiety-like behavior and modulate neurotransmitter-related proteins in the brain. We examined the effects of cigarette smoke with and without aspirin treatment on the concentrations of neurotransmitters, including dopamine, serotonin, glutamate, glutamine, and GABA in the amygdala and hippocampus. Sprague-Dawley rats were randomly assigned to four different groups: (1) control group exposed only to standard room air, (2) cigarette smoke exposed group treated with saline vehicle, (3) cigarette smoke exposed group treated with aspirin (30 mg/kg), and (4) control group treated only with aspirin (30 mg/kg). Cigarette smoke exposure was performed for 2 h/day, 5 days/week, for 31 days. Behavioral testing was carried out weekly, 24 h after cigarette smoke exposure, during acute withdrawal. At the end of week 4, rats were given either distilled water (1 mL) or aspirin 45 min before cigarette exposure for 11 days. Dopamine, serotonin, glutamate, glutamine, and GABA were extracted from both the amygdala and hippocampus and were separated and quantified using a developed and validated HPLC-MS/MS method. Cigarette smoke withdrawal induced anxiety behaviors, and aspirin treatment reduced this effect. Cigarette smoke exposure increased tissue content of dopamine, serotonin, glutamate, glutamine, and GABA, and aspirin treatment reversed this effect. Cigarette smoke caused an increase in tissue content of several neurotransmitters as well as anxiety-like behavior, and these effects were normalized by aspirin treatment. © 2023 by the authors.

Hammad, A.M., Shawaqfeh, B., Hikmat, S., Al-Qirim, T., Hamadneh, L., Al-Kouz, S., Awad, M.M., Hall, F.S.

The Role of Vitamin E in Protecting against Oxidative Stress, Inflammation, and the Neurotoxic Effects of Acute Paracetamol in Pregnant Female Rats

(2023) *Toxics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153729010&doi=10.3390%2ftoxics11040368&partnerID=40&md5=58796e5f4a9f6ea733f9f2afbc5069ab)

[85153729010&doi=10.3390%2ftoxics11040368&partnerID=40&md5=58796e5f4a9f6ea733f9f2afbc5069ab](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153729010&doi=10.3390%2ftoxics11040368&partnerID=40&md5=58796e5f4a9f6ea733f9f2afbc5069ab)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH 43606, United States

ABSTRACT: Paracetamol (acetaminophen, APAP) is the most common non-prescription analgesic drug used during pregnancy. The aim of this study was to investigate the effect of vitamin E on acute APAP toxicity in pregnant rats. Toxicity in the liver, kidney, and brain (hippocampus, cerebellum, and olfactory bulb) was examined. Twenty pregnant female Wistar rats at gestational day 18 were used. Pregnant rats were divided into four groups: Control, APAP, E + APAP, and APAP + E. The Control group was treated with 0.5 mL p.o. corn oil. The APAP group received 3000 mg/kg p.o. APAP. The E + APAP group received 300 mg/kg p.o. vitamin E one hour before 3000 mg/kg APAP. The APAP + E group received 3000 mg/kg paracetamol one hour before 300 mg/kg p.o. vitamin E. Twenty-four hours after the last treatment administration, rats were euthanized and blood, brain, liver, and kidney samples were collected. Alanine aminotransferase (ALT), aspartate aminotransferase (AST), blood urea nitrogen

(BUN), creatinine levels, uric acid (UA), and superoxide dismutase (SOD) levels, as well as the relative mRNA expression of Cyp1a4, Cyp2d6, and Nat2, were determined. Acute APAP treatment upregulated ALT, AST, BUN, and creatinine levels. APAP treatment downregulated UA and SOD levels. APAP treatment upregulated the relative mRNA expression of Cyp1a4 and Cyp2d6, but downregulated Nat2 expression. Vitamin E treatment, either before or after APAP administration, attenuated the toxic effects of APAP. In conclusion, the results showed that an acute toxic APAP dose in late pregnancy can cause oxidative stress and dysregulation in Cyp isoform expression, and that vitamin E treatment attenuates these effects. © 2023 by the authors.

Alsmadi, A.A., Al-Okaily, M., Alrawashdeh, N., Al-Gasaymeh, A., Moh'd Al-hazimeh, A., Zakari, A. A Bibliometric Analysis of Green Bonds and Sustainable Green Energy: Evidence from the Last Fifteen Years (2007-2022)

(2023) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152567112&doi=10.3390%2fsu15075778&partnerID=40&md5=683de244cf0eb12d681d01e5eac922e6)

[85152567112&doi=10.3390%2fsu15075778&partnerID=40&md5=683de244cf0eb12d681d01e5eac922e6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152567112&doi=10.3390%2fsu15075778&partnerID=40&md5=683de244cf0eb12d681d01e5eac922e6)

AFFILIATIONS: Faculty of Business, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Business, Jadara University, Irbid, 21110, Jordan;

Faculty of Business, Isra University, Amman, 11622, Jordan;

Faculty of Business, Applied Science Private University, Amman, 11931, Jordan;

School of Business, Al-Bayt University, Mafraq, 25113, Jordan;

School of Management and Economics, Beijing Institute of Technology, Beijing, 100081, China;

Alma Mater Europaea ECM, Maribor, 2000, Slovenia

ABSTRACT: Organizations are shifting their focus towards utilizing green energy in the business process to enhance environmental sustainability. Similar to other business roles, the managerial team in the financial sector has also engaged in environment-friendly operations. A green bond is a new financial approach integrating the protection of the ecosystem into economic profits. This paper analyzes green bonds' intellectual structure, publication, and networking. The bibliometric statistics utilized in the green bonds emerged from the Scopus database. The research examines published works from the most resourceful nations, institutions of higher learning, scholars, and high-profile publications on green bonds. Additionally, the study maps bibliographic coupling and co-citation to visualize the knowledge network. © 2023 by the authors.

Alshanaheh, A., Albiss, B.A., Aljawrneh, B., Alrousan, S., Al-Othman, A., Megdadi, H.

Novel and flexible asymmetric supercapacitors based on NiCo2O4 nanosheets coated on Al and Cu tapes for wearable devices applications

(2023) SN Applied Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151371598&doi=10.1007%2fs42452-023-05341-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151371598&doi=10.1007%2fs42452-023-05341-8&partnerID=40&md5=dac75bc2a9af8e56df9305d5036c4616)

[8&partnerID=40&md5=dac75bc2a9af8e56df9305d5036c4616](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151371598&doi=10.1007%2fs42452-023-05341-8&partnerID=40&md5=dac75bc2a9af8e56df9305d5036c4616)

AFFILIATIONS: Nanotechnology Institute, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Physics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Chemical Engineering, American University of Sharjah, P.O. Box 26666, Sharjah, United Arab Emirates

ABSTRACT: The binary metal oxides show advantages in energy storage devices. Specifically, nickel cobaltite (NiCo2O4) materials showed promising pseudocapacitive properties, high electrical conductivity and large surface area by virtue of their effective porous structure. NiCo2O4 nanosheets were hydrothermally grown in this work over flexible tapes of Aluminum (Al) and Copper (Cu). A nanosheets structure obtained of NiCo2O4 as confirmed by SEM and AFM images. The measured thickness by 3D profilometer of NiCo2O4 nanosheets based Al framework found to be 4.3 µm compared to 8.4 µm thick of film based-Cu framework. Asymmetric supercapacitor prepared from graphite and NiCo2O4 electrodes separated by filter paper. Acidic aqueous electrolyte of H2SO4 and basic aqueous electrolyte of KOH were employed to verify the cyclic activity and electrochemical reaction of asymmetric prepared supercapacitor devices. The basic KOH electrolyte shows a high stability and better charge transfer/ionic diffusion compared to the acidic H2SO4 electrolyte in particular for NiCo2O4 film-based Cu framework. The energy density and power density values were 0.9 W h kg⁻¹ and 66.45 W kg⁻¹, respectively. The highest specific capacity (in F.g⁻¹) = 10.09 coincides with NiCo2O4/Cu supercapacitor in the basic KOH electrolyte. The charge storage in the supercapacitor system of NiCo2O4 and graphite can be ascribed in the form of Faradic charge transfer and capacitive non-faradic double layer, respectively. © 2023, The Author(s).

Al-Qerem, W., Bargooth, A., Jarab, A., Akour, A., Abu Heshmeh, S.

Information sources, attitudes, and practices of Self-Medication by Jordanian patients: A cross-sectional study

(2023) Saudi Pharmaceutical Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85150807739&doi=10.1016%2fj.jsps.2023.01.015&partnerID=40&md5=30da641b8db6a4b9633c778e6e49f52a

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Collage of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, United Arab Emirates University, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan

ABSTRACT: Background and Objective: Self-medication (SM) has significantly increased worldwide in the past decades, which may have detrimental health consequences including antimicrobial resistance, adverse drug reactions, drug-drug interaction, and dependency. Although several studies have evaluated the extent of SM, such studies are still limited in Jordan. The aim of this study was to explore sources of SM information, attitudes toward SM and the practice of SM and its associated factors. Methods: The data of this cross-sectional study was collected between February and July 2022. A validated questionnaire was distributed to patients attending pharmacies from different locations in Jordan. The survey evaluated sources of information and attitudes toward SM, extent of SM practice, and attitudes towards SM, symptoms that the participants treat with SM and those that usually requires medical doctor consolation, followed by questions about the classes of medications mostly used for SM and the reasons for SM. Results and Discussion: The study enrolled 695 Jordanian adults. The most reported indications for SM included headache (86.9 %), flu (76.4 %), and fever (69.6 %). The most common causes for SM included previous knowledge about the diseases and its treatments (84.2 %), and full knowledge of the medicine to be purchased (55.2 %). Results of the ordinal regression showed that physician counseling frequency was positively and significantly associated with "not being on chronic medication" (p-value = 0.001), and having a positive SM attitude level (p-value = 0.019), while negatively correlated with being in medical field (p-value < 0.001), having no children (p-value = 0.009), and relaying on non-scientific sources to obtain information for SM (p-value = 0.014). The frequency of SM practice was positively associated with being in medical field (p-value < 0.001, having no insurance (p-value < 0.001), and relaying on nonscientific sources (p-value = 0.017). Lastly, having a positive SM attitude level (p-value < 0.001) and not being on chronic medications (p-value = 0.007) were associated with decreased SM practice. Conclusion: The study participants demonstrated increased SM practice due to the wrong perceptions toward SM and the reliance on non-scientific source of information about SM practice. © 2023 The Author(s)

Jaradat, M., Soliman, E., Reda Taha, M.

3D-printed bio-inspired mechanically interlocked viscoelastic dampers for energy dissipation (2023) Materials and Design, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150463072&doi=10.1016%2fj.matdes.2023.111826&partnerID=40&md5=bf484270f459e10b7122110bbcb530af)

85150463072&doi=10.1016%2fj.matdes.2023.111826&partnerID=40&md5=bf484270f459e10b7122110bbcb530af

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Civil Engineering, Assiut University, Assiut, 71516, Egypt;

Department of Civil, Construction, Environmental Engineering, University of New Mexico, Albuquerque, NM 87131, United States

ABSTRACT: Viscoelastic materials are used extensively in energy dissipation applications to mitigate large lateral displacements and attenuate vibrations. One way of exploiting the capabilities of viscoelastic materials is using shear-damping mechanisms such as seismic damping devices. This study utilizes the freedom of design offered by additive manufacturing to produce 3D- printed thermoplastic parts that act as the viscoelastic layer in an energy damping device. A mechanically interlocked damping device with a bio-inspired jigsaw-like interlocking mechanism was designed and manufactured. The damping device is composed of a hard and soft phase. The hard phase is made of steel, while the soft phase is 3D-printed thermoplastic polyurethane (TPU). The mechanically interlocked damper was cyclically tested under different amplitudes and frequencies. TPU was mechanically characterized using uniaxial cyclic tension tests under different rates and different printing processing parameters. Stress relaxation tests were also conducted to obtain the viscoelastic behavior of the TPU material. Material characterization of TPU was used to develop a finite element (FE) model that is used to simulate the mechanically interlocked damper. The FE model was validated with the experimental observations and was then used to examine the significance of damper geometry on the efficiency of energy dissipation. © 2023 The Author(s)

Jarrar, Y., Alkhalili, M., Alhawari, H., Abaalkhail, S.J., Alkhalili, S., Alhawari, H., Momani, M., Obeidat, A.N., Fram, R.K.

The frequency of cytochrome 4F2 rs2108622 genetic variant and its effects on the lipid profile and complications of type II diabetes among a sample of patients in Jordan: A pilot study

(2023) Prostaglandins and Other Lipid Mediators, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-8515000064&doi=10.1016%2fj.prostaglandins.2023.106715&partnerID=40&md5=066c0e887b2e12c2d5eb473c756dd06c>

AFFILIATIONS: Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Pharmaceutical Science, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Internal Medicine, School of Medicine, the University of Jordan, Amman, 11942, Jordan;

Department of General Surgery, the University of Jordan Hospital, Amman, 11942, Jordan

ABSTRACT: Background: Cytochrome 4F2 (CYP4F2) is a major arachidonic acid-metabolizing enzyme which produces 20-Hydroxyeicosatetraenoic acid (20-HETE). It is found that 20-HETE is involved in the pathophysiology of many diseases, including diabetes mellitus. The genetic variants of CYP4F2 can affect its enzymatic activity as well as the 20-HETE production. Aims: Our aim with this paper was to find out the genotype frequency of CYP4F2 rs2108622 C>T, the major functional variant in the CYP4F2 gene, among a sample of type II diabetes (TIIDM) and its effects on diabetes complications and lipid profile. Methods: The CYP4F2 rs2108622 variant was genotyped among 90 healthy volunteers and 90 TIIDM patients that attending the University of Jordan Hospital, using the DNA Sanger sequencing method. The data of lipid profile and diabetes complications were obtained from the electronic records available in the hospital. Results: We found that the frequency of CYP4F2 rs2108622C>T variant is significantly ($P = 0.02$) lower among TIIDM patients in comparison to healthy subjects using both co-dominant and dominant genotyping models. In addition, the CYP4F2 rs2108622 T/T genotype was significantly ($P = 0.02$) more frequent among TIIDM patients with retinopathy complications (OR=4.36, CI: 1.32-14.37). Lastly, the CYP4F2 rs2108622C>T variant was not associated ($P > 0.05$) with the glycaemic and lipid profile of patients. Conclusions: It can be concluded from this study that the frequency of CYP4F2 rs2108622 T/T genotype is lower among TIIDM, but this genotype is associated with an increased risk of retinopathy complications in patients of Jordanian origin. Further studies with a larger sample size are needed to validate the findings of this study. © 2023 Elsevier Inc.

Alamer, A., Almutairi, A.R., Halloush, S., Al-jedai, A., Alrashed, A., AlFaifi, M., Mohzari, Y., Almutairi, M., AlHassar, F., Howaidi, J., Almutairi, W., Abraham, I., Alkhatib, N.

Cost-effectiveness of Favipiravir in moderately to severely ill COVID-19 patients in the real-world setting of Saudi arabian pandemic referral hospitals

(2023) Saudi Pharmaceutical Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149831372&doi=10.1016%2fj.jsps.2023.02.003&partnerID=40&md5=783bca78a361333ca31978945654d6ed>

AFFILIATIONS: Department of Clinical Pharmacy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Alkharj, Saudi Arabia;

Center for Health Outcomes & Pharmacoeconomics Research, University of Arizona, Tucson, AZ, United States;

Drug Sector, Saudi Food and Drug Authority, Riyadh, Saudi Arabia;

Department of Clinical Pharmacy & Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Ministry of Health, Deputyship of Therapeutic Affairs, Riyadh, Saudi Arabia;

College of Pharmacy, Al-Faisal University, Riyadh, Saudi Arabia;

Department of Clinical Pharmacy, King Fahad Medical City, Riyadh, Saudi Arabia;

King Fahad Medical City, Riyadh, Saudi Arabia;

Department of Pharmacy Practice, College of Pharmacy, Almaarefa University, Riyadh, Saudi Arabia;

Department of Clinical Pharmacy, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

PI pharma intelligence, Amman, Jordan

ABSTRACT: Purpose: We aimed to evaluate the cost effectiveness of Favipiravir treatment versus standard of care (SC) in moderately to severely ill COVID-19 patients from the Saudi healthcare payer perspective. Methods: We used the patient-level simulation method to simulate a cohort of 415 patients with moderate to severe COVID-19 disease who were admitted to two Saudi COVID-19 referral hospitals: 220 patients on Favipiravir and 195 patients on SC. We estimated the incremental cost-effectiveness ratio (ICER) of Favipiravir versus SC in terms of the probability to be discharged alive from hospital and the mean time in days to discharge one patient alive. The model was performed twice: first, using unweighted, and second, using weighted clinical and economic data. Weighting using the inverse weight probability method was performed to achieve balance in baseline characteristics. Results: In the unweighted model, base case (probabilistic) ICER estimates favored Favipiravir at savings of Saudi Riyal (SAR)1,611,511 (SAR1,998,948) per 1% increase in the probability of being discharged alive. As to mean time to discharging one patient alive, ICERs favored Favipiravir at savings of SAR11,498 (SAR11,125). Similar results were observed in the weighted model with savings using Favipiravir of SAR1,514,893 (SAR2,453,551) per 1% increase in the

probability of being discharged alive, and savings of SAR11,989 (SAR11,277) for each day a patient is discharged alive. Conclusion: From the payer perspective, the addition of Favipiravir in moderately to severely ill COVID-19 patients was cost-savings over SC. Favipiravir was associated with a higher probability of discharging patients alive and lower daily spending on hospitalization than SC. © 2023 The Author(s)

Bani Younes, M., Abu Shaban, N., Altork, Y.

Modelling and performance assessment of a Tri-Generation cooling system using two adsorption chillers under Jordanian climate

(2023) Case Studies in Thermal Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149648662&doi=10.1016%2fj.csite.2023.102848&partnerID=40&md5=6c4627036abb7891ea5dc08bbe7a4e12)

[85149648662&doi=10.1016%2fj.csite.2023.102848&partnerID=40&md5=6c4627036abb7891ea5dc08bbe7a4e12](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149648662&doi=10.1016%2fj.csite.2023.102848&partnerID=40&md5=6c4627036abb7891ea5dc08bbe7a4e12)

AFFILIATIONS: Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In this study, the performance of a Tri-Generation cooling system employing two adsorption chillers will be analysed experimentally and theoretically utilizing the TRNSYS software. The purpose of this study is to assess the performance of two adsorption chillers and to evaluate how operational and design factors affect the performance of the tri-generation cooling system. The system was developed and validated at the Mutah University in Jordan, it consists of 240 m² parabolic trough solar matrix. The trough matrix heated thermal oil to 260 °C, producing 13.7 bar of 210 °C superheated steam. The power cycle is completed by evaporating brackish water with the engine's 120 °C steam. Distillation yields 150 L of distilled water each hour. The rejected heat from distillation is stored in a thermally isolated hydraulic storage tank and used to power a unique two-stage air cooled adsorption chiller with a cooling capacity of 10 kW each. As a result, adsorption chillers' COP and normalized capacity were calculated. Their optimum values were obtained at 94 °C hot water, 15 °C chilled water, and 35 °C condensation temperature. The lowest COP and normalized capacity values were recorded at 65 °C hot water, 7 °C chilled water, and 38 °C condensation temperature. © 2023 The Authors

El-Elimat, T., Al-Tal, B.K., Al-Sawalha, N.A., Alsaggar, M., Nusair, S.D., Al-Qiam, R., Al Sharie, A.H., El Hajji, F., Hamadneh, L.

Sumc (*Rhus coriaria* L.) fruit ameliorates paracetamol-induced hepatotoxicity

(2023) Food Bioscience, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148747368&doi=10.1016%2fj.fbio.2023.102488&partnerID=40&md5=7aea1cc35bb39407c72a19a45d7763a4)

[85148747368&doi=10.1016%2fj.fbio.2023.102488&partnerID=40&md5=7aea1cc35bb39407c72a19a45d7763a4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148747368&doi=10.1016%2fj.fbio.2023.102488&partnerID=40&md5=7aea1cc35bb39407c72a19a45d7763a4)

AFFILIATIONS: Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Pharmacy, the Applied Science Private University, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Sumac [*Rhus coriaria* L. (Anacardiaceae)] is a widely used spice in the Middle East. In this study, the hepatoprotective effects of sumac fruit were evaluated using a rat model of paracetamol-induced liver injury. The experimental design relies on the pretreatment of rats with intraperitoneal sumac extract followed by a toxic dose of paracetamol. Tissue alterations, serum levels of oxidative stress markers, as well as gene expression of immunomarkers were evaluated. Rats pre-treated with sumac displayed attenuated signs of toxicity. Upon paracetamol intoxication, sumac-pretreated animals showed a minimal increase in liver enzyme levels. In parallel, serum albumin and total protein levels were close to normal. Moreover, pretreated sumac animals had preserved hepatocyte morphology, whereas unprotected animals had necrotic deformations. Importantly, these effects were dose-dependent and comparable to the silymarin-treated positive control group. In conclusion, sumac extract offers a potential hepatoprotective regimen against xenobiotic-induced hepatotoxicity and for oxidative stress management. © 2023 Elsevier Ltd

Al-Omoush, K.S., Garrido, R., Cañero, J.

The impact of government use of social media and social media contradictions on trust in government and citizens' attitudes in times of crisis

(2023) Journal of Business Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148058647&doi=10.1016%2fj.jbusres.2023.113748&partnerID=40&md5=781a7c59dad96b7d6564173356376140)

[85148058647&doi=10.1016%2fj.jbusres.2023.113748&partnerID=40&md5=781a7c59dad96b7d6564173356376140](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148058647&doi=10.1016%2fj.jbusres.2023.113748&partnerID=40&md5=781a7c59dad96b7d6564173356376140)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

University of Alcalá, Spain

ABSTRACT: This study explores three issues with reference to times of crisis: the impact of government use of social media, and of social media contradictions, on trust in government, and on citizens' attitudes toward government use of social media. The crisis that provided the context of

this study was the COVID-19 pandemic. Therefore, the study explored the impact of trust in government and social media contradictions on citizens' attitudes toward pandemic prevention measures and vaccination. Data were collected from 379 respondents who were Facebook users in Jordan. PLS-SEM was utilised to validate the research model and analyse data. The results reveal a positive impact on trust in government of a number of dimensions of government use of social media, including transparency, participation, and collaboration. They also confirm that social media contradictions negatively impact trust in government and citizens' attitudes towards vaccination. © 2023 Elsevier Inc.

Hasan Ibrahim, A.S., Barry, H.E., Girvin, B., Hughes, C.M.

Development of a core set of clinical skills for pharmacist prescribers working in general practice: A Delphi study

(2023) Research in Social and Administrative Pharmacy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146300613&doi=10.1016%2fj.sapharm.2023.01.002&partnerID=40&md5=8f6c1cd0bcbb66ca0d0341baeae01f7c)

[85146300613&doi=10.1016%2fj.sapharm.2023.01.002&partnerID=40&md5=8f6c1cd0bcbb66ca0d0341baeae01f7c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146300613&doi=10.1016%2fj.sapharm.2023.01.002&partnerID=40&md5=8f6c1cd0bcbb66ca0d0341baeae01f7c)

AFFILIATIONS: School of Pharmacy, Queen's University Belfast, 97 Lisburn Road, Belfast, BT9 7BL, United Kingdom;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Background: With increasing numbers of pharmacists working in general practices and undertaking patient-facing roles, it has been recognised that they must have the necessary clinical skills. However, previous studies have highlighted that practice-based pharmacists (PBPs) do not feel confident regarding their clinical skills, and it is unclear what skills are needed. Objective: To develop a core set of clinical skills (CSs) required for pharmacists who intend to practise as independent prescribers working in general practice/family medicine. Methods: Based on a previous study, 18 CSs were selected for inclusion in a three-round Delphi consensus questionnaire. These skills were rated by a Delphi panel on a 9-point Likert scale (ranging from 1 = limited importance to 9 = critical). The Delphi panel comprised designated leads of pharmacist independent prescribing programmes in each United Kingdom educational provider listed on the General Pharmaceutical Council website. A CS was included in the core set if 80% or more of participants scored between 7 and 9, and 15% or less scored between 1 and 3. Results: Following Round 1, seven CSs met the criteria for inclusion: 'Measuring heart rate (radial pulse)', 'Assessing respiratory rate', 'Measuring blood pressure (manual, e.g. with aneroid sphygmomanometer)', 'Measuring blood pressure (automated, i.e. electronic blood pressure monitor)', 'Measuring peripheral oxygen saturation (using pulse oximeter)', 'Measuring temperature', 'Measuring Peak Expiratory Flow Rate'. After two further rounds, a further four CSs were included consisting of 'Undertaking a urinalysis', 'Respiratory examination (includes inspection, palpation, percussion and listening to breath sounds)', 'Screening for/assessment of depression and anxiety using a validated questionnaire (e.g. Patient Health Questionnaire-9 [PHQ-9] scoring)', and 'Patient assessment via National Early Warning Score (NEWS)'. No consensus was reached on nine CSs. Conclusion: This study has produced a core set of CSs for prescribing pharmacists. This study may contribute to standardisation of training and assessment for pharmacist prescribers working in general practice/family medicine. © 2023

Mughaid, A., AlZu'bi, S., Alnajjar, A., AbuElsoud, E., El Salhi, S., Igried, B., Abualigah, L.

Correction to: Improved dropping attacks detecting system in 5g networks using machine learning and deep learning approaches (Multimedia Tools and Applications, (2023), 82, 9, (13973-13995),

[10.1007/s11042-022-13914-9](https://doi.org/10.1007/s11042-022-13914-9))

(2023) Multimedia Tools and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140026037&doi=10.1007%2fs11042-022-14059-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140026037&doi=10.1007%2fs11042-022-14059-5&partnerID=40&md5=6143714ad3a7493a679e5fd3197cf055)

[5&partnerID=40&md5=6143714ad3a7493a679e5fd3197cf055](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140026037&doi=10.1007%2fs11042-022-14059-5&partnerID=40&md5=6143714ad3a7493a679e5fd3197cf055)

AFFILIATIONS: Department of Information Technology, Faculty of prince Al-Hussien bin Abdullah || for IT, The Hashemite University, PO Box 330127, Zarqa, 13133, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Faculty of Information Technology, Middle East University, Amman, 11831, Jordan

ABSTRACT: The original publication of this article contains incorrect affiliations of the author "Laith Abualigah". The original article has been corrected. © 2022 The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Mughaid, A., AlZu'bi, S., Alnajjar, A., AbuElsoud, E., Salhi, S.E., Igried, B., Abualigah, L.

Improved dropping attacks detecting system in 5g networks using machine learning and deep learning approaches

(2023) Multimedia Tools and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138964337&doi=10.1007%2fs11042-022-13914-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138964337&doi=10.1007%2fs11042-022-13914-9&partnerID=40&md5=3d7217cf7c6cf37b2dcd5b29cd8aaf0d)

[9&partnerID=40&md5=3d7217cf7c6cf37b2dcd5b29cd8aaf0d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138964337&doi=10.1007%2fs11042-022-13914-9&partnerID=40&md5=3d7217cf7c6cf37b2dcd5b29cd8aaf0d)

AFFILIATIONS: Department of Information Technology, Faculty of prince Al-Hussien bin Abdullah || for

IT, The Hashemite University, PO Box 330127, Zarqa, 13133, Jordan;
Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;
Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;
Faculty of Information Technology, Middle East University, Amman, 11831, Jordan
ABSTRACT: Non Orthogonal Multiple Access (NOMA) successfully drew attention to the deployment of 5th Generation (5G) wireless communication systems, and it is now considered a significant technology in 5G communications. The primary enhancement in 5G is the speed, which may be 100 times faster than 4G. Due to the rising number of internal or external attacks on the Network, wireless intrusion detection systems are a vital aspect of any system connected to the Internet, and 5G will demand considerable improvements in data rate and security. In this paper, we have built a simulator for NOMA and applied a dropping attack to extract a dataset from the simulation model. The accuracy for detecting dropping attacks using the extracted data after applying ML algorithms was 95.7% for LR. Furthermore, this work suggests a methodology for wireless cyberattack detection in 5G networks based on applying several ML and DL techniques such as Decision Trees, KNN, Multi-class Decision Jungle, Multi-class Decision Forest, and Multi-class Neural Network. The proposed work is implemented and tested using a comprehensive Wi-Fi network benchmark dataset. The conducted experiments resulted in an outstanding performance with an accuracy of 99% for the KNN algorithm and 93% for DF and Neural Network. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Kanan, T., Mughaid, A., Al-Shalabi, R., Al-Ayyoub, M., Elbes, M., Sadaqa, O.
Business intelligence using deep learning techniques for social media contents
(2023) Cluster Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135345781&doi=10.1007%2fs10586-022-03626-y&partnerID=40&md5=160dd756b7ad11a225bc210035a197f2>

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Information Technology, Faculty of Prince Al-Hussien Bin Abdullah for IT, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Management Information System Department-Applied Science University, Al Eker, Bahrain;
Department of Computer Science, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Satisfaction Detection is one of the most common issues that impact the business world. So, this study aims to suggest an application that detects the Satisfaction tone that leads to customer happiness for Big Data that came out from online businesses on social media, in particular, Facebook and Twitter, by using two famous methods, machine learning and deep learning (DL) techniques. There is a lack of datasets that are involved with this topic. Therefore, we have collected the dataset from social media. We have simplified the concept of Big Data analytics for business on social media using three of the most famous Natural Language Processing tools, stemming, normalization, and stop word removal. To evaluate the performance of the classifiers, we calculated F1-measure, Recall, and Precision measures. The result showed superiority for the Random Forest classifier the highest value of F1-measure with (99.1%). The best result achieved without applying pre-processing techniques, through Support Vector Machine with F1-measure (93.4%). On the other hand, we apply DL techniques, and we apply the feature extraction method, which includes Word Embedding and Bag of Words on the dataset. The results showed superiority for the Deep Neural Networks DNN algorithm. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Mansour, A.M., Obeidat, M.A., Hawashin, B.

A novel multi agent recommender system for user interests extraction
(2023) Cluster Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135307623&doi=10.1007%2fs10586-022-03655-7&partnerID=40&md5=d3a161259ce02407f757a4496e6197e8>

AFFILIATIONS: Department of Computer and Communications Engineering, College of Engineering, Tafila Technical University, Tafila, 66110, Jordan;

Department of Electrical Engineering, College of Engineering, Al-Ahliyya Amman University, Amman, Jordan;

Department of Electrical Power and Mechatronics Engineering, College of Engineering, Tafila Technical University, Tafila, 66110, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this paper, a multi agent recommender system is designed and developed for user interests extraction The system consists of eight agents such as age, identity, personality, social, financial, location, and needs. The agents works with each others in a collaborative way to make recommendation to the users according to their interest. The relation between the agents and the users are controlled by a well developed protocol and pre-defined senses. The information between the users and the agents are collected in information center agent (ICA). The data collected in ICA can be used to rearrange the videos in way such that it is more relative to the user depending on his interest. This interest can be extracted from the information that the user initially provides to the

system which can be then analyzed from the multi agent system to decide whether the user is interested in a video or not. This is done by creating video -important term matrix, user important term matrix and agent -feature matrix. Then, these matrices are used by the multi-agent system to get video-Agent effective matrix for the users which leads to most ordered videos in order to be presented to the user. The proposed model was verified by intensive simulations using eight agents using JADE platform. The results show that the accuracy of the system for 50 videos that were well arranged for 40 users is 87%. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Afifa, M.A., Saleh, I.H.

DOES AUDIT QUALITY AFFECT COMPANIES' PERFORMANCE? EVIDENCE FROM AN EMERGING MARKET [UTJECE LI KVALITETA REVIZIJE NA USPJESNOST PODUZECA? DOKAZI S TRZISTA U RAZVOJU]

(2023) Ekonomski Pregled, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160853269&doi=10.32910%2fep.74.2.2&partnerID=40&md5=5bd9e9d8a041af854f6dc32876a80670)

[85160853269&doi=10.32910%2fep.74.2.2&partnerID=40&md5=5bd9e9d8a041af854f6dc32876a80670](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160853269&doi=10.32910%2fep.74.2.2&partnerID=40&md5=5bd9e9d8a041af854f6dc32876a80670)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Jordan

ABSTRACT: The purpose of this research is to look into the impact of audit quality on company performance. It offers empirical evidence from the Jordanian market, which is considered an emerging market. In this study, audit quality is proxied by auditor tenure, auditor industry specialization, and auditor firm size, while company performance is proxied by ROA, ROE, and EPS. A panel data analysis of all Jordanian industrial public shareholding companies listed on the Amman Stock Exchange during the timeframe (2012 to 2017) is used in this study. The primary findings are that auditor tenure has a negative influence on ROA, but auditor industry specialization and auditor firm size have no influence on ROA. Auditor firm size has a positive influence on both ROE and EPS, but auditor tenure and auditor industry specialization have a non-significant negative influence on both ROE and EPS. According to these results, companies in emerging markets should be encouraged to overcome the barriers that limit the link between audit quality and company performance. The study also suggests more research on the impact of audit quality on information asymmetry and earnings management. Future study might potentially identify characteristics that influence audit quality, particularly in emerging countries (such as MENA countries), where there has been little effort to explore the level of audit quality and its relationship with other factors. © 2023, Hrvatsko Društvo Ekonomista. All rights reserved.

Yaseen, S.G.

Guest editorial: Digital accounting, financial technology and data analytics

(2023) Journal of Financial Reporting and Accounting, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150446360&doi=10.1108%2fJFRA-03-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150446360&doi=10.1108%2fJFRA-03-2023-491&partnerID=40&md5=d3fe541a6f05d6c6183ce2652f4c9169)

[491&partnerID=40&md5=d3fe541a6f05d6c6183ce2652f4c9169](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150446360&doi=10.1108%2fJFRA-03-2023-491&partnerID=40&md5=d3fe541a6f05d6c6183ce2652f4c9169)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

Saleh, I., Marei, Y., Ayoush, M., Abu Afifa, M.M.

Big Data analytics and financial reporting quality: qualitative evidence from Canada

(2023) Journal of Financial Reporting and Accounting, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133480745&doi=10.1108%2fJFRA-12-2021-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133480745&doi=10.1108%2fJFRA-12-2021-0489&partnerID=40&md5=b6c3e37f05ffc1818b7278ebeeabc00c)

[0489&partnerID=40&md5=b6c3e37f05ffc1818b7278ebeeabc00c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133480745&doi=10.1108%2fJFRA-12-2021-0489&partnerID=40&md5=b6c3e37f05ffc1818b7278ebeeabc00c)

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Accounting Department, Seneca College of Applied Arts and Technology, Toronto, Canada

ABSTRACT: Purpose: Big Data analytics (BDA) and its implications for the accounting profession continue to be a key issue that requires more research and evaluation. As a result, the purpose of this study is to evaluate the impact of BDA on financial reporting quality, as well as to assess the accounting challenges associated with Big Data. It provides qualitative evidence from Canada. Design/methodology/approach: This study used a qualitative approach to ascertain the thoughts and perceptions of auditors, financial analysts and accountants at Canadian audit and accounting firms in BDA and its impact on financial reporting quality, using semi-structured interviews. To obtain their consent to participate in the interview, 127 auditors, financial analysts and accountants from Canadian audit and accounting firms were initially approached. The final number of respondents was 41, representing a response rate of 32%. Findings: The authors' findings underscored the relevance of Big Data and BDA in affecting financial report quality and revealed that BDA had a significant effect on improving financial reporting quality. Big Data improves accounting reporting and expert judgment by providing professional. In summary, participants agreed that when analytical methods in Big Data are implemented effectively, businesses may possibly achieve a variety of benefits, including customized goods, simplified processes, improved risk assessment process and, finally, increased risk management. Practical implications: The authors' findings indicate that BDA may help predict investment returns and risks, estimate future investment opportunities, forecast revenues, detect

fraud and susceptibility early and identify economic growth opportunities. As a result, auditors, financial analysts, accountants, investors and other strategic decision-makers should be aware of these findings to make informed choices. Originality/value: Big Data has become the norm in recent years; accountants and other decision-makers have struggled to analyze massive amounts of data. This limits their capacity to profit from such data even more. Therefore, this study is motivated by the lack of research on Big Data's influence on financial report quality. © 2022, Emerald Publishing Limited.

Abu Afifa, M.M., Vo Van, H., Le Hoang Van, T.

Blockchain adoption in accounting by an extended UTAUT model: empirical evidence from an emerging economy

(2023) Journal of Financial Reporting and Accounting, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127336730&doi=10.1108%2fJFRA-12-2021-0434&partnerID=40&md5=de401609f7e637cfd4fe59a989d18218>

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Tien Giang University, My Tho, Viet Nam;

Department of Student Affairs, Tien Giang University, My Tho, Viet Nam

ABSTRACT: Purpose: The purpose of this study is to use an extended Unified Theory of Acceptance and Use of Technology (UTAUT) model to investigate the intention to use blockchain from the accountant's point of view. The proposed model is expected to provide the necessary incentives for accountants to adopt blockchain. The authors build external constructs based on discussions of blockchain properties for accounting such as accounting information quality, job relevance and trust. In addition, the study also considers computer self-efficacy and compatibility as factors related to practitioners' blockchain acceptance. Design/methodology/approach: By using the developed online-questionnaire, the data is collected from the responses of 317 accountants working in listed enterprises in Vietnam. The main analyzes are performed by Smart partial least squares structural equation modeling technique to present both direct and indirect effects on the intention to use blockchain. Findings: Experimental results provide many interesting and valuable things. First, performance and effort expectancy have a positive influence on intention to use blockchain, while social influence has a lower influence. Second, trust has a direct and positive effect on effort and performance expectancy, as well as intention to use blockchain. Quite surprisingly, accounting information quality has a positive effect on performance expectancy, while job relevance has a negative effect. Fourth, computer self-efficacy and compatibility have a positive effect on effort expectancy. It is more interesting that the intention to use blockchain has nothing to do with compatibility. The results of this study also show that performance and effort expectancy play a mediating role in the indirect effects of trust, computer self-efficacy and compatibility on intention to use blockchain. Research limitations/implications: The study shows that accountants in Vietnam have a high intention to use blockchain. This implies that the Vietnamese Government and the professional association should design training programs or open training sessions on blockchain. Accountants can clearly understand the importance of blockchain in their work as well as the positive effect of blockchain on performance. They are consulted on how to use blockchain. They also perceive that using blockchain is not too difficult, and the acceptance of this technology will be higher. Additionally, universities should put triple-entry accounting into their teaching, so accounting students can improve their skills and knowledge relevant to blockchain to meet their career needs in the future. Originality/value: The study proposes an extended UTAUT model with external constructs built on blockchain's effects on accounting. The model makes more sense in promoting the use of blockchain in accounting. © 2022, Emerald Publishing Limited.

Z Malak, M., J Al-Thbetat, A., M Al-Amer, R.

Psychosocial factors correlate with adherence to medications among cardiovascular outpatient clinics in Jordan

(2023) Journal of public health (Oxford, England), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124359260&doi=10.1093%2fpubmed%2ffdbab356&partnerID=40&md5=848384575a4bb02636aaa6343fc0c7d1)

[85124359260&doi=10.1093%2fpubmed%2ffdbab356&partnerID=40&md5=848384575a4bb02636aaa6343fc0c7d1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124359260&doi=10.1093%2fpubmed%2ffdbab356&partnerID=40&md5=848384575a4bb02636aaa6343fc0c7d1)

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of JordanAmman, Jordan;

Adult Health Nursing, Ministry of HealthAmman, Jordan;

Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of JordanAmman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra UniversityAmman, Jordan;

School of Nursing and Midwifery, Western Sydney University, NSW, Penrith, Australia

ABSTRACT: BACKGROUND: Adherence to medications is a significant element of self-care behaviors for patients with cardiovascular diseases (CVDs). Non-adherence to cardiovascular medications is the major risk for poor outcomes following any cardiac event. However, there is a lack of studies that addressed medication adherence among patients with CVDs attending outpatient clinics in Arabic

countries, including Jordan. Thus, this study purposed to assess the psychosocial factors (e.g. depression, anxiety, stress, social support and self-esteem) and their correlation with adherence to medications among patients with CVDs attending outpatient clinics in Jordan. METHODS: A total of 395 Jordanian patients attending CVDs outpatient clinics at government, military and private healthcare facilities were recruited. RESULTS: Our study findings showed that 31.4% of the patients reported complete adherence to their medications. The proportion of psychological reactions reported by the participants was 72.1% for depressive symptoms, 62.6% for anxiety and 50.1% for stress; 79.7% had moderate and normal social support, and 44% had low self-esteem. Depression, anxiety and stress had a significant negative correlation with adherence to medications; however, self-esteem had a significant positive relationship with adherence to medications. In addition, depression, anxiety and stress were the main predictors of adherence to medications. CONCLUSION: Our findings might aid in paving the road for designing and developing strategies and interventions to increase adherence to medications and minimize these psychosocial problems among CVD patients in outpatient clinics. © The Author(s) 2021. Published by Oxford University Press on behalf of Faculty of Public Health. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.

Alomari, D., Abu-Snieneh, H.M.

Student nurses' knowledge of and attitudes toward palliative care in the Middle East: An integrative review

(2023) International Journal of Palliative Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151042775&doi=10.12968%2fijpn.2023.29.3.109&partnerID=40&md5=0b1e7e228f98fa9c51c9dfc91f1a62f5)

[85151042775&doi=10.12968%2fijpn.2023.29.3.109&partnerID=40&md5=0b1e7e228f98fa9c51c9dfc91f1a62f5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151042775&doi=10.12968%2fijpn.2023.29.3.109&partnerID=40&md5=0b1e7e228f98fa9c51c9dfc91f1a62f5)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, University of Jordan, Aqaba Campus, Aqaba, Jordan

ABSTRACT: Background: Palliative care is one of the most important areas of practice because it includes caring for vulnerable people who are mostly in their last stage of life. Palliative care is a relatively new specialty in the Middle East and little is known about student nurses knowledge of and attitudes towards it. Aim: The aim of this study was to explore students knowledge of and attitudes towards palliative care in the Middle East, and to use the findings to make recommendations to higher education institutions about its importance. Design: An integrative review following an established framework was used. Hawker s Assessment Tool was employed to evaluate the quality of the research articles. Results: The search found seven quantitative studies from four countries in the Middle East. Their focus was on students knowledge (n=5) and attitudes (n=2). The number of participants ranged from 110 to 452, with knowledge scores ranging from 5.23 to 8.0 out of 20 on all or part of the Palliative Care Quiz for Nursing. Students attitudes were marginally positive toward palliative care and dying patients. Conclusion: There are few studies in the Middle East investigating student nurses knowledge of and attitude toward palliative care; consequently, more attention needs to be given to this area of practice. © 2023 MA Healthcare Ltd. All rights reserved.

Jaber, N., Al-Remawi, M.

Evaluation of a novel water-soluble decanoic acid formulation as a fruit sanitizer

(2023) International Journal of Food Microbiology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85145835035&doi=10.1016%2fj.ijfoodmicro.2022.110067&partnerID=40&md5=69e9f12877ecb0695e15072f4efc966d)

[85145835035&doi=10.1016%2fj.ijfoodmicro.2022.110067&partnerID=40&md5=69e9f12877ecb0695e15072f4efc966d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85145835035&doi=10.1016%2fj.ijfoodmicro.2022.110067&partnerID=40&md5=69e9f12877ecb0695e15072f4efc966d)

AFFILIATIONS: Faculty of Pharmacy, Al Zaytoonah University of Jordan, Jordan;

Faculty of Pharmacy, University of Petra, Jordan

ABSTRACT: Fruits irrigated with contaminated water can transmit various pathogens. High sugar content in fruits such as black cherry (BC) fruit encourages microbial proliferation. A novel water-soluble decanoic acid (WSDA) was evaluated as a fruit sanitizer and compared with other traditional fruit sanitizers such as ethanol, bleach, or dishwasher surfactants. WSDA sanitizer killed yeasts, molds and bacteria including E. coli microbes effectively as other sanitizers with (4 log cycle reduction) of microbial load. Furthermore, the bacterial sanitization mechanism i.e. bactericidal or bacteriostatic was evaluated for alcohol, bleaching and WASDA solutions. E. coli was selected as the model pathogen used for such comparison. Results indicated that the mechanism of action for the three sanitizer solutions against E. coli was bactericidal. The problem with most used fruit sanitizers is their negative influence on fruit quality in terms of physical, mechanical and taste properties. In addition, some led to toxicological and ecological concerns. Thus, studies were conducted to explore the changes in the exocarp cell structure of BC fruit upon exposure to WSDA and other sanitizers using microscopic investigation. WSDA could have a very mild or gentle effect on the BC fruit cells compared to other sanitizers. Alcohol, bleaching and dishwasher surfactant changed the cellular structures and the intercellular spaces. Sanitizers may also affect fruit swelling. WSDA showed an increase in percent weight gain but it was significantly ($p < 0.05$) much lower than dishwasher surfactant and bleaching solution. BC Fruit flesh firmness and hardness were investigated upon exposure to different sanitizer solutions. BC fruit treated with WSDA showed the highest firmness values. Some liquid sanitizers could affect fruit quality in terms of fruit taste. Sensory evaluation

in terms of the sanitizer's smell, texture and hedonic of BC fruit after soaking in different sanitizers was carried out. All sensory parameters of BC fruit soaked with WSDA were similar with insignificant differences ($p > 0.05$) compared to BC fruit soaked in tap water. However, the sensory parameters were significantly different ($p < 0.05$) when compared with alcohol, bleach and dishwasher surfactant. This ensures that WSDA was superior to other evaluated sanitizers in terms of physical, mechanical and fruit quality. © 2022 Elsevier B.V.

Ouannas, A., Batiha, I.M., Pham, V.-T.

Fractional Discrete Chaos: Theories, Methods and Applications

(2023) Topics in Systems Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183770173&partnerID=40&md5=8216491751e2b5ae5b72124c9c2534ec)

85183770173&partnerID=40&md5=8216491751e2b5ae5b72124c9c2534ec

AFFILIATIONS: University of Larbi Ben M'hidi, Algeria;

Al Zaytoonah University of Jordan, Jordan;

Ton Duc Thans University, Viet Nam

Abu Helal, A.-R.

The Semantics of Modal QAD in Standard Arabic

(2023) Jordan Journal of Modern Languages and Literatures, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160301626&doi=10.47012%2fjjml.15.1.3&partnerID=40&md5=2db9cb41f2c87f26fd93c1bd1feed4ef)

85160301626&doi=10.47012%2fjjml.15.1.3&partnerID=40&md5=2db9cb41f2c87f26fd93c1bd1feed4ef

AFFILIATIONS: Department of English language and literature, AI-Zaytoonah University of Jordan, Jordan

ABSTRACT: The behavior of modal QAD in Standard Arabic presents a twofold puzzle: first, QAD has an inherent epistemic-denoting conversational background with its lexically-encoded quantificational force being controlled by the temporal-aspectual properties of QAD's prejacent. Second, universal QAD triggers an actuality entailment by default. We resolve this puzzle by proposing a compositional analysis of modal QAD that derives QAD's lexically-encoded duality of force and accounts for universal QAD's automatic implicativity. © 2023, Yarmouk University. All rights reserved.

Al-Ghammaz, S.A.D.L.A.

William J. Shakespeare's Hamlet: An Analysis of Revenge Quest & Procrastination

(2023) World Journal of English Language, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152276862&doi=10.5430%2fwjel.v13n2p317&partnerID=40&md5=2fec73ce4af8752e6bc62b1525b8c1bc)

85152276862&doi=10.5430%2fwjel.v13n2p317&partnerID=40&md5=2fec73ce4af8752e6bc62b1525b8c1bc

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In expounding Shakespeare's Hamlet, a trio of important plots comes to the top with great significance; the revenge plot, the Hamlet-Ophelia romance story, and Norway's looming war. The trio of significant plots has laid the first stone for Hamlet to procrastinate the act of revenge as it is undone until the final act of Shakespeare's drama. On the other hand, Hamlet's playwright gives a picture of the tradition's direct reference using the literary device Metadrama, i.e. the play within the play exemplified by The Murder of Gonzago. Attaining true justice for his father's murder, Hamlet beautifies The Murder of Gonzago with grim insistence; Hamlet is determined to recognize the culprit behind the death of his father. Having this uneasy mission comes true causes Hamlet to ponder and slow down about various things. Along these lines, Hamlet goes through a slow decision process to revenge on his father's murderer. Consequently, various deaths happen, namely: Polonius, Ophelia, Rosencrantz, Guildenstern, Laertes, and Gertrude. Shakespeare's exposition of various characters incapable of revenging heroically and determinedly draws a picture of Hamlet's incapability to promptly avenge. Laertes, for example, plots to murder Hamlet to avenge for murdering Polonius, Laertes's father, and in the last part of this play, Laertes successfully kills Hamlet with the poisonous sword. As various studies focus on the issues of romance, politics, and throne successions using descriptive and historical approaches, this study using the analytical approach, however, demonstrates Hamlet as a play structured on revenge, as the whole revenge events are appropriately incorporated by Shakespeare. © 2023 World Journal of English Language.

Mughaid, A., Obaidat, I., Aljammal, A., Alzu'bi, S., Quiam, F., Laila, D.A., Al-Zou'bi, A., Abualigah, L.

Simulation and analysis performance of ad-hoc routing protocols under DDoS attack and pro-posed solution

(2023) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151979056&doi=10.5267%2fj.ijdns.2023.2.002&partnerID=40&md5=f860f3e0076de9705f1cbc510060813e)

85151979056&doi=10.5267%2fj.ijdns.2023.2.002&partnerID=40&md5=f860f3e0076de9705f1cbc510060813e

AFFILIATIONS: Department of Information Technology, Faculty of prince Al-Hussien bin Abdullah || for IT, The Hashemite University, PO Box 330127, Zarqa, 13133, Jordan;

Computer Science Department, Faculty of Science and Information Technology, Al Zaytoonah University

of Jordan, Amman, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;

Applied science research center, Applied science private university, Amman, 11931, Jordan

ABSTRACT: Ad hoc networks, known as infrastructure-less networks, are composed of mobile nodes that connect without a centralized system controlling them. These networks have a wide range of potential applications, including emergency response, events, military operations, wireless access, and intelligent transportation. They can take on various forms, such as wireless sensor networks, wireless mesh networks, and mobile ad hoc networks. Because users in these networks can move around at any time, routing protocols must adapt to the constantly changing network layout. However, these networks are also susceptible to various security threats, including DDoS attacks. This paper aims to analyze the performance and impact of security attacks on the performance of reactive and proactive routing protocols in CBR connection patterns with different pause times. The analysis is provided in metrics such as throughput, packet loss, end-to-end delay, and load. The simulation results show that, on average, the OPNET Modeler simulator analyzed the performance results under DDoS attacks under voice and video traffic conditions. Furthermore, the paper explores the use of Honeypot intelligent agents as a solution to increase security by creating a dummy node to fool DDoS attackers. The results show that the OLSR protocol is most affected by DDoS attacks in terms of quality-of-service metrics such as packet loss, throughput, end-to-end delay, and load. The number of responses to the honeypot solutions differs for each protocol. © 2023 by the authors; licensee Growing Science, Canada.

Alqudah, O.M.A., Jarah, B.A.F., Alshehadeh, A.R., Al-Matarneh, Z., Soda, M.Z., Al-Khawaja, H.A.

Data processing related to the impact of performance expectation, effort expectation, and perceived usefulness on the use of electronic banking services for customers of Jordanian banks

(2023) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151919965&doi=10.5267%2fj.ijdns.2023.3.006&partnerID=40&md5=81271b266fa49f498ada712942e80d75)

[85151919965&doi=10.5267%2fj.ijdns.2023.3.006&partnerID=40&md5=81271b266fa49f498ada712942e80d75](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151919965&doi=10.5267%2fj.ijdns.2023.3.006&partnerID=40&md5=81271b266fa49f498ada712942e80d75)

AFFILIATIONS: E-marketing Department, Faculty of Financial and Business Science, Irbid National University, Irbid, Jordan;

Faculty of Business, Amman Arab University, Amman, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Business, Isra University, Amman, Jordan

ABSTRACT: The aim of this study was to investigate and identify the influence of performance expectation, effort expectation, and perceived usefulness on the usage of electronic banking services by Jordanian bank customers. The study used a quantitative method, with questionnaires administered to Jordanian bank clients. The statistics support the association between performance expectation, effort expectation, perceived utility, and the usage of electronic banking services. This implies that these characteristics have a major influence on Jordanian bank customers' electronic banking services. The association between performance expectation and use of electronic banking services is the strongest, followed by effort expectation and use of electronic banking services, and the poorest between perceived usefulness and use of electronic banking services. Even the most tenuous association (perceived usefulness and use of electronic banking services) is statistically significant. These findings also imply that banks seeking to boost the usage of electronic banking services should concentrate on improving consumers' perceptions of performance and effort expectations, as well as perceived usefulness. © 2023 by the authors; licensee Growing Science, Canada.

Althaher, A.R., Mastinu, A.

Calamintha incana (Sm.) Helder: A New Phytoextract with In Vitro Antioxidant and Antidiabetic Action (2023) Applied Sciences (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151558570&doi=10.3390%2fapp13063966&partnerID=40&md5=1a37b09bf82e18be7dd7d58ed0a12493)

[85151558570&doi=10.3390%2fapp13063966&partnerID=40&md5=1a37b09bf82e18be7dd7d58ed0a12493](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151558570&doi=10.3390%2fapp13063966&partnerID=40&md5=1a37b09bf82e18be7dd7d58ed0a12493)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Molecular and Translational Medicine, University of Brescia, Viale Europa 11, Brescia, 25121, Italy

ABSTRACT: This study aimed to assess the antioxidant and antidiabetic properties of ethanolic phytoextracts of *Calamintha incana* (Sm.) Helder leaves. Initially, the chemical characterization of the phytocomplex was performed using high-performance liquid chromatography (HPLC)/mass spectrometry (MS). The cytotoxicity of the ethanolic extract was assessed using an MTT assay in HepG2 cells. Subsequently, antioxidant activity was evaluated using a DPPH test. Finally, enzymatic tests with α -amylase, α -glucosidase, pancreatic lipase, and dipeptidyl peptidase IV (DPP-IV) were performed to evaluate their effects on glucose metabolism. The chemical composition of the extract is p-linolenic acid (13.2%), myristic acid (12.1%), and p-cymene (10.5%). The extract demonstrated low toxicity, with none of the tested concentrations inducing 50% cell death. Furthermore, the ethanolic extract revealed potent antioxidant activity using DPPH (IC50 was 35.9 ± 0.7 μ g/mL) and reducing power

capacity (IC₅₀ was 90.3 ± 0.8 µg/mL). Regarding the antidiabetic activity, the extract caused a significant inhibition of α-amylase, α-glucosidase (IC₅₀ 46.3 ± 0.2, 56.8 ± 0.1 µg/mL, respectively), weak inhibition of pancreatic lipase and no notable inhibition of dipeptidyl peptidase IV. In conclusion, *C. incana* has antioxidant and antidiabetic properties and appears to exert insulin-independent hypoglycemic action. © 2023 by the authors.

Shahwan, M., Hassan, N., Mazin, N., Jairoun, A., Al Khoja, S., Shahwan, M., Najjar, O., Al-Qirim, T. Assessment of Serum 25-Hydroxyvitamin D and Its Association in Type 2 Diabetes Mellitus Elderly Patients with Kidney Disease: A Retrospective Cross Sectional Study (2023) *Metabolites*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151523407&doi=10.3390%2fmetabo13030357&partnerID=40&md5=35d06be884e9f9dfa5c6078fd1ad89db)

[85151523407&doi=10.3390%2fmetabo13030357&partnerID=40&md5=35d06be884e9f9dfa5c6078fd1ad89db](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151523407&doi=10.3390%2fmetabo13030357&partnerID=40&md5=35d06be884e9f9dfa5c6078fd1ad89db)

AFFILIATIONS: Department of Clinical Sciences, College of Pharmacy and Health Sciences, Ajman University, P.O. Box 346, Ajman, United Arab Emirates;

Centre of Medical and Bio-Allied Health Sciences Research, Ajman University, P.O. Box 346, Ajman, United Arab Emirates;

School of Pharmaceutical Sciences, University Sains Malaysia (USM), Pulau Pinang11500, Malaysia;

Health and Safety Department, Dubai Municipality, P.O. Box 67, Dubai, United Arab Emirates;

Diabetes Clinic, AL-Swity Center for Dermatology and Chronic Diseases, Ramallah, 972, Palestine;

General Directorate of Allied Health Professions, Ministry of Health, Nablus, 972, Palestine;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The overall aim of this study is to determine the prevalence of vitamin D deficiency and its association with diabetic nephropathy in elderly patients with type 2 diabetes mellitus. This study is a single center retrospective cross-sectional design conducted at private medical center. The study group included all patients (18 years or older) suffering from type 2 diabetes mellitus that attended the diabetic clinic from September 2019 to January 2021. The main outcome variable is a trough level of (<20 ng/mL) for 25OHD. The patients were categorized as having diabetic nephropathy based on estimated glomerular filtration rate (eGFR). Total glycosylated hemoglobin (HbA1c), creatinine serum, Alb: Cr ratio, total cholesterol (TC), triglyceride (TG), high-density lipoprotein (HDL-C), low-density lipoprotein (LDL-C), systolic blood pressure (SBP) and diastolic blood pressure (DBP) were compared between vitamin D deficiency groups. Univariate and multivariate logistic regression was used to investigate the association between vitamin D deficiency and other significant anthropometric and biochemical factors. A p value < 0.05 was chosen as the criterion to make decisions regarding statistical significance. Among the 453 diabetic patients included in study, 48.6% (n = 220) were male and 51.4% (n = 233) were female. The mean age ± S.D of the patients was 54.5 ± 10.6 years old. Out of 453 diabetic patients, 71.1% (95% CI: 66.9%–75.3%) had vitamin D deficiency (25OHD < 20 ng/mL). There was a statistically significant association between 25OHD level and diabetic nephropathy in elderly patients with type 2 diabetes mellitus. Diabetic patients with e-GFR < 60 mL/min more likely to have vitamin D deficiency (p < 0.001). Similarly, individuals with Alb: Cr ratio > 30 mg/g were more likely to have vitamin D deficiency (p < 0.001). Moreover, diabetic patients with serum creatinine > 1.8 mg/dL were more likely to have vitamin D deficiency (p < 0.001). The study revealed a high prevalence of vitamin D deficiency in elderly patients with type 2 diabetes mellitus. A significant association was reported between 25-hydroxyvitamin D, e-GFR and Alb: Cr ratio. © 2023 by the authors.

Hamour, H.M.J.A., Alensou, J.A.Y., Abuzaid, A.N., Alheet, A.F., Madadha, S.-A.M., Al-Zaqeba, M.A.A. The effect of strategic intelligence, effective decision-making and strategic flexibility on logistics performance

(2023) *Uncertain Supply Chain Management*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151468114&doi=10.5267%2fj.uscm.2023.1.015&partnerID=40&md5=d336a763dbe0f7c11cd803220d078f46)

[85151468114&doi=10.5267%2fj.uscm.2023.1.015&partnerID=40&md5=d336a763dbe0f7c11cd803220d078f46](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151468114&doi=10.5267%2fj.uscm.2023.1.015&partnerID=40&md5=d336a763dbe0f7c11cd803220d078f46)

AFFILIATIONS: Faculty of Business, Al-Balqa Applied University, Jordan;

Faculty of Business, Al-Zaytoonah university of Jordan, Jordan;

School of Business, Mutah University, Jordan;

Al-Ahliyya Amman University, Jordan;

Faculty of Economics and Muamalat (FEM), Universiti Sains Islam Malaysia (USIM), Negeri Sembilan, Nilai, Malaysia

ABSTRACT: This paper aims to investigate the impact of strategic intelligence on strategic flexibility, in addition, to identify the effective decision-making on Logistics Performance. Nevertheless, partial least squares (Smart-PLS-4.0.8.7) are used to examine the hypotheses, the results indicate that strategic intelligence (organized thinking, strategic vision, foresight, partnership, and motivation) significantly affect Strategic flexibility. In addition, effective decision-making mediates the effect of strategic intelligence and strategic flexibility towards the performance of logistics companies. Moreover, the influence of effective decision-making on logistics performance is therefore clear and significant towards logistics performance. However, the study

supports managers in enhancing sustainability practices in logistics organizations while also offering policy guidance to decision-makers. © 2023 Growing Science Ltd. All rights reserved.

Ineizeh, N.I., Hussein, O.J., Alshehadeh, A.R., Yamin, I.Y.

The role of the application of an accounting system in raising the efficiency of the supply chain in Jordanian hospitals

(2023) Uncertain Supply Chain Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151443185&doi=10.5267%2fj.uscm.2023.3.009&partnerID=40&md5=3c7452358fb0b0193b6b21c43874d8e2)

[85151443185&doi=10.5267%2fj.uscm.2023.3.009&partnerID=40&md5=3c7452358fb0b0193b6b21c43874d8e2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151443185&doi=10.5267%2fj.uscm.2023.3.009&partnerID=40&md5=3c7452358fb0b0193b6b21c43874d8e2)

AFFILIATIONS: Faculty of Business, Amman Arab University, Amman, Jordan;

Teesside University, United Kingdom;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Hospitals may keep track of all financial transactions using an accounting system. It can produce thorough hospital reports that give management or other interested parties a clear set of information to help them raise the efficiency of the supply chain. Therefore, the goal of this study was to look into the role of the application of an accounting system (AS) in raising the efficiency of the supply chain (SC) in Jordanian hospitals. A questionnaire was used as the data collection method. The descriptive statistical analysis was carried out using SPSS. In addition, 134 employees from these hospitals took part in the survey, according to the results of this study, AS plays a significant role in developing and raising the efficiency of SC in Jordanian hospitals. © 2023 Growing Science Ltd. All rights reserved.

Alahmer, H., Alahmer, A., Alamayreh, M.I., Alrbai, M., Al-Rbaihat, R., Al-Manea, A., Alkhazaleh, R.

Optimal Water Addition in Emulsion Diesel Fuel Using Machine Learning and Sea-Horse Optimizer to Minimize Exhaust Pollutants from Diesel Engine

(2023) Atmosphere, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151318273&doi=10.3390%2fatmos14030449&partnerID=40&md5=5791afb5cd5f9061b05685a075c441e5)

[85151318273&doi=10.3390%2fatmos14030449&partnerID=40&md5=5791afb5cd5f9061b05685a075c441e5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151318273&doi=10.3390%2fatmos14030449&partnerID=40&md5=5791afb5cd5f9061b05685a075c441e5)

AFFILIATIONS: Department of Automated Systems, Faculty of Artificial Intelligence, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Industrial and Systems Engineering, Auburn University, Auburn, AL 36849, United States;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, Tafila, 66110, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman, 11733, Jordan;

Department of Mechanical Engineering, School of Engineering, University of Jordan, Amman, 11942, Jordan;

Al-Samawah Technical Institute, Al-Furat Al-Awsat Technical University, Al-Samawah, 66001, Iraq

ABSTRACT: Water-in-diesel (W/D) emulsion fuel is a potentially viable diesel fuel that can simultaneously enhance engine performance and reduce exhaust emissions in a current diesel engine without requiring engine modifications or incurring additional costs. In a consistent manner, the current study examines the impact of adding water, in the range of 5-30% wt. (5% increment) and 2% surfactant of polysorbate 20, on the performance in terms of brake torque (BT) and exhaust emissions of a four-cylinder four-stroke diesel engine. The relationship between independent factors, including water addition and engine speed, and dependent factors, including different exhaust released emissions and BT, was initially generated using machine learning support vector regression (SVR). Subsequently, a robust and modern optimization of the sea-horse optimizer (SHO) was run through the SVR model to find the optimal water addition and engine speed for improving the BT and lowering exhaust emissions. Furthermore, the SVR model was compared to the artificial neural network (ANN) model in terms of R-squared and mean square error (MSE). According to the experimental results, the BT was boosted by 3.34% compared to pure diesel at 5% water addition. The highest reduction in carbon monoxide (CO) and unburned hydrocarbon (UHC) was 9.57% and 15.63%, respectively, at 15% of water addition compared to diesel fuel. The nitrogen oxides (NOx) emissions from emulsified fuel were significantly lower than those from pure diesel, with a maximum decrease of 67.14% at 30% water addition. The suggested SVR-SHO model demonstrated superior prediction reliability, with a significant R-Squared of more than 0.98 and a low MSE of less than 0.003. The SHO revealed that adding 15% water to the W/D emulsion fuel at an engine speed of 1848 rpm yielded the optimum BT, CO, UHC, and NOx values of 49.5 N.m, 0.5%, 57 ppm, and 369 ppm, respectively. Finally, these outcomes have important implications for the potential of the SVR-SHO approach to minimize engine exhaust emissions while maximizing engine performance. © 2023 by the authors.

Batiha, I.M., Ababneh, O.Y., Al-Nana, A.A., Alshanti, W.G., Alshorm, S., Momani, S.

A Numerical Implementation of Fractional-Order PID Controllers for Autonomous Vehicles

(2023) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151147028&doi=10.3390%2faxioms12030306&partnerID=40&md5=545a554e892d858a7a26cc97d1afbcc7)

85151147028&doi=10.3390%2faxioms12030306&partnerID=40&md5=545a554e892d858a7a26cc97d1afbcc7

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan; Nonlinear Dynamics Research Center (NDRC), Ajman University, P.O. Box 346, Ajman, United Arab Emirates;

Department of Mathematics, Zarqa University, Zarqa, 11831, Jordan;

Department of Mathematics, Prince Sattam Bin Abdulaziz University, Alkharj, 11942, Saudi Arabia;

Department of Mathematics, Faculty of Science, University of Jordan, Amman, 11942, Jordan

ABSTRACT: In the context of reaching the best way to control the movement of autonomous cars linearly and angularly, making them more stable and balanced on different roads and ensuring that they avoid road obstacles, this manuscript chiefly aims to reach the optimal approach for a fractional-order PID controller (or (Formula presented.) -controller) instead of the already classical one used to provide smooth automatic parking for electrical autonomous cars. The fractional-order (Formula presented.) -controller is based on the particle swarm optimization (PSO) algorithm for its design, with two different approximations: Oustaloup's approximation and the continued fractional expansion (CFE) approximation. Our approaches to the fractional-order PID using the results of the PSO algorithm are compared with the classical PID that was designed using the results of the Cohen-Coon, Ziegler-Nichols and bacteria foraging algorithms. The scheme represented by the proposed (Formula presented.) -controller can provide the system of the autonomous vehicle with more stable results than that of the PID controller. © 2023 by the authors.

Abusara, O.H., Ibrahim, A.I.M., Issa, H., Hammad, A.M., Ismail, W.H.

In Vitro Evaluation of ALDH1A3-Affinic Compounds on Breast and Prostate Cancer Cell Lines as Single Treatments and in Combination with Doxorubicin

(2023) Current Issues in Molecular Biology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151133432&doi=10.3390%2fcomb45030139&partnerID=40&md5=b3d810c542c15fafd648418f409718b6)

85151133432&doi=10.3390%2fcomb45030139&partnerID=40&md5=b3d810c542c15fafd648418f409718b6

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; Aurum Biotech, Amman, 11941, Jordan

ABSTRACT: Aldehyde dehydrogenase (ALDH) enzymes are involved in the growth and development of several tissues, including cancer cells. It has been reported that targeting the ALDH family, including the ALDH1A subfamily, enhances cancer treatment outcomes. Therefore, we aimed to investigate the cytotoxicity of ALDH1A3-affinic compounds that have been recently discovered by our group, on breast (MCF7 and MDA-MB-231) and prostate (PC-3) cancer cell lines. These compounds were investigated on the selected cell lines as single treatments and in combination with doxorubicin (DOX). Results showed that the combination treatment experiments of the selective ALDH1A3 inhibitors (compounds 15 and 16) at variable concentrations with DOX resulted in significant increases in the cytotoxic effect on the MCF7 cell line for compound 15, and to a lesser extent for compound 16 on the PC-3 cell line, compared to DOX alone. The activity of compounds 15 and 16 as single treatments on all cell lines was found to be non-cytotoxic. Therefore, our findings showed that the investigated compounds have a promising potential to target cancer cells, possibly via an ALDH-related pathway, and sensitize them to DOX treatment. © 2023 by the authors.

Shaban, O.S., Barakat, A.I.

Evaluation of Internal Audit Standards as a Foundation for Carrying out and Promoting a Wide Variety of Value-Added Tasks-Evidence from Emerging Market

(2023) Journal of Risk and Financial Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150965936&doi=10.3390%2fjrfm16030185&partnerID=40&md5=86afb40532a44e22b2bf93c6a86b2f75)

85150965936&doi=10.3390%2fjrfm16030185&partnerID=40&md5=86afb40532a44e22b2bf93c6a86b2f75

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Finance and Investment Department, Faculty of Business Administration, University of Tabuk, Tabuk, 71491, Saudi Arabia

ABSTRACT: This research paper aims to evaluate the effectiveness of internal audit standards as a foundation for carrying out and promoting a wide variety of value-added tasks in emerging markets. Three Jordanian telecommunications firms were the subject of the study. In each firm, the non-executive directors, who serve on the Audit Committee, also received a questionnaire that was designed for this objective. In total 85 questionnaires were accepted and analyzed using traditional statistical methods such as descriptive statistics, arithmetic means, standard deviations, and percentages, and resolution data were examined using the statistical application SPSS. According to the annual report for the year 2021, telecommunication businesses generally followed IIA International Internal Audit Standards. Application Standards were employed to a high degree in second place, after Attribute Standards, which were used primarily in the first place. In those firms, performance standards were not used. The study also found that this form of application is moderately constrained by a few challenges and barriers. The study recommended that these

organizations broaden the scope and scale of internal auditing standards, particularly performance requirements. Finally, the generalization of research findings is limited because the study is limited to three Jordanian telecommunication companies. © 2023 by the authors.

Yasmin, H., Abu Hammad, M., Shah, R., Alotaibi, B.M., Ismaeel, S.M.E., El-Tantawy, S.A.
On the Solutions of the Fractional-Order Sawada-Kotera-Ito Equation and Modeling Nonlinear Structures in Fluid Mediums

(2023) *Symmetry*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150937579&doi=10.3390%2fSYM15030605&partnerID=40&md5=b5a00608b95d04176e75cb0bc379d647)

[85150937579&doi=10.3390%2fSYM15030605&partnerID=40&md5=b5a00608b95d04176e75cb0bc379d647](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150937579&doi=10.3390%2fSYM15030605&partnerID=40&md5=b5a00608b95d04176e75cb0bc379d647)

AFFILIATIONS: Department of Basic Sciences, Preparatory Year Deanship, King Faisal University, Al-Ahsa31982, Saudi Arabia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Abdul Wali Khan University, Mardan, 23200, Pakistan;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Department of Physics, College of Science and Humanities in Al-Kharj, Prince Sattam bin Abdulaziz University, Al-Kharj, 11942, Saudi Arabia;

Department of Physics, Faculty of Science, Ain Shams University, Cairo, 11566, Egypt;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Baha University, Al-Mikhwah, Al-Baha, 1988, Saudi Arabia

ABSTRACT: This study investigates the wave solutions of the time-fractional Sawada-Kotera-Ito equation (SKIE) that arise in shallow water and many other fluid mediums by utilizing some of the most flexible and high-precision methods. The SKIE is a nonlinear integrable partial differential equation (PDE) with significant applications in shallow water dynamics and fluid mechanics. However, the traditional numerical methods used for analyzing this equation are often plagued by difficulties in handling the fractional derivatives (FDs), which lead to finding other techniques to overcome these difficulties. To address this challenge, the Adomian decomposition (AD) transform method (ADTM) and homotopy perturbation transform method (HPTM) are employed to obtain exact and numerical solutions for the time-fractional SKIE. The ADTM involves decomposing the fractional equation into a series of polynomials and solving each component iteratively. The HPTM is a modified perturbation method that uses a continuous deformation of a known solution to the desired solution. The results show that both methods can produce accurate and stable solutions for the time-fractional SKIE. In addition, we compare the numerical solutions obtained from both methods and demonstrate the superiority of the HPTM in terms of efficiency and accuracy. The study provides valuable insights into the wave solutions of shallow water dynamics and nonlinear waves in plasma, and has important implications for the study of fractional partial differential equations (FPDEs). In conclusion, the method offers effective and efficient solutions for the time-fractional SKIE and demonstrates their usefulness in solving nonlinear integrable PDEs. © 2023 by the authors.

Alkhwaja, B., Al-Akayleh, F., Al-Khateeb, A., Nasereddin, J., Ghanim, B.Y., Bolhuis, A., Jaber, N., Al-Remawi, M., Qinna, N.A.

Deep Eutectic Liquids as a Topical Vehicle for Tadalafil: Characterisation and Potential Wound Healing and Antimicrobial Activity

(2023) *Molecules*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149871243&doi=10.3390%2fMOLECULES28052402&partnerID=40&md5=798921d7a2da6b0797f5f5549bccde34)

[85149871243&doi=10.3390%2fMOLECULES28052402&partnerID=40&md5=798921d7a2da6b0797f5f5549bccde34](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149871243&doi=10.3390%2fMOLECULES28052402&partnerID=40&md5=798921d7a2da6b0797f5f5549bccde34)

AFFILIATIONS: Department of Pharmaceutical Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, Zarqa University, Zarqa, 13110, Jordan;

University of Petra Pharmaceutical Center, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Department of Life Sciences, Centre for Therapeutic Innovation, University of Bath, Bath, BA2 7AY, United Kingdom;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Deep eutectic solvents (DESs) and ionic liquids (ILs) offer novel opportunities for several pharmaceutical applications. Their tunable properties offer control over their design and applications. Choline chloride (CC)-based DESs (referred to as Type III eutectics) offer superior advantages for various pharmaceutical and therapeutic applications. Here, CC-based DESs of tadalafil (TDF), a selective phosphodiesterase type 5 (PDE-5) enzyme inhibitor, were designed for implementation in wound healing. The adopted approach provides formulations for the topical application of TDF, hence avoiding systemic exposure. To this end, the DESs were chosen based on

their suitability for topical application. Then, DES formulations of TDF were prepared, yielding a tremendous increase in the equilibrium solubility of TDF. Lidocaine (LDC) was included in the formulation with TDF to provide a local anaesthetic effect, forming F01. The addition of propylene glycol (PG) to the formulation was attempted to reduce the viscosity, forming F02. The formulations were fully characterised using NMR, FTIR and DCS techniques. According to the obtained characterisation results, the drugs were soluble in the DES with no detectable degradation. Our results demonstrated the utility of F01 in wound healing in vivo using cut wound and burn wound models. Significant retraction of the cut wound area was observed within three weeks of the application of F01 when compared with DES. Furthermore, the utilisation of F01 resulted in less scarring of the burn wounds than any other group including the positive control, thus rendering it a candidate formula for burn dressing formulations. We demonstrated that the slower healing process associated with F01 resulted in less scarring potential. Lastly, the antimicrobial activity of the DES formulations was demonstrated against a panel of fungi and bacterial strains, thus providing a unique wound healing process via simultaneous prevention of wound infection. In conclusion, this work presents the design and application of a topical vehicle for TDF with novel biomedical applications. © 2023 by the authors.

Ali, A.M.A., Ahmed, N.M., Kabir, N.A., AL-Diabat, A.M., Algadri, N.A., Alsadig, A., Aldaghri, O.A., Ibnaouf, K.H.

Sensitivity of Al-Doped Zinc-Oxide Extended Gate Field Effect Transistors to Low-Dose X-ray Radiation (2023) Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149810211&doi=10.3390%2fma16051868&partnerID=40&md5=dd76def3b4957d1a93e605c336f3b7b1)

[85149810211&doi=10.3390%2fma16051868&partnerID=40&md5=dd76def3b4957d1a93e605c336f3b7b1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149810211&doi=10.3390%2fma16051868&partnerID=40&md5=dd76def3b4957d1a93e605c336f3b7b1)

AFFILIATIONS: School of Physics, Universiti Sains Malaysia, Gelugor, Penang11800, Malaysia;

Department of Medical Instrumentation Engineering, Dijlah University College, Baghdad, 11622, Iraq;

Department of Physics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Physics, Isra University, Amman, 00964, Jordan;

CNR NANOTEC Institute of Nanotechnology, Via Monteroni, Lecce, 73100, Italy;

Physics Department, College of Science, Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, 13318, Saudi Arabia

ABSTRACT: Herein, we investigated the applicability of thick film and bulk disk forms of aluminum-doped zinc oxide (AZO) for low-dose X-ray radiation dosimetry using the extended gate field effect transistor (EGFET) configuration. The samples were fabricated using the chemical bath deposition (CBD) technique. A thick film of AZO was deposited on a glass substrate, while the bulk disk form was prepared by pressing the collected powders. The prepared samples were characterized via X-ray diffraction (XRD) and field emission scanning electron microscope (FESEM) to determine the crystallinity and surface morphology. The analyses show that the samples are crystalline and comprise nanosheets of varying sizes. The EGFET devices were exposed to different X-ray radiation doses, then characterized by measuring the I-V characteristics pre- and post-irradiation. The measurements revealed an increase in the values of drain-source currents with radiation doses. To study the detection efficiency of the device, various bias voltages were also tested for the linear and saturation regimes. Performance parameters of the devices, such as sensitivity to X-radiation exposure and different gate bias voltage, were found to depend highly on the device geometry. The bulk disk type appears to be more radiation-sensitive than the AZO thick film. Furthermore, boosting the bias voltage increased the sensitivity of both devices. © 2023 by the authors.

Al Momani, D., Al Turk, Y., Abuashour, M.I., Khalid, H.M., Muyeen, S.M., Sweidan, T.O., Said, Z., Hasanuzzaman, M.

Energy saving potential analysis applying factory scale energy audit - A case study of food production (2023) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149805999&doi=10.1016%2fj.heliyon.2023.e14216&partnerID=40&md5=337d9d09a493012aac084d54ee59183a)

[85149805999&doi=10.1016%2fj.heliyon.2023.e14216&partnerID=40&md5=337d9d09a493012aac084d54ee59183a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149805999&doi=10.1016%2fj.heliyon.2023.e14216&partnerID=40&md5=337d9d09a493012aac084d54ee59183a)

AFFILIATIONS: Department of Allied Engineering Sciences, Faculty of Engineering, The Hashemite University, Zarqa, Jordan;

Alternative Energy Technology Department, Al-Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, Jordan;

Renewable Energy Centre, The Hashemite University, Zarqa, 13115, Jordan;

Department of Electrical and Electronics Engineering, Higher Colleges of Technology, Sharjah, 7947, United Arab Emirates;

Department of Electrical and Electronic Engineering Science, University of Johannesburg, Auckland Park 2006, South Africa;

Department of Electrical Engineering, University of Santiago, Avenida Libertador 3363, Santiago, RM, Chile;

Department of Electrical Engineering, Qatar University, Doha, 2713, Qatar;

Sustainable and Renewable Energy Engineering Department, College of Engineering, University of Sharjah, PO Box 27272, Sharjah, United Arab Emirates;
U.S.-Pakistan Center for Advanced Studies in Energy (USPCAS-E), National University of Sciences and Technology (NUST), Islamabad, Pakistan;
Department of Industrial and Mechanical Engineering, Lebanese American University (LAU), Byblos, Lebanon;
Higher Institution Center of Excellence (HICoE), UM Power Energy Dedicated Advanced Center (UMPEDAC), University of Malaya, Jalan Pantai Baharu, Kuala Lumpur, 59990, Malaysia
ABSTRACT: An energy audit (EA) is a crucial step in boosting factory energy efficiency and obtaining certification for cleaner manufacturing. The results of a preliminary energy audit carried out at a sizable industrial facility in Jordan that creates some of the most well-known foods in the Middle East are presented in this study. The monthly demand of the factory for diesel ranged from 75,251.545 to 166,666.67 L. The factory energy model which is used to examine the impact of various energy-saving practices on the factory's primary energy consumption, was developed with the help of the energy audit. It has been established that optimizing the factory's energy use and the boiler systems' performance with regards to diesel consumption can withstand an expected monthly financial savings of 14205.85 Jordanian Dinar (JD). This has allowed a reduction in energy use of up to 18%. The CO₂ harmful emissions were also decreased. Additionally, it is estimated that switching from the proposed motors to energy-efficient motors will cost less overall over time, saving around 3472.314 JD/month or 0.33576/year on average. Moreover, it was discovered that a total of 772.82021 Ton CO₂/year emissions may be avoided each year. © 2023 The Authors

Al-Ghabeesh, S.H., Thabet, A., Rayan, A., Abu-Snieneh, H.M.
Qualitative study of challenges facing emergency departments nurses in Jordan
(2023) Heliyon, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149763301&doi=10.1016%2fj.heliyon.2023.e14141&partnerID=40&md5=24455cc20e917fb0d033714202e8f1fd>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Nursing, Amman, Jordan;
Zarqa University, Faculty of Nursing, Zarqa, Jordan;
Faculty of Nursing/The University of Jordan/Aqaba Campus/Aqaba, Jordan

ABSTRACT: Worldwide, nurses employed in the Emergency Department (ED) face many challenges that negatively influence their well-being and ability to provide high-quality patient care. Previous researchers have investigated these challenges regarding their causes, consequences, and how to deal with them. However, most of the previous research addressed these challenges using quantitative research. The current study is the first qualitative study that examined these challenges in the Jordanian context. A descriptive naturalistic qualitative design was used to explore the most critical challenges facing nurses employed in the ED and described the suggested solutions for these challenges from nurses' perspectives. Ten registered nurses employed in the most prominent ED in Jordan were selected through purposive sampling. Semi-structured interviews were used to collect data. Thematic analysis technique was used to analyze data. Six main themes emerged: the definition of challenge, challenges facing registered nurses in the emergency department (five sub-themes), preventive measurements, possible solutions (five sub-themes), effects of the challenges (two sub-themes), and future challenges. The outcomes of this study could be integrated into the educational curricula to prepare new nurses to deal with these challenges in the future after graduation and contribute to finding solutions and solving some significant problems facing registered nurses in the ED. The hospital administrators and the policymakers should develop effective interventions to overcome the challenges facing nurses in the ED to ensure a better work environment and high-quality patient care. © 2023 The Authors

Batiha, I.M., Chebana, Z., Oussaeif, T.-E., Ouannas, A., Alshorm, S., Zraiqat, A.
Solvability and Dynamics of Superlinear Reaction Diffusion Problem with Integral Condition
(2023) IAENG International Journal of Applied Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149689094&partnerID=40&md5=021d60b29cdd406ca6df4ad4b126d46b>

AFFILIATIONS: Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;
Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan

ABSTRACT: In this paper, we evaluate certain type superlinear nonlocal problems that are a class of parabolic equations with the second-type integral condition. We use the Fadeo-Galarkin method to establish the existence of the weak solution and we prove the uniqueness of this solution for the problem by using an a priori estimate. In addition, we study the theoretical blowup solution and

perform several numerical simulations of finitetime blow-up of a particular example of the main problem. © 2023, IAENG International Journal of Applied Mathematics. All Rights Reserved.

Batiha, I.M., Aoua, L.B., Oussaeif, T.-E., Ouannas, A., Alshorman, S., Jebril, I.H., Momani, S.
Common Fixed Point Theorem in Non-Archimedean Menger PM-Spaces Using CLR Property with Application to Functional Equations

(2023) IAENG International Journal of Applied Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149663091&partnerID=40&md5=231035292198a0c1452953d40c902128)

[85149663091&partnerID=40&md5=231035292198a0c1452953d40c902128](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149663091&partnerID=40&md5=231035292198a0c1452953d40c902128)

AFFILIATIONS: Department of Mathematics, Faculty of Science and Technology, Irbid National

University, Irbid, 2600, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan

ABSTRACT: In this paper, we prove the common fixed point theorems for weakly compatible mappings in non-Archimedean Menger PM-spaces, that use the common limit range property. In addition, we give some examples of these results. Then we will extend our main result to four finite families of self-mappings by the notion of pairwise commuting. Finally, we will give applications for our main theorem. © 2023, IAENG International Journal of Applied Mathematics. All Rights Reserved.

Alrousan, S., Albiss, B., Aljawrneh, B., Alshanableh, A., Al-Othman, A., Megdadi, H.

Nickel-cobalt oxide nanosheets asymmetric supercapacitor for energy storage applications

(2023) Journal of Materials Science: Materials in Electronics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149507464&doi=10.1007%2fs10854-023-10036-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149507464&doi=10.1007%2fs10854-023-10036-2&partnerID=40&md5=b2f3f29cbc7555f9a9e74e79ec8eb66a)

[2&partnerID=40&md5=b2f3f29cbc7555f9a9e74e79ec8eb66a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149507464&doi=10.1007%2fs10854-023-10036-2&partnerID=40&md5=b2f3f29cbc7555f9a9e74e79ec8eb66a)

AFFILIATIONS: Department of Physics, Jordan University of Science & Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Nanotechnology Institute, Jordan University of Science & Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Physics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Chemical Engineering, American University of Sharjah, Sharjah, 26666, United Arab Emirates

ABSTRACT: Supercapacitors are a promising candidate in applications that necessitate high electrochemical stability and storage energy. In this study, NiCo 20 4 nanosheets were prepared hydrothermally on an ITO substrate and investigated to be utilized as supercapacitor electrodes. The morphology of NiCo 20 4 nanosheets was examined by scanning electron microscopy (SEM) and atomic force microscopy (AFM). The SEM results showed a 3D-flower-like nanostructure with interconnected nanosheets which was confirmed by the AFM results. However, X-ray fluorescence (XRF) results showed that the as-prepared sample has stoichiometry of Nickle(1):Cobalt(2). The electrochemical measurements of the as-prepared NiCo 20 4 supercapacitor electrode such as cyclic voltammetry (CV) and galvanostatic charge/discharge (GCD) studies were done in a two-electrode system with 1.0 M KOH and 1.0 M H 2SO 4. CV curves showed quasi-rectangular shape and high electrochemical stability in KOH and H2SO4 electrolyte solutions. In addition, the integral areas of CV curves for both electrolytes are almost identical, indicating efficient charge transfer and ion transport at the electrode/electrolyte interface. Electrochemical impedance spectroscopy (EIS) curves of KOH and H 2SO 4 electrolyte revealed a significant difference. This difference indicates that, the charge transfer in H 2SO 4 electrolyte is faster than charge transfer in KOH , resulting in a linear behavior of the EIS curve. A fabricated hybrid asymmetric supercapacitor (SC) composed of NiCo 20 4/ ITO anode and graphite/ITO cathode delivered a specific capacity of around 235F/g in KOH solution and 723F/g in H 2SO 4 electrolyte at 10 mV/s scan rate. The superior electrochemical performances could be attributed to the large surface area that facilitates charge transfer at the electrode/electrolyte interface. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Shatnawi, M.T., Abbes, A., Ouannas, A., Batiha, I.M.

Hidden multistability of fractional discrete non-equilibrium point memristor based map

(2023) Physica Scripta, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147989731&doi=10.1088%2f1402-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147989731&doi=10.1088%2f1402-4896%2facafac&partnerID=40&md5=5245c7e7c8724727a2fd822e18ec12c2)

[4896%2facafac&partnerID=40&md5=5245c7e7c8724727a2fd822e18ec12c2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147989731&doi=10.1088%2f1402-4896%2facafac&partnerID=40&md5=5245c7e7c8724727a2fd822e18ec12c2)

AFFILIATIONS: Department of Basic Science, Al-Huson University College, Al-Balqa Applied University, Irbid, 21510, Jordan;

Department of Mathematics, Badji Mokhtar University, Annaba, Algeria;

Department of Mathematics and computer sciences, Larbi Ben M'hidi university, Ouam El Bouaghi,

Algeria;

Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: At present, the multistability analysis in discrete nonlinear fractional-order systems is a subject that is receiving a lot of attention. In this article, a new discrete non-equilibrium point memristor-based map with γ - th Caputo fractional difference is introduced. In addition, in the context of the commensurate and non-commensurate instances, the nonlinear dynamics of the suggested discrete fractional map, such as its multistability, hidden chaotic attractor, and hidden hyperchaotic attractor, are investigated through several numerical techniques, including Lyapunov exponents, phase attractors, bifurcation diagrams, and the $\theta - 1$ test. These dynamic behaviors suggest that the fractional discrete memristive map has a hidden multistability. Finally, to validate the presence of chaos, a complexity analysis is carried out using approximation entropy (ApEn) and the $C \theta$ measure. The findings show that the model has a high degree of complexity, which is affected by the system parameters and the fractional values. © 2023 IOP Publishing Ltd.

Al-Sai, Z.A., Husin, M.H., Syed-Mohamad, S.M., Abdullah, R., Zitar, R.A., Abualigah, L., Gandomi, A.H.

Big Data Maturity Assessment Models: A Systematic Literature Review

(2023) Big Data and Cognitive Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147362501&doi=10.3390%2fbdcc7010002&partnerID=40&md5=07499fa5983d7ed1e07e5b6fc4e4849e)

[85147362501&doi=10.3390%2fbdcc7010002&partnerID=40&md5=07499fa5983d7ed1e07e5b6fc4e4849e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147362501&doi=10.3390%2fbdcc7010002&partnerID=40&md5=07499fa5983d7ed1e07e5b6fc4e4849e)

AFFILIATIONS: Department of Management Information Systems, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Computer Sciences, Universiti Sains Malaysia, Penang, 11800, Malaysia;

Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, 38044, United Arab Emirates;

Prince Hussein Bin Abdullah College for Information Technology, Al Al-Bayt University, Mafraq, 130040, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;

Faculty of Information Technology, Applied Science Private University, Amman, 11931, Jordan;

Faculty of Engineering and Information Technology, University of Technology Sydney, UltimoNSW 2007, Australia;

University Research and Innovation Center (EKIK), Óbuda University, Budapest, 1034, Hungary

ABSTRACT: Big Data and analytics have become essential factors in managing the COVID-19 pandemic. As no company can escape the effects of the pandemic, mature Big Data and analytics practices are essential for successful decision-making insights and keeping pace with a changing and unpredictable marketplace. The ability to be successful in Big Data projects is related to the organization's maturity level. The maturity model is a tool that could be applied to assess the maturity level across specific key dimensions, where the maturity levels indicate an organization's current capabilities and the desirable state. Big Data maturity models (BDMMs) are a new trend with limited publications published as white papers and web materials by practitioners. While most of the related literature might not have covered all of the existing BDMMs, this systematic literature review (SLR) aims to contribute to the body of knowledge and address the limitations in the existing literature about the existing BDMMs, assessment dimensions, and tools. The SLR strategy in this paper was conducted based on guidelines to perform SLR in software engineering by answering three research questions: (1) What are the existing maturity assessment models for Big Data? (2) What are the assessment dimensions for Big Data maturity models? and (3) What are the assessment tools for Big Data maturity models? This SLR covers the available BDMMs written in English and developed by academics and practitioners (2007-2022). By applying a descriptive qualitative content analysis method for the reviewed publications, this SLR identified 15 BDMMs (10 BDMMs by practitioners and 5 BDMMs by academics). Additionally, this paper presents the limitations of existing BDMMs. The findings of this paper could be used as a grounded reference for assessing the maturity of Big Data. Moreover, this paper will provide managers with critical insights to select the BDMM that fits within their organization to support their data-driven decisions. Future work will investigate the Big Data maturity assessment dimensions towards developing a new Big Data maturity model. © 2022 by the authors.

Al-Omouh, K.S., de Lucas, A., del Val, M.T.

The role of e-supply chain collaboration in collaborative innovation and value-co creation

(2023) Journal of Business Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146464807&doi=10.1016%2fj.jbusres.2023.113647&partnerID=40&md5=d623e061eb033089e72ac7ac51cf2fa5)

[85146464807&doi=10.1016%2fj.jbusres.2023.113647&partnerID=40&md5=d623e061eb033089e72ac7ac51cf2fa5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146464807&doi=10.1016%2fj.jbusres.2023.113647&partnerID=40&md5=d623e061eb033089e72ac7ac51cf2fa5)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

University of Alcalá, Spain

ABSTRACT: The present study examines the relationships between e-supply chain collaboration, collaborative innovation, supply chain agility, and value co-creation. The empirical data was collected from essential industries and analysed using the Smart-PLS-SEM approach. The sample consisted of 221 participants from different managerial levels. The findings show that e-supply chain collaboration has a significant impact on collaborative innovation, supply chain agility, and value co-creation. They also show that collaborative innovation and corporate sustainability significantly impact value co-creation. These findings provide valuable contributions in the fields of e-supply chain collaboration, supply chain management, collaborative innovation, and dynamic capabilities theory as it applies to responses to unprecedented worldwide emergencies and crises. © 2023 Elsevier Inc.

Awad, A.S., Alsaqoor, S., Anwar, A.-M., Abu-Dayyeh, A., Badran, O.O.

The use of solar water heaters in Jordan and its impact on human development index (2023) Energy Exploration and Exploitation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142279415&doi=10.1177%2f01445987221134391&partnerID=40&md5=67acc36196c0fb4cc5d449d50f925e71)

[85142279415&doi=10.1177%2f01445987221134391&partnerID=40&md5=67acc36196c0fb4cc5d449d50f925e71](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142279415&doi=10.1177%2f01445987221134391&partnerID=40&md5=67acc36196c0fb4cc5d449d50f925e71)

AFFILIATIONS: Mechanical Engineering Department, Faculty of Engineering Technology, Al Balqa Applied University, Amman, Jordan;

Tafila Technical University, Tafila, Jordan;

Electrical Engineering Department, Faculty of Engineering Technology, Al Balqa Applied University, Amman, Jordan;

Al-Zaytoonah University, Mechanical Engineering Dept., Amman, Jordan

ABSTRACT: Purpose: This paper aims to estimate the use of solar water heaters in Jordanian households and their impact on improving quality of life as well as the Human Development Index (HDI) using data of Jordan. Also to estimate the impact of the rise in electricity prices and power consumption intensity on the installing capacity. Then to predict the solar water heaters characteristics using analytical equations for comparison with the statistical data. Methodology: The study was conducted through a survey covered an area of 10 km in diameter from Al Zaytoonah University of Jordan. The area sampling method was implemented. The number of flats studied by the survey was 1033, with a total of 5597 occupants. The survey included questions dealing with the number of households, number of occupants in a given household, area of each flat, and the type and number of solar water heaters installed. Findings: The results obtained showed that the overall number of households who enjoyed solar water heaters was 33%. The Jordanian average solar water heaters area reached 0.22 m²/capita. The increase in the use of solar energy led to an increase in the per capita share of electrical energy, which pushup Jordan's classification from medium class (0.622) to high class (0.729) on the global human development index. Originality: For the first time, a study has been conducted to study the effect of installing solar water heaters on the human development index (HDI). Practical value: Jordan Energy Strategy "2020-2030" aims to equip 30% of the households with a SWH system by 2030. More use of renewable energy in solar water heaters means less dependence on conventional power and more reduction in CO₂ emissions, which means more developments in human quality of life and high HDI. © The Author(s) 2022.

Jarrar, Q., Jarrar, Y., Balasmeh, R., Alhussine, K., Al-Sheikh, I., Ayoub, R., Alshaiah, H.

Anxiolytic Effect of Ethanolic Extract of Medjool Dates of Phoenix Dactylifera in Mice (2023) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153341011&doi=10.35516%2fjpps.v16i1.1035&partnerID=40&md5=c44e5fb116c01b60d5449328c511bd92)

[85153341011&doi=10.35516%2fjpps.v16i1.1035&partnerID=40&md5=c44e5fb116c01b60d5449328c511bd92](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153341011&doi=10.35516%2fjpps.v16i1.1035&partnerID=40&md5=c44e5fb116c01b60d5449328c511bd92)

AFFILIATIONS: Department of applied pharmaceutical sciences and clinical pharmacy, Faculty of pharmacy, Isra University, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Jordan;

Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Jordan

ABSTRACT: Background: Anxiety is one of the most frequent psychiatric disorders, affecting 33.7% of the general population. However, the consumption of healthy diets has been found to help, at least in part, in the prevention and treatment of anxiety-like disorders. Methods: In this study, the anxiety behaviors of mice subjected to chronic intake of low-and high doses of ethanolic extract of Medjool dates (Phoenix Dactylifera) were evaluated in comparison to the counterparts of control mice. The elevated zero maze (EZM) test and marbles burying test were used as models of choice for evaluating anxiety behaviors in these mice. In addition, aphytochemical analysis of major secondary metabolite groups was done. Results: The findings of this study revealed that the ethanolic extract of dates is rich in flavonoids and steroids with known activity as anxiolytics, such as kaempferol. Mice received a low dose (300 mg/kg) of the extract exhibited lower anxiety in the EZM than the untreated mice (negative control), which was determined by a significant increase in the latency to the closed area, a significant decrease in the time spent in the closed area and a significant increase in the number of the entries to the open quadrants. The anxiolytic effect of low dose extract was comparable to that produced in positive control mice treated with diazepam (1.5 mg/kg, i.p) in all tested

parameters. Data obtained from the marble burying test also showed a significant anxiolytic effect by low dose (300 mg/kg) of the extract as compared to untreated mice, which was manifested by significant decrease in the total number of buried marbles. The anxiolytic effect of low dose extract in the marbles burying test was comparable to that produced in counterparts of positive control mice treated with fluoxetine (5mg/kg, i.p). On the other hand, chronic intake of high doses (2583 mg/kg) of the extract did not cause any significant anxiolytic effect in the EZM and marbles burying tests. Conclusions: Overall, these results indicate that regular intake of low dose of ethanolic extract of Medjool dates may help to prevent and manage anxiety disorders. However, further studies are recommended to elucidate the putative mechanism underlying the anxiolytic effect of these dates. © 2023 DSR Publishers/The University of Jordan.

Elsayed, A., Al-Remawi, M., Jaber, N., Abu-Salah, K.M.

Advances in buccal and oral delivery of insulin

(2023) International Journal of Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147202780&doi=10.1016%2fj.ijpharm.2023.122623&partnerID=40&md5=6d92167f7975490d42bcc35b10615786)

[85147202780&doi=10.1016%2fj.ijpharm.2023.122623&partnerID=40&md5=6d92167f7975490d42bcc35b10615786](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147202780&doi=10.1016%2fj.ijpharm.2023.122623&partnerID=40&md5=6d92167f7975490d42bcc35b10615786)

AFFILIATIONS: College of Pharmacy, Taif University, Taif, 21944, Saudi Arabia;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

King Saud bin Abdulaziz University for Health Sciences/ King Abdullah International Medical Research Center, Department of Nanomedicine, Riyadh, Saudi Arabia

ABSTRACT: Diabetes mellitus is a metabolic endocrine disease characterized by chronic hyperglycemia with disturbances in metabolic processes, such as those related to carbohydrates, fat, and protein. There are two main types of this disease: type 1 diabetes (T1D) and type 2 diabetes (T2D). Insulin therapy is pivotal to the management of diabetes. Over the last two decades, many routes of administration, including nasal, pulmonary, rectal, transdermal, buccal, and ocular, have been investigated. Nevertheless, subcutaneous parenteral administration is still the most common route for insulin therapy. To overcome poor bioavailability and the barriers to oral insulin absorption, novel approaches in the field of oral drug delivery and administration have been brought about by the coalescence of different branches of nanoscience and nanotechnology, such as nanomedicine, nanobiochemistry, and nano-pharmacy. Novel drug delivery systems, including nanoparticles, nano-platforms, and nanocarriers, have been suggested. The objective of this review is to provide an update on the various promising approaches that have been explored and evaluated for the safe and efficient oral and buccal administration of insulin. © 2023 Elsevier B.V.

Hammad, A.M., Naser, A., Amawi, H., Hall, F.S., Tiwari, A.K., Al-Trad, B.

Effect of amoxicillin/clavulanic acid in attenuating pregabalin-induced condition place preference

(2023) Behavioural Brain Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144638434&doi=10.1016%2fj.bbr.2022.114244&partnerID=40&md5=39a7755c2eb236172acc4f811e77225c)

[85144638434&doi=10.1016%2fj.bbr.2022.114244&partnerID=40&md5=39a7755c2eb236172acc4f811e77225c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144638434&doi=10.1016%2fj.bbr.2022.114244&partnerID=40&md5=39a7755c2eb236172acc4f811e77225c)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biological Sciences, Faculty of Science, Yarmouk University, Irbid, 21163, Jordan;

Department of Clinical Pharmacy and Pharmacy Practice, College of Pharmacy, Yarmouk University, Irbid, 21163, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH 43614, United States

ABSTRACT: Substance abuse is a worldwide problem with serious repercussions for patients and the communities where they live. Pregabalin (Lyrica), is a medication commonly used to treat neuropathic pain. Like other analgesic medications there has been concern about pregabalin abuse and misuse. Although it was initially suggested that pregabalin, like other gabapentinoids, has limited abuse liability, questions still remain concerning this inquiry. Changes in glutamate system homeostasis are a hallmark of adaptations underlying drug dependence, including down-regulation of the glutamate transporter 1 (GLT-1; SLC1A2) and the cystine/glutamate antiporter (xCT; SLC7A11). In this study, it was found that pregabalin (90 mg/kg) produces a conditioned place preference (CPP), indicative of reinforcing effects that suggest a potential for abuse liability. Moreover, like other drugs of abuse, pregabalin also produced alterations in glutamate homeostasis, reducing the mRNA expression of Slc1a2 and Slc7a11 in the nucleus accumbens (NAc) and medial prefrontal cortex (mPFC). Amoxicillin clavulanic acid, a β -lactam antibiotic, blocked the reinforcing effects of pregabalin and normalized glutamate homeostasis. These results suggest that pregabalin has abuse potential that should be examined more critically, and that, moreover, the mechanisms underlying these effects are similar to those of other drugs of abuse, such as heroin and cocaine. Additionally, these results support previous findings showing normalization of glutamate homeostasis by β -lactam drugs that provides a novel potential therapeutic approach for the treatment of drug abuse and dependence. © 2022 Elsevier B.V.

Ahmed Ali, A.M., Ahmed, N.M., Kabir, N.A., Algadri, N.A., AL-Diabat, A.M., Wadi, I.A., Alsadig, A., Aldaghri, O.A., Ibaouf, K.H.

Towards Extended Gate Field Effect Transistor-Based Radiation Sensors: Impact of Thicknesses and Radiation Doses on Al-Doped Zinc Oxide Sensitivity (2023) Crystals, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149256877&doi=10.3390%2fcryst13020314&partnerID=40&md5=8c42802c1774f47ffba94f796793ed>

AFFILIATIONS: School of Physics, Universiti Sains Malaysia, Gelugor 11800, Penang, Malaysia;

Department of Medical Instrumentation Engineering, Dijlah University College, Baghdad, 11622, Iraq;

Department of Physics, Isra University, Amman, 00964, Jordan;

Department of Physics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Preparatory Year Unit, Prince Sattam Bin Abdulaziz University, Alkharj, 16273, Saudi Arabia;

CNR NANOTEC, Institute of Nanotechnology, Via Monteroni, Lecce, 73100, Italy;

Department of Physics, College of Science, Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, 13318, Saudi Arabia

ABSTRACT: Radiation measurements are critical in radioanalytical, nuclear chemistry, and biomedical physics. Continuous advancement in developing economical, sensitive, and compact devices designed to detect and measure radiation has increased its capability in many applications. In this work, we presented and investigated the performance of a cost-effective X-ray radiation detector based on the extended gate field effect transistors (EGFET). We examined the sensitivity of Al-doped Zinc oxide (AZO) of varying thicknesses, fabricated by chemical bath deposition (CBD), following X-ray irradiation with low and high doses. EGFETs were used to connect samples for their detection capabilities. As a function of the absorbed dose, the response was analyzed based on the threshold voltage shift, and the sensitivity of each device was also evaluated. We demonstrated that thin films are less sensitive to radiation than their disk-type EG devices. However, performance aspects of the devices, such as radiation exposure sensitivity and active dosage region, were found to be significantly reliant on the composition and thickness of the materials used. These structures may be a cost-effective alternative for real-time, room-temperature radiation detectors. © 2023 by the authors.

Al-Zoubi, H., Hamadneh, T., Abu Hammad, M., Al-Sabbagh, M., Ozdemir, M.

Ruled and Quadric Surfaces Satisfying $\Delta IIN = \Delta N$

(2023) Symmetry, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149236983&doi=10.3390%2fvsym15020300&partnerID=40&md5=f53856b5b7f746ef42f8e17db68e2162>

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Basic Engineering Sciences, Imam Abdulrahman Bin Faisal University, Dammam, 31441, Saudi Arabia

ABSTRACT: In the 3-dimensional Euclidean space (Formula presented.), a quadric surface is either ruled or of one of the following two kinds (Formula presented.) or (Formula presented.). In the present paper, we investigate these three kinds of surfaces whose Gauss map (Formula presented.) satisfies the property (Formula presented.), where (Formula presented.) is a square symmetric matrix of order 3, and (Formula presented.) denotes the Laplace operator of the second fundamental form (Formula presented.) of the surface. We prove that spheres with the nonzero symmetric matrix (Formula presented.), and helicoids with (Formula presented.) as the corresponding zero matrix, are the only classes of surfaces satisfying the above given property. © 2023 by the authors.

Hajjo, R., Sabbah, D.A., Abusara, O.H., Kharmah, R., Bardaweel, S.

Targeting Human Proteins for Antiviral Drug Discovery and Repurposing Efforts: A Focus on Protein Kinases

(2023) Viruses, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148969289&doi=10.3390%2fv15020568&partnerID=40&md5=39c09d891306821db49a68d438c41ee0>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, United States;

Jordan CDC, Amman, 11118, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Despite the great technological and medical advances in fighting viral diseases, new therapies for most of them are still lacking, and existing antivirals suffer from major limitations regarding drug resistance and a limited spectrum of activity. In fact, most approved antivirals are

directly acting antiviral (DAA) drugs, which interfere with viral proteins and confer great selectivity towards their viral targets but suffer from resistance and limited spectrum. Nowadays, host-targeted antivirals (HTAs) are on the rise, in the drug discovery and development pipelines, in academia and in the pharmaceutical industry. These drugs target host proteins involved in the virus life cycle and are considered promising alternatives to DAAs due to their broader spectrum and lower potential for resistance. Herein, we discuss an important class of HTAs that modulate signal transduction pathways by targeting host kinases. Kinases are considered key enzymes that control virus-host interactions. We also provide a synopsis of the antiviral drug discovery and development pipeline detailing antiviral kinase targets, drug types, therapeutic classes for repurposed drugs, and top developing organizations. Furthermore, we detail the drug design and repurposing considerations, as well as the limitations and challenges, for kinase-targeted antivirals, including the choice of the binding sites, physicochemical properties, and drug combinations. © 2023 by the authors.

Al-Kafaween, M.A., Alwahsh, M., Mohd Hilmi, A.B., Abulebdah, D.H.
Physicochemical Characteristics and Bioactive Compounds of Different Types of Honey and Their Biological and Therapeutic Properties: A Comprehensive Review
(2023) Antibiotics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148885470&doi=10.3390%2fantibiotics12020337&partnerID=40&md5=896a9b0c429ae2f6d1e458fa8400665d)

[85148885470&doi=10.3390%2fantibiotics12020337&partnerID=40&md5=896a9b0c429ae2f6d1e458fa8400665d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148885470&doi=10.3390%2fantibiotics12020337&partnerID=40&md5=896a9b0c429ae2f6d1e458fa8400665d)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biomedicine, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Kuala Nerus 21300, Malaysia

ABSTRACT: Honey is considered to be a functional food with health-promoting properties. However, its potential health benefits can be affected by individual composition that varies between honey types. Although studies describing the health benefits of Tualang honey (TH), Kelulut honey (KH), and Sidr honey (SH) are scarce, these honey types showed a comparable therapeutic efficacy to Manuka honey (MH). The purpose of this review is to characterise the physicochemical, biological, and therapeutic properties of TH, KH, and SH. Findings showed that these honeys have antibacterial, antifungal, antiviral, antioxidant, antidiabetic, antiobesity, anticancer, anti-inflammatory and wound-healing properties and effects on the cardiovascular system, nervous system, and respiratory system. The physicochemical characteristics of TH, KH, and SH were compared with MH and discussed, and results showed that they have high-quality contents and excellent biological activity sources. Flavonoids and polyphenols, which act as antioxidants, are two main bioactive molecules present in honey. The activity of honey depends on the type of bee, sources of nectar, and the geographic region where the bees are established. In conclusion, TH, KH, and SH could be considered as natural therapeutic agents for various medicinal purposes compared with MH. Therefore, TH, KH, and SH have a great potential to be developed for modern medicinal use. © 2023 by the authors.

AlZu'bi, S., Elbes, M., Mughaid, A., Bdair, N., Abualigah, L., Forestiero, A., Zitar, R.A.
Diabetes Monitoring System in Smart Health Cities Based on Big Data Intelligence
(2023) Future Internet, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148875374&doi=10.3390%2fffi15020085&partnerID=40&md5=22172012ba776454e436e1c6a8ad6b10)

[85148875374&doi=10.3390%2fffi15020085&partnerID=40&md5=22172012ba776454e436e1c6a8ad6b10](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148875374&doi=10.3390%2fffi15020085&partnerID=40&md5=22172012ba776454e436e1c6a8ad6b10)

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Information Technology, Faculty of Prince Al-Hussien Bin Abdullah II for IT, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Applied Science Research Center, Applied Science Private University, Amman, 11931, Jordan;

Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;

Institute for High Performance Computing and Networking, National Research Council of Italy, Rende, 87036, Italy;

Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, 38044, United Arab Emirates

ABSTRACT: Diabetes is a metabolic disorder in which the body is unable to properly regulate blood sugar levels. It can occur when the body does not produce enough insulin or when cells become resistant to insulin's effects. There are two main types of diabetes, Type 1 and Type 2, which have different causes and risk factors. Early detection of diabetes allows for early intervention and management of the condition. This can help prevent or delay the development of serious complications associated with diabetes. Early diagnosis also allows for individuals to make lifestyle changes to prevent the progression of the disease. Healthcare systems play a vital role in the management and treatment of diabetes. They provide access to diabetes education, regular check-ups, and necessary medications for individuals with diabetes. They also provide monitoring and management of diabetes-related complications, such as heart disease, kidney failure, and neuropathy. Through early

detection, prevention and management programs, healthcare systems can help improve the quality of life and outcomes for people with diabetes. Current initiatives in healthcare systems for diabetes may fail due to lack of access to education and resources for individuals with diabetes. There may also be inadequate follow-up and monitoring for those who have been diagnosed, leading to poor management of the disease and lack of prevention of complications. Additionally, current initiatives may not be tailored to specific cultural or demographic groups, resulting in a lack of effectiveness for certain populations. In this study, we developed a diabetes prediction system using a healthcare framework. The system employs various machine learning methods, such as K-nearest neighbors, decision tree, deep learning, SVM, random forest, AdaBoost and logistic regression. The performance of the system was evaluated using the PIMA Indians Diabetes dataset and achieved a training accuracy of 82% and validation accuracy of 80%. © 2023 by the authors.

Oudetallah, J., Alharbi, R., Batiha, I.M.
On r -Compactness in Topological and Bitopological Spaces
(2023) *Axioms*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148861668&doi=10.3390%2faxioms12020210&partnerID=40&md5=c0f3702e41d1bc827da4698bb4d6a9ff)

85148861668&doi=10.3390%2faxioms12020210&partnerID=40&md5=c0f3702e41d1bc827da4698bb4d6a9ff

AFFILIATIONS: Department of Mathematics, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics, College of Science, Jazan University, New Campus, Jazan, 2097, Saudi Arabia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: This paper defines the so-called pairwise r -compactness in topological and bitopological spaces. In particular, several inferred properties of the r -compact spaces and their connections with other topological and bitopological spaces are studied theoretically. As a result, several novel theorems of the r -compact space are generalized on the pairwise r -compact space. The results established in this research paper are new in the field of topology. © 2023 by the authors.

Zaid Alkilani, A., Musleh, B., Hamed, R., Swellmeen, L., Basheer, H.A.
Preparation and Characterization of Patch Loaded with Clarithromycin Nanovesicles for Transdermal Drug Delivery
(2023) *Journal of Functional Biomaterials*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148851957&doi=10.3390%2fjfb14020057&partnerID=40&md5=c8034d56c1f918f27323e211cd38188b)

85148851957&doi=10.3390%2fjfb14020057&partnerID=40&md5=c8034d56c1f918f27323e211cd38188b

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, 13110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Chemistry, Faculty of Pharmaceutical Sciences, Hashemite University, Zarqa, 13133, Jordan

ABSTRACT: Clarithromycin (CLR), categorized as a Biopharmaceutical Classification System class II drug, has several gastrointestinal tract side effects and an extremely unpalatable bitter taste. The current study aimed to design transdermal patch-embedded CLR niosomes to overcome the aforementioned CLR-related challenges. Various niosomal formulations were successfully fabricated and characterized for their morphology, size, in vitro release, and antimicrobial efficacy. Subsequently, the CLR niosomes were loaded into transdermal patches using the solvent casting method. The polydispersity index of the niosomes ranged from 0.005 to 0.360, indicating the uniformity of the niosomes. The encapsulating efficiency (EE)% varied from 12 to 86%. The optimal Chol: surfactant ratio for drug release was found to be 0.5:1. In addition, the encapsulation of CLR into niosomal nanovesicles did not reduce the antibacterial activity of the CLR. The niosomal patch had a significantly higher permeability coefficient of CLR than the conventional patch. In addition to that, a shear-thinning behavior was observed in the niosomal gels before loading them into a niosomal patch. The flux (J_{ss}) of the niosomal patch was significantly higher than the conventional patch by more than 200 times. In conclusion, niosome-based transdermal patches could be a promising method for the transdermal drug delivery of class II drugs and drugs experiencing GIT side effects. © 2023 by the authors.

Abu-Sini, M.K., Maharmah, R.A., Abulebdah, D.H., Al-Sabi, M.N.S.
Isolation and Identification of Coliform Bacteria and Multidrug-Resistant *Escherichia coli* from Water Intended for Drug Compounding in Community Pharmacies in Jordan
(2023) *Healthcare (Switzerland)*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147815235&doi=10.3390%2fhealthcare11030299&partnerID=40&md5=3340ad9860d4bb57d81c0ff5018aa12f)

85147815235&doi=10.3390%2fhealthcare11030299&partnerID=40&md5=3340ad9860d4bb57d81c0ff5018aa12f

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O.

Box 130, Amman, 11733, Jordan;

Department of Microbiology, College of Veterinary Medicine, King Faisal University, P.O. Box 400, Al-Ahsa31982, Saudi Arabia

ABSTRACT: (1) Background: Water is necessary for the preparation of some medicines found in

pharmacies where the local water source does not meet the required purity. This study aimed to investigate the presence of coliform contamination in water used for drug reconstitution in community pharmacies in Jordan. (2) Methods: Two water samples from 50 randomly selected community pharmacies representing all Jordanian governorates were filtered and then cultured in plate count agars to determine total microbial count, and in m-Endo Agar Les and Eosin Methylene Blue (EMB) agar to cultivate *Escherichia coli* (*E. coli*). The presence of *E. coli* was further characterized with gram stains, biochemical tests, and Polymerase chain reaction (PCR). Antibiotic susceptibility of isolated *E. coli* was tested against a variety of standard antibiotics. (3) Results: Community pharmacies used droppers filled with water from coolers (62%), bottled water (20%), boiled tap water (16%) and tap water (2%). The majority of the sampled water contained coliform bacteria (88%), and *E. coli* was isolated from 26% of all samples. Statistical analysis showed no significant difference in the percentage of contaminated water samples based on its source location. Nonetheless, the results showed a tendency for higher proportions of contamination in droppers filled from boiled tap water (37.5%; SE: 17.1), followed by water from water coolers (25.8%; SE: 7.9), and then from bottled water (20%; SE: 12.7). All of the isolated *E. coli* were sensitive to gentamycin, ciprofloxacin and levofloxacin. The susceptibility of the isolates to ceftazidime, doxycycline, tetracycline, azithromycin and amoxicillin/clavulanic acid were 92%, 61%, 46%, 23% and 15%, respectively. (4) Conclusions: This study confirms the widespread presence of multidrug-resistant bacteria in water intended for reconstituting drugs in local pharmacies. These findings expose an alarming situation that needs special attention by the acting pharmacists and competent authorities. Higher levels of personal hygiene in the pharmacies coupled with regular inspection of water quality may reduce the risk of microbial contamination in compounded products, especially multidrug-resistant strains of *E. coli* and other index microorganisms. © 2023 by the authors.

Jarrar, Q., Ayoub, R., Moshawih, S., Jarrar, Y., Jilani, J.
Synthesis and Biological Evaluation of Hydroxypropyl Ester of Mefenamic Acid as a Promising Prodrug (2023) Letters in Drug Design and Discovery, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146530591&doi=10.2174%2F1570180819666220330160134&partnerID=40&md5=bf90c520ae3019f8a38f7ab48de05f5e>
AFFILIATIONS: Department of Applied Pharmaceutical Sciences and Clinical Pharmacy, Faculty of Pharmacy, Isra University, Amman, Jordan;
Institute of Health Sciences, Universiti Brunei Darussalam, Gadueng, Brunei Darussalam;
Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Background: The free carboxylic acid group in the mefenamic acid (MFA) structure plays a potential role in developing various neuromuscular side effects after MFA administration. In this study, the hydroxypropyl promoiety was added to the carboxylic acid group of MFA in an attempt to reduce the neuromuscular side effects of MFA and improve its therapeutic effects. Methods: Hydroxypropylester of MFA (HPEMA) was synthesized and subjected to various in vivo investigations compared to MFA. The neuromuscular toxicity was conducted following high doses administration in mice and was evaluated at various measuring parameters, such as the percentage of catalepsy, clonic-tonic seizure, and death. In addition, the anti-inflammatory and anti-nociceptive effects of HPEMA were evaluated in the carrageenan-induced paw edema test and acetic acid-induced writhing test, respectively. Results: The findings of this study reveal that the percentage of catalepsy, clonic-tonic seizure, and death is significantly lower in mice treated with HPEMA than in those treated with equimolar doses of MFA. In addition, treatment with HPEMA caused a comparable anti-inflammatory activity in the carrageenan-induced paw edema test and a significantly higher anti-nociceptive effect in the acetic acid-induced writhing test than the MFA treatment. Conclusion: This study's findings suggest that HPEMA is a promising prodrug for MFA. © 2023 Bentham Science Publishers.

Liu, D., Kovacs-Biro, M.J., Connelly, K., Abd-AlHamid, F., Wu, Y.
Preliminary investigation on the human response to patterned chromatic glazing (2023) Building and Environment, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85145608975&doi=10.1016%2Fj.buildenv.2022.109901&partnerID=40&md5=e785e1e7c7a692061f059c0c690b65c2>
AFFILIATIONS: Department of Architecture and Built Environment, Faculty of Engineering, University of Nottingham, University Park, Nottingham NG7 2RD, United Kingdom;
Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Daylighting has been associated with improved mood, enhanced morale, increased visual comfort and reduced fatigue. Glazing with varying transmittance, colour or configuration may have significant effects on the quality and quantity of daylight within a building, thus good glazing design has posed significant challenges for building designers. Coloured glazing is broadly applied

in modern offices worldwide and many studies have explored the effect of this glazing on human performance. Commonly studied are chromatic glazing typologies which offer a unidirectional shift in the colour of light to either bronze or blue. This alters the spectral ability of the glazing and thus changes the indoor luminous environment. It is reported that although occupants prefer warm light, people perform better under cool light condition. This project aims to implement patterns in chromatic glazing to introduce a two-directional colour distortion to alter the colorimetric characteristics of the glazing, heavily affecting the user's perception and performance in the luminous environment. More specifically, seven different indoor luminous conditions were created using various patterned chromatic glazing (100% CAR Blue, 70% CAR Blue, 30% CAR Blue, neutral clear glazing, 30% CAR Bronze, 70% CAR Bronze, and 100% CAR Bronze) to investigate their effect on human perception using a scaled test room (1:3 scaling) to simulate office working conditions. Both subjective (questionnaire on pleasantness, comfort, alertness) and objective (an achromatic Landolt ring test and a chromatic Landolt ring test) evaluations were carried out for the proposed window conditions. The results suggest that the patterned chromatic glazing conditions create a more desirable luminous indoor environment, as well as a more efficient working environment. The 30% blue and 70% blue glazing improved feelings of visual comfort compared to the 100% blue, whilst retaining the efficiency of task completion. Meanwhile the 30% bronze glazing increased the efficiency of task completion compared to the 100% bronze, whilst retaining the ratings for comfort and pleasantness. This implies that the design of patterned chromatic glazing which introduces the combination of two chromatic glazing may be a feasible solution to improve the indoor luminous environment. © 2022 The Authors

Mansour, M.A., Beithou, N., Othman, A., Qandil, A., Khalid, M.B., Borowski, G., Alsaqoor, S., Alahmer, A., Jouhara, H.

Effect of liquid saturated porous medium on heat transfer from thermoelectric generator (2023) International Journal of Thermofluids, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144042249&doi=10.1016%2fj.ijft.2022.100264&partnerID=40&md5=7a449a55922b0e9532c4cd635f12a002)

[85144042249&doi=10.1016%2fj.ijft.2022.100264&partnerID=40&md5=7a449a55922b0e9532c4cd635f12a002](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144042249&doi=10.1016%2fj.ijft.2022.100264&partnerID=40&md5=7a449a55922b0e9532c4cd635f12a002)

AFFILIATIONS: Department of Mechanical and Industrial Engineering, Applied Science Private University, P.O.Box 166, Amman, 11931, Jordan;

Department of Mechanical Engineering, Tafila Technical University, P. O. Box 179, Tafila66110, Jordan;

Alternative Energy Technology Department/ Faculty of Engineering and Technology, Al Zaytoonah University of Jordan, Amman, Jordan;

Mechanical Engineering Department, Al Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Environmental Engineering, Lublin University of Technology, ul. Nadbystrzycka 40B, Lublin, 20-618, Poland;

Department of Industrial and Systems Engineering, Auburn University, Auburn, AL 36849, United States;

Heat Pipe and Thermal Management Research Group, College of Engineering, Design and Physical Sciences, Brunel University LondonUB8 3PH, United Kingdom;

Vytautas Magnus University, Studentu Str. 11, Akademija, Kaunas Distr., LT-53362, Lithuania

ABSTRACT: Low-temperature heat sources are widely available in nature, they are considered to be unusable, even though the conversion of such low-grade energy into electricity (high-grade energy) is highly desirable. Thermoelectric generators (TEGs) are achieving increasing interest in converting low temperature heat into electricity. TEG suffers from low performance, improving the performance of TEG will allow there use in huge engineering applications. In this paper the effect of heat transfer rate on the performance of TEGs will be analysed under both steady and transient conditions. Enhancing heat transfer from the TEG surface will be studied using a liquid saturated porous medium. Aluminium and copper particles are used and their influences are compared to forced convection heat transfer from TEG surfaces with and without liquids. The experimental results showed that power generated with Cu particles exceeds that of Al particles with 14%. The free to forced convection power generation ratio was 26.5% for Al,36% for Cu and the enhancement of TEG performance reached 149% for liquid saturated Cu particles. © 2022 The Author(s)

Ahmad, H.S., Abendeh, R.M., Hunaiti, Y.M.

Evaluation of concrete-steel interfaces in steel tubes filled with chipped rubber-concrete (2023) Proceedings of the Institution of Civil Engineers: Structures and Buildings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119617668&doi=10.1680%2fjstbu.20.00162&partnerID=40&md5=e65f98f24c0e3fc416e9882906026a2c)

[85119617668&doi=10.1680%2fjstbu.20.00162&partnerID=40&md5=e65f98f24c0e3fc416e9882906026a2c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119617668&doi=10.1680%2fjstbu.20.00162&partnerID=40&md5=e65f98f24c0e3fc416e9882906026a2c)

AFFILIATIONS: Department of Civil Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Civil Engineering, University of Jordan, Amman, Jordan

ABSTRACT: The objective of this study was to evaluate the bond behaviour of concrete-filled steel tubes (CFSTs) where waste chipped rubber, sourced from scrap tyres, partially replaces natural coarse aggregate. A series of push-out tests on 112 circular and square CFST specimens were investigated

with the main parameters considered in the tests being: (a) cross-sectional type (circular and square); (b) cross-sectional dimensions; (c) concrete type (normal and rubberised concretes); (d) replacement ratio of recycled chipped rubber; and (e) concrete age (28-365 days). Four rubber chip replacement ratios (0, 10, 20 and 30%) by volume of coarse aggregate were used. The experimental results indicated that cross-sectional type and dimensions have a high impact on the interfacial bond strength. The bond strength in larger circular tubes was about 60% more than the bond strength in smaller circular tubes, and about 127% and 42% more than the bond strength in large and small square tubes, respectively. It was also found that CFSTs incorporating chipped rubber shared a generally similar interface bond behaviour between the concrete core and steel tubes with conventional CFSTs. Moreover, the bond strength decreased remarkably with the increase of concrete age. © 2020 ICE Publishing: All rights reserved.

Alhusban, A.A., Hammad, A.M., Alzaghari, L.F.

Simple HPLC method for simultaneous quantification of nicotine and cotinine levels in rat plasma after exposure to two different tobacco products (2023) *Acta Chromatographica*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139118429&doi=10.1556%2f1326.2022.01054&partnerID=40&md5=e7873772b16e3802af56fba8478c8ff0)

[85139118429&doi=10.1556%2f1326.2022.01054&partnerID=40&md5=e7873772b16e3802af56fba8478c8ff0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139118429&doi=10.1556%2f1326.2022.01054&partnerID=40&md5=e7873772b16e3802af56fba8478c8ff0)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: Development and validation of a selective analytical method to accurately and precisely quantify nicotine and cotinine levels in rat's plasma after exposure to tobacco cigarettes and tobacco water-pipe. Methods: An easy HPLC-Photodiode-Array Detection (PDA) method was developed and validated for simultaneous determination of nicotine and cotinine levels in plasma of 15 rats (10 rats after tobacco products exposure and 5 control rats). Nicotine and cotinine were extracted in one step from plasma using acetonitrile and concentrated to lowest volume using nitrogen stream. Results: The developed method offered a rapid analysis time of 14 min with single step of analytes extraction from rat's plasma with recovery percentage range between 93 and 95% and excellent linearity with correlation factor more than 0.994 with analytical range between 50 and 1000 ng mL⁻¹ and LOD of 25 ng mL⁻¹ and 23 ng mL⁻¹ for nicotine and cotinine, respectively. The analysis of rat's plasma after 28 days of exposure to tobacco cigarettes and tobacco water-pipe revealed that the average concentrations of 376 ng mL⁻¹ for cotinine and 223 ng mL⁻¹ for nicotine were obtained after tobacco cigarettes exposure, and 220 ng mL⁻¹ for cotinine and 192 ng mL⁻¹ for nicotine after tobacco water-pipe exposure. Conclusion: Higher nicotine and cotinine levels were found in plasma after tobacco cigarettes exposure than water-pipe exposure which may have potential undesirable effects on passive smokers in both cases. © 2022 The Author(s).

Al-Diabat, A.M., Algadri, N.A., Ahmed, N.M., Alrajhi, A.B.H., Almessiere, M.A., Ali, A.M.A., Alqanoo, A.A.M., Lahewil, A.S.Z., Al-Wasli, S.A.

Improved Hydrogen Gas Sensing Performance of Carbon Nanotube Synthesized Using Microwave Oven (2023) *IEEE Sensors Journal*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144772597&doi=10.1109%2fJSEN.2022.3226042&partnerID=40&md5=c512a81b2152709872aa3c46d573ca9a)

[85144772597&doi=10.1109%2fJSEN.2022.3226042&partnerID=40&md5=c512a81b2152709872aa3c46d573ca9a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144772597&doi=10.1109%2fJSEN.2022.3226042&partnerID=40&md5=c512a81b2152709872aa3c46d573ca9a)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Physics, Amman, 11733, Jordan; Isra University, Department of Physics, Amman, 11622, Jordan;

Universiti Sains Malaysia, School of Physics, Penang, 11800, Malaysia;

Dijlah University College, Department of Medical Instrumentation Engineering, Baghdad, 00964, Iraq;

Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University,

Department of Physics, College of Science, Department of Biophysics, Dammam, 31441, Saudi Arabia

ABSTRACT: Obtaining a high-performance hydrogen (H₂) gas sensor based on carbon nanotube (CNT) remains challenging. In this view, two CNT samples such as untreated (R-CNT) and nitric acid (HNO₃)-treated (called functionalized or F-CNT in short) were deposited on the SiO₂/Si substrate using an electrophoretic deposition technique. The structure, morphology, and electrical characteristics of these samples were evaluated. Fourier transform infrared (FTIR) spectra confirmed the presence of OH groups at the walls of nanotubes after acid treatment. Moreover, it found the current increased from 35 μA for R-CNT to 11 mA for F-CNT. In addition, both R-CNT and F-CNT were used to fabricate H₂ gas sensors. The sensing capacity of the obtained sensors was measured under the H₂ gas exposure range of 20 to 300 ppm operated at room temperature (RT), 50 °C, and 75 °C. The H₂ gas sensor made of F-CNT showed a much higher response (368%) and shorter response time (15 s) as well as recovery time (72 s) than the one made using R-CNT. It was asserted that the H₂ gas sensing performance of the proposed sensor can significantly be improved via the acid treatment or functionalization of CNT. © 2001-2012 IEEE.

Hammad, A.M., Alzaghari, L.F., Alfaraj, M., Al-Qerem, W., Talib, W.H., Alasmari, F., Amawi, H., Hall, F.S.

Acetylsalicylic acid reduces cigarette smoke withdrawal-induced anxiety in rats via modulating the expression of NF κ B, GLT-1, and xCT

(2023) *Frontiers in Pharmacology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146832779&doi=10.3389%2ffphar.2022.1047236&partnerID=40&md5=f544d2b6e6c582550b41551b2b40159c)

85146832779&doi=10.3389%2ffphar.2022.1047236&partnerID=40&md5=f544d2b6e6c582550b41551b2b40159c

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy and Therapeutic, Applied Science Private University, Amman, Jordan; Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia;

Department of Pharmacy Practice, Faculty of Pharmacy, Yarmouk University, Irbid, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States

ABSTRACT: Background: Chronic exposure to cigarette smoke produces neuroinflammation and long-term changes in neurotransmitter systems, especially glutamatergic systems. Objective: We examined the effects of cigarette smoke on astroglial glutamate transporters as well as NF- κ B expression in mesocorticolimbic brain regions, prefrontal cortex (PFC) and nucleus accumbens (NAc). The behavioral consequences of cigarette smoke exposure were assessed using open field (OF) and light/dark (LD) tests to assess withdrawal-induced anxiety-like behavior. Methods: Sprague-Dawley rats were randomly assigned to five experimental groups: a control group exposed only to standard room air, a cigarette smoke exposed group treated with saline vehicle, two cigarette smoke exposed groups treated with acetylsalicylic acid (ASA) (15 mg/kg and 30 mg/kg, respectively), and a group treated only with ASA (30 mg/kg). Cigarette smoke exposure was performed for 2 h/day, 5 days/week, for 31 days. Behavioral tests were conducted weekly, 24 h after cigarette smoke exposure, during acute withdrawal. At the end of week 4, rats were given either saline or ASA 45 min before cigarette exposure for 11 days.

Results: Cigarette smoke increased withdrawal-induced anxiety, and 30 mg/kg ASA attenuated this effect. Cigarette smoke exposure increased the relative mRNA and protein expression of nuclear factor κ B (NF κ B) in PFC and NAc, and ASA treatment reversed this effect. Also, cigarette smoke decreased the relative mRNA and protein expression of glutamate transporter1 (GLT-1) and the cystine-glutamate transporter (xCT) in the PFC and the NAc, while ASA treatment normalized their expression.

Conclusion: Cigarette smoke caused neuroinflammation, alterations in glutamate transporter expression, and increased anxiety-like behavior, and these effects were attenuated by acetylsalicylic acid treatment. Copyright © 2023 Hammad, Alzaghari, Alfaraj, Al-Qerem, Talib, Alasmari, Amawi and Hall.

Al-Masri, E., Al-Refai, M., Al-Masri, H.T., Ali, B.F., Makhseed, S., Salah, L., Ghazal, B., Geyer, A., Ivlev, S.I., Abu-Sini, M.

Synthesis, characterization, crystal structure, and fluorescence behavior of new 4-aryl-6-(2,5-dichlorothiophen-3-yl)-2-methylpyridine-3-carbonitrile derivatives

(2023) *Journal of Molecular Structure*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137638900&doi=10.1016%2ffj.molstruc.2022.134034&partnerID=40&md5=36bd4e3e6bddde45493eba9506c9de41)

85137638900&doi=10.1016%2ffj.molstruc.2022.134034&partnerID=40&md5=36bd4e3e6bddde45493eba9506c9de41

AFFILIATIONS: Department of Chemistry, Al al-Bayt University, Mafrqa, 25113, Jordan;

Department of Chemistry, Faculty of Science, Kuwait University, P. O. Box 5969, Safat, 13060, Kuwait; Organometallic and Organometalloid Chemistry Division, National Research Centre, Giza, Egypt;

Faculty of Chemistry, Philipps University of Marburg, Hans-Meerwein-Strasse 4, Marburg, 35032, Germany;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: A series of new 4-aryl-6-(2,5-dichlorothiophen-3-yl)-2-methylpyridine-3-carbonitrile derivatives 4(a-u) were synthesized starting with Friedel-Crafts acylation of 2,5-dichlorothiophene to form compound (1), which undergoes Claisen-Schmidt condensation with the corresponding aryl aldehyde 2(a-u) to produce chalcones 3(a-u) as intermediate compounds. The reaction of chalcones 3(a-u) and 3-aminocrotononitrile furnished the new title compounds 4(a-u). The pyridines 4(a-u) were characterized by elemental analysis, ATR-FTIR, ¹H NMR, ¹³C NMR, DEPT 135, ESIMS, and HRESIMS. The proposed structures agree with the expected physical as well as spectral data. Single crystal x-ray structure for some derivatives were determined and confirmed unambiguously the proposed structures. Compounds 4(a-u) exhibit distinct fluorescent properties in solution. The steady state fluorescence spectra of the compounds studied showed that all the compounds are blue emitters. Quantum chemical calculations have been performed to study the geometry of all compounds based on DFT/TDDFT calculations at B3LYP/6-311G (d,p) level of theory. The calculated geometries are in good agreement with determined single crystal structures. In order to get more shed into the red shifted emission of compounds 4(d-i) with respect to relevant absorption behavior, TD-DFT study was performed. The red shifted emission is found to be controlled by the conformational relaxation in the excited state on the emission spectra. © 2022

Younes, M.B., Shaban, N.A., Abdelhafez, E.

Efficient Solar Panel Cleaning Automation with Arduino

(2023) CANDO-EPE 2023 - Proceedings: IEEE 6th International Conference and Workshop Obuda on Electrical and Power Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85185726552&doi=10.1109%2fCANDO-EPE60507.2023.10418023&partnerID=40&md5=abe04a90a3a8f72e24cc40bef78701cf>

AFFILIATIONS: Al-Zaytoonah University, Department of Mechanical Engineering, Amman, Jordan; Al-Zaytoonah University, Department of Alternative Energy Technology, Amman, Jordan

ABSTRACT: This experiment aimed to investigate the effect of cleaning on the performance of solar panels. The experiment measured the panels' voltage, current, and temperature before and after cleaning. The results showed that the panels' temperature was significantly reduced after the cleaning process, which led to an increase in efficiency and a longer lifespan of the panels. Moreover, filtering and cleaning the water used for cleaning and pumping helped save and rationalize water consumption. These findings confirm the importance of cleaning solar panels to maintain performance and prolong+ lifespan. © 2023 IEEE.

Sunoqrot, S., Abu Shalhoob, M., Jarrar, Y., Hammad, A.M., Al-Ameer, H.J., Al-Awaida, W.

Nanoencapsulated Curcumin Mitigates Liver Injury and Drug-Metabolizing Enzymes Induction in Diclofenac-Treated Mice

(2023) ACS Omega, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85184814750&doi=10.1021%2facomega.3c07602&partnerID=40&md5=525792b0130267ca4a616c32037f9a6f>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Pharmaceutical Biotechnology, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Biology and Biotechnology, American University of Madaba, Madaba, 17110, Jordan

ABSTRACT: Curcumin (CUR) is a natural product with known anti-inflammatory, antioxidant, and hepatoprotective properties. The aim of this study was to formulate CUR into a polymeric nanoparticle (NP) formulation and examine its potential hepatoprotective activity in an animal model of diclofenac (DIC)-induced hepatotoxicity. CUR was loaded into polymeric NPs composed of poly(ethylene glycol)-polycaprolactone (PEG-PCL). The optimal CUR NPs were evaluated against DIC-induced hepatotoxicity in mice, by studying the histopathological changes and gene expression of drug-metabolizing cyp450 (cyp2c29 and cyp2d9) and ugt (ugt2b1) genes in the livers of the animals. The optimal NPs were around 67 nm in diameter with more than 80% loading efficiency and sustained release. Histological findings of mice livers revealed that CUR NPs exhibited a superior hepatoprotective effect compared to free CUR, and both groups reduced DIC-mediated liver tissue injury. While treatment with DIC alone or with CUR and CUR NPs had no effect on cyp2c29 gene expression, cyp2d9 and ugt2b1 genes were upregulated in the DIC-treated group, and this effect was reversed by CUR both as a free drug and as CUR NPs. Our findings present a promising application for nanoencapsulated CUR in the treatment of nonsteroidal anti-inflammatory drugs-induced liver injury and the associated dysregulation in the expression of hepatic drug-metabolizing enzymes. © 2024 The Authors. Published by American Chemical Society.

Jaradat, Y., Alia, M., Masoud, M., Mansrah, A., Jannoud, I., Alheyasat, O.

Roadmap for Simulating Quantum Circuits Utilising IBM's Qiskit Library: Programming Approach (2023) Eurasia Proceedings of Science, Technology, Engineering and Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85184800170&doi=10.55549%2fefstem.1412445&partnerID=40&md5=f50d4f464ead1cdc3b45b77581bc51ca>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan; AlBalqa' Applied University, Salt, Jordan

ABSTRACT: This paper explains the roadmap for running quantum circuit programs based on the Qiskit library in quantum simulators as well as real cloud-based IBM quantum computers. Qiskit is a free and open-source software development platform based on the Python programming language that is used in quantum programming. Qiskit acts as a link between quantum computing's theoretical foundations and the practical aspects of programming and experimentation. It also allows users to experiment with and develop quantum algorithms, as well as simulate and execute them on simulators and real-world cloud-based quantum devices. It also simplifies the quantum programming process and allows a diverse range of people to participate in the exciting world of quantum computing. The paper, on the other hand, provides the mathematical foundation for analyzing quantum circuits and algorithms using linear algebra principles, as they provide the tools needed to describe and manipulate quantum states and operations. Furthermore, the paper shows quantum circuit design and implementation using real Qiskit codes. © 2023 Published by ISRES Publishing: www.isres.org.

Al-Marahla, R.H., Shehzad, M.K., Almarahlleh, N.H.

Finite Element Modelling of Polypropylene Fibre Reinforced Concrete Beams Reinforced with Steel under Bending

(2023) Eurasia Proceedings of Science, Technology, Engineering and Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85184797279&doi=10.55549%2fepstem.1409602&partnerID=40&md5=61f28c27c48404cbe10a52fc462415c1)

[85184797279&doi=10.55549%2fepstem.1409602&partnerID=40&md5=61f28c27c48404cbe10a52fc462415c1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85184797279&doi=10.55549%2fepstem.1409602&partnerID=40&md5=61f28c27c48404cbe10a52fc462415c1)

AFFILIATIONS: AlZaytoonah University of Jordan, St 594, Airport Rd, Amman, Jordan;

National highways, UK LeedsLS11 9AT, United Kingdom;

Tafila Technical University, At-Tafilah, Jordan

ABSTRACT: Application of the fibre-reinforced concrete has manifested a wider acceptability over time for its contribution towards significantly improving the flexural performance of structural members. A lot of work has been done to understand the influence of fibres on the mechanical and structural behaviour of reinforced concrete. Towards this end, several researchers have experimentally investigated the residual flexural strength to characterize the fibre-reinforced concrete. The number of influencing parameters to be investigated through experiments is mostly limited because of the time and cost implications. Consequently, validation of the experimental investigations through analytical models and further utilizing these models to study the behaviour in greater detail is a viable option for researchers. As part of this work, an analytical investigation has been performed to investigate the performance of full-scale polypropylene fibre-reinforced concrete beams. The models have been validated through comparison with the observed performance during an experimental investigation where tests on twelve full-scale FRC beams were performed. Three-dimensional finite element models of the beams under 4-point loading were prepared and the post-cracking flexural performance of FRC beams has been investigated by varying the dosage of polypropylene fibres obtained from shredding medical face masks. © 2023 Published by ISRES Publishing: www.isres.org.

Al-Omoush, K.S., Lassala, C., Al-Debei, M.M., Ribeiro-Navarrete, S.

SOCIAL INNOVATIONS DURING UNPRECEDENTED CRISES: THE ROLES OF CROWD WISDOM, ECHO CHAMBERS, AND SOCIAL TRUST [SOCIALINĖS INOVACIJOS PRECEDENTO NETURINČIŲ KRIZIŲ METU: MINIOS IŠMINTIES, AIDO KAMERŲ IR SOCIALINIO PASITIKĖJIMO VAIDMENYS]

(2023) Transformations in Business and Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85184449814&partnerID=40&md5=5e8f651ec06f8b2e114fe66c513acb3d)

[85184449814&partnerID=40&md5=5e8f651ec06f8b2e114fe66c513acb3d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85184449814&partnerID=40&md5=5e8f651ec06f8b2e114fe66c513acb3d)

AFFILIATIONS: Department of Management Information Systems, Al-Zaytoonah University of Jordan, Airport Street-Amman, Amman, Jordan;

Department of Business Finance, Universitat de València, Spain;

Department of Business Analytics Technology, Business School, Al-Ahliyya Amman University, Al Salt Road-Amman, Amman, Jordan;

Department of Management Information Systems, Business School, The University of Jordan Amman, Queen Rania Street, Amman, Jordan;

University of Economics and Human Sciences in Warsaw, Poland;

Department of Business Finance, ESIC University, Spain

ABSTRACT: This study investigates the roles played by echo chambers and the wisdom of the crowd in social innovation during unprecedented crises such as the recent COVID-19 pandemic. It also examines the impact of social trust on echo chambers, crowd wisdom, and social innovation during unprecedented crises. Using an online questionnaire, 432 members of Facebook pages and groups in Jordan provided data which were analysed using PLS-SEM. The results demonstrate that the wisdom of crowds has a significant positive impact on social innovation, that echo chambers significantly negatively affect social innovation, and that social trust significantly affects media echo chambers, the wisdom of the crowd, and social innovation. © Vilnius University, 2002-2023.

Al-Azayzih, A., Kanaan, R.J., Altawalbeh, S.M., Al-Qerem, W., Smadi, S.

Medication Adherence and Its Associated Determinants in Older Adults with Type 2 Diabetes and Cardiovascular Comorbidities

(2023) Patient Preference and Adherence, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183869912&doi=10.2147%2fPPA.S437013&partnerID=40&md5=f20c8eab3aade69ea5212fd5b648f005)

[85183869912&doi=10.2147%2fPPA.S437013&partnerID=40&md5=f20c8eab3aade69ea5212fd5b648f005](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183869912&doi=10.2147%2fPPA.S437013&partnerID=40&md5=f20c8eab3aade69ea5212fd5b648f005)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Aims of the Study: To evaluate medication adherence level and identify predictors of poor medication adherence in elderly patients with Cardiovascular (CVS) diseases and type 2 diabetes in Jordan. Methods: This cross-sectional study was conducted on elderly patients who attended King Abdullah University Hospital (KAUH) outpatient diabetes and cardiology clinics from March 6, 2023, to July 6, 2023. Data on age, sex, socio-demographics, biological variables, medication characteristics, and chronic comorbidities were obtained from electronic patients' medical records and a validated

questionnaire. Medication adherence levels (low, moderate, and high) were assessed using the Arabic version of the 4-item Morisky, Green, and Levine Medication Adherence Scale-Medication Assessment Questionnaire. Results: Data from 506 elderly patients were analyzed. The average age of the participants was 67.93 years (SD = 6.22). 7.9% of patients showed low adherence levels, 33.6% showed moderate adherence level, and 58.5% of patients showed a high level of adherence toward their prescribed medications. Multivariable ordinal logistic regression analysis revealed that single/currently unmarried patients and patients who were living with others were more likely to have a higher adherence level; Odd Ratios (ORs) were 4.75 and 4.10, respectively. Patients who took their medications ≥ 3 and 2 times a day showed higher adherence to their medications than those who only took them once a day.; ORs were 2.15 and 2.36, respectively. Conclusion: This study indicated an inadequate level of adherence among patients with type 2 diabetes and cardiovascular comorbidities. This study revealed the necessity of implementing programs to help in raising the awareness among elderly patients with type 2 diabetes and CVDs of the importance of adherence to prescribed long-term medication regimens. © 2023 Al-Azayzih et al.

Abu-Shanab, S.A., Mughaid, A., Alzu'bi, S.

Elevating Employment Practices in Agricultural Corporations with Large Language Models and AI (2023) Proceedings - 2023 10th International Conference on Social Networks Analysis, Management and Security, SNAMS 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183470709&doi=10.1109%2fSNAMS60348.2023.10375423&partnerID=40&md5=7617da807e7ad71c3748418bb9a6ee12)

[85183470709&doi=10.1109%2fSNAMS60348.2023.10375423&partnerID=40&md5=7617da807e7ad71c3748418bb9a6ee12](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183470709&doi=10.1109%2fSNAMS60348.2023.10375423&partnerID=40&md5=7617da807e7ad71c3748418bb9a6ee12)

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, Jordan;

The Hashemite University, Zarqa, 13133, Jordan

ABSTRACT: This research proposal aims to leverage modern AI techniques, particularly ChatGPT, for transforming human resources in the Agriculture Credit Corporation. The focus is on AI's role in streamlining recruitment, personalizing employee experiences, mitigating biases, and enhancing decision-making. By utilizing AI and ChatGPT, this study seeks to boost competitiveness, efficiency, and HR effectiveness. The insights will guide AI-driven HR solutions in agriculture, benefiting the organization and the industry. In the era of foundation models and large language models (LLMs), understanding these models' potential and limitations is vital for this research, but access is limited to big tech companies due to resource constraints. Comprehensive research and multidisciplinary collaboration are essential to unravel the capabilities and challenges posed by these models. © 2023 IEEE.

Aljumah, A.I., Nuseir, M., El Refae, G., Al-Hiyari, A., Urabi, S., Alshehadeh, A.R.

Trust as a Mediator: Exploring the Relationship between Social Responsibility and Corporate Reputation within Social Systems

(2023) Proceedings - 2023 10th International Conference on Social Networks Analysis, Management and Security, SNAMS 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183469666&doi=10.1109%2fSNAMS60348.2023.10375443&partnerID=40&md5=88be6d9e6a5fa3b21ed8d924cdaa52bb)

[85183469666&doi=10.1109%2fSNAMS60348.2023.10375443&partnerID=40&md5=88be6d9e6a5fa3b21ed8d924cdaa52bb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183469666&doi=10.1109%2fSNAMS60348.2023.10375443&partnerID=40&md5=88be6d9e6a5fa3b21ed8d924cdaa52bb)

AFFILIATIONS: College of Communication and Media, Al Ain University, Abu Dhabi Campus, P.O. Box 112612, Abu Dhabi, United Arab Emirates;

College of Business, Al Ain University, Department of Business Administration, Abu Dhabi Campus, P.O. Box 112612, Abu Dhabi, United Arab Emirates;

College of Business, Al Ain University, Department of Business Administration, Al Ain Campus, P.O. Box: 64141, Al Ain, United Arab Emirates;

College of Business Administration, University of Khorfakkan, P.O. Box:18119, Sharjah, United Arab Emirates;

University of Wollongong, Dubai, United Arab Emirates;

Al-Zaytoonah University, Faculty of Business, Jordan

ABSTRACT: The reputation of the organization is important for the survival of the organization. Therefore, this study aimed to examine the effect of information quality, structural assurance and corporate social responsibility on trust and corporate reputation. This study also examined the mediating role of trust as well. The data was collected from the users of the sports products manufactured in the UAE. A quantitative research methodology was adopted in the present research. The questionnaire was used to collect the data from the respondents. The usable response rate of the study was 65.14%. The collected data was analyzed using PLS-SEM. The study's findings show that trust is affected positively by information quality, structural assurance, and information quality. Moreover, trust also has a positive effect on corporate reputation. This paper provides guidelines to policymakers so they can improve the corporate reputation of their organizations. © 2023 IEEE.

Althunibat, A., Amro, R., Hawashin, B., AlNuhait, H., Almanasra, S., Al-Khawaja, H.A.

Automated Classification of User Requirements written in Arabic using machine learning algorithms (2023) Applied Mathematics and Information Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183107163&doi=10.18576%2fAMIS%2f170620&partnerID=40&md5=acfa772f6ef444993b7832049ffb13f1)

85183107163&doi=10.18576%2fAMIS%2f170620&partnerID=40&md5=acfa772f6ef444993b7832049ffb13f1

AFFILIATIONS: Faculty of Sciences and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Computer Studies, Arab Open University, Riyadh, Saudi Arabia;

Faculty of Business, Amman Arab University, Amman, Jordan;

Swiss FinTech Innovation Lab, University of Zurich, Switzerland

ABSTRACT: Requirement engineering is a critical step in software engineering, influencing software development outcomes. The manual classification of software requirements into Functional Requirements and Non-Functional Requirements is a laborious and costly process with varying accuracy. Errors in classification can lead to misunderstandings and incomplete products. Arabic requirements pose additional challenges due to their structural and semantic characteristics, contributing to inherent ambiguity. In addition to the lack of Arabic Studies as well as the public datasets for requirements written in Arabic. This study proposes combining machine learning and deep learning algorithms, including K-nearest neighbors (KNN), Support Vector Machines (SVMs), Random Forest, XGBoost, and the Arabert model, with optimization techniques to streamline the categorization of Arabic requirements. Optimal configurations for several classifiers are identified and examined by stemming techniques. In addition, an Arabic data set for requirements was collected. The results demonstrate the effectiveness of the proposed approach, enhancing productivity and mitigating risks. The SVM classifier achieves an F1-Score of 0.93, while combining it with ISRIStemmer improves the score to 0.95. The Arabert model achieves the highest F1-Score of 0.97, highlighting its performance in classifying Arabic requirements accurately. © 2023 NSP Natural Sciences Publishing Cor.

Sunoqrot, S., Abdel Gaber, S.A., Abujaber, R., Al-Majawleh, M., Talhouni, S.

Lipid- and Polymer-Based Nanocarrier Platforms for Cancer Vaccine Delivery

(2023) ACS Applied Bio Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183014461&doi=10.1021%2facsabm.3c00843&partnerID=40&md5=d073cc9734241c259b22e26ced59e787)

85183014461&doi=10.1021%2facsabm.3c00843&partnerID=40&md5=d073cc9734241c259b22e26ced59e787

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nanomedicine Department, Institute of Nanoscience and Nanotechnology, Kafrelsheikh University, Kafrelsheikh, 33516, Egypt

ABSTRACT: Cancer immunotherapy has gained popularity in recent years in the search for effective treatment modalities for various malignancies, particularly those that are resistant to conventional chemo- and radiation therapy. Cancer vaccines target the cancer-immunity cycle by boosting the patient's own immune system to recognize and kill cancer cells, thus serving as both preventative and curative therapeutic tools. Among the different types of cancer vaccines, those based on nanotechnology have shown great promise in advancing the field of cancer immunotherapy. Lipid-based nanoparticles (NPs) have become the most advanced platforms for cancer vaccine delivery, but polymer-based NPs have also received considerable interest. This Review aims to provide an overview of the nanotechnology-enabled cancer vaccine landscape, focusing on recent advances in lipid- and polymer-based nanovaccines and their hybrid structures and discussing the challenges against the clinical translation of these important nanomedicines. © 2024 American Chemical Society.

Alshehadeh, A.R., Abdallah, A.A.J., Soda, M.Z., Al-Khawaja, H.A., Injadat, E.

The Impact of Cash Liquidity Quality on Financial Strength Sustainability: Evidence from Industrial Companies

(2023) Review of Economics and Finance, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182997787&doi=10.55365%2f1923.x2023.21.156&partnerID=40&md5=0f888f862a1424cf4637d08e3b5f46e3)

85182997787&doi=10.55365%2f1923.x2023.21.156&partnerID=40&md5=0f888f862a1424cf4637d08e3b5f46e3

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Business, Isra University, Amman, Jordan;

Faculty of Business, Amman Arab University, Amman, Jordan;

Faculty of Business, The World Islamic Science & Education University, Amman, Jordan

ABSTRACT: The objective of this study was to investigate the influence of cash liquidity quality indicators on the long-term financial sustainability of publicly listed joint-stock industrial companies on the Amman Stock Exchange from 2014 to 2021. The study encompassed a population of 53 such companies, from which a purposive sample of 35 companies was selected based on the availability of comprehensive financial data meeting the study's variables throughout the designated period. The collected data were subjected to appropriate statistical analysis methods. The findings of the study revealed that cash liquidity quality indicators, specifically net cash flow from all activities to total assets, net cash flow from all activities to total profit, and operating net cash flow to total assets, exhibited a statistically significant impact on the sustainability of crucial indicators for these companies, including working capital, retained earnings, the market value of stocks, operating profit, and net sales. However, the study results indicated that the cash liquidity quality indicator

represented by net cash flow from all activities to total equity did not affect the sustainability of operating profit and net sales indicators for these companies. Nevertheless, it did have an impact on indicators such as working capital, retained earnings, and market value of stocks, contributing to their sustainability within these companies. © 2023- All Rights Reserved.

Albarmawi, M., Al Hadid, L., Alnjadat, R., Aljabery, A.

A multi-institute, follow-up, observational study measuring nursing students' adherence to infection prevention and control protocols in Saudi Arabia

(2023) *Frontiers in Medicine*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182988191&doi=10.3389%2ffmed.2023.1282723&partnerID=40&md5=253024dc3a21bd15163eced1464d9183)

[85182988191&doi=10.3389%2ffmed.2023.1282723&partnerID=40&md5=253024dc3a21bd15163eced1464d9183](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182988191&doi=10.3389%2ffmed.2023.1282723&partnerID=40&md5=253024dc3a21bd15163eced1464d9183)

AFFILIATIONS: Department of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Nursing, Al-Balqa Applied University, Al-Salt, Jordan

ABSTRACT: Background: Nursing students learn principles of infection prevention and control (IPC) and hand hygiene (HH) in clinical courses, and their learning is reflected in their practice. Objectives: The knowledge, attitude, and practice of principles of IPC and HH of the students were measured prior to and after attending an educational workshop. The adherence of the students to the IPC and HH protocols at the hospital was also observed. Methods: This study included a pretest-posttest time series follow-up and an observational part. During the first part of the study, students attended a workshop, which was preceded by a pretest. It was then followed by a posttest directly after finishing the workshop and in 12 weeks. Participants were submitted to an observational part by a trained observer to document certain skills taught earlier during the workshop. Settings: Students from three nursing schools in Saudi Arabia participated in the study. Participants: A total number of 130 completed the study protocol, and 100 completed the observation part. Results: Students were found to experience an improvement in their knowledge, beliefs, and commitment scales after the workshop. The attitude scale remained relatively unchanged over different tests. Most students performed the skills properly and adequately, but some failed to perform certain skills, like hand rub, and the proper use of disinfectants. Copyright © 2024 Albarmawi, Al Hadid, Alnjadat and Aljabery.

Althunibat, A., Alzyadat, W., Almarashdeh, I., Alsmadi, M., Al Shawabkeh, A.O., Abuhamdah, A., Alzaqebah, M.

Learning Experience of Students Using the Learning Management System: User's Perspective on the Use of Moodle in the University of Jordan

(2023) *Advances in Human-Computer Interaction*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182688245&doi=10.1155%2f2023%2f6659245&partnerID=40&md5=4626fe7bcab19efe5b5aeeb63576faca)

[85182688245&doi=10.1155%2f2023%2f6659245&partnerID=40&md5=4626fe7bcab19efe5b5aeeb63576faca](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182688245&doi=10.1155%2f2023%2f6659245&partnerID=40&md5=4626fe7bcab19efe5b5aeeb63576faca)

AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Applied Studies and Community Service, Imam Abdurrahman Bin Faisal University, Dammam, Saudi Arabia;

Department of Management Information Systems, College of Business Administration, Taibah University, Madina, Saudi Arabia

ABSTRACT: This study aimed to evaluate the effectiveness of Moodle LMS as an alternative delivery mode for education, particularly in the higher education system of Jordan, which has not been evaluated before. The research is based on Moore's transactional distance learning theory, which considers interactions among students, instructors, and course material, as well as personal characteristics of students. The study included 50 participants who have taken courses on Moodle LMS at the University of Jordan. Both interviews and research surveys were conducted to gather in-depth perceptions and analysis of the participants' experiences with Moodle LMS. The findings suggest that Moodle LMS was an effective alternative study tool during the COVID-19 pandemic and the user-friendly course design enhanced the user experience of using Moodle LMS. Participants also provided suggestions to optimize the system for better integration in the University of Jordan. Fixing Moodle LMS based on the recommendations of the study participants will significantly improve the learning experience of students. This study contributes to the advancement of the state of the art by evaluating the effectiveness of Moodle LMS in the higher education system of Jordan and providing recommendations for improvement. © 2023 Ahmad Althunibat et al.

Aljamal, M., Mughaid, A., Alquran, R., Almiani, M., Alzu'bi, S.

Simulated Model for Preventing IoT Fake Clients over the Smart Cities Environment

(2023) 2023 IEEE International Conference on Dependable, Autonomic and Secure Computing,

International Conference on Pervasive Intelligence and Computing, International Conference on Cloud and Big Data Computing, International Conference on Cyber Science and Technology Congress,

DASC/PiCom/CBDCom/CyberSciTech 2023, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85182605155&doi=10.1109%2FDASC%2fPiCom%2fCBDCCom%2fCy59711.2023.10361308&partnerID=40&md5=d82fa966f39c844cb09299fd6a5bfbda

AFFILIATIONS: The Hashemite University, Zarqa, 13133, Jordan;
Gulf University of Science and Technology, Kuwait;
Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The advent of the Internet of Things (IoT) has ushered in the concept of smart cities - urban environments where everything from traffic lights to waste management is interconnected and digitally managed. While this transformation offers unparalleled efficiency and innovation, it opens the door to myriad cyber-attacks. Threats range from data breaches to infrastructure disruptions, with one subtle yet potent risk emerging: fake clients. These seemingly benign entities have the potential to carry out a multitude of cyber attacks, leveraging their deceptive appearance to infiltrate and compromise systems. This research presents a novel simulation model for a smart city based on the Internet of Things using the Netsim program. This city consists of several sectors, each of which consists of several clients that connect to produce the best performance, comfort and energy savings for this city. Fake clients are added to this simulation, who are they disguise themselves as benign clients while, in reality, they are exploiting this trust to carry out cyber attacks on these cities, then after preparing the simulation perfectly, the data flow of this system is captured and stored in a CSV file and classified into fake and normal, then this data set is subjected to several experiments using the Machine Learning using the MATLAB program. Each of them shows good results, based on the detection results shown by Model Machine Learning. The highest detection accuracy was in the third experiment using the k-nearest neighbors classifier and was 98.77%. Concluding, the research unveils a robust prevention model. © 2023 IEEE.

Mughaid, A., Aljamal, M., Al-Aiash, I., Aljamal, M., Alquran, R., Alzu'bi, S., Abutabanjeh, A.A.
Enhancing Cybersecurity in SCADA IoT Systems: A Novel Machine Learning-Based Approach for Man-in-the-Middle Attack Detection

(2023) 2023 3rd Intelligent Cybersecurity Conference, ICSC 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182593589&doi=10.1109%2fICSC60084.2023.10349993&partnerID=40&md5=8c509881c5a483a58d6593859dd11b9e)

[85182593589&doi=10.1109%2fICSC60084.2023.10349993&partnerID=40&md5=8c509881c5a483a58d6593859dd11b9e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182593589&doi=10.1109%2fICSC60084.2023.10349993&partnerID=40&md5=8c509881c5a483a58d6593859dd11b9e)

AFFILIATIONS: The Hashemite University, Zarqa, 13133, Jordan;

Al Zaytoonah University of Jordan, Amman, Jordan;

Concordia UniversityIL, United States

ABSTRACT: Cybersecurity challenges are a real concern for any Internet of Things (IoT) systems, especially the industrial sector. Supervisory Control and Data Acquisition (SCADA) systems are one of the applications of the IoT that facilitate remote control of industrial systems, save time and effort, increase the accuracy of systems, and have many other advantages. With these facilities provided by these systems, cyber attackers are increasingly greedy about them for various reasons, including material, espionage, or sabotage, so strict security controls must be put in place to maintain the reliability of these systems. This paper proposes an ML-based model to detect Man In The Middle (MitM) attacks; we applied several artificial intelligence algorithms, this study showed high accuracy detection results of up to 98.22% using Random Forest, which indicates the possibility of applying it on the ground to enhance cyber security in SCADA industrial systems. © 2023 IEEE.

Afifa, M.A., Van, H.V., Van, T.L.H.

Management accounting system and managerial performance in an emerging market: a mediation-moderation model

(2023) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182568629&doi=10.1504%2fIJPQM.2023.135885&partnerID=40&md5=b26c6f6b07050f3c3341bc81835a141c)

[85182568629&doi=10.1504%2fIJPQM.2023.135885&partnerID=40&md5=b26c6f6b07050f3c3341bc81835a141c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182568629&doi=10.1504%2fIJPQM.2023.135885&partnerID=40&md5=b26c6f6b07050f3c3341bc81835a141c)

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Tien Giang University, 119 Ap Bac Street, Tien Giang, Vietnam, My Tho City, 84000, Viet Nam

ABSTRACT: This paper explores the relationship between management accounting systems (MAS) characteristics and managerial performance in the context of technology development and increasing competitive pressure in Vietnam. Based on quantitative analysis techniques with 272 questionnaires answered by middle managers, the study results provide many interesting things. Firstly, MAS characteristics (scope, timeliness and aggregation) are simultaneously influenced by environmental factors such as technology and competition based on contingency theory. Secondly, the characteristics of MAS (broad scope, timely and aggregated information) had a significant effect on managerial performance while integrated MAS did not. Further analysis shows that technology and competition have an indirect influence on managerial performance through the mediating role of MAS characteristics (broad scope and timeliness information). A rather interesting finding that the effect of MAS timeliness on managerial performance is only moderated by perceived environmental uncertainty. Finally, the study also provides some implications, limitations and recommendations for future research. Copyright © 2023 Inderscience Enterprises Ltd.

Al-Shouqirat, H.R., Al-Habashneh, K.K., Saleh Aljazi, M.A.A.-H.
Prince Mawdud Atabak Al-Mosul and his Role in Fighting Against the Crusader Invasion 501 AH – 508 AH / 1108 AD – 1113 AD
(2023) Dirasat: Human and Social Sciences, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181832108&doi=10.35516%2fhum.v50i5.688&partnerID=40&md5=ca052a1ef4e66419e565e01fbb711092>
AFFILIATIONS: Department of History and Geography, Faculty of arts, AlHussein bin Talal University, Ma'an, Jordan;
Department of Basic Sciences (Humanities and Scientific), Faculty of arts, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Objectives: The current study aims to elucidate the role of Prince Mawdud in resisting the Crusader invasion and adopting the Jihad policy against the Crusader forces in the Islamic Al-Mashriq (the Islamic Eastern part of the Arab world). Method: To achieve the study objectives, the analytical approach is used in examining the events of the study period and the most important interactions shaping the history of the Al-Mashriq region The information included in the relevant sources, were analyzed. Results: The results show that Sharaf Al-Din Mawdud played a complementary role to previous Emirs of Mosul in countering the Crusader tide. The findings reveal that Sharaf Al-Din Mawdud advocated for an Islamic alliance, contributing to the founding of the resistance against the Crusader invasion in the Islamic Al-Mashriq and setting the stage for future leaders to continue this approach. Mawdud's Atabekiya marked a crucial turning point in the Crusader struggle, and his efforts led to the unification of Islamic forces under Salah Al-Din's leadership, resulting in his ultimate sacrifice for his unwavering stance. Conclusion: The study recommends investigating various Islamic figures having a great impact on the formulation of the history of the Islamic Al-Mashriq region by reexamining the texts incorporated into the sources. © 2023 DSR Publishers/ The University of Jordan.

Keshk, Z.T.A., Al-Obidy, Z.T.
The Science of Occasion in the Books of Rhetoric, Criticism and Tafsir: The Concept and its Rooting (2023) Dirasat: Human and Social Sciences, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181817585&doi=10.35516%2fhum.v50i5.302&partnerID=40&md5=888685f60922015d459851aad71e7414>
AFFILIATIONS: Department of Arabic, Faculty of Arts, Al-Zaytoonah University, Jordan;
Department of Arabic, Faculty of Arts, Al-Mosel University, Iraq
ABSTRACT: Objectives: This study aims at highlighting the rhetoric of the Science of Occasion among rhetoricians, critics, and Tafsir scholars. It also aims to unearth the mechanisms by which the text is constructed to suit the occasion in which it was articulated and demonstrate its performative rhetorical dimensions. In addition, the study intends to shed light on the efforts scholars have exerted to establish an independent and specialized science of occasion. Methods: The study depends on the inductive and analytical method to clarify the text and highlight its rhetorical aspects. It thus places the different viewpoints in conversation and presents the attitude that Muslim scholars have toward the Science of Occasion and the critical tools they employ to show the text's unity and the extent to which the text echoes the occasion in which it was compiled or articulated. Results: The study stresses the strenuous efforts exerted by critics, rhetoricians and interpreters in exploring the text through its occasion. The study also stresses the fact that the Science of Occasion constitutes one of the Quranic sciences which strives to show the internal connections between verses and surahs according to the commendable Tafsir, highlighting the fact that this science has recently been evolving independently. Conclusions: The study recommends the necessity of paying attention to the importance of the efforts exerted by rhetoricians and critics in tracing the occasion concepts within the Quranic lesson and its connection to the Quran as one of the indispensable types of Tafsir. © 2023 DSR Publishers/ The University of Jordan.

Jebreel, M., Alnaimat, M., Al-Shorafa, A., Qabajeh, M., Alqsass, M., Ahmad, A.B.
The Impact of Activity Ratios on Change in Earnings (Case Study:Based on Jordanian Food Companies) (2023) Kurdish Studies, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181226573&doi=10.58262%2fks.v11i2.333&partnerID=40&md5=d0b8112001ca457ac9af852b7849faba>
AFFILIATIONS: Accounting Department, Faculty of Business, Applied Science Private University, MEU Research Unit, Middle East University, Amman, Jordan;
Faculty of business, Department of accounting, Alzaytoonah university of Jordan, Jordan;
Department of Accounting, College of Business Administration, Majmaah University, Al-Majmaah, 11952, Saudi Arabia;
Department of Finance and accounting science, Faculty of Business, Middle East University, Applied Science Research Center, Applied Science Private University, Jordan
ABSTRACT: The purpose of this article is to assess whether the change in earnings of Jordanian food companies influenced by activity ratios evaluated TATR and FATR. Prior authors rely on various

metrics to estimate activity ratios, however, relied on two indicators in this article (total assets turnover ratio and fixed assets turnover ratio) as independent variables and used (change in earnings) as dependent variable. To fulfill this objective, the study's population comprises the food companies sector. The sample, on the other hand, comprises 7 firms that are actively operating in Jordan and are listed on the Amman Stock Exchange. This sample is considered as panel data, encompassing the period from 2015 to 2019, the data for this study was acquired from the annual financial reports submitted by these firms. The results reached reveal that a positive influence of TATR and FATR on change in earnings achieved by Jordanian food companies. The results outlined above are in line with the current literature reviews integrated into this study, providing further support for the theoretical discussions on the interaction between TATR and FATR, as well as their impact on earnings changes. © 2023, Society of History and Cultural Studies. All rights reserved.

Sabo, A., Abba, J., Sunusi Usman, U., Musa Saulawa, I., Alzoubi, M.M., Al-Mugheed, K., Alsenany, S.A., Farghaly Abdelaliem, S.M.

Knowledge, attitude, and practice of exclusive breastfeeding among mothers of childbearing age (2023) *Frontiers in Public Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181222702&doi=10.3389%2ffpubh.2023.1277813&partnerID=40&md5=bd135e96ce86883bcb0626676b5d71a3)

[85181222702&doi=10.3389%2ffpubh.2023.1277813&partnerID=40&md5=bd135e96ce86883bcb0626676b5d71a3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181222702&doi=10.3389%2ffpubh.2023.1277813&partnerID=40&md5=bd135e96ce86883bcb0626676b5d71a3)

AFFILIATIONS: Department of Public and Environmental Health, Faculty of Basic Medical Sciences, College of Medicine and Allied Medical Sciences, Federal University Dutse, Dutse, Nigeria;

Department of Community Medicine, Faculty of Clinical Sciences, College of Medicine and Allied Medical Sciences, Federal University Dutse, Dutse, Nigeria;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Riyadh Elm University, Riyadh, Saudi Arabia;

Department of Community Health Nursing, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia;

Department of Nursing Management and Education, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia

ABSTRACT: Background: The American Academy of Pediatrics and the World Health Organization recommend exclusive breastfeeding (EBF) for up to 6 months. Despite the importance of breast milk, EBF is far less prevalent in Nigeria than is recommended for developing countries. Worse still, the odds of EBF practice are very low in rural communities. Hence, the aim of this study was to assess the knowledge, attitude, and practice of EBF as well as identify the factors associated with EBF practice among mothers of childbearing age in Chamo town, Jigawa State, Nigeria. Methods: The study is a cross-sectional design using a questionnaire to assess the required information. The methodology involved the use of simple random sampling to select mothers of reproductive age from Chamo town, which is a rural community located in Jigawa State, Nigeria. A semi-structured questionnaire was used to assess the mother's knowledge, attitude, and practices regarding EBF. Simple and multiple logistic regression analyses were performed to determine the factors associated with the practice of EBF.

Results: A total of 400 mothers between the ages of 18 and 41 took part in the study. More than half of the participants (57.8%) were between the ages of 26 and 33 and had a primary level of education (30.5%). Only 26.8% of the respondents practice EBF. Those with a tertiary education (AOR = 10.00, $p < 0.001$), civil servants (AOR = 12.51, $p < 0.001$), those aware of EBF (AOR = 3.65, $p = 0.002$), those with correct EBF knowledge (AOR = 4.61, $p < 0.001$), those with a positive attitude toward EBF demand (AOR = 0.51, $p = 0.050$), and those who received encouragement from their community (AOR = 9.87, $p < 0.001$) were more likely to practice EBF. Conclusion: The findings of the study revealed that the majority of the respondents' knowledge, attitude, and practice of EBF were minimal. This shows the need to step up efforts to educate mothers about the advantages of EBF for both their own health and that of their children while they are in the hospital recovering from childbirth. Copyright © 2023 Sabo, Abba, Sunusi Usman, Musa Saulawa, Alzoubi, Al-Mugheed, Alsenany and Farghaly Abdelaliem.

Aboalhaija, N., Alsalman, A.-H., Alabed, S., Abaza, I., Mahmood, A., Talib, W., Afifi, F.

Antiproliferative evaluation of the hydro-distilled oil of celery, coriander, dill, and fennel and chemometric analysis of their aroma profile

(2023) *Journal of Essential Oil-Bearing Plants*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181190157&doi=10.1080%2f0972060X.2023.2293950&partnerID=40&md5=d59672b4a7da22e7b0a86ebc5cdade63)

[85181190157&doi=10.1080%2f0972060X.2023.2293950&partnerID=40&md5=d59672b4a7da22e7b0a86ebc5cdade63](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181190157&doi=10.1080%2f0972060X.2023.2293950&partnerID=40&md5=d59672b4a7da22e7b0a86ebc5cdade63)

AFFILIATIONS: Department of Pharmaceutical Sciences, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Amman, 11931, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, 11931, Jordan

ABSTRACT: Main pharmacological activities observed with the aromatic herbs celery, coriander, dill, and fennel have been attributed primarily to their essential oils, obtained by hydro-distillation. Still, there is a lack in research on the flavor of these selected four aromatic plants with multiple biological activities. The current study sought to identify and quantify the chemical composition of the spontaneous emitted volatile organic compounds (VOCs) of their fresh leaves, and to statistically analyze their composition using principal component analysis (PCA) and hierarchical cluster analysis (HCA). In vitro cytotoxic activities of their hydro-distilled essential oils were evaluated against MCF-7 and HCT-116 cell lines using MTT assay. The emitted VOCs, captured by solid phase micro extraction (SPME) method were analyzed by GC/GC-MS. The main terpenoid components of the aroma profile of celery and coriander were limonene, that of dill α -phellandrene, and of fennel α -terpinene. The systematic analysis using both, HCA and PCA of the spontaneous emitted VOCs of the fresh leaves of the four Apiaceae members growing in Jordan, revealed a clear picture of the distinct odor of these edible aromatic plants. The hydro-distilled essential oil of fennel exhibited the best antiproliferative activity against MCF-7 and HCT-116 cell lines with respective IC₅₀'s of 0.35, and 0.42 mg/mL. The composition of the VOCs of the leaves of celery, coriander, dill, and fennel, growing in Jordan was determined for the first time, in addition to their antiproliferative activities. © 2023 Har Krishan Bhalla & Sons.

Alqsass, M., Al-Haki, M., Dweiri, M., Qabajeh, M., Almajali, D., Ahmad, A.B., Qubbaja, A. The Impact of Current Ratio on Net Profit Margin (Case Study: Based on Jordanian Banks) (2023) *Kurdish Studies*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180921793&doi=10.58262%2fks.v11i02.211&partnerID=40&md5=bc839a588d7e3e200373a958148b642c)

[85180921793&doi=10.58262%2fks.v11i02.211&partnerID=40&md5=bc839a588d7e3e200373a958148b642c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180921793&doi=10.58262%2fks.v11i02.211&partnerID=40&md5=bc839a588d7e3e200373a958148b642c)

AFFILIATIONS: Accounting Department, Faculty of Business, Applied Science Private University, MEU Research Unit, Middle East University, Amman, Jordan;

Banking and Finance Department, Faculty of Administrative & Financial Sciences, Petra university, Amman, Jordan;

Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Management information system, Faculty of Business, Applied Science Private University, MEU Research Unit, Middle East University, Amman, Jordan;

Department of Finance and accounting science, Faculty of Business, Middle East University, Applied Science Research Center, Applied Science Private University, Jordan;

Finance Department, Faculty of Administrative and Financial Sciences, Palestine Ahliya University, Palestine

ABSTRACT: This paper aimed to investigate whether the profit generated by banking sector in Jordan influenced by change on current ratio or not. Analysts utilize liquidity ratios to assess whether banks have the capability to fulfill their short-term obligations based on their current assets. Previous researchers depend on different measures for liquidity and profitability, however, in this study depend on one liquidity indicator (current ratio) and used (net profit margin) to measure of profitability. For this purpose, the population used of this study will represents banking sector, whereas the sample consist of 8 banks operating in Jordan listed at Amman Stock Exchange (ASE) as a panel data covering the period from 2015 to 2019. The information of this study was obtained from financial reports that presented annually from these banks. The implemented model to analyze data is the fixed effect model. This paper relied on net profit margin as dependent variable. Using current ratio as independent variables. The results illustrate that the net profit margin has positively affected by current ratio. © 2023, Society of History and Cultural Studies. All rights reserved.

Abuyaman, O., Abdelfattah, A., Shehadeh-Tout, F., Deeb, A.A., Hatmal, M.M.

Vitamin B12 insufficiency and deficiency: a review of nondisease risk factors

(2023) *Scandinavian Journal of Clinical and Laboratory Investigation*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180912270&doi=10.1080%2f00365513.2023.2297357&partnerID=40&md5=1f706c54e316cd6d9b89a7f498767869)

[85180912270&doi=10.1080%2f00365513.2023.2297357&partnerID=40&md5=1f706c54e316cd6d9b89a7f498767869](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180912270&doi=10.1080%2f00365513.2023.2297357&partnerID=40&md5=1f706c54e316cd6d9b89a7f498767869)

AFFILIATIONS: Department of Medical Laboratory Sciences, Faculty of Applied Medical Sciences, The Hashemite University, Zarqa, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Vitamin B12 deficiency and insufficiency can lead to both hematological and neurological impairments. This review examines nondisease causes and risk factors associated with dietary availability, such as eating habits, food processing, cooking techniques, and bioavailability, as well as increased physiological needs and iatrogenic factors linked to medication use or surgical procedures. As a result of these nondisease influences, groups at higher risk include vegans, vegetarians, older adults, individuals with limited diets, breastfed and preterm infants, and those who primarily consume foods prepared or cooked in ways that reduce vitamin B12 content, as well as individuals on certain medications or who have undergone specific surgeries. Recognizing these diverse risk factors helps develop strategies for prevention and intervention to minimize the adverse

health effects related to B12 deficiency and insufficiency. © 2023 Medisinsk Fysiologisk Forenings Forlag (MFFF).

Saleh, I., Abu Afifa, M., Alkhawaja, A.

Environmental, social, and governance (ESG) disclosure, earnings management and cash holdings: Evidence from a European context

(2023) Business Ethics, the Environment and Responsibility, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180852495&doi=10.1111%2fbeer.12650&partnerID=40&md5=f1e8ea3a68ca499a2766b2eb77b23d02)

[85180852495&doi=10.1111%2fbeer.12650&partnerID=40&md5=f1e8ea3a68ca499a2766b2eb77b23d02](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180852495&doi=10.1111%2fbeer.12650&partnerID=40&md5=f1e8ea3a68ca499a2766b2eb77b23d02)

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Finance and Economics, Griffith Business School, Griffith University, Nathan, QLD, Australia

ABSTRACT: The primary objective of this research is to examine the potential influence of environmental, social, and governance (ESG) disclosure on cash holdings. Additionally, the study explores the role of earnings management (EM) practices as a mediating factor in this relationship. The sample comprises 797 companies listed on financial markets across 19 European countries, and the data spans from 2013 to 2019. The outcomes indicate a significant negative correlation between ESG disclosure and cash holdings, implying that ESG performance can be used by management to resolve disputes with stakeholders. The outcomes further indicate that the existence of EM practices partially mediates the link between ESG disclosure and cash holdings. Moreover, they are robust by substitute cash holdings specification, three distinct initiatives of ESG disclosure (i.e., environment, social, and governance), and a two-stage least squares assessment. Therefore, the findings document that nonfinancial reporting in the form of ESG disclosure can assist in controlling agency conflict, leading to better valuations of company performance by stakeholders. © 2023 John Wiley & Sons Ltd.

Alsmadi, A.A., Shuhaiber, A., Al-Omouh, K.S.

Rolling the Crypto Dice: The Interplay of Legal Environments, Market Uncertainty, and Gambling Attitudes on Users' Behavioral Intentions

(2023) Human Behavior and Emerging Technologies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180590672&doi=10.1155%2f2023%2f8259139&partnerID=40&md5=8b0cfb4f0a4c44e671ecc5367d1df827)

[85180590672&doi=10.1155%2f2023%2f8259139&partnerID=40&md5=8b0cfb4f0a4c44e671ecc5367d1df827](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180590672&doi=10.1155%2f2023%2f8259139&partnerID=40&md5=8b0cfb4f0a4c44e671ecc5367d1df827)

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Zayed University, United Arab Emirates

ABSTRACT: The high volatility and inherent high-risk nature of cryptocurrency investments promote the study of the determinants of value perception and the various factors influencing individuals' intentions regarding whether to adopt, abstain from, or continue their investments in these dynamic cryptocurrency markets. The main aim of this study is to examine the determinants of behavioral intention to continue using cryptocurrencies. In addition, it is aimed at exploring the effect of gambling attitudes on the perceived benefits and legal environment in the cryptocurrency context. An online questionnaire was developed in order to gather data from 258 respondents in the United Arab Emirates (UAE). The research model was assessed, and the hypotheses were tested using PLS-SEM. The outcomes of the PLS analysis revealed that gambling attitudes, perceived benefits, legal environment, and market uncertainty are significant determinants of behavioral intention to continue using cryptocurrencies. This study also revealed a significant effect of gambling attitudes and legal environment on the perceived benefits of cryptocurrencies. This study adds to the body of knowledge on cryptocurrency adoption by providing new insights into the factors that influence consumers' continued investment. Furthermore, the study has crucial practical implications for cryptocurrency firms in promoting this financial technology to users by increasing policymakers' understanding of how investors think and get inspired to continue investing in cryptocurrencies. © 2023 Ayman Abdalmajeed Alsmadi et al.

Awad, M.A., Samrraie, L., Abdalla, A.M., Alzoubi, O., Migdady, A., Yassein, M.B.

A Deep Learning Approach for Varicocele Detection from Ultrasound Images

(2023) 2023 14th International Conference on Information and Communication Systems, ICICS 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180541109&doi=10.1109%2fICICS60529.2023.10330493&partnerID=40&md5=b92db452333a821756fe77a220af5fac)

[85180541109&doi=10.1109%2fICICS60529.2023.10330493&partnerID=40&md5=b92db452333a821756fe77a220af5fac](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180541109&doi=10.1109%2fICICS60529.2023.10330493&partnerID=40&md5=b92db452333a821756fe77a220af5fac)

AFFILIATIONS: Al-Balqa Applied University, Irbid, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan;

College of Arts & Science, Applied Science University, Bahrain

ABSTRACT: Varicocele is a disease characterized by abnormal dilatation of the scrotal venous plexus pampiniformis. It is a common cause of infertility and may cause pain or discomfort in some cases. In this article, we present a new approach for automatic classification of varicocele using Deep

Learning convolutional neural networks. The available dataset consists of images converted to different color modes. Each color mode dataset is partitioned, augmented, and trained using a Deep Learning network. Experiments were conducted with all possible combinations of four different pre-trained models and over three color modes to determine the best combination that achieves the highest performance, with and without augmentation. Training and testing were evaluated using various metrics. Analysis of the results demonstrated the effectiveness of the proposed system. Results showed an accuracy of 83.1% with the RGB color mode when using ResNet50, and that the effect of augmentation was small. © 2023 IEEE.

Hendawi, S., Jararweh, Y., Zreqat, Y., Alzu'bi, S.

Cybersecurity Empirics: Evaluating Machine Learning Techniques for Phishing Detection (2023) 2023 14th International Conference on Information and Communication Systems, ICICS 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180536652&doi=10.1109%2fICICS60529.2023.10330476&partnerID=40&md5=9f06882191cbb534d07728974d663c1f)

[85180536652&doi=10.1109%2fICICS60529.2023.10330476&partnerID=40&md5=9f06882191cbb534d07728974d663c1f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180536652&doi=10.1109%2fICICS60529.2023.10330476&partnerID=40&md5=9f06882191cbb534d07728974d663c1f)

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Jordan;

Princess Sumaya University for Technology, King Talal of Business Technology, Amman, Jordan

ABSTRACT: TIn an age dominated by internet usage, the threat of phishing attacks continues to plague users and organizations alike. Traditional cybersecurity mechanisms often fail to cope with the evolving tactics of cybercriminals, leading to a growing interest in machine learning-based solutions. This research evaluates the performance of four different machine learning classifiers-K-Nearest Neighbors (KNN), Naïve Bayes (NB), Decision Tree, and Artificial Neural Network (ANN)-in identifying phishing activities. A Python code framework is utilized for this evaluation, employing stratified k-fold cross-validation for reliable results. Multiple performance metrics indicate that machine learning provides an adaptable and effective tool against phishing. This research serves as a stepping stone for future development in this crucial area, urging continuous advancements to stay ahead of ever-evolving cybersecurity threats. © 2023 IEEE.

Awad, M.A., Samrraie, L., Abdalla, A.M., Alzoubi, O., Migdady, A., Yassein, M.B.

Ovarian Cancer Detection in CT Scan Images Using Transfer Learning

(2023) 2023 14th International Conference on Information and Communication Systems, ICICS 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180529918&doi=10.1109%2fICICS60529.2023.10330434&partnerID=40&md5=8a90074b1d881116f7ed72a1c15481c3)

[85180529918&doi=10.1109%2fICICS60529.2023.10330434&partnerID=40&md5=8a90074b1d881116f7ed72a1c15481c3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180529918&doi=10.1109%2fICICS60529.2023.10330434&partnerID=40&md5=8a90074b1d881116f7ed72a1c15481c3)

AFFILIATIONS: Al-Balqa Applied University, Irbid, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan;

College of Arts & Science, Applied Science University, Bahrain

ABSTRACT: This research paper presents a system for classifying and detecting ovarian CT scan images using transfer learning and examines the effects of different tools on the solution quality. The methodology involves preprocessing, data augmentation, training, transformation, and filtering. The implementation experiments evaluate the system's performance with regard to using different combinations of color modes, filters, and training methods with and without augmentation of the training dataset in addition to the effect of using the discrete wavelet transform (DWT). Analysis of the implementation results indicated that augmentation and the DWT generally improved the results, while the choice of filters and color mode had a limited impact. Furthermore, using the stochastic gradient descent with momentum (SGDM) training method yielded better results compared to the Adam method. Overall, the recommended approach for the best outcomes consists of using the RGB color mode, SGDM training, augmentation, and the DWT without additional filters. © 2023 IEEE.

Yaseen, S.G.

Preface

(2023) Studies in Big Data, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180490353&partnerID=40&md5=bc6bc00aad74a193c62399596e5d9f75)

[85180490353&partnerID=40&md5=bc6bc00aad74a193c62399596e5d9f75](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180490353&partnerID=40&md5=bc6bc00aad74a193c62399596e5d9f75)

AFFILIATIONS: Faculty of Business, Information Systems and Business, Analytics Al-Zaytoonah

University of Jordan, Amman, Jordan

Yaseen, S.G.

Preface

(2023) Studies in Big Data, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180443937&partnerID=40&md5=818818a9cafb9fd962d83d909715ef57)

[85180443937&partnerID=40&md5=818818a9cafb9fd962d83d909715ef57](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180443937&partnerID=40&md5=818818a9cafb9fd962d83d909715ef57)

AFFILIATIONS: Faculty of Business, Information Systems and Business, Analytics Al-Zaytoonah

University, of Jordan, Amman, Jordan

Al Aboushi, A., Al-Qawabah, S., Abu Shaban, N., Al-Rawajfeh, A.E.

MECHANICAL PROPERTIES, MACHINABILITY AND CORROSION RESISTANCE OF ZAMAK5 ALLOYED BY COPPER

(2023) Archives of Metallurgy and Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180374971&doi=10.24425%2famm.2023.146205&partnerID=40&md5=e4e163d6c3ad726f0776e2d5bb8758ec)

[85180374971&doi=10.24425%2famm.2023.146205&partnerID=40&md5=e4e163d6c3ad726f0776e2d5bb8758ec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180374971&doi=10.24425%2famm.2023.146205&partnerID=40&md5=e4e163d6c3ad726f0776e2d5bb8758ec)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Mechanical Engineering Department, Amman, Jordan; Tafila Technical University, Tafila, 66110, Jordan

ABSTRACT: Due the importance of using commercially Zamak5 in a wide range in industrial applications, however, this study was focused on the enhancing its machining issues by adding pure copper, so the effect of the addition of (1 to 3)% Cu to commercially Zamak5 on its mechanical properties, microhardness, surface texture and corrosion resistance was investigated. A CNC machining tests, microhardness tests, corrosion test, compression test, and microhardness test were performed. It was found that there is an enhancement on the flow stress at 0.2 strain of about 19% for 3% Cu addition followed by 17% and 15% in the case of 2% Cu and 1% Cu respectively. There was an enhancement in microhardness of about 11.6% in the case of 3% Cu addition. The surface finish was improved by increasing the number of copper contents (1 to 3)% to the base material Za5. Polarization measurements revealed that 3% alloy specimen inhibit the corrosion by more than 70% compared with the blank sample. © 2023. The Author(s).

Almatarneh, Z., Zaqeeba, N., Jebril, I., Jarah, B.A.F.

The role of financial accounting technology in improving customer relationship management in Jordanian banks

(2023) Asian Economic and Financial Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180339266&doi=10.55493%2f5002.v13i12.4932&partnerID=40&md5=b02dec718a94641cac2704c694ec340f)

[85180339266&doi=10.55493%2f5002.v13i12.4932&partnerID=40&md5=b02dec718a94641cac2704c694ec340f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180339266&doi=10.55493%2f5002.v13i12.4932&partnerID=40&md5=b02dec718a94641cac2704c694ec340f)

AFFILIATIONS: Faculty of Business, Amman Arab University, Amman, 11953, Jordan;

Department of Accounting, Faculty of Administrative & Financial Sciences, Irbid National University, Irbid, 21110, Jordan;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This study aims to investigate the role of financial accounting technology in improving customer relationship management (CRM) in Jordanian banks. The study used a questionnaire survey based on previous relevant literature to obtain the necessary data. Using a quantitative analysis method, a random sample of 113 employees working in Jordanian banks was selected. The bootstrapping method was used to investigate the connection between financial accounting technology and CRM. To comprehend the significance levels, the path coefficients, T-values, and p-values are the most typical outcomes in the structural model. The direct effects showed that financial accounting technology, including innovation, flexibility and transparency, had a significant positive effect on CRM. In line with the results, relying on financial accounting technology in banking transactions enables the creation of global electronic markets that contribute to economic growth, and banks' use of financial accounting technology can provide high-quality services for customers. The outcome of this study lays the groundwork for future research to advance the knowledge in this field. © 2023 AESS Publications. All Rights Reserved.

Alamayreh, M.I., Abdelhafez, E., Abudawood, O., Al-Kouz, W.

Scrutinization of Coated Solar Collector Efficiency with Nanoparticles

(2023) 2023 12th International Conference on Power Science and Engineering, ICPSE 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180014101&doi=10.1109%2fICPSE59506.2023.10329302&partnerID=40&md5=ce38a2ee734ac13adfb893008c0ebb99)

[85180014101&doi=10.1109%2fICPSE59506.2023.10329302&partnerID=40&md5=ce38a2ee734ac13adfb893008c0ebb99](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180014101&doi=10.1109%2fICPSE59506.2023.10329302&partnerID=40&md5=ce38a2ee734ac13adfb893008c0ebb99)

AFFILIATIONS: Al-Zaytoonah University, Faculty of Engineering and Technology, Department of Alternative Energy Technology, Amman, Jordan;

American University of the Middle East, College of Engineering and Technology, Kuwait

ABSTRACT: This study analyzes the effects of nanofluids on the efficiency of a coated indirect solar collector under various operating conditions. The irradiance level improved the efficiency of the coated solar collector by approximately 1-3% using a water-based aluminum nanofluid for the same nanoparticle size and volume fraction. The solar collector efficiency was significantly affected by the irradiance level, as opposed to the small impact of the nanoparticle percentages. Moreover, a higher irradiance level increases the energy of the nanoparticles and enhances their impact. The impact of the nanofluid mass flow rate was also investigated and evaluated by varying the volume fraction of the nanoparticles. The improvement was promising, at approximately 3%. Because of the superior thermal conductivity, heat capacity, and fluid field provided by the nanoparticles, solar collectors are more efficient. The study also evaluated the impact of varying the nanoparticle types using Al₂O₃, ZnO, and TiO₂ at the same mass flow rate, irradiance level, and volume fraction. The solar collector efficiency values changed slightly owing to the change in the nanoparticle type for the same concentration and mass flow rate. The results showed similar efficiencies for all types of

nanoparticles. Owing to the thermophysical properties and particle size of TiO₂, the solar collector efficiency was slightly higher than that of ZnO and Al₂O₃ in this case. © 2023 IEEE.

Al-Fayoumi, M.A., Al-Mimi, H.M., Veisi, A., Al-Aqrabi, H., Daoud, M.S., Eftekhari-Zadeh, E. Utilizing Artificial Neural Networks and Combined Capacitance-Based Sensors to Predict Void Fraction in Two-Phase Annular Fluids Regardless of Liquid Phase Type (2023) IEEE Access, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179834728&doi=10.1109%2fACCESS.2023.3340127&partnerID=40&md5=108cf209d2ccdc1b9143490e93ff6615)

85179834728&doi=10.1109%2fACCESS.2023.3340127&partnerID=40&md5=108cf209d2ccdc1b9143490e93ff6615

AFFILIATIONS: Princess Sumaya University for Technology (PSUT), King Hussein School of Computing Sciences, Department of Cybersecurity, Amman, 11941, Jordan;

Al-Zaytoonah University of Jordan, Department of Cybersecurity, Amman, 11733, Jordan;

Kermanshah University of Technology, Department of Electrical Engineering, Kermanshah, 6715685420, Iran;

Higher Colleges of Technology, Department of Computer Information Science, Sharjah, United Arab Emirates;

Al Ain University, College of Engineering, Abu Dhabi, United Arab Emirates;

Institute of Optics and Quantum Electronics, Abbe Center of Photonics, Friedrich Schiller University Jena, Jena, 07743, Germany

ABSTRACT: Assessing the void fraction in diverse multiphase flows across industries, including petrochemical, oil, and chemical sectors, is crucial. There are multiple techniques available for this objective. The capacitive sensor has gained significant popularity among these methods and has been extensively utilized. Fluid properties have a substantial impact on the performance of capacitance sensors. Factors such as density, pressure, and temperature can introduce significant errors in void fraction measurements. One approach to address this issue is a meticulous and laborious routine calibration process. In the current study, an artificial neural network (ANN) was developed to accurately Assess the proportion of gas in a biphasic fluid motion, irrespective of variations in the fluid phase form or variations, eliminating the need for frequent recalibration. To achieve this objective, novel combined capacitance-based sensors were specifically designed. The sensors were simulated by employing the COMSOL Multiphysics application. The simulation encompassed five distinct liquids: oil, diesel fuel, gasoline, crude oil, and water. The input for training a multilayer perceptron network (MLP) came from data gathered through COMSOL Multiphysics, simulations for estimating the Percentage of gas content of an annular two-phase fluid with a specific liquid form. The MATLAB software was utilized to construct and model the proposed neural network. The utilization of the novel and precise apparatus for measuring the intended MLP model demonstrated the ability to prognosticate the volume percentage with a mean absolute error (MAE) of 0.004. © 2013 IEEE.

Batiha, I.M., Jebril, I.H., Zuriqat, M., Kanaan, H.S., Momani, S.

An Efficient Approach for Solving One-Dimensional Fractional Heat Conduction Equation

(2023) Frontiers in Heat and Mass Transfer, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179732337&doi=10.32604%2ffhmt.2023.045021&partnerID=40&md5=f5ac055169b3d4cc6b2e1ef30a4e780e)

85179732337&doi=10.32604%2ffhmt.2023.045021&partnerID=40&md5=f5ac055169b3d4cc6b2e1ef30a4e780e

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Mathematics, Al al-Bayt University, Mafraq, 130095, Jordan;

Department of Mathematics, Irbid National University, Irbid, 2600, Jordan;

Department of Mathematics, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Several researchers have dealt with the one-dimensional fractional heat conduction equation in the last decades, but as far as we know, no one has investigated such a problem from the perspective of developing suitable fractional-order methods. This has actually motivated us to address this problem by the way of establishing a proper fractional approach that involves employing a combination of a novel fractional difference formula to approximate the Caputo differentiator of order α coupled with the modified three-point fractional formula to approximate the Caputo differentiator of order 2α , where $0 < \alpha \leq 1$. As a result, the fractional heat conduction equation is then reexpressed numerically using the aforementioned formulas, and by dividing the considered mesh into multiple nodes, a system is generated and algebraically solved with the aid of MATLAB. This would allow us to obtain the desired approximate solution for the problem at hand. © 2023, Tech Science Press. All rights reserved.

AlZu'bi, S., Hendawi, S., Altalihin, I., Almiani, M., Mughaid, A.

Securing the Digital Fortress: Unveiling the Modern Battleground for Sustainable OSs and the Digital Threatscape

(2023) 2023 8th International Conference on Fog and Mobile Edge Computing, FMEC 2023, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85179525580&doi=10.1109%2fFMEC59375.2023.10306151&partnerID=40&md5=db7a610f140eeacd2907ffff403ec490

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, Jordan;

Gulf University of Science and Technology, Kuwait;

The Hashemite University, Zarqa, 13133, Jordan

ABSTRACT: The increasing prevalence of cyber threats necessitates the exploration of cybersecurity challenges in sustainable operating systems. This research paper addresses these challenges by examining the dynamic landscape of cyber threats and the modifications required in operating systems to ensure robust security measures. Through the classification of these threats, the diverse nature of attacks faced by operating systems is revealed, highlighting the need for proactive security measures. Furthermore, the study investigates current cyber security solutions and prevention mechanisms employed to mitigate these threats. It also explores the modifications and challenges that operating systems must undergo in response to cybersecurity crimes, emphasizing the significance of proactive measures to address vulnerabilities exploited by cybercriminals. © 2023 IEEE.

Mughaid, A., Obeidat, I., Shdaifat, A., Alhayjna, R., AlZu'bi, S.

Modelling And Simulation For Detecting Vulnerabilities And Security Threats Of Smart Contracts Using Machine Learning

(2023) 2023 8th International Conference on Fog and Mobile Edge Computing, FMEC 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179523397&doi=10.1109%2fFMEC59375.2023.10305867&partnerID=40&md5=658d6d3527d0bcc086a6fcdb8693c6be)

85179523397&doi=10.1109%2fFMEC59375.2023.10305867&partnerID=40&md5=658d6d3527d0bcc086a6fcdb8693c6be

AFFILIATIONS: Department of Information Technology, Faculty of prince Al-Hussien bin Abdullah || for IT, The Hashemite University, PO Box 330127, Zarqa, 13133, Jordan;

Computer Science Department, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Recently, the use and development of a blockchain systems such as Ethereum has increased rapidly, and many systems have relied on a third party as an intermediary between the sender and the receiver. Despite the attempts of developers to protect smart contracts, smart contracts contain many vulnerabilities that hackers resort to exploiting and using due to the attack that caused many financial and economic losses, and with the increase of errors in smart contracts, there are many tools and methods. For the analysis of smart contracts, machine learning models have appeared that facilitate their discovery instead of extracting them manually. In this paper, We have built a model that attempts to cancel the third party and we used machine learning to identify valid and invalid smart contracts. We have used several models and compared them with previous results of previous work in the same field. The result of this research was as expected of height accuracy achieved with approximately.99%. © 2023 IEEE.

Omar, A., Al-shari, A., Shah, S.H.A., Erkol Bayram, G., Zameer Rahman, E., Valeri, M.

Green manufacturing practices and SMEs' sustainable performance: a moderated mediation mechanisms of green innovation and managerial discretion

(2023) European Business Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179338266&doi=10.1108%2fEBR-06-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179338266&doi=10.1108%2fEBR-06-2023-0186&partnerID=40&md5=aff3c235a88f60dce28983d2e7658669)

0186&partnerID=40&md5=aff3c235a88f60dce28983d2e7658669

AFFILIATIONS: Department of Graphic Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Graphic Design, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Business Studies Department, Bahria University, Islamabad, Pakistan;

Department of Tour Guiding, Tourism Faculty, Sinop University, Sinop, Turkey;

Management Sciences Department, Bahria University, Islamabad, Pakistan;

Faculty of Economics, Niccolò Cusano University, Roma, Italy

ABSTRACT: Purpose: Drawing on the resource-based view, ecological modernization theory and upper-echelon theory, this study aims to explore how green manufacturing practices (GMGP) affect the sustainable performance of small and medium enterprises (SMEs). Design/methodology/approach: It also examines the mediating role of green innovation (GIN) and the moderating role of managerial discretion (MD). To test the hypothesized model, the data was collected from 394 manufacturing SMEs through survey and analyzed using SPSS and AMOS (SEM). Findings: The results provide evidence for the positive relationship between GMGP and corporate sustainable performance (CSPR), mediated by GIN. Furthermore, the presence of MD enhances the positive effect of GMGP on CSPR through GIN. Thus, this study enhances the understanding of the relationship between GMGP and CSPR, including its underlying mechanism and conditional effects. Research limitations/implications: This study collected sample from SMEs located in Punjab province of Pakistan which represents majority of the SMEs; however, future research can take data from other province and with large sample size. Practical implications: The findings highlight the significance of GMGP and GIN in the manufacturing sector for attaining CSPR goals. GMGP guides business leaders to be more inclined toward the energy and resource consumption as well as waste generation within their organizations which lead to improved CSPR outcomes. Originality/value: The findings of this study make significant contributions to the existing literature, shedding light on the dynamics between GMGP and CSPR. Moreover, the study offers

managerial implications for organizations aiming to enhance their sustainable performance by implementing effective GMGP. © 2023, Emerald Publishing Limited.

Bataineh, A.Q., Abu-Alsondos, I.A., Idris, M., Mushtaha, A.S., Qasim, D.M.

The Role of Big Data Analytics in Driving Innovation in Digital Marketing

(2023) 2023 9th International Conference on Optimization and Applications, ICOA 2023 - Proceedings, .
[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179123177&doi=10.1109%2fICOA58279.2023.10308854&partnerID=40&md5=8cd741b8453eab19a4f5c26d88e228f7)

85179123177&doi=10.1109%2fICOA58279.2023.10308854&partnerID=40&md5=8cd741b8453eab19a4f5c26d88e228f7

AFFILIATIONS: Al-Zaytoonah University of Jordan, Digital Marketing, Amman, Jordan;

American University in the Emirates, It Management, Dubai, United Arab Emirates;

Applied Science Private University, Accounting, Amman, Jordan;

American University in the Emirates, Healthcare Management, Dubai, United Arab Emirates

ABSTRACT: This paper delineates how telecommunications companies in Jordan can harness the power of big data analytics to enhance their digital marketing strategies. Its role is substantial in promoting creative businesses concerning intelligent technologies, as the telecommunications industry is fundamentally associated with it. The dynamic capability of an organization's aptitude to build and reconfigure its external and internal competencies to tackle rapid environmental changes is unavoidable. This perspective suggests that digital marketing can promptly adjust its resources and processes to address environmental threats and opportunities. The capability of the dynamic framework is a persuasive instrument in the digital economy for producing, employing, and transforming business models. On the other hand, digital marketing enhances business performance, focusing on customer retention, brand loyalty, and customer satisfaction. Primary data was collected through the questionnaires for Zain Jordan, Umniah, and Orange Jordan, which was analyzed by SPSS to develop regression analysis. The curve analysis shows that the p-value for Zain Jordan and Orange Jordan are 0.576 and 0.339, respectively. Although subscribers showed confidence in Zain Jordan, but they need to minimize the complexity to enhance the performance. © 2023 IEEE.

Deeb, A.A., Abuothman, M., Hailat, M., Abuyaman, O., Albizreh, R.K.

Analyzing the presence of ten synthetic colors in selected food and drink samples using ultra high-performance liquid chromatography diode array detection analysis

(2023) Acta Chromatographica, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179106886&doi=10.1556%2f1326.2023.01175&partnerID=40&md5=a464dda1b1296e8c4dc1f6e9feb1be4)

85179106886&doi=10.1556%2f1326.2023.01175&partnerID=40&md5=a464dda1b1296e8c4dc1f6e9feb1be4

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Automated Chemical Laboratories, Royal Scientific Society, Amman, 11941, Jordan;

Department of Medical Laboratory Sciences, Faculty of Applied Medical Sciences, The Hashemite University, Zarqa, 13133, Jordan

ABSTRACT: Coloring agents in foods and drinks have been popular for centuries. This study aims to analyze the presence of ten synthetic colors (namely, (allura red (E129), amaranth (E123), sunset yellow (E110), tetrazine (E102), fast green (E143), ponceau 4R (New Coccine) (E124), erythrosin B (E127), brilliant blue FCF (E133), brilliant black (E151) and carmoisine (E122))) in food and drink samples using ultra-high-performance liquid chromatography diode array detection (UHPLC-DAD). The present analytical method was carried out using Agilent Poroshell 120 HPH-C18 column, 3 × 100 mm, 2.7 µm, and a mobile phase consisting of 10 mM Na₂HPO₄, pH 7, mixed with methanol as a time-increment gradient solution until the time was 20 min, then decreased with time until the time was 26 min. The pH was set by orthophosphoric acid at 7 and 5 µL injection volume, 0.50 mL flow rate, and the elution systems were monitored at 428 nm for E102, 518 nm for E124, E110, E129, E122, 530 nm for E151, E127, 622 nm for E143, and E133, respectively. The limit of detection and quantification for all colors ranged from 0.017 to 0.025 and 0.057 and 0.082 mg L⁻¹, respectively. The correlation coefficient values ranged between 0.9991 and 1.0. The selectivity of the assay revealed no interference from other components in the analyzed samples. The percent recovery and precision (intra- and inter-day) of the spiked samples were within the acceptable limits of the ICH guidelines. Five analytical parameters were employed, and the results showed a new, novel, and robust method according to ICH guidelines for analyzing these colors. While most of the investigated food and drinks fell within the accepted range, some fell outside. The current sample preparation and analytical methods are comprehensive and universal for extracting and measuring synthetic colors in various food and drink samples. © 2023 The Author(s).

Al-Mimi, H., Hamad, N.A., Abualhaj, M.M.

A Model for the Disclosure of Probe Attacks Based on the Utilization of Machine Learning Algorithms (2023) Proceedings - 2023 10th International Conference on Electrical and Electronics Engineering, ICEEE 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179009961&doi=10.1109%2fICEEE59925.2023.00051&partnerID=40&md5=aeee135076bdc645698965d3e47d50c3)

85179009961&doi=10.1109%2fICEEE59925.2023.00051&partnerID=40&md5=aeee135076bdc645698965d3e47d50c3

85179009961&doi=10.1109%2fICEEE59925.2023.00051&partnerID=40&md5=aeee135076bdc645698965d3e47d50c3

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Department of Cybersecurity, Amman, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Department of Artificial Intelligence, Amman, Jordan;

Al-Ahliyya Amman University, Faculty of Information Technology, Department of Networks and Information Security, Amman, Jordan

ABSTRACT: The Probe attack is one of the most perilous kinds of cyberattacks since its primary objective is to get knowledge on the vulnerabilities of the target network. In the course of this research, an Intrusion Detection and Prevention Systems (IDPS) detection model that can identify Probe attacks will be developed using machine learning approaches. The proposed Probe attack detection model was examined by utilizing the NSL-KDD dataset in conjunction with the Support Vector Machine method, Naive Bayes method, Decision Tree method, Random forest method, Logistic Regression method, and K-nearest neighbor method. Matthews Correlation Coefficients (MCC), Recall, Precision and Accuracy are the metrics that are utilized in order to make a comparison between these six methods. In general, the performance of all methods is satisfactory when using the suggested model. On the other hand, the Random forest approach has shown the best performance across all six measures, while the Naive Bayes method gave the worst results possible. © 2023 IEEE.

Abualruz, H., Al-Ghabeesh, S.H., El-Gazar, H., Tabar, N.A., Al-Sharyah, H., Al-Sarayreh, R., Abousoliman, A.

The impact of utilizing inclusive leadership among nurses during crises: A multisite comparative study

(2023) Journal of Medicine and Life, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178945229&doi=10.25122%2fjml-2023-0159&partnerID=40&md5=3e51279e4cec5c2808d6064722201b8b>

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Port Said University, Port Fuad, Egypt;

Fatima College of Health Sciences, Al Ain, United Arab Emirates;

AL-Ghad International Colleges for Applied Medical Sciences, Najran, Saudi Arabia;

Prince Sattam Bin Abdulaziz University, Riyadh, Saudi Arabia;

Faculty of Nursing, Kafr Elsheikh University, Kafr El Sheikh, Egypt

ABSTRACT: Nurses' psychological wellness and satisfaction are threatened by exposure to many stressors. Adopting a promising leadership style has beneficial impacts at different levels, especially during crises. This study aimed to examine the impact of inclusive leadership on nurses' satisfaction and psychological distress during crises, focusing on three Arabic countries. A cross-sectional descriptive design was utilized to meet the study goal. Data were collected electronically in the three countries using the Kessler Psychological Distress Scale (K-10), Minnesota Satisfaction Questionnaire, and Carmel's Inclusive Leadership Scale. Two hundred seventy-four participants fully responded: 90 from Egypt, 82 from Saudi Arabia, and 102 from Jordan. Descriptive statistics, Pearson R, Spearman Rho, Point biserial, and ANOVA tests were used to answer the research questions. There were statistically significant differences between countries in the mean scores of inclusive leadership and psychological distress. In addition, statistically significant relationships between inclusive leadership, psychological distress, and job satisfaction were found. The study focused on the importance of approaching inclusive leadership to increase employee satisfaction, reduce psychological distress, and achieve organizational goals. © 2023, Carol Davila University Press. All rights reserved.

Al-Afeef, M.A., Al-Dweik, A.'F., Alsmadi, A.A., Al-Gasaymeh, A., Alrawashdeh, N.

The Impact of Military Expenditure on the Economic Growth in Developing Countries: Evidence from Jordan

(2023) Contributions to Management Science, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178945028&doi=10.1007%2f978-981-99-6101-6_66&partnerID=40&md5=14237d0a69151a46fb781825bd249c03

AFFILIATIONS: School of Business, Finance and Banking Department, Al-Bayt University, P.O.BOX 130040, Mafraq, 25113, Jordan;

Al Zaytoonah University of Jordan, Amman, Jordan;

Applied Science University, Amman, Jordan;

Isra University, Amman, Jordan

ABSTRACT: Unquestionably, all nations' top priorities are international peace and long-term, sustainable economic growth. The objective of this study is to scientifically assess how Jordan's military spending has affected economic development between 1970 and 2020. The current study defined a growth equation proposed by Solow based on the body of knowledge already available on growth theories. As a result, we add to the empirical literature in this work by utilizing the OLS approach to investigate the connection between military spending and economic growth. As a result, the goal of this study is to examine the relationship between military spending and economic development in

Jordan from 1970 to 2020. Jordan has a rapidly rising economy and a middle-level military budget. According to the empirical findings, military spending has little effect on GDP. Additionally, the result indicates that the macro factors each represents (GDP per Capita, Gross Capital Formation, and Population Growth) have a favorable influence on GDP in Jordan. © The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd 2023.

Shaban, O.S., Barakat, A.

THE IMPACT OF SUSTAINABILITY REPORTING ON A COMPANY'S FINANCIAL PERFORMANCE: EVIDENCE FROM THE EMERGING MARKET

(2023) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178941758&doi=10.22495%2fjgrv12i4siart10&partnerID=40&md5=4acb680fae25df145917adfd7f313fd6)

[85178941758&doi=10.22495%2fjgrv12i4siart10&partnerID=40&md5=4acb680fae25df145917adfd7f313fd6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178941758&doi=10.22495%2fjgrv12i4siart10&partnerID=40&md5=4acb680fae25df145917adfd7f313fd6)

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Finance and Investment Department, Faculty of Business Administration, University of Tabuk, Tabuk, Saudi Arabia

ABSTRACT: The potential impact of sustainability reporting on a company's financial performance could be measured through its stock price, profitability, or other financial metrics. This research aims to investigate the relationship between sustainability reporting and financial performance, in order to provide insights for companies, investors, and other stakeholders on the potential benefits and drawbacks of sustainability reporting. The research community of this study is formed out of all the 13 Jordanian commercial banks listed in the Amman Stock Exchange, and covering the period from 2012-2021. The study is a census study as it involves collecting data from every member of the study population, which allows for a comprehensive analysis of the relationship between sustainability reporting and financial performance. The data was collected from publicly available sources and analyzed using multiple regression analysis. The results of the study suggest that there is a strong linear relationship between sustainability reporting and the dependent variables return on assets (ROA) and financial leverage (LEV), but the relationship between sustainability reporting (SR) and return on equity (ROE) is not statistically significant. These findings provide insights for companies, investors, and other stakeholders on the potential benefits and drawbacks of sustainability reporting and can inform decisionmaking around sustainability initiatives. © 2023 The Authors.

Al-Ibbini, O.A., Shaban, O.S.

IMPACT OF LEGAL LIQUIDITY RATIO ON PROFITABILITY: A LONGITUDINAL STUDY OF AN EMERGING MARKET

(2023) Corporate Governance and Organizational Behavior Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178904249&doi=10.22495%2fjgobrv7i4sip5&partnerID=40&md5=4a1bfb5031246d30fed3af97e3bb1396)

[85178904249&doi=10.22495%2fjgobrv7i4sip5&partnerID=40&md5=4a1bfb5031246d30fed3af97e3bb1396](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178904249&doi=10.22495%2fjgobrv7i4sip5&partnerID=40&md5=4a1bfb5031246d30fed3af97e3bb1396)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The study examined the relationship between the legal liquidity ratio and profitability of Jordanian commercial banks over 18 years from 2003 to 2021. The research employed a longitudinal research design using secondary data obtained from the Central Bank of Jordan's annual reports. The data was analyzed using descriptive statistics, correlation analysis, and multiple regression analysis. The results showed that there is a significant negative relationship between the legal liquidity ratio and profitability in the short term, while in the long term, there is a significant positive relationship between the legal liquidity ratio and profitability. The study also found that the size of the bank has a significant positive impact on profitability, while the age of the bank has a significant negative impact on profitability. Furthermore, the ownership structure of the bank was found to have a significant positive impact on profitability. The study recommends that commercial banks in Jordan should maintain a balanced legal liquidity ratio to ensure short-term stability while aiming for long-term profitability. Banks should also consider their size, age, and ownership structure when making decisions regarding their legal liquidity ratio and profitability. © 2023 The Authors.

Makahleh, F., Attar, H., Manasrah, A., Nassar, A., Amer, A., Alsaqoor, S., Borowski, G., Alahmer, A.

Simulation of SESAME's Synchrotron Storage Ring for the Pressure Predictions in Vacuum System

(2023) Advances in Science and Technology Research Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178875089&doi=10.12913%2f22998624%2f174516&partnerID=40&md5=879ed8ee0a96f923e93de27d7c05644e)

[85178875089&doi=10.12913%2f22998624%2f174516&partnerID=40&md5=879ed8ee0a96f923e93de27d7c05644e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178875089&doi=10.12913%2f22998624%2f174516&partnerID=40&md5=879ed8ee0a96f923e93de27d7c05644e)

AFFILIATIONS: Mechanical Engineering, Mechanical Engineering Dept., Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Energy Engineering, Department, Faculty of Engineering Technology, Zarqa University, Zarqa, Jordan;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, Tafila, Jordan;

Renewable Energy Technology, Applied Science Private University, Amman, Jordan;

Faculty of Environmental Engineering, Lublin University of Technology, Nadbystrzycka 40B, Lublin, 20-618, Poland;

Department of Mechanical Engineering, Tuskegee University, Tuskegee, AL 36088, United States

ABSTRACT: Many particle accelerators rely on maintaining low pressures to ensure efficient operation, minimize beam losses, and reduce radiation background. To ensure a beam lifetime of 1–20 hours for the Synchrotron-light for Experimental Science and Applications in the Middle East (SESAME) vacuum system, an ideal average dynamic pressure of 1×10^{-9} mbar was targeted. This pressure was intended to be maintained while running the accelerator at a current of 400 mA after a cumulative dose of 100 Ah. In this study, a MATLAB code was employed to develop a series of one-dimensional equations that simulate the behavior of the vacuum system within the SESAME storage ring. The proposed model was then compared with the results generated by the VACCALC software and the Particle Monte Carlo (TPMC) MOLFLOW code, establishing a comprehensive assessment framework. The collected data from the model was subsequently compared with the recorded static and dynamic pressure measurements obtained during more than 1000 Ah of beam conditioning at 2.5 GeV. In results, the projected and actual values of dynamic pressures exhibited a satisfactory degree of agreement across the investigated range of beam conditioning doses, with a consistency factor exceeding 2 after a 100 Ah dose. © 2023, Politechnika Lubelska. All rights reserved.

Rawajbeh, M.A., Alzu'bi, S., Alkhatib, A.

IoT-Paradigm: Evolution Challenges and Proposed Solutions

(2023) Proceedings of 2023 IEEE International Smart Cities Conference, ISC2 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178379179&doi=10.1109%2fISC257844.2023.10293646&partnerID=40&md5=7c2bfa766ee908d641c7c4ed59230cbc)

[85178379179&doi=10.1109%2fISC257844.2023.10293646&partnerID=40&md5=7c2bfa766ee908d641c7c4ed59230cbc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178379179&doi=10.1109%2fISC257844.2023.10293646&partnerID=40&md5=7c2bfa766ee908d641c7c4ed59230cbc)

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;

Al Zaytoonah University of Jordan, Department of Cybersecurity, Amman, Jordan

ABSTRACT: The tremendous increase of using intelligent devices brought by the Internet of Things technology was a success to change the shape and nature of provided services in the digital world. That paradigm is based on sensors, actuators, and other smart devices that collect process, and store data. The variety of smart devices, platforms, applications, and protocols used in different IoT systems led to the emergence of many challenges. In this paper, the authors highlighted the most critical four challenges: security, interoperability, heterogeneity, and scalability. A literature review of the latest proposed solution is conducted and an analysis of the effectiveness of these approaches is provided. As a result of the analysis, no one proposed solution can satisfy the requirements for solving obstacles, since each approach deals with a specific component of the IoT system. The authors concluded that the solution should start with developers to produce more capable, adaptable, and compatible devices that meet the required and emergency requirements besides the need for unified standards to govern the deployment of IoT systems. © 2023 IEEE.

Suwais, K., Hnaif, A.A., Almanasra, S.

An Alternative Static Taint Analysis Framework to Detect PHP Web Shell-Based Web Attacks

(2023) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178349752&doi=10.15849%2fIJASCA.231130.08&partnerID=40&md5=2aa68755aaafab28367258795344efcb)

[85178349752&doi=10.15849%2fIJASCA.231130.08&partnerID=40&md5=2aa68755aaafab28367258795344efcb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178349752&doi=10.15849%2fIJASCA.231130.08&partnerID=40&md5=2aa68755aaafab28367258795344efcb)

AFFILIATIONS: Faculty of Computer Studies, Arab Open University, Saudi Arabia;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Web shell attacks through malicious PHP scripts allow attackers to execute system commands remotely and take control of web servers. Most existing PHP shell detection methods rely on signature matching, which can be evaded by obfuscation. This paper proposes an alternative static taint analysis framework to detect PHP web shell attacks by modeling data flows from untrusted inputs to sensitive sinks. The proposed web shell attacks detector takes PHP source code as input and performs a staged analysis, including lexical analysis to tokenize the code, syntactic analysis to generate a parse tree, semantic analysis to extract variables and functions into a dependency control flow graph (D-CFG), dataflow analysis to track taint through the D-CFG and identify flows from untrusted sources like `$_GET` to sinks like shell commands, and evaluation to compare identified flows to known malicious patterns and check for indications of a web shell attack. Each stage builds on the previous one, and the whole process aims at reliably detecting PHP web shell threats through static taint analysis of program flows from origin to system execution. It conducts a hybrid analysis using lexical, syntactic, and semantic analysis of the abstract syntax tree. Static taint analysis is a program analysis technique used to identify how untrusted data propagated through a codebase without executing the program. Also, static taint analysis helps find security issues by modeling how untrusted inputs interact with critical operations via a static code inspection rather than dynamic execution. Results on a PHP web shells dataset showed that our framework could achieve 95% recall and 90% precision, outperforming existing static and dynamic analysis methods. The approach also had fewer false positives than signature-based methods. The evaluation demonstrates the framework's capabilities in precisely detecting web shell attacks with high accuracy. © Al-Zaytoonah University

of Jordan (ZUJ).

Alawneh, Y.J., Al-Momani, T., Salman, F.N., Al-Ahmad, S.D., Kaddumi, T.A., Al-Dlalah, M.
A Detailed Study Analysis of Artificial Intelligence Implementation in Social Media Applications
(2023) 2023 3rd International Conference on Advance Computing and Innovative Technologies in
Engineering, ICACITE 2023, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85178318632&doi=10.1109%2FICACITE57410.2023.10182840&partnerID=40&md5=f2d38d9b771df488a9f3d70955f8ad29

AFFILIATIONS: Al-Zaytoonah University of Jordan, Curriculum and Instruction in Mathematics Education, Jordan;

Al-Quds Open University, Israel;

Al-Zaytoonah University of Jordan, Educational Administration, Jordan;

Applied Science Private University, Faculty of Business, Department of Finance and Banking Sciences, Amman, Jordan;

Isra University, Pakistan

ABSTRACT: Artificial intelligence (AI) refers to a field of computer science that focuses on developing intelligent machines capable of performing tasks that require human-level cognition, such as natural language processing and object recognition. This technology has the potential to address some of society's most challenging problems. Social media platforms have become ubiquitous in our daily lives, with platforms like Facebook, Twitter, Instagram, Pinterest, and YouTube facilitating connections and content sharing among users. To function properly, these platforms are increasingly reliant on AI technology. AI is transforming the way social media operates, and its use in this context is growing at an unprecedented rate. This paper aims to examine the various AI tools currently available and their impact on social media companies, paving the way for a deeper understanding of the role of AI in the social media landscape. © 2023 IEEE.

Sabbah, D.A., Hajjo, R., Sunoqrot, S.

A Critical Assessment of COVID-19 Genomic Vaccines

(2023) Current Topics in Medicinal Chemistry, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85178302676&doi=10.2174%2F1568026623666230825094341&partnerID=40&md5=a8e4d8515a39103b7d5c2d8d4cfc0ff1

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, United States;

National Center for Epidemics and Communicable Disease Control (JCDC), Amman, Jordan

ABSTRACT: Vaccines are instrumental tools to fight against novel and re-emerging pathogens and curb pandemics. Vaccination has been an integral part of the multifaceted public health response to the COVID-19 pandemic. Diverse vaccine platforms have been designed and are currently at different stages of development. Some vaccines are still in early biological testing, while others have been launched after being approved by regulatory agencies worldwide. Genomic vaccines that deliver parts of the viral DNA or RNA to host cells have gained popularity recently due to their high efficiency and fast manufacture. Furthermore, recent clinical studies encouraged the use of different vaccine platforms within the primary vaccination course to enhance the efficacy of vaccination. Herein, we discuss COVID-19 genomic vaccines, which deliver viral genetic material to host cells through diverse biotechnology platforms, including viral vector vaccines, messenger RNA nucleic acid vaccines, and DNA nucleic acid vaccines. We compare and contrast vaccine characteristics, composition, and pros and cons among different genomic vaccine platforms as well as non-genomic vaccines. This review summarizes all current knowledge about COVID-19 genomic vaccines, which could be highly valuable to researchers interested in public health and vaccine development. © 2023 Bentham Science Publishers.

Alnaimat, M.A., Kharit, O., Purhani, S., Symonenko, O., Bratus, H.

The Impact of using Blockchain on the Auditing Profession

(2023) WSEAS Transactions on Information Science and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85178276488&doi=10.37394%2F23209.2023.20.39&partnerID=40&md5=fef2f0e052da9832eef25e5b2295f8ef

AFFILIATIONS: Department of Banking and Financial Sciences, Faculty of Business, Alzaytoonah University of Jordan, St 594, Airport Rd., Amman, Jordan;

Israel Institute of Technology Technion, Haifa, 3200003, Israel;

Department of Finance and Accounting, Faculty of Economics and Business, Western Caspian University, 31 Istiglaliyyat Str., Baku, AZ1001, Azerbaijan;

Department of Statistics and Economic Analysis, Faculty of Economics, National University of Life and Environments Sciences of Ukraine, 11 Heroes of Defense Str., Building No. 10, Kyiv, 03041, Ukraine;

Department of Economics and Business Management, Interregional Academy of Personnel Management, 2 Frometivska Str., Kyiv, 03039, Ukraine

ABSTRACT: Rapid technological changes cause several challenges for established processes and approaches to the auditing. A special role in this context is assigned to the blockchain as a key driving force in changes in auditing. The aim of the article is to identify the key features of blockchain's impact on auditing. The research employs economic and statistical methods, namely trend analysis, in-depth semi-structured interviews, assessment of the economic effect to identify the main changes in auditing under the influence of blockchain technologies. The experience of using blockchain was studied through a sample of 27 auditors from Azerbaijan, Israel, and Jordan. The respondents indicated changes in the operational work of auditors (88,9% of respondents) among the main areas of influence of blockchain technologies. The surveyed auditors also consider it necessary to improve auditors' IT skills under the influence of blockchain (88,9% of respondents). The respondents emphasize the appropriateness to change the audit methodology under the influence of blockchain (77,8% of respondents). The surveyed auditors see the prospect in using real-time auditing (55,6% of respondents) and other higher value-added services (44,4% of respondents). Data from the financial statements of the 4 largest auditing companies were analyzed to determine the economic effect of the impact of blockchain on auditing. It was determined that the average annual growth rate under the basic scenario is 6.9% for 2023-2025, or \$72.1 billion on average per company in 2025. The prospects for further research are studying the directions of strategic and operational transformations in auditing because of the influence of blockchain in terms of audit methodology, organizational structure of audit companies. © Authors 2023.

Albashtawy, M., Alhroub, N., Zafar, Z., Hamaideh, S., Al-Osoufe, L., Malak, M., Bashtawi, M., Abdalrahim, A., Rayan, A., Albashtawy, S., Alkhalwaldeh, A., Aljezawi, M., Jallad, M., Abu Khader, I., Albashtawy, B., Al-Kharabsheh, M.

Prevalence and Triggering Factors of Headache among Jordanian Adolescents in Al-Mafraq Region (2023) Scientific World Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178186985&doi=10.1155%2f2023%2f5548694&partnerID=40&md5=7bc9fdb8ac1fe92bb7275b882bcaafc1)

[85178186985&doi=10.1155%2f2023%2f5548694&partnerID=40&md5=7bc9fdb8ac1fe92bb7275b882bcaafc1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178186985&doi=10.1155%2f2023%2f5548694&partnerID=40&md5=7bc9fdb8ac1fe92bb7275b882bcaafc1)

AFFILIATIONS: Department of Community and Mental Health, Princess Salma Faculty of Nursing, Al Al-Bayt University, Mafraq, Jordan;

Faculty of Nursing, Jerash University, Jerash, Jordan;

Department of Emergency Medicine, King Fahad Hospital Jeddah, Jeddah, Saudi Arabia;

Community and Mental Health Nursing Department, Faculty of Nursing, Hashemite University, Zarqa, Jordan;

Department of Pediatric Nursing, Faculty of Nursing, Jerash University, Jerash, Jordan;

Department of Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Neuroscience, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Ministry of Health, Amman, Jordan;

College of Nursing, Sultan Qaboos University, Muscat, Oman;

Adult Health Nursing, Faculty of Graduate Studies, Arab American University, Jenin, Palestine;

Nursing College, Al-Balqa Applied University, Salt, Jordan

ABSTRACT: Aims. This study evaluates the epidemiology of headache and migraine among adolescents aged 12 to 15. Methods. A school-based cross-sectional study was conducted to collect and analyze data from students in grades 7-10 over the course of one month, using a simple random sampling method. The overall number of participants in this study was 692, with an average age of 13.9 years (SD = 1.3). Descriptive measures and Fisher's exact test were computed. Multivariate regression was calculated to assess the predictors of headache and migraine. Findings. Approximately one-half of the students reported having headaches: tension-type headaches (10.3%), migraines (4.8%), and other headache types (31.5%). Moreover, girl students in the age group of 14-15 reported more headaches and migraines. Conclusion. The prevalence of headache and migraine in Jordan is high and increasing as students grow older. Health education programs led by school nurses and other healthcare practitioners are urgently needed. © 2023 Mohammed Albashtawy et al.

Almajali, M.H., Nasrawin, L., Alqudah, F.T., Althunibat, A.A., Albalawee, N.

Technical Service Error as a Pillar of Administrative Responsibility for Artificial Intelligence (AI) Operations

(2023) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178141934&doi=10.15849%2fIJASCA.231130.18&partnerID=40&md5=0dcc279f4c506f1e6f746a2a3f8ebc70)

[85178141934&doi=10.15849%2fIJASCA.231130.18&partnerID=40&md5=0dcc279f4c506f1e6f746a2a3f8ebc70](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178141934&doi=10.15849%2fIJASCA.231130.18&partnerID=40&md5=0dcc279f4c506f1e6f746a2a3f8ebc70)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Law, Faculty of Law, Jadara University, Irbid, Jordan

ABSTRACT: The current article pinpoints technical service error as a pillar of administrative responsibility for artificial intelligence (AI) operations. To achieve the research objectives, the descriptive and analytical approach is appropriated and adapted. The technical service error, being one of the pillars of administrative responsibility for artificial intelligence work, necessitates pointing out that the service error has degrees of seriousness. The administrative judiciary distinguishes between serious and non-serious errors, depending on the nature of administrative activities and services, especially after the digital transformation of numerous services provided by the government carried out through artificial intelligence technology. The awareness about the legal system for service errors in the field of administrative responsibility resulting from the use of artificial intelligence techniques is attained through identifying the errors committed by the administration during the exercise of its physical and legal work, considering that service errors play a major role in establishing administrative responsibility, especially with the technical development witnessed by public facilities. © Al-Zaytoonah University of Jordan (ZUJ).

Qatawneh, A.M.

Requirements of AIS in building modern operating business environment

(2023) International Journal of Business Information Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178048337&doi=10.1504%2fIJBIS.2023.134957&partnerID=40&md5=f19f5da0330b9e41ab5538180bc6fa46)

[85178048337&doi=10.1504%2fIJBIS.2023.134957&partnerID=40&md5=f19f5da0330b9e41ab5538180bc6fa46](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85178048337&doi=10.1504%2fIJBIS.2023.134957&partnerID=40&md5=f19f5da0330b9e41ab5538180bc6fa46)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Current study aimed at examining the requirements of AIS in building modern operating business environment within retail trading unit in Jordan including malls, hyper market and supermarkets. Requirements were divided into internal resources including (human resources, IT infrastructure and knowledge sharing) while the other part took into perspective the external resources (technological vigilance, competitiveness and market). Total of 150 individuals were exposed to a questionnaire as a tool of study. Results of the current study concluded that the current AIS tools and their techniques used in large retail stores in Jordan meet the needs of the modern business environment due to the ability of these tools to meet the needs of the modern business environment and be a response to it to achieve the goals of the organisation. Also, results of study indicated that both internal and external resources are extremely important but internal resources appeared to be more influential as main requirements for modern accounting operations in organisations. Study recommended that the organisations should use the talents of their existing and intangible organisational capabilities in developing their internal business environment in addition to developing their external tools and means in dealing with clients and competitors. © 2023 Inderscience Enterprises Ltd.

Althunibat, A.

Assessing the Readiness of Jordanian Universities for Implementing Enterprise Resource Planning (ERP) Systems: A Case Study

(2023) Proceedings - 2023 International Conference on Digital Age and Technological Advances for Sustainable Development, ICDATA 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177997300&doi=10.1109%2fICDATA58816.2023.00014&partnerID=40&md5=1fb35614f513fe2abc2fc960b5d10194)

[85177997300&doi=10.1109%2fICDATA58816.2023.00014&partnerID=40&md5=1fb35614f513fe2abc2fc960b5d10194](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177997300&doi=10.1109%2fICDATA58816.2023.00014&partnerID=40&md5=1fb35614f513fe2abc2fc960b5d10194)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, Jordan

ABSTRACT: The adoption of Enterprise Resource Planning (ERP) systems is a critical aspect of managing business processes. However, Higher Education Institutions (HEIs) must exercise caution in implementing such systems to achieve optimal results. Past studies have demonstrated that ERP implementation projects can be arduous and may not deliver the intended benefits. Therefore, ERP providers should evaluate an organization's preparedness and customize their approach to ensure successful implementation. In the context of HEIs in Jordan, it is imperative to assess whether universities are ready and willing to embrace this technology. Consequently, this study seeks to appraise universities' readiness and suitability by conducting a questionnaire survey and categorizing them accordingly, enabling the identification of the most suitable and prepared universities for implementing an ERP system in Jordan. © 2023 IEEE.

Sahioun, A., Bataineh, A.Q., Abu-AlSondos, I.A., Haddad, H.

The impact of green marketing on consumers' attitudes: A moderating role of green product awareness (2023) Innovative Marketing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177882848&doi=10.21511%2fim.19%283%29.2023.20&partnerID=40&md5=16a40ca54782829ef389682bf246e1c3)

[85177882848&doi=10.21511%2fim.19%283%29.2023.20&partnerID=40&md5=16a40ca54782829ef389682bf246e1c3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177882848&doi=10.21511%2fim.19%283%29.2023.20&partnerID=40&md5=16a40ca54782829ef389682bf246e1c3)

AFFILIATIONS: Middle East University, Jordan;

Faculty of Business/Digital Marketing, Al-Zaytoonah University of Jordan, Jordan;

Computer Information Technology/Information Technology Management, American University in the Emirates (AUE), UAE, United Arab Emirates;

Zarqa University, Jordan

ABSTRACT: This study aims to determine the impact of green marketing (green perceived value), green products (green buildings), and environmental concerns on Jordanian consumers' attitudes toward buying green buildings in Jordan. The research population includes all consumers in Amman, the capital of Jordan, who might be interested in buying such buildings. A convenience sample is used to collect data from the respondents by distributing the questionnaire among 400 consumers using Google Forms. 357 questionnaires were found valid for statistical analysis. The results of the multiple regression test showed that R equals 0.815, which indicated that green marketing and consumers' attitudes toward buying green buildings in Jordan are positively and highly correlated, with a percentage of 81.5%. R square equals 0.664, indicating that the variation in green marketing explains 66.4% of the variance in consumers' attitudes toward green buildings in Jordan. Moreover, the hierarchical multiple regression test showed that there is an increase in R and R² values in the existence of product awareness as a moderating variable between green marketing and consumers' attitudes toward buying green buildings in Jordan. © 2023 LLC CPC Business Perspectives. All rights reserved.

Nazzal, N.N.

Speech Acts in the Discourse of Prophet Joseph Peace be Upon Him in the Holy Quran: A Deliberative Approach

(2023) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177852563&doi=10.35516%2fHUM.V50I5.209&partnerID=40&md5=739f26d04a91bc79f80f3abebe87b037)

[85177852563&doi=10.35516%2fHUM.V50I5.209&partnerID=40&md5=739f26d04a91bc79f80f3abebe87b037](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177852563&doi=10.35516%2fHUM.V50I5.209&partnerID=40&md5=739f26d04a91bc79f80f3abebe87b037)

AFFILIATIONS: Arabic Department, Faculty of Arts, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objectives: The study aims to present a deliberative reading within the framework of the speech act theory to unveil the deliberative tendencies in the discourse of Joseph Peace be upon him as a boy, a youth, an accused man, a prisoner, a ruler, a son, a brother, etc. Furthermore, this study uncovers key stages in Joseph's life and examines speech acts in various contexts to achieve specific communicative goals. **Methods:** This research is descriptive and analytical; and conducted a deliberative reading of the discourse of Joseph Peace within the framework of the speech act theory. In addition, this research is twofold: A preliminary theoretical study which relies on the nature of speech acts, their types and meanings; and a practical demonstration of the speech acts in the discourse of Joseph. **Results:** According to the deliberative reading of the Holy Quranic discourse within the framework of the speech act theory, it comes to light that the discourse of Joseph peace be upon him in the Quran has more than one type, and carries more than one meaning. Such multiple meanings rely on the communicative context of this discourse as well as on its purpose and influences to ensure the continuity of the communicative process. **Conclusions:** This study recommends further studies pertaining to the discourse of the Quran within the framework of the deliberative speech act theory since this theory has changed the traditional view of speech by focusing on the various factors and elements of discourse. © 2023 DSR Publishers/ The University of Jordan.

Alqam, S.A., Hleiban, T.A., Kushk, Z.T.A.

The Status of Creative Writing in Jordanian Universities from the Viewpoint of Students and Faculty Members

(2023) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177849674&doi=10.35516%2fhum.v50i5.57&partnerID=40&md5=2be8e4de63325f63eb30bbdfb6ff64ac)

[85177849674&doi=10.35516%2fhum.v50i5.57&partnerID=40&md5=2be8e4de63325f63eb30bbdfb6ff64ac](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177849674&doi=10.35516%2fhum.v50i5.57&partnerID=40&md5=2be8e4de63325f63eb30bbdfb6ff64ac)

AFFILIATIONS: Department of Arabic Language and Literature, School of Arts, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Education, School of Arts, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objectives: The study attempts to elucidate the status of creative writing in Jordanian Universities from the viewpoint of students and faculty members. **Methods:** The study is conducted on (385) male and female students and (255) faculty members from selected Jordanian universities using the stratified random sampling method. The sample members responded to two questionnaires; one is for faculty members and the other is for students. The study adopts the descriptive method approach which describes and analyzes the studied phenomenon under investigation and presents its results. **Results:** According to both students and faculty members, the study's findings indicate that university students' creative writing skills are on the medium level range. Additionally, it demonstrates that there are no statistically significant differences between students and faculty members based on their gender, but that there are significant statistical differences based on the academic year, in favor of fourth-year students, the type of university, in favor of public universities, and the rank of the faculty member, favoring associate professors. **Conclusions:** The study recommends the necessity of creating and adopting a clear and a well-organized approach as part of obligatory university courses in creative writing in public and private universities taught by specialized professors in this field. © 2023 DSR Publishers/ The University of Jordan.

Nguyen, N.M., Abu Afifa, M., Van Bui, D.

Blockchain technology and sustainable performance: moderated-mediating model with management accounting system and digital transformation

(2023) Environment, Development and Sustainability, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177605584&doi=10.1007%2fs10668-023-04189-7&partnerID=40&md5=3868cda1cb28283b3c64967b2ed5ecc0>

AFFILIATIONS: School of Accounting, College of Business, University of Economics Ho Chi Minh City, Ho Chi Minh City, Viet Nam;

Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study scrutinizes the effect of blockchain technology on sustainable performance in the circumstances of Vietnam, a developing country. In which, we consider management accounting system as a mediating factor. Additionally, digital transformation is employed as the moderating variable for links in the research model. It provides empirical evidence about this context from manufacturing businesses in Vietnam. Our paper has been carried out utilizing a quantitative technique. Our population is already represented by manufacturing companies in Vietnam. Survey questionnaires were distributed to potential participants via their email. After removing missing answers and outliers, our final sample consisted of 568 observations. By employing the partial least squares structural equation modeling, our findings explicate that blockchain technology has a substantial favorable impact on sustainable performance, and management accounting system positively mediates this effect. Moreover, digital transformation acts as favorable moderator role on the link between blockchain technology and management accounting system, and the link between management accounting system and sustainable performance, respectively. Therefore, this paper has been conducted to complement experiential verification on sustainable performance in the early digital circumstances in developing market, particularly Vietnam. Accordingly, this is a pioneering study in this area that integrates all the above factors in the same experimental model. This contributes to supporting a scientific perspective for policy formulation to both digitize and internationalize the Vietnamese economy. © 2023, The Author(s), under exclusive licence to Springer Nature B.V.

Malak, M.Z., Khalifeh, A.H.

The Relationship Between Quality of Life and Depressive Symptoms Among Jordanian Community-Dwelling Older Adults

(2023) Experimental Aging Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177560210&doi=10.1080%2f0361073X.2023.2286873&partnerID=40&md5=bbf0137611d6d3b579e9ce2cf687f58a>

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Community & Mental Health Nursing, Faculty of Nursing, Zarqa University, Zarqa, Jordan

ABSTRACT: Objective: The current study aimed to examine the relationship between depressive symptoms and quality of life among Jordanian community-dwelling older adults. Methods: A cross-sectional, descriptive correlational design was used. A convenience sample (N = 602) was selected to recruit the participants in the Amman governorate during the period from August to November 2021. Results: Findings demonstrated that the mean (SD) age of older adults was 67.5 (7.0) years and 51.5% of participants were females. Also, 54.1% of the participants experienced moderate to severe depressive symptoms with a total mean (SD) score was 8.57 on a scale of 0 to 15, while the mean (SD) for the quality of life scale was 12.12 (3.85) on a scale of 4 to 20. Significant differences existed in quality of life and depressive symptoms based on marital status (p <.001), educational level (p <.001), working status (p <.01), income (p <.001), and chronic disease (p <.01). Quality of life and its domains were negatively associated with depressive symptoms (B= - 0.596, p <.001). Also, marital status, working, educational level, income, and chronic disease were associated with depressive symptoms. Conclusion: Strategies to improve quality of life should be promoted to minimize depressive symptoms among older adults and consider significant demographic factors. © 2023 Taylor & Francis Group, LLC.

Sabra, M.A.A., Al Kalaldehy, M., Alnaeem, M.M., Zyoud, A.H.

The Efficacy of Using Psychotherapy Interventions to Minimize Symptoms of Trichotillomania and Trichophagia: A Scoping Review

(2023) Journal of Contemporary Psychotherapy, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177548019&doi=10.1007%2fs10879-023-09604-8&partnerID=40&md5=e60e77cec9402c2920258ba9ab05c826>

AFFILIATIONS: School of Nursing, The University of Jordan-Aqaba Campus, Aqaba, Jordan;

School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Al-Ahliyya Amman University, Amman, Jordan

ABSTRACT: Trichophagia, or eating one's own hair, commonly occurs in individuals with trichotillomania. Minimizing the symptoms of trichotillomania and trichophagia and maintaining remission can encourage them to have healthy lives. Conduct a scoping review to investigate the efficacy of using psychotherapy interventions to minimize symptoms of trichotillomania and

trichophagia among individuals with trichotillomania. Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews guidelines to screen 19,552 studies published between 2010 and 2022. A total of 19 studies that fulfill the eligibility criteria reported that psychotherapy interventions had been effective and applicable approaches to minimizing the symptoms of trichotillomania and trichophagia. Psychotherapy interventions are a promising treatment that is regarded as a credible treatment approach to ensure long-term positive outcomes among individuals with trichotillomania. This scoping review verifies the formalization and incorporation of psychotherapy interventions into standard practice and highlights the importance of mental health practitioners using them to ensure long-term positive outcomes for individuals with trichotillomania. Moreover, practitioners need further specialized training on a variety of psychotherapy interventions because not all of them are familiar with these interventions. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Farooq, U., Al-Naimi, A.A., Arfeen, M.I., Alnaimat, M.A.

Navigating the capital investment through national governance in BRICS economies: the role of cash holdings

(2023) Asian Review of Accounting, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177186102&doi=10.1108%2fARA-02-2023-0043&partnerID=40&md5=bcd745bfcc282c78898c98f7e4c95952>

AFFILIATIONS: School of Economics and Finance, Xi'an Jiaotong University, Xi'an, China; Department of Finance and Banking Sciences, Applied Science Private University, Amman, Jordan; Quaid-i-Azam School of Management Sciences, Quaid-I-Azam University, Islamabad, Pakistan; Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The current analysis aims to explore the role of cash holdings in the nexus of national governance and capital investment (CIN). Design/methodology/approach: To achieve this aim, the authors sample the nonfinancial enterprises from 5 Brazil, Russia, India, China, South Africa (BRICS) economies and employ system generalized method of moments(GMM) models as an estimation technique. Findings: The empirical analysis infers that national governance has a positive relationship with CIN and a negative relationship with cash holdings. The cash holdings negatively determine CIN. However, the cash holdings show a positive relationship with CIN in the presence of the national governance index (NGI). Research limitations/implications: The important policy layout of the current analysis is that corporate managers should reduce cash holdings during better governance situations. Alternatively, corporate managers can disentangle the negative impact of bad country governance conditions on CIN by holding more cash. Originality/value: The study is innovative as it explores mediating impact of cash holdings in the NGI-CIN nexus. © 2023, Emerald Publishing Limited.

Alawamreh, A.R., Obeidat, A.M., Alsalti, M.J.A., Ramadneh, N.M., Al-Majali, A., Al fares, A.R.A., Nasseif, G.

The Effectiveness of Online Flipped Learning Using the UTAUT Model for Outstanding Students in Jordan

(2023) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177180962&doi=10.1007%2f978-3-031-43300-9_33&partnerID=40&md5=5f6ab00444973ff5c27efb6fc361cbf2

AFFILIATIONS: Education College, Zarqa University, Zarqa, Jordan;

Jadara University, Irbid, Jordan;

Al-Zaytoonah University, Amman, Jordan;

University of Business and Technology, Jeddah, Saudi Arabia

ABSTRACT: This study explores the effectiveness of online flipped learning for outstanding students in Jordan. It examines the factors influencing students' acceptance and use of technology, such as performance expectancy, effort expectancy, social influence, and facilitating conditions. The findings show a positive relationship between these factors and students' intention to utilize e-flipped learning, highlighting the efficacy of this approach for outstanding students in Jordan. The proposed model can guide the development of online flipped learning systems tailored to the needs of outstanding students. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al-Ghailth, A., Al-Sayyid, R.

The Treatment of the Others in Selected Works by Hawthorne and Rowling's Harry Potter

(2023) International Journal of Literary Humanities, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177057630&doi=10.18848%2f2327-7912%2fCGP%2fv22i02%2f19-32&partnerID=40&md5=6e8978b17dba782d8d0668c5346263c8>

AFFILIATIONS: Department of English, Al-Zaytoonah University of Jordan, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In her Harry Potter series, J. K. Rowling created a complicated society in which wizards

are judged by the purity of their blood. This paper posits that J. K. Rowling was inspired by real-world events when writing the Harry Potter series, especially the Salem witchcraft trials of Puritan New England. Though the main theme of this series rests in the battle between good and evil, racism and prejudice are strongly demonstrated in Rowling's books. The current study examines the connection between the Wizarding society created by Rowling and the Puritan society in Salem. Even though it is a fictional magical society, the way the author presents the conflict between different races in her Wizarding World mirrors real-life events in the Puritan society. This article aims to connect the Wizarding World with Puritan society in relation to racism, gender, and classism. It also aims to demonstrate that this magical place is not so fictional in any case. © 2023 Common Ground Research Networks. All rights reserved.

Hayajneh, A.M., Aldalahmeh, S.A., Alasali, F., Al-Obiedollah, H., Zaidi, S.A., McLernon, D. Tiny machine learning on the edge: A framework for transfer learning empowered unmanned aerial vehicle assisted smart farming (2023) IET Smart Cities, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85176919544&doi=10.1049%2fsmc.2.12072&partnerID=40&md5=b520be4f50c9a3de1bb313534538f1a9

AFFILIATIONS: Department of Electrical Engineering, Faculty of Engineering, The Hashemite University, Zarqa, Jordan;

Electrical Engineering Department, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom

ABSTRACT: Emerging technologies are continually redefining the paradigms of smart farming and opening up avenues for more precise and informed farming practices. A tiny machine learning (TinyML)-based framework is proposed for unmanned aerial vehicle (UAV)-assisted smart farming applications. The practical deployment of such a framework on the UAV and bespoke internet of things (IoT) sensors which measure soil moisture and ambient environmental conditions is demonstrated. The key objective of this framework is to harness TinyML for implementing transfer learning (TL) using deep neural networks (DNNs) and long short-term memory (LSTM) ML models. As a case study, this framework is employed to predict soil moisture content for smart agriculture applications, guiding optimal water utilisation for crops through time-series forecasting models. To the best of authors' knowledge, a framework which leverages UAV-assisted TL for the edge internet of things using TinyML has not been investigated previously. The TL-based framework employs a pre-trained data model on different but similar applications and data domains. Not only do the authors demonstrate the practical deployment of the proposed framework but they also quantify its performance through real-world deployment. This is accomplished by designing a custom sensor board for soil and environmental sensing which uses an ESP32 microcontroller unit. The inference metrics (i.e. inference time and accuracy) are measured for different ML model architectures on edge devices as well as other performance metrics (i.e. mean square error and coefficient of determination [R²]), while emphasising the need for balancing accuracy and processing complexity. In summary, the results show the practical feasibility of using drones to deliver TL for DNN and LSTM models to ultra-low performance edge IoT devices for soil humidity prediction. But in general, this work also lays the foundation for further research into other applications of TinyML usage in many different aspects of smart farming. © 2023 The Authors. IET Smart Cities published by John Wiley & Sons Ltd on behalf of The Institution of Engineering and Technology.

Manasrah, A., Masoud, M., Jaradat, Y., Alia, M., Almanasra, S., Suwais, K.

Shading anomaly detection framework for bi-facial photovoltaic modules

(2023) Energy Sources, Part A: Recovery, Utilization and Environmental Effects, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85176910352&doi=10.1080%2f15567036.2023.2277361&partnerID=40&md5=c033a2c5c9b4ee528dec539c0ae21ec3

AFFILIATIONS: Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Science Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Computer Studies, Arab Open University, Riyadh, Saudi Arabia

ABSTRACT: Solar photovoltaics have been widely used as solar energy harvesting systems for many years throughout the world. Lately, bi-facial modules have been gaining a lot of popularity due to utilizing solar irradiance on both sides of the module. Therefore, the presence of partial static shading on such modules may lead to some ambiguity regarding their output powers and efficiencies. In this work, a shading anomaly detection framework comprised three stages: An autoencoder-convolutional neural networks CNN model, a mean absolute error MAE threshold, and data filters. The framework was developed to detect the occurrence and location of partial shading on bi-facial modules. Several experiments were carried out using two bi-facial modules under different shading settings. The modules were connected to solar chargers and batteries to analyze their performances. The experimental results showed the modules' generated current and the batteries' state of charge SOC in

all shading settings. The results also showed that anomalies or shading can be detected with an accuracy of more than 99% merely from the second stage of the framework. However, the location of shading can be classified and predicted with an accuracy of 91% by utilizing all three stages of the framework. © 2023 Taylor & Francis Group, LLC.

Al-Qerem, W., Alassi, A., Jarab, A., Al Bawab, A.Q., Hammad, A., Alasmari, F., Alazab, B., Husein, D.A., Momani, N.A.L., Eberhardt, J.

Examining Influenza Vaccination Patterns Among Young Adults with Asthma: Insights into Knowledge, Attitudes, and Practices

(2023) Patient Preference and Adherence, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85176800013&doi=10.2147%2fPPA.S436622&partnerID=40&md5=bcaf3bf0664b2ad6f6cda19a5bc57e8d

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 12372, Saudi Arabia;

School of Social Sciences, Humanities and Law, Department of Psychology, Teesside University, Middlesbrough, TS1 3BX, United Kingdom

ABSTRACT: Purpose: Asthma is a major chronic disease of all ages, globally. Exacerbations are a significant problem for asthmatic patients. Despite advances in asthma management and efforts to identify asthma triggers, viral infections of the respiratory tract remain the most frequent triggers of asthma exacerbations. This study explored knowledge, attitudes, and practices (KAP) of asthmatic patients towards receiving the influenza vaccine. Patients and Methods: This cross-sectional study enrolled 397 adult asthmatic patients visiting the outpatient respiratory clinics of three Jordanian medical facilities. Results: The research included 66.4% females, with a median age of 32 years. The results showed that 42.4% of enrolled asthmatics had never received the flu vaccine and only 51.1% reported that they intended to take the vaccine in the current year. Most of those who had been vaccinated at least once in their lifetime reported that the side effects were mild (61.8%).

Variables that decreased refusal/hesitancy towards receiving the flu vaccine in the current year included having well-controlled asthma (RRR = 0.193, 95% CI (0.053-0.698), $p = 0.012$), and high knowledge about asthma and flu (RRR= 0.916, 95% CI (0.847-0.990), $p = 0.028$, respectively).

Conclusion: A small number of the participants adhered to vaccinating against the flu which is due to lack of knowledge about the asthma, flu, and the vaccine. To address this challenge, we propose targeted health education campaigns, collaboration with healthcare providers, and utilization of digital platforms. © 2023 Al-Qerem et al.

Qirem, I.A.E., Alshehadeh, A.R., Al-Khawaja, H.A., Elrefae, G.A., Jebril, I., Alshehade, S.A.

The Impact of Sustainability Accounting on Financial Reporting Quality: Evidence from the Pharmaceutical and Chemical Sectors on the ASE

(2023) Journal of Logistics, Informatics and Service Science, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85176799424&doi=10.33168%2fJLISS.2023.0405&partnerID=40&md5=8128e72daa71b1347c8c88ab48fc010c

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Business, Amman Arab University, Amman, 11953, Jordan;

College of Business, Al Ain University, Al Ain, United Arab Emirates;

Faculty of Science, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Medicine, Universiti Malaya, Kuala Lumpur, 50603, Malaysia

ABSTRACT: This study examines the influence of sustainability accounting, specifically its environmental, economic, and social dimensions, on the quality of financial reports in the pharmaceutical and chemical firms listed on the ASE. The research aims to address the gap in understanding the relationship between sustainability accounting and financial reporting quality in these industries. Using a sample of 27 firms selected from a population of 53, the financial reports and statements from 2016 to 2021 are analyzed as the primary research data source. Statistical methods, including simple and multiple regression models, are employed to test hypotheses and derive results. The findings demonstrate a significant positive impact of sustainability accounting activities on the financial reporting quality of the studied firms. Increasing the reporting of sustainability dimensions enhances the quality of financial reports. The practical implications suggest supporting ASE-listed firms in adopting sustainability accounting initiatives, such as the Fourth-Generation reporting, and revising the listing and disclosure instructions on the ASE to include sustainability accounting as a requirement for disclosure and listing, following the Global Reporting Initiative (GRIG4) guidelines. This study contributes to theory and practice by supplying empirical evidence of the positive relationship between sustainability accounting and financial

reporting quality in the pharmaceutical and chemical sectors, emphasizing the importance of integrating sustainability dimensions into reporting practices. © 2023, Success Culture Press. All rights reserved.

Alkhwaldah, O., Jarrar, Y., Gharaibeh, M., Abudahab, S., Abulebdah, D., Jarrar, B.
Alterations in the gene expression of SARS-COV-2 entry receptors and enzymes in lungs and hearts of controlled and uncontrolled diabetic mice
(2023) *Fundamental and Clinical Pharmacology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176445608&doi=10.1111%2ffcp.12964&partnerID=40&md5=0cea9e638f02e6e8d59df5846f687454)

[85176445608&doi=10.1111%2ffcp.12964&partnerID=40&md5=0cea9e638f02e6e8d59df5846f687454](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176445608&doi=10.1111%2ffcp.12964&partnerID=40&md5=0cea9e638f02e6e8d59df5846f687454)

AFFILIATIONS: Department of Pharmacology, Faculty of Medicine, The University of Jordan, Amman, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, Jordan;

Department of Pharmacotherapy and Outcomes Science, Virginia Commonwealth University, Richmond, VA, United States;

Department of Pharmaceutical Science, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Nanobiology Unit, Department of Biology, College of Science, Jerash University, Jerash, Jordan

ABSTRACT: Background: The entry of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) into the host cell is carried out by specific receptors and enzymes, including human angiotensin-converting enzyme 2 receptor (ACE2), transmembrane serine protease 2 (TMPRSS2), and cathepsin-L (CTSL). COVID-19 patients with comorbidities, such as diabetes mellitus (DM), are more prone to severe symptoms and have a higher risk of mortality. Aims: The present study aimed to investigate the impact of controlled and uncontrolled type 1 DM (T1DM) on the gene expression of mouse *Ace2*, *Tmprss2*, and *Ctsl* and correlate it with the pathological alterations in the lungs and the heart of DM mice. Methods: Balb/c mice were administered a single dose of 240 mg/kg streptozocin to induce T1DM. The blood glucose level was measured to confirm the induction of DM. Normalization of blood glucose levels in T1DM mice was achieved using 0.1 mL/kg Mixtard® insulin therapy. The mice's lungs and hearts were harvested, and the mRNA was extracted and converted to cDNA. The gene expression of *Ace2*, *Tmprss2*, *Ctsl*, *Cyp4a11*, and *Adrb1* genes, which play a role in the homeostasis of lungs and hearts, were measured using quantitative real-time polymerase chain reaction (RT-PCR). The pathological alterations in the hearts and lungs induced by T1DM were evaluated using the relative heart and lung weights, in addition to the pathohistological examination. Results: After inducing T1DM for 14 days, we observed a significant reduction in the total weight of uncontrolled DM (UDM) mice ($P < 0.05$). Pathohistological examination of UDM lung tissues revealed thickening of the alveolar walls with narrowing of the surface of the alveolar sacs. Additionally, we found that UDM mice exhibited downregulation of *Ace2* gene expression ($P < 0.05$) in their lungs, while both UDM and control DM (CDM) mice showed upregulation of *Ctsl* gene expression in their hearts ($P < 0.05$). Notably, *Cyp4a12* gene expression was significantly downregulated ($P < 0.05$) in UDM mice but returned to normal levels in CDM mice. Conclusions: We conclude from this study that T1DM downregulates *Ace2* receptor and *Cyp4a12* gene expression, which is correlated with the thickening of alveolar walls and narrowing of the surface of alveolar sacs in the lungs. Insulin administration for controlling T1DM ameliorated these pathological alterations. These results can help increase our understanding of the impact of controlled and uncontrolled T1DM on the lungs and may explain, at least in part, why DM patients with COVID-19 experience exacerbation of symptoms. © 2023 Société Française de Pharmacologie et de Thérapeutique. Published by John Wiley & Sons Ltd.

Qasim, D., Bany-Mohammed, A., Liñán, F.

The theoretical basis of relevant e-entrepreneurship results: a systematic literature review
(2023) *International Journal of Entrepreneurship and Small Business*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176438579&doi=10.1504%2fIJESB.2023.134691&partnerID=40&md5=cde4ced16dffddc44e9c8cae9af8ac7b)

[85176438579&doi=10.1504%2fIJESB.2023.134691&partnerID=40&md5=cde4ced16dffddc44e9c8cae9af8ac7b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176438579&doi=10.1504%2fIJESB.2023.134691&partnerID=40&md5=cde4ced16dffddc44e9c8cae9af8ac7b)

AFFILIATIONS: Faculty of Business, Alzaytoonah University of Jordan, Amman, Jordan;

School of Business, The University of Jordan, P.O. Box 13876, Amman, 11942, Jordan;

Faculty of Economics and Business Sciences, University of Seville, Av. Ramon y Cajal, 1., Seville, 41008, Spain;

Faculty of Business and Law, School of Management, Anglia Ruskin University, East Road, Cambridge, CB1 1PT, United Kingdom

ABSTRACT: The e-entrepreneurship field is a relatively novel one, suffering from a lack of theories and models, as researchers are deriving theories from other disciplines, such as economics, psychology, etc. To consolidate as a discipline, e-entrepreneurship studies need a systematic classification of previous and current contributions that can support the development of theories and research. The purpose of this study is to run a systematic literature review (SLR) to categorise the theories and models found from a total of 105 e-entrepreneurship publications over the period from

2008 to September 2020. A citation analysis has also been performed to identify 25 influential works that may be seen as foundational milestones in this field. The results revealed some critical research gaps and the need to develop new theoretical frameworks able to combine and extend the classical models of innovation, entrepreneurship, and technology to specifically tackle the e-entrepreneurship field of research. Copyright © 2023 Inderscience Enterprises Ltd.

Rakah, M., Anber, A., Dahmani, Z., Jebril, I.

An analytic and numerical study for two classes of differential equations of fractional order involving Caputo and Khalil derivatives

(2023) Analele Stiintifice ale Universitatii Al I Cuza din Iasi - Matematica, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176324493&doi=10.47743%2fanstim.2023.00003&partnerID=40&md5=1abe87e164f3648cf29ff390a175abc8)

[85176324493&doi=10.47743%2fanstim.2023.00003&partnerID=40&md5=1abe87e164f3648cf29ff390a175abc8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176324493&doi=10.47743%2fanstim.2023.00003&partnerID=40&md5=1abe87e164f3648cf29ff390a175abc8)

AFFILIATIONS: Laboratory of Pure and Applied Mathematics, University Abdelhamid Ibn Badis of Mostaganem, Mostaganem, Algeria;

Department of Mathematics, University of Alger 1, Alger, Algeria;

Department of Mathematics, University of USTO, Oran, Algeria;

Laboratory of Pure and Applied Mathematics, Faculty of SEI, UMAB, University of Mostaganem, Mostaganem, Algeria;

Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130 Amman, Amman, 11733, Jordan

ABSTRACT: In this paper, we study new classes of differential equations of fractional order. The first considered problem involves the derivative of Caputo, while the second one involves conformable Khalil derivative. For the first class, we prove an existence and uniqueness result, then, we discuss an example to show the applicability of the result. For the second one, we apply the exp-function method to find new traveling wave solutions for a generalised conformable fractional partial differential equation, then some examples on Ostrovsky and KdV equations are given to illustrate the efficiency and accuracy of the method. Some graphs are plotted and discussed to show more the importance of the obtained results. © 2023 Sciendo. All rights reserved.

Baker, M.B., Hanna, A., Elektorowicz, M., Ayadat, T., Al-Shorman, B., Abendeh, R.

One dimensional oedometer laboratory testing for expansive clay submerged with hydrocarbon fluids (2023) Materials Research Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176122205&doi=10.21741%2f9781644902592-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176122205&doi=10.21741%2f9781644902592-52&partnerID=40&md5=81f83d2a9319855db64f75e5cd760a18)

[52&partnerID=40&md5=81f83d2a9319855db64f75e5cd760a18](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176122205&doi=10.21741%2f9781644902592-52&partnerID=40&md5=81f83d2a9319855db64f75e5cd760a18)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Building, Civil and Environmental Engineering, Concordia University, Montreal, Canada;

Department of Civil Engineering, Prince Mohammad Bin Fahd University, Al-Khobar, Saudi Arabia;

Department of Civil Engineering, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Landfills are currently one of the most effective ways to dispose of waste. Underground storage tanks (UGST) are also used to store hydrocarbon fluids that include different types of fuels. The bottom part of the landfills and UGST is critical. This liner material and its composition prevent heavy metals and leachate from infiltrating the groundwater table. Failure of this layer presumably causes most landfill failures. Bentonite clay is used to build such liner because of its properties including high cation exchange capacity and swelling index. The swelling of bentonite is sensitive to the type of liquid and load. It swells under low loads when submerged with water and to a lesser extent for ethanol. However, it undergoes consolidation when penetrated by biofuel. Test results indicate that bentonite undergoes swelling in water under high load (40 kPa) and consolidates for both alternative fuels (biofuel and ethanol). Under very high loads (100 kPa) bentonite consolidates for all kinds of liquids including water. © 2023, Association of American Publishers. All rights reserved.

Al-Shorman, B., Baker, M.B., Ayadat, T.

Comprehensive review of soil stabilization agents

(2023) Materials Research Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176112634&doi=10.21741%2f9781644902592-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176112634&doi=10.21741%2f9781644902592-12&partnerID=40&md5=05d0690ce45a2ac159576bdef2958b70)

[12&partnerID=40&md5=05d0690ce45a2ac159576bdef2958b70](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176112634&doi=10.21741%2f9781644902592-12&partnerID=40&md5=05d0690ce45a2ac159576bdef2958b70)

AFFILIATIONS: Department of Civil Engineering, Jordan University of Science and Technology, Irbid, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Civil Engineering, Prince Mohammad Bin Fahd University, Al-Khobar, Saudi Arabia

ABSTRACT: Soil stabilization is a technique that is used in most construction projects to enhance the geotechnical and engineering properties of soil. There is a wide range of research studies related to soil stabilization techniques and agents, these studies discussed the effects of the different types of soil stabilization on soil, the most suitable agent type regarding soil classification, and the

challenges that were founded during the application of these processes. Stabilization agents include traditional and non-traditional additives with their different categories were reviewed and discussed in this paper by presenting the results of the recent studies concerned with various types of soil stabilization agents in different laboratories and project tests with highlights on the enhancement of soil properties. In addition to increasing the compressive and shear strength parameters, Maximum Dry Density (MDD), and California Bearing Ratio (CBR) of the soil, the soil stabilization agents play a great role in decreasing the soil plasticity index, swelling, compressibility, porosity, permeability, and Optimum Moisture Content (OMC). © 2023, Association of American Publishers. All rights reserved.

Baker, M.B., Hanna, A., Elektorowicz, M., Ayadat, T., Al-Shorman, B.

Investigating the influence of alternative fuels on the properties of sand-bentonite liners (2023) Materials Research Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176091311&doi=10.21741%2f9781644902592-70&partnerID=40&md5=16da7304469371dec36f8aedec2e2256>

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Building, Civil and Environmental Engineering, Concordia University, Montreal, Canada;

Department of Civil Engineering, Prince Mohammad Bin Fahd University, Al-Khobar, Saudi Arabia;

Department of Civil Engineering, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Landfills are one of the most effective ways utilized to dispose the wastes and usable up today, most of their failures were suspected due to the failure of their protecting natural liners. Landfill liners failure is one of the most problematic issues that face engineers and expose governments, societies, and the environment to high costs. Protection of groundwater requires that natural landfill liner structure be able to reserve its properties in harsh conditions and over a long period. However, the composition of disposed of residuals might change in the following contemporary trends and it could contain alternative fuels and their impact on natural liners requires further investigations. This paper focuses on the changes in sand-bentonite liner due to the interaction and infiltration of hydrocarbon liquids (alternative fuels); biofuel and ethanol-fuel. In this investigation, an experimental program was carried out to examine the influence of chemical properties of alternative fuels on the hydraulic conductivity, erodibility, swelling potential and shrinkage behaviour of natural liners. Series of laboratory tests were conducted in 20 cm-high PVC columns to investigate the hydraulic conductivity of the liners, swelling behaviour of bentonite when subjected to water, biofuel or ethanol-fuel was assessed by oedometer tests, and shrinking behaviour and cracking patterns of samples taken from the PVC columns were examined employing digital photo analysis. The results can be useful in designing liners, barriers as well in assessing the behaviour of clayey soil in case of accidental spills or intentional discharges. © 2023, Association of American Publishers. All rights reserved.

Staegemann, D., Volk, M., Abdallah, M., Turowski, K.

On the Challenges of Applying Test Driven Development to the Engineering of Big Data Applications (2023) ICSBT International Conference on Smart Business Technologies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175874464&doi=10.5220%2f0012087600003552&partnerID=40&md5=1e8974b503b808410eeb9de391de6c88)

[85175874464&doi=10.5220%2f0012087600003552&partnerID=40&md5=1e8974b503b808410eeb9de391de6c88](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175874464&doi=10.5220%2f0012087600003552&partnerID=40&md5=1e8974b503b808410eeb9de391de6c88)

AFFILIATIONS: Magdeburg Research and Competence Cluster VLBA, Otto-von-Guericke University Magdeburg, Magdeburg, Germany;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Big data (BD) is one of the major technological trends of today and finds application in numerous domains and contexts. However, while there are huge potential benefits, there are also considerable challenges. One of these is the difficulty to make sure the respective applications have the necessary quality. For this purpose, the application of test driven development (TDD) to the domain was proposed. In general, the approach already has a rather long history and, thereby, the corresponding challenges are also known. However, since the BD domain has several demanding particularities, this also needs to be accounted for when applying TDD. Yet, to our knowledge, this specific aspect has not been discussed by now. The publication at hand bridges this gap by examining the challenges of applying TDD to the engineering of BD applications. In doing so, it facilitates the approach's use by practitioners and researchers while also constituting a foundation for further discourse regarding the quality assurance in the BD realm and the TDD approach in general. © 2023 ICSBT International Conference on Smart Business Technologies. All rights reserved.

Mukhtar, S., Abu Hammad, M., Shah, R., Alrowaily, A.W., Ismaeel, S.M.E., El-Tantawy, S.A.

On the localized and periodic solutions to the time-fractional Klein-Gordan equations: Optimal additive function method and new iterative method (2023) Open Physics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175870485&doi=10.1515%2fphys-2023->

0116&partnerID=40&md5=36091a74dc72eb9e45a23bf184c96d66

AFFILIATIONS: Department of Basic Sciences, Preparatory Year Deanship, King Faisal University, Al Ahsa, 31982, Saudi Arabia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Computer Science and Mathematics, Lebanese American University, Beirut, Lebanon;

Department of Physics, College of Science, Princess Nourah Bint Abdulrahman University, P.O.Box 84428, Riyadh, 11671, Saudi Arabia;

Department of Physics, College of Science and Humanities in Al-Kharj, Prince Sattam Bin Abdulaziz University, Al-Kharj, 11942, Saudi Arabia;

Department of Physics, Faculty of Science, Ain Shams University, Cairo, Egypt;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah, Al-Baha University, Al-Baha, 1988, Saudi Arabia

ABSTRACT: This investigation explores two numerical approaches: the optimal auxiliary function method (OAFM) and the new iterative method (NIM). These techniques address the physical fractional-order Klein-Gordon equations (FOKGEs), a class of partial differential equations (PDEs) that model various physical phenomena in engineering and diverse plasma models. The OAFM is a recently introduced method capable of efficiently solving several nonlinear differential equations (DEs), whereas the NIM is a well-established method specifically designed for solving fractional DEs. Both approaches are utilized to analyze different variations in FOKGE. By conducting numerous numerical experiments on the FOKGE, we compare the accuracy, efficiency, and convergence of these two proposed methods. This study is expected to yield significant findings that will help researchers study various nonlinear phenomena in fluids and plasma physics. © 2023 the author(s), published by De Gruyter.

Al-Momani, M.M., Al-Ghabeesh, S.H., Qattom, H.

The Impact of Workplace Bullying on Health Care Quality, Safety and Work Productivity in Jordan: A Systematic Review

(2023) Journal of Health Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175699952&doi=10.1177%2f09720634231195168&partnerID=40&md5=7e7e31e88eebe6b48033644ccc4d0411)

[85175699952&doi=10.1177%2f09720634231195168&partnerID=40&md5=7e7e31e88eebe6b48033644ccc4d0411](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175699952&doi=10.1177%2f09720634231195168&partnerID=40&md5=7e7e31e88eebe6b48033644ccc4d0411)

AFFILIATIONS: Princess Aisha Bint Al-Hussein College of Nursing and Health Sciences, Al-Hussein Bin Talal University, Ma'an, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Nursing, Amman, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Bullying among nurses and other health care professionals with low health quality has become a major global concern. Nurses were also recognised as people who are close to patients and can play an important role to manage work bullying through providing effective training and education programs. This systematic review was developed and aimed to identify and clarify concepts and provide an overview of the available evidence on workplace bullying (WPB) among nurses as part of health care delivery system. Systematic review of all types of studies involving nurses published between 2009 and 2020 and approached health-related databases Cumulative Index to Nursing and Allied Health Literature (CINAHL), Psychology and Behavioural Sciences (PsychINFO), MEDLINE, and Education Resource Information Centre (ERIC). The review used focused keywords: WPB, health care quality, safety, interpersonal conflict, work productivity and nursing. Forty-three studies met the review criteria and five main themes were discovered including the prevalence of WPB among nurses worldwide, prevalence of WPB among nurses in the Arab region, perpetrators of WPB, influence of bullying on productivity, and individual-organisational characteristics and bullying. Growing evidence provided a negative relationship between WPB, safety and productivity suggesting further research on how bullying is prevalent and what solutions would manage this problem, particularly in Jordan. © 2023 SAGE Publications.

Chebana, Z., Oussaeif, T.-E., Dehilis, S., Ouannas, A., Batiha, I.M., Badawi, A.

ON NONLINEAR NEUMANN INTEGRAL CONDITION FOR A SEMILINEAR HEAT PROBLEM WITH BLOW UP SIMULATION

(2023) Palestine Journal of Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175552278&partnerID=40&md5=524afb7d4b7f94125d53b6819b06221f)

[85175552278&partnerID=40&md5=524afb7d4b7f94125d53b6819b06221f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175552278&partnerID=40&md5=524afb7d4b7f94125d53b6819b06221f)

AFFILIATIONS: Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: In this paper, we present and discuss a class of semi-linear heat equation with nonlinear nonlocal conditions of second type. The existence and uniqueness of weak solution of the presented problem are investigated in view of the linearisation method. Besides, a well study on the generalized Fujuta problem is also presented. Several graphical comparisons are carried out between the exact and numerical finite-time blow-up solutions. © Palestine Polytechnic University-PPU 2023.

Abu Afifa, M.M., Saleh, I., Al-Zaghilat, M., Thuneibat, N., Nguyen, N.M.

Does CSR disclosure mediate the board characteristics-cost of equity capital nexus? Evidence from Jordanian services companies

(2023) Journal of Financial Reporting and Accounting, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175373352&doi=10.1108%2fJFRA-03-2023-0143&partnerID=40&md5=7cd6293ec9bee68534f4b9ec1e425465>

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Faculty of Business, Mutah University, Karak, Jordan;

Department of Accounting, Faculty of Economic - Law, Tien Giang University, Tien Giang, Viet Nam

ABSTRACT: Purpose: This study aims to investigate the direct nexus between board characteristics, corporate social responsibility (CSR) disclosure and the cost of equity capital (CEQ). This is done by using agency theory, stakeholder theory and signalling theory, followed by an investigation into the indirect mediation impact of CSR disclosure in the board characteristics-CEQ nexus. It intends to present new experimental evidence from Jordan's developing economy. Design/methodology/approach: The study's target population was services companies registered on the Amman Stock Exchange (ASE) between 2012 and 2020. As a result, the population and sampling of this study are represented by all services companies for whom complete data are available over the period, with a total of 43 services companies yielding 387 company-year observations. Data for our study were obtained from their annual disclosures and the ASE's database. Findings: The main findings demonstrated that board size, board gender variety and the number of board sessions positively affect CSR disclosure significantly. In addition, three board characteristics (i.e. board size, board independence and board gender variety) significantly negatively affect CEQ. Besides, CSR disclosure significantly negatively affects CEQ and it fully mediates the relationship between two board characteristics (i.e. board size and board gender variety) and CEQ, whereas it partially mediates the nexus between board independence, CEO/Chairman duality and the number of board sessions of board characteristics and CEQ.

Originality/value: This study varies from earlier studies, in that it builds a new research model by looking at the mediating role of CSR disclosure in the nexus among board characteristics and the CEQ.

© 2023, Emerald Publishing Limited.

Shaban, N.A., Al-Qawabah, S., Alkhaldi, H.S.

Investigation of Multi-Cold Rolling Passes on Mechanical Characteristics and Surface Quality of AlCuV (2023) Advances in Science and Technology Research Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175197787&doi=10.12913%2f22998624%2f171265&partnerID=40&md5=13a1bcdf337be21551bb8cec6f12bfc4)

[85175197787&doi=10.12913%2f22998624%2f171265&partnerID=40&md5=13a1bcdf337be21551bb8cec6f12bfc4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175197787&doi=10.12913%2f22998624%2f171265&partnerID=40&md5=13a1bcdf337be21551bb8cec6f12bfc4)

AFFILIATIONS: Mechanical Engineering Department, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Mechanical Engineering Department, School of Engineering, University of Jordan, Queen Rania St., Amman, Jordan

ABSTRACT: In this study, the effect of rolling angle orientation namely; 0o, 45o, and 90o degrees, and three rolling passes on the mechanical behavior of Al-Cu after vanadium addition were investigated. Al-4%Cu and Al-4%Cu-0.1%V sheets were produced and rolled from 4 mm to 3 mm followed by 3 to 2 mm, and finally from 2 mm to 1.3 mm. After each pass, the tensile test was performed in three directions from which the maximum tensile force, deformation energy, microhardness, and average surface roughness (Ra) were determined. A pronounce finding is that the addition of both additions of 0.1% vanadium to Al-4%Cu alloy and multi-rolling passes resulted in reducing the deformation energy by 85.4, and the maximum tensile forces reduced by 56.6%, this resulted in reduction of production cost of AlCuV alloys, furthermore, it resulted in reducing the anisotropy of AlCuV alloy.

Additionally, the average microhardness was enhanced for Al-Cu and AlCuV alloy, whereas the Ra was in maximum enhanced for AlCuV alloy of about 64.9%. © 2023, Politechnika Lubelska. All rights reserved.

Elbargathi, K., Al-Assaf, G.I.

MILITARY SPENDING AND ECONOMIC GROWTH: DOES POLITICAL INSTABILITY MATTER?

(2023) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175172726&doi=10.22495%2fjgrv12i4art8&partnerID=40&md5=38362251cb257c7a888e52efb891ae11)

[85175172726&doi=10.22495%2fjgrv12i4art8&partnerID=40&md5=38362251cb257c7a888e52efb891ae11](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175172726&doi=10.22495%2fjgrv12i4art8&partnerID=40&md5=38362251cb257c7a888e52efb891ae11)

AFFILIATIONS: Department of Defence Economics, Joaan bin Jassim Academy for Defence Studies, Doha, Qatar;

School of Business, University of Jordan, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The purpose of this paper is to assess the interactional impact of military expenditure on economic growth, taking into consideration the levels of political instability in the Middle East, North Africa and Turkey region (MENAT), namely Egypt, Iran, Jordan, Morocco, Saudi Arabia, Tunisia, and Turkey, over the period 1996-2019. In this regard, this study considers the effects of military

spending on economic growth in a panel cointegration framework using panel dynamic ordinary least squares (OLS), focusing on the implications of political instability. Our analysis indicates that after controlling for cross-sectional dependence, the typical relationship between military spending and output does not hold in the long run. This relationship, however, is re-established and becomes stronger once we account for political instability in the countries in the region. It is clearly found that political stability indices are more important for developing countries. In the long run, the results of dynamic OLS reveal that military spending has a more elastic relationship with the economic growth rate in the presence of political instability in the MENAT region with a negative effect, while there is a negative relationship between political stability level measured by government effectiveness and economic growth. © 2023 The Authors.

Al-Kazimi, N., Jarrar, Y., Abdul-Wahab, G., Alsayed, A.R., Madani, A., Abulebdah, D., Musleh, R.S., Jarrar, Q., Al-Ameer, H.J., Al-Awaida, W., Abdullah, E.

Effects of intermittent fasting on the histology and mRNA expression of major drug-metabolizing cyp450s in the liver of diabetic mice

(2023) Libyan Journal of Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175035683&doi=10.1080%2f19932820.2023.2270188&partnerID=40&md5=2b2a5f654c2c5c91ed7a1b8b7c4227be)

[85175035683&doi=10.1080%2f19932820.2023.2270188&partnerID=40&md5=2b2a5f654c2c5c91ed7a1b8b7c4227be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175035683&doi=10.1080%2f19932820.2023.2270188&partnerID=40&md5=2b2a5f654c2c5c91ed7a1b8b7c4227be)

AFFILIATIONS: Department of Pharmaceutical Science, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, Jordan;

Department of Oral Surgery and Periodontology, College of Dentistry, Al-Mustansiriya University, Baghdad, Iraq;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Department of pharmaceutical Sciences, Faculty of Pharmacy, Isra University, Amman, Jordan;

Department of Biology and Biotechnology, American University of Madaba, Madaba, Jordan;

Department of Biological Sciences, Yarmouk University, Irbid, Jordan

ABSTRACT: Introduction: There is a variation in drug response among patients who practice intermittent fasting. Alteration in the expression of drug-metabolizing enzymes (DMEs) can affect the pharmacokinetics and drug response. Aims: This research aimed to determine the effect of intermittent fasting on the mRNA expression of major drug-metabolizing cyp450s in the liver of diabetic mice.

Methods: Thirty-two male Balb/c mice were divided into four groups; control, nonfasting diabetic, non-diabetic fasting, and diabetic fasting mice. Insulin-dependent diabetes was induced in mice by a single high-dose (250 mg/kg) streptozocin. Mice of non-diabetic and diabetic fasting groups were subjected to 10-day intermittent fasting for 17 hours daily. Then, the mRNA expression of mouse phase I DMEs cyp1a1, cyp2c29, cyp2d9, and cyp3a11 was analyzed using real-time polymerase chain reaction.

In addition, the liver of mice in all groups was examined for pathohistological alterations. Results: Diabetes downregulated the mRNA expression of hepatic drug-metabolizing cyp450s in diabetic mice, while intermittent fasting significantly ($P < 0.05$) increased it. Also, cyp2d9 and cyp3a11 were upregulated in the liver of diabetic fasting mice. These alterations in the gene expression were correlated with the pathohistological alterations, where livers of diabetic mice showed dilatation in the blood sinusoids and inflammatory cells leukocyte infiltrations. Whereas livers of diabetic fasting mice showed almost comparable histological findings to control mice. Conclusions:

Intermittent fasting can protect the liver against diabetes-induced hepatotoxicity and the down-regulation of DME genes in the diabetic liver. These results can explain, at least partly, the inter-individual variation in the drug response during practicing fasting. © 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Hijazi, R.

Knowledge-sharing's facilitating role: innovative performance and total quality management

(2023) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175021641&doi=10.1504%2fIJPQM.2023.134267&partnerID=40&md5=cade621e4657efac119301cd6ac566ad)

[85175021641&doi=10.1504%2fIJPQM.2023.134267&partnerID=40&md5=cade621e4657efac119301cd6ac566ad](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175021641&doi=10.1504%2fIJPQM.2023.134267&partnerID=40&md5=cade621e4657efac119301cd6ac566ad)

AFFILIATIONS: Business Administration Department, Faculty of Business, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Within the field concerning innovative performance (IP), which is extensive in its research, a wealth of research has zoned in on the encouragement of IP within a given workplace via total quality management (TQM), a concept that allows individuals to foster cooperation and ability to enhance IP (alongside knowledge-sharing [KS]). In mind of the above, 213 employees at Jordanian ISO 9000-certified SMEs participated in this study, with structural equation modelling (SEM) employed to analyse the ways in which IP was influenced by KS. The results show that the relation between TQM

and IP is partly controlled through KS, such that it is necessary to recognise TQM as a multi-factorial problem, rather than selectively choosing individual factors, and that in order to facilitate more innovative performance, KS needs to further complement total quality (TQ). © 2023 Inderscience Enterprises Ltd.

Al-Omouh, K.S., Al-Qireh, R.M.

Social Commerce and Its Role in Women's Empowerment and Innovation in Crises

(2023) Journal of Small Business Strategy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174976022&doi=10.53703%2f001c.77945&partnerID=40&md5=407eed4fb5ba32e091b32f04c62609f1)

[85174976022&doi=10.53703%2f001c.77945&partnerID=40&md5=407eed4fb5ba32e091b32f04c62609f1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174976022&doi=10.53703%2f001c.77945&partnerID=40&md5=407eed4fb5ba32e091b32f04c62609f1)

AFFILIATIONS: Management Information Systems, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study examines the determinants of social commerce adoption among women during crises, focusing on the potential impact of hedonic and utilitarian motivations, self-efficacy, and social support. It also examines the impact of social commerce adoption on women's empowerment and innovation. To achieve these aims, an online questionnaire was used to gather data from women who use social media platforms to produce and/or sell goods, services, and information to make a profit. Smart PLS, version 3, was used to estimate the research model and test hypotheses. The results confirmed that women's hedonic motivations, utilitarian motivations, self-efficacy, and social support significantly impact social commerce adoption among women. The findings also reveal that social commerce business has a significant role in women's empowerment and innovation during crises. This study provides novel contributions to the literature on social commerce, women's empowerment, and women's innovation in a crisis setting. Furthermore, it enhances the knowledge of policymakers and women business sponsoring organizations, and other organizations support women about the role of social commerce in women's empowerment and innovation. © 2023, Small Business Institute. All rights reserved.

Almomani, E.Y., Hajjo, R., Qablan, A., Sabbah, D.A., Al-Momany, A.

A cross-sectional study confirms temporary post-COVID-19 vaccine menstrual irregularity and the associated physiological changes among vaccinated women in Jordan

(2023) Frontiers in Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174858938&doi=10.3389%2ffmed.2023.1211283&partnerID=40&md5=87e2203eecb835d3222bd46e5947c9bd)

[85174858938&doi=10.3389%2ffmed.2023.1211283&partnerID=40&md5=87e2203eecb835d3222bd46e5947c9bd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174858938&doi=10.3389%2ffmed.2023.1211283&partnerID=40&md5=87e2203eecb835d3222bd46e5947c9bd)

AFFILIATIONS: Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, Jordan;

Applied Science Research Center, Applied Science Private University, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman

School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States;

Jordan CDC, Amman, Jordan;

Department of Curriculum and Methods of Instruction, United Arab Emirates University, Al Ain, United Arab Emirates;

Faculty of Educational Sciences, Hashemite University, Zarqa, Jordan;

Department of Clinical Laboratory Sciences, University of Jordan, Amman, Jordan

ABSTRACT: Background: COVID-19 vaccines continue to save people's lives around the world; however, some vaccine adverse events have been a major concern which slowed down vaccination campaigns.

Anecdotal evidence pointed to the vaccine effect on menstruation but evidence from the adverse event reporting systems and the biomedical literature was lacking. This study aimed to investigate the physiological changes in women during menstruation amid the COVID-19 vaccination. Methods: A cross-sectional online survey was distributed to COVID-19 vaccinated women from Nov 2021 to Jan 2022. The results were analyzed using the SPSS software. Results: Among the 564 vaccinated women, 52% experienced significant menstrual irregularities post-vaccination compared to before regardless of the vaccine type. The kind of menstrual irregularity varied among the vaccinated women, for example, 33% had earlier menstruation, while 35% reported delayed menstruation. About 31% experienced heavier menstruation, whereas 24% had lighter menstrual flow. About 29% had menstruation last longer, but 13% had it shorter than usual. Noteworthy, the menstrual irregularities were more frequent after the second vaccine shot, and they disappeared within 3 months on average. Interestingly, 24% of the vaccinated women reported these irregularities to their gynecologist. Conclusion: The COVID-19 vaccine may cause physiological disturbances during menstruation. Luckily, these irregularities were short-termed and should not be a reason for vaccine hesitancy in women. Further studies are encouraged to unravel the COVID-19 vaccine adverse effect on women's health. Copyright © 2023 Almomani, Hajjo, Qablan, Sabbah and Al-Momany.

Mohsen, S., Subih, M., Hamaideh, S.

Knowledge, Attitudes, Beliefs, and Intentions of Critical Care Units Patients' Families regarding Organ Donation

(2023) Journal of Social Service Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174855291&doi=10.1080%2f01488376.2023.2271007&partnerID=40&md5=04935093964b90e5ae77a2196fa12e6d)

[85174855291&doi=10.1080%2f01488376.2023.2271007&partnerID=40&md5=04935093964b90e5ae77a2196fa12e6d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174855291&doi=10.1080%2f01488376.2023.2271007&partnerID=40&md5=04935093964b90e5ae77a2196fa12e6d)

AFFILIATIONS: Royal Medical Services, ICU, Amman, Jordan;

School of Nursing, Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan;

Community and Mental Health Nursing Department- Faculty of Nursing, The Hashemite University, Zarqa, Jordan

ABSTRACT: Up-to-date, no country in the world has enough donated organs. This study aimed to assess the levels and predictors of knowledge, attitudes, beliefs, and intentions of critical care unit patients' families regarding organ donation. This is a cross-sectional study that used a questionnaire to collect data from 250 families having patients hospitalized in critical care units from three medical sectors in Jordan. Results revealed that 97.6% of the participants had heard about organ donation. Knowledge, attitudes, beliefs (3 types), and intentions levels were 67%, 49.6%, (14.9%, 77.1%, -12.9%), and 81.8%, respectively. Participants who were educated, employed, health insured, with higher income, and lived in urban areas had higher levels of knowledge. Participants who live in urban areas have favorable attitudes toward organ donation. Higher-educated females reported higher behavioral beliefs. Policymakers can design ways to deal with obstacles facing organ donation by taking into account these variables. Improving these factors will provide a huge social service to community health by increasing organ transplantation rates and improving the quality of life of chronic illnesses patients. Future interventional studies are needed in the world that focuses on improving community knowledge, attitudes, beliefs, and intentions toward organs donation. © 2023 Taylor & Francis Group, LLC.

Alshehadeh, A.R., Al-Khawaja, H.A., Yamin, I., Jebril, I.

The Impact of Financial Technology on Customer Behavior in the Jordanian Commercial Banks

(2023) WSEAS Transactions on Business and Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174615559&doi=10.37394%2f23207.2023.20.195&partnerID=40&md5=2ef5970a96f023c7aa3d4c8e3544ce13)

[85174615559&doi=10.37394%2f23207.2023.20.195&partnerID=40&md5=2ef5970a96f023c7aa3d4c8e3544ce13](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174615559&doi=10.37394%2f23207.2023.20.195&partnerID=40&md5=2ef5970a96f023c7aa3d4c8e3544ce13)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University, Amman, Jordan;

Faculty of Business, Amman Arab University, Amman, Jordan;

Faculty of Science, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study investigated impact of financial technology on customer behavior in Jordanian commercial banks. The descriptive technique was employed based on the study of the research topic. The study population consisted of all administrative workers in Jordanian commercial banks. The data was collected through a random sample of administrative workers in Jordanian commercial banks, estimated at 300 male and female employees. The statistical package for the social sciences program was used to examine the data after obtaining it using the questionnaire (SPSS). The results showed that there is a statistically significant positive effect of financial technology (credit service, payment services, investment management services, financial market support services) on customer behavior in Jordanian banks, which indicates that (financial technology) explained an amount (84.1%) of the change in customer behavior in Jordanian banks. Banking will unquestionably concentrate on delivering financial services through data in the future, limiting the ability to react. By enhancing the promise of value, financial institutions that have been able to quickly adapt to financial innovations boost client loyalty and happiness. The study recommends that Jordanian banks, in light of global competitiveness and the global trend towards digital transformation, follow the financial technology approach and make the most of the opportunities and advantages offered by digitization to banks in order to preserve their customers and compete. The study also recommended researchers and those interested in banking studies expand their research on financial technology due to the relative lack of studies covering the subject. © 2023, World Scientific and Engineering Academy and Society. All rights reserved.

Abd-Alhamid, F., Kent, M., Wu, Y.

Assessment of Window Size and Layout Impact on a View Quality Perception in a Virtual Reality Environment

(2023) LEUKOS - Journal of Illuminating Engineering Society of North America, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174608582&doi=10.1080%2f15502724.2023.2262148&partnerID=40&md5=e82ff06a74927c78330b00905d13d2db)

[85174608582&doi=10.1080%2f15502724.2023.2262148&partnerID=40&md5=e82ff06a74927c78330b00905d13d2db](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174608582&doi=10.1080%2f15502724.2023.2262148&partnerID=40&md5=e82ff06a74927c78330b00905d13d2db)

AFFILIATIONS: Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Berkeley Education Alliance for Research in Singapore, Singapore;

Department of Architecture and Built Environment, Faculty of Engineering, University of Nottingham, University Park, Nottingham, United Kingdom

ABSTRACT: Window views are key factors that affect buildings' occupants psychological and physiological comfort and wellbeing. Window design should consider the holistic impacts on building energy, lighting performance, and the connection to the outdoors provided by the view which is

usually overlooked. In this study, view perception, stress recovery, physiological, and psychological affect were evaluated in virtual environments of five different conditions varying the physical dimensions of a window located in the same office space with an urban view. This allowed three window-to-wall ratios (i.e. 10%, 20%, and 30%) and two different window layouts (i.e. narrow and wide) to be compared. Twenty-five participants were recruited. Subjective self-assessments on view perception (e.g. content and complexity), self-assessment and physiological measures (e.g. skin conductance and heart rate variability) stress recovery besides psychological affect were measured. Participants performed a Stroop-test to induce stress that was immediately followed by a period of recovery facilitated by exposure to one of the five window conditions. Results showed that increased window size advocated higher view perception assessments, increased stress recovery, and positive psychological affect. Measurements of skin conductance and heart rate variability also corroborated these findings. Differences in window layout were also revealed, but only for 10% WWRs. Therefore, WWR is not a reliable indicator for view perception for small window sizes, indicating that layout preference is dependent on window size. This study highlights the importance of considering view perception for occupant health and wellbeing when sizing window openings, since these may not necessarily align with other design criteria. © 2023 Illuminating Engineering Society.

Alamayreh, M.I., Alahmer, A., Bazlamit, S.M., Younes, M.B.

Precooling Massive Concrete Mixes Using Cooled Aggregates or Chilled Water

(2023) International Review of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174595282&doi=10.15866%2firece.v14i4.21805&partnerID=40&md5=b167ab871fd7e972140699d4d69ac1d1)

[85174595282&doi=10.15866%2firece.v14i4.21805&partnerID=40&md5=b167ab871fd7e972140699d4d69ac1d1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174595282&doi=10.15866%2firece.v14i4.21805&partnerID=40&md5=b167ab871fd7e972140699d4d69ac1d1)

AFFILIATIONS: Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Department of Industrial and Systems Engineering, Auburn University, Auburn, AL 36849, United States;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, Tafila, 66110, Jordan;

Indiana Department of Transportation, Indianapolis, IN 46204, United States

ABSTRACT: The exothermic hydration of cement generates heat, which increases the temperature in the core of the concrete members. This causes a temperature gradient, leading to thermal stresses, and sometimes cracks due to the expansion of the core and contraction of the surface, which reduces massive concrete durability. The goal of this study is to assess the impact of concrete precooling technologies on the quality of massive concrete constructions, such as dams constructed in desert climate. The impact on the strength of concrete and its hydration time under various operating circumstances have been investigated. In massive concrete structures, cooling can be accomplished by reducing the temperature of aggregates using ventilated cold air from an air conditioning system or by using chilled water. In order to determine the initial and the final settings of concrete, the Vicat test has been used. The use of chilled water in the preparation of mortar can increase the cement solidification time. According to experimental laboratory tests, concrete cubes prepared with chilled water have higher compressive strength than those prepared with cooled aggregates. The compressive strength of the concrete mixed with chilled water has increased by 35%, while a 10% increase in compressive strength in the concrete mix has been reached by using precooled aggregates. Results of compressive strength tests on mortar cubes prepared with chilled water have showed a 29% increase after 28 days of curing. © 2023 Praise Worthy Prize S.r.l.-All rights reserved.

Toqan, D., Ayed, A., Malak, M.Z., Hammad, B.M., ALBashtawy, M., Hayek, M., Thultheen, I.

Sources of Stress and Coping Behaviors among Nursing Students Throughout Their First Clinical Training

(2023) SAGE Open Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174578866&doi=10.1177%2f23779608231207274&partnerID=40&md5=9f2ccc44d30a26dff83aff47597724d4)

[85174578866&doi=10.1177%2f23779608231207274&partnerID=40&md5=9f2ccc44d30a26dff83aff47597724d4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174578866&doi=10.1177%2f23779608231207274&partnerID=40&md5=9f2ccc44d30a26dff83aff47597724d4)

AFFILIATIONS: Faculty of Nursing, Arab American University, Jenin, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Princess Salma Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan;

Nursing Department, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine

ABSTRACT: Introduction: Clinical training allows nursing students to acquire and strengthen their psychomotor abilities, which is an important component of nursing education. The clinical components of nursing training programs were much more demanding than the academic ones. Purposes: The purpose of this study was to examine sources of stress-related and coping behaviors during first clinical training among nursing students in the Arab American University. Methods: The study was cross-sectional and conducted with a convenience sample of 266 participants of nursing students. Data collection was performed by "Perceived Stress Scale and the Coping Behavior Inventory." The data were analyzed by using the descriptive, that is, frequency and percentage, mean, and standard deviation.

Results: The results revealed that the perceived stress mean was 41.2 (SD = 19.5). The main stressors were taking care of the patients (M = 11.4 ± 0.85) and teachers and nursing staff (M = 8.32 ± 5.3). Coping behaviors mean was (M = 29.0 ± 15.2). The main coping behavior was problem-solving (M = 9.5 ± 5.6). Conclusion: The study confirmed that students perceived moderate levels of stress in their first clinical training, and the most common sources of stress were taking care of the patients and teachers and nursing staff. However, the main coping behavior was problem-solving. © The Author(s) 2023.

Jairoun, A.A., Al-Hemyari, S.S., Shahwan, M., Hassan, N., Zyoud, S.H., Jaber, A.A.S., Al-Qirim, T. Insights Into Metformin XR Pharmacotherapy Knowledge Among Community Pharmacists: A Cross-Sectional Study

(2023) Clinical Medicine Insights: Endocrinology and Diabetes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174564257&doi=10.1177%2f11795514231203913&partnerID=40&md5=be58495219311ea2c2ba385037c7e2770)

[85174564257&doi=10.1177%2f11795514231203913&partnerID=40&md5=be58495219311ea2c2ba385037c7e2770](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174564257&doi=10.1177%2f11795514231203913&partnerID=40&md5=be58495219311ea2c2ba385037c7e2770)

AFFILIATIONS: Health and Safety Department, Dubai Municipality, Dubai, United Arab Emirates;

Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia (USM), Pulau Pinang, Malaysia;

Pharmacy Department, Emirates Health Services, Dubai, United Arab Emirates;

Centre of Medical and Bio-allied Health Sciences Research, Ajman University, Ajman, United Arab Emirates;

Department of Clinical Sciences, College of Pharmacy and Health Sciences, Ajman University, Ajman, United Arab Emirates;

Department of Clinical and Community Pharmacy, College of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Clinical Research Centre, An-Najah National University Hospital, Nablus, Palestine;

Department of Clinical Pharmacy & Pharmacotherapeutics, Dubai Pharmacy College for Girls, Al mizhar, Dubai, United Arab Emirates;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: There is a little knowledge on the extent to which healthcare providers understand and accept the professional recommendations and appropriate dosing strategy regarding metformin XR. Objectives: To evaluate UAE community pharmacists' knowledge, attitude, and practices (KAP) concerning metformin XR. Methods: This is a cross-sectional research study conducted amongst licensed community pharmacists. The survey took place via a questionnaire and physical interviews were held. The survey used in this study included questions on demographics and questions on the participants' attitudes, knowledge and practices concerning metformin XR. The factors influencing KAP regarding metformin XR were examined via simple logistic regression analysis. Results: Threehundred fifty-three (n = 353) participants were recruited in the study. Independent pharmacies constituted 57.5% of this study sample and 42.5% were chain pharmacies. The average knowledge score about metformin XR tablets was 42.5% with a confidence interval (CI) of 95% [37.3%, 47.4]. Better knowledge scores on metformin XR tablets was observed in respondents aged ≥40 years (OR 2.97, 95% CI 1.63-5.4), having greater than 10 years in terms of experience (OR 2.28; 95% CI 1.25-4.16) and pharmacist graduated from Regional or international universities (OR 2.08; 95% CI 1.34-3.24). About 78% (n = 275) of the participants believed that metformin XR tablets have better efficacy and 63.2% (n = 233) indicated that metformin IR was associated with greater adverse effects. Conclusion: This study demonstrated a distinct gap in knowledge, attitude and practice pertaining to metformin XR among community pharmacists in the UAE. The community pharmacists need to enhance their practice by receiving accurate and reliable data to support their decision-making on the prescribing of metformin XR. The implementation of novel guidelines and evidence dissemination strategies may help bridge this gap. © The Author(s) 2023.

Jebril, I.H., El-Khatib, M.S., Abubaker, A.A., Al-Shaikh, S.B., Batiha, I.M.

Results on Katugampola Fractional Derivatives and Integrals

(2023) International Journal of Analysis and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174498813&doi=10.28924%2f2291-8639-21-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174498813&doi=10.28924%2f2291-8639-21-2023-113&partnerID=40&md5=c2d17ca3446e39282a8d2b29b2de251c)

[113&partnerID=40&md5=c2d17ca3446e39282a8d2b29b2de251c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174498813&doi=10.28924%2f2291-8639-21-2023-113&partnerID=40&md5=c2d17ca3446e39282a8d2b29b2de251c)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mathematics Department, Al-Azhar University, Gaza, Palestine;

Faculty of Computer Studies, Arab Open University, Riyadh, 11681, Saudi Arabia;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: In this paper, we introduce and develop a new definitions for Katugampola derivative and Katugampola integral. In particular, we defined a (left) fractional derivative starting from a of a function f of order $\alpha \in (m - 1, m]$ and a (right) fractional derivative terminating at b, where $m \in \mathbb{N}$. Then, we give some proprieties in relation to these operators such as linearity, product rule, quotient rule, power rule, chain rule, and vanishing derivatives for constant functions. © 2023 the author(s).

Abusukhon, A., Al-Fuqaha, A., Hawashin, B.

A Novel Technique for Detecting Underground Water Pipeline Leakage Using the Internet of Things (2023) Journal of Universal Computer Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174465456&doi=10.3897%2fJUCS.96377&partnerID=40&md5=366a31aeaabf29dc7550d8034d19dded)

[85174465456&doi=10.3897%2fJUCS.96377&partnerID=40&md5=366a31aeaabf29dc7550d8034d19dded](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174465456&doi=10.3897%2fJUCS.96377&partnerID=40&md5=366a31aeaabf29dc7550d8034d19dded)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Dep of Computer Science, Amman, Jordan;

Hamad Bin Khalifa University, Information and Computing Technology Division, College of Science and Engineering, Doha, Education City, Qatar

ABSTRACT: Water-pipeline leakage is one of the most common problems that depletes water supplies. Countries like Jordan, which are really experiencing a water deficit, are particularly concerned about this issue. The lack of monitoring tools makes the underground water-pipeline leakage a challenge since the pipelines are invisible. Besides, reducing the amount of time needed to precisely detect and locate the leak is another challenge. If not reduced, the aforementioned element has an effect on cost. A small broken water distribution line costs \$64,000 per year. In Jordan, water leakage costs \$1.7 million. This expense can be significantly decreased using an effective early water leak detection system. In this paper, we proposed an efficient internet of things system for detecting water-pipeline leakage based on a shielded pipeline, a NodeMCU, a soil moisture sensor, and the Firebase database. We created a baseline system, and then we tested and evaluated the proposed system when various types of soil are used. Furthermore, this paper compared several strategies offered for detecting water-pipeline leaking including the proposed system. The results showed that the proposed system reduced the time required for detecting water-pipeline leakage by 70% and the system hardware cost by 83% compared with the earlier work. It was difficult to compare the total cost of the proposed system with the total cost of previous works since the total cost is not calculated in their systems. Besides, in this paper, we proposed an IoT system for securing the underground water pipelines from adversaries. © 2023, IICM. All rights reserved.

Nashwan, A.J., Gharib, S., Alhadidi, M., El-Ashry, A.M., Alamgir, A., Al-Hassan, M., Khedr, M.A., Dawood, S., Abufarsakh, B.

Harnessing Artificial Intelligence: Strategies for Mental Health Nurses in Optimizing Psychiatric Patient Care

(2023) Issues in Mental Health Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174271420&doi=10.1080%2f01612840.2023.2263579&partnerID=40&md5=21b4e4e27f0fc69975020aa1b33a6d88)

[85174271420&doi=10.1080%2f01612840.2023.2263579&partnerID=40&md5=21b4e4e27f0fc69975020aa1b33a6d88](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174271420&doi=10.1080%2f01612840.2023.2263579&partnerID=40&md5=21b4e4e27f0fc69975020aa1b33a6d88)

AFFILIATIONS: Nursing Department, Hamad Medical Corporation, Doha, Qatar;

Department of Public Health, College of Health Sciences, QU Health, Qatar University, Doha, Qatar;

Nursing Department, Al-Khaldi Hospital, Amman, Jordan;

Psychiatric & Mental Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Psychiatric and Mental Health Nursing, Alexandria University, Alexandria, Egypt;

Nursing Department, Sidra Medicine, Doha, Qatar;

Faculty of Nursing, University of Calgary in Qatar, Doha, Qatar;

Faculty of Nursing, Alexandria University, Alexandria, Egypt;

College of Nursing, University of Kentucky, Lexington, KY, United States

ABSTRACT: This narrative review explores the transformative impact of Artificial Intelligence (AI) on mental health nursing, particularly in enhancing psychiatric patient care. AI technologies present new strategies for early detection, risk assessment, and improving treatment adherence in mental health. They also facilitate remote patient monitoring, bridge geographical gaps, and support clinical decision-making. The evolution of virtual mental health assistants and AI-enhanced therapeutic interventions are also discussed. These technological advancements reshape the nurse-patient interactions while ensuring personalized, efficient, and high-quality care. The review also addresses AI's ethical and responsible use in mental health nursing, emphasizing patient privacy, data security, and the balance between human interaction and AI tools. As AI applications in mental health care continue to evolve, this review encourages continued innovation while advocating for responsible implementation, thereby optimally leveraging the potential of AI in mental health nursing. © 2023 Taylor & Francis Group, LLC.

Tran, T.T.H., Afifa, M.A., Nguyen, N.M.

Does the Capital Structure Affect the Discretionary and Non-discretionary Firm Performance? Evidence from Vietnam

(2023) Global Business Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173982106&doi=10.1177%2f09721509231194810&partnerID=40&md5=d3e3d8c84b5825e305b8c805276cefb6)

[85173982106&doi=10.1177%2f09721509231194810&partnerID=40&md5=d3e3d8c84b5825e305b8c805276cefb6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173982106&doi=10.1177%2f09721509231194810&partnerID=40&md5=d3e3d8c84b5825e305b8c805276cefb6)

AFFILIATIONS: Department of Accounting, Faculty of Economic and Law, Tien Giang University, Tien

Giang Province, Viet Nam;

Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: This study strives to describe how the nexus between capital structure (CAS) and firm performance (FIP) changes with and without earnings management (EAM), which previous studies have not fully addressed. For this purpose, we divide the FIP into discretionary performance (DIP) and non-discretionary performance (NDIP). Subsequently, we examine the effect of CAS on both with each studied separately to recognize the conceptual drivers in the nexus between CAS and FIP. We use the dataset of firms listed on Ho Chi Minh Stock Exchange (HOSE) during the period from 2018 to 2022. Our findings reveal that there is a negative and noteworthy impact of CAS proxied by leverage on both DIP and NDIP, which is in line with trade-off theory (TOT) and pecking-order theory (POT). Because non-discretionary accruals (NDA) play an important role in EAM, firm action is consistent with TOT or POT and, thus, this study suggests dividing EAM into discretionary accruals (DA) and NDA to test CAS theories. Additionally, Vietnamese firms use EAM to lessen the negative effect of CAS and firm size. Finally, besides the theoretical contributions, the findings of this study have important empirical implications for managers, shareholders and other stakeholders. © 2023 International Management Institute, New Delhi.

Alshehadeh, A.R., Alia, M.A., Jaradat, Y., Al-Khawaja, H.

The Impact of Big Data Techniques on Predicting Stock Prices: Evidence from Jordan

(2023) Journal of System and Management Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173925104&doi=10.33168%2fJSMS.2023.0508&partnerID=40&md5=1f226eb9ada4499eea6e1a3e993cb3df)

[85173925104&doi=10.33168%2fJSMS.2023.0508&partnerID=40&md5=1f226eb9ada4499eea6e1a3e993cb3df](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173925104&doi=10.33168%2fJSMS.2023.0508&partnerID=40&md5=1f226eb9ada4499eea6e1a3e993cb3df)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Sciences and Information Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Business, Amman Arab University, Jordan

ABSTRACT: The purpose of this study is to demonstrate the impact of big data analytics techniques on predicting stock prices in industrial companies listed on the Amman Stock Exchange (ASE) from the perspective of employees in Jordanian financial intermediation firms. To achieve the goal of this research, two approaches were used. The first approach is an analytical descriptive approach that collects primary data through a survey that measures the elements of the independent variable related to big data analytics techniques (Volume, Velocity, Variety, and Veracity). A second approach is an applied approach that measures the dependent variable of stock price prediction using financial statements from industrial companies listed on the ASE from 2015 to 2021. Multiple regression tests were used to test the hypotheses and extract the results, which demonstrated that big data technologies play an important role in providing appropriate and reliable information to predict the prices of stock exchange traded shares. The variable "veracity" ranked first in the power of influence in predicting share prices, while the variable "volume" ranked last. These findings suggest that ASE dealers prioritize the credibility of data received from companies over the rest of the information resulting from big data analyses to predict stock prices traded on the stock exchange. © 2023, Success Culture Press. All rights reserved.

Shuhaiber, A., Al-Omouh, K.S., Alsmadi, A.A.

Investigating trust and perceived value in cryptocurrencies: do optimism, FinTech literacy and perceived financial and security risks matter?

(2023) Kybernetes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173740307&doi=10.1108%2fK-03-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173740307&doi=10.1108%2fK-03-2023-0435&partnerID=40&md5=34b4891cad1b7ae187ab420261f66fba)

[0435&partnerID=40&md5=34b4891cad1b7ae187ab420261f66fba](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173740307&doi=10.1108%2fK-03-2023-0435&partnerID=40&md5=34b4891cad1b7ae187ab420261f66fba)

AFFILIATIONS: College of Technological Innovation, Zayed University, Dubai, United Arab Emirates;

Department of MIS, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Fintech, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: This study aims to empirically examine the impact of perceived risks, optimism and financial literacy on trust and the perceived value of cryptocurrencies. It will also examine the impact of trust on the perceived value of cryptocurrencies. Design/methodology/approach: A quantitative approach is followed. A questionnaire was designed to collect data from 308 respondents in Jordan. The Structural Equation Modeling - Partial Least Squares (SEM-PLS) method was used to evaluate the research model and test hypotheses. Findings: The results of PLS algorithm analysis showed that perceived risks negatively impact the optimism and trust in cryptocurrencies. This study revealed that while financial literacy minimizes the perceived risks, it serves to enhance optimism and improve the perception of the value of cryptocurrencies. Furthermore, the findings of this study show that optimism plays a significant role in trust and perceived value. Originality/value: This study provides new insights into the literature on cryptocurrencies adoption, blockchain theory, the theory of trust in financial systems, the role of the optimism factor and the perception of the value of cryptocurrencies. It also provides important practical implications for different stakeholders. © 2023, Emerald Publishing Limited.

Alsakarneh, A., Momani, L., Tabaza, T.

Fuzzy and Matlab/Simulink Modelling of the Air Compression Refrigeration Cycle

(2023) Strojnicki Vestnik/Journal of Mechanical Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173601990&doi=10.5545%2fsv-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173601990&doi=10.5545%2fsv-jme.2023.597&partnerID=40&md5=789e4f209bc87d3cf901518d4c81d83c)

[jme.2023.597&partnerID=40&md5=789e4f209bc87d3cf901518d4c81d83c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173601990&doi=10.5545%2fsv-jme.2023.597&partnerID=40&md5=789e4f209bc87d3cf901518d4c81d83c)

AFFILIATIONS: Yarmouk University, Hijjawi Faculty for Engineering Technology, Department of Mechanical Engineering, Jordan;

Higher Colleges of Technology, Fujairah Men's College, Engineering Division, United Arab Emirates;

AL-Zaytoonah University of Jordan, Department of Mechanical Engineering, Jordan

ABSTRACT: The coefficient of performance (COP) for a gas refrigeration cycle was estimated using Matlab/Simulink and fuzzy logic. A Matlab/Simulink model of the gas refrigeration cycle was developed, and the output was compared to theoretical data. Additionally, fuzzy logic was used to estimate the COP for arbitrary low- and high-pressure levels. Simulation results were used to develop a multi-input-multi-output (MIMO) fuzzy Takagi-Sugeno-Kang (TSK)-based model. Both the Matlab/Simulink and the MIMO fuzzy model were found to be very well correlated with theoretical results, with an error of less than 2 %. These results demonstrate the effectiveness of using fuzzy logic to analyse gas refrigeration cycles and suggest that this approach can be extended to analyse other thermodynamic cycles. © 2023 Assoc. of Mechanical Eng. and Technicians of Slovenia. All rights reserved.

Abu Afifa, M., Saleh, I., Vo Van, H.

Accounting information quality in the digital era - a perspective from ERP system adoption?

(2023) Global Knowledge, Memory and Communication, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173494439&doi=10.1108%2fGKMC-03-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173494439&doi=10.1108%2fGKMC-03-2023-0101&partnerID=40&md5=b0f905537a253f0e2977ee59172bcb6b)

[0101&partnerID=40&md5=b0f905537a253f0e2977ee59172bcb6b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173494439&doi=10.1108%2fGKMC-03-2023-0101&partnerID=40&md5=b0f905537a253f0e2977ee59172bcb6b)

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Tien Giang University, Tien Giang, Viet Nam

ABSTRACT: Purpose: Based on the technology acceptance model theory, this study aims to explore whether perceived usefulness (PU), perceived ease of use (PE) and the availability to embrace technology (AET) influence the intention to accept an enterprise resource planning (ERP) system in Jordanian companies. It also analyses the influence of the intention to accept ERP system on ERP system adoption. More crucially, the current research fills a gap in earlier investigations by exploring the influence of adopting an ERP system on accounting information quality moderated by a company size. Design/methodology/approach: This research seeks to provide evidence about the study context from Jordanian companies, as the research population and sample consist of all companies listed on the Amman Stock Exchange in 2022 (totally 170 companies). This signifies that the research method is a complete survey of the study population. The core data were collected using an online survey via Google Forms. It was emailed to the selected companies' chief financial officers. Because each company received one online survey questionnaire, this unit of analysis is a company. Finally, 141 questionnaires were returned, reflecting an 82.94% response rate. Findings: Empirically, the findings reveal that PU, PE and AET influence the intention to accept an ERP system, and that there is a positive relation between the intention to accept an ERP system and ERP system adoption. Furthermore, ERP system adoption positively influences relevance and faithful representation of accounting information moderated by company size. Originality/value: This research adds to the accounting information quality literature by investigating the direct influence of ERP system adoption. Furthermore, the findings show the effectiveness of ERP system adoption and its regulatory roles in companies. Finally, this research was conducted to provide empirical knowledge on ERP system adoption in developing countries, notably Jordan. © 2023, Emerald Publishing Limited.

Al Hadid, L.A., Al Barmawi, M., Al Farajat, L., Alnjadat, R.

The effect of a clinical training course on new nursing graduates' knowledge, skills, self-efficacy, and willingness to care for COVID-19 patients using simulation

(2023) International Journal of Africa Nursing Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173238353&doi=10.1016%2fj.ijans.2023.100626&partnerID=40&md5=9b218079c922aefa3d727ff953caca19)

[85173238353&doi=10.1016%2fj.ijans.2023.100626&partnerID=40&md5=9b218079c922aefa3d727ff953caca19](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173238353&doi=10.1016%2fj.ijans.2023.100626&partnerID=40&md5=9b218079c922aefa3d727ff953caca19)

AFFILIATIONS: Faculty of Nursing, Al-Balqa Applied University, Postal code 19117, P.O. Box 206, Salt, Jordan;

Alzaytoonah University of Jordan (ZUJ), Amman, Jordan;

Irbid University College, Al-Balqa Applied University, Jordan

ABSTRACT: Background: The wide spread of the pandemic prevented new graduate nurses caring for patients with COVID-19, although they were required to care for them. The use of simulation could present an acceptable alternative when training is limited for nurses. Aims: This study aimed to measure the impact of attending a hybrid clinical course on knowledge and skills about COVID-19 in new graduate nurses assigned to care for patients with COVID-19 in Jordanian hospitals. It also aimed

to measure the change in nurses' self-efficacy and decision to care for critically ill patients with COVID-19. Methods: A pretest-posttest study that involved the conduction of a clinical training course. Participants (n = 234) were nurses. Results: Nurses showed significant improvement in their knowledge, skills, and self-efficacy in the posttest scores. However, these improvements did not reflect a significant increase in nurses' willingness to care for critically ill patients with COVID-19, instead, they preferred caring for more stable patients with this condition. Conclusions and implications to practice: Simulation is acceptable to support and improve clinical training outcomes. The use of clinical training courses for new nurses caring for patients with COVID-19 is required to improve knowledge, skills, and safety. Training nurses on how to care safely for a patient with COVID-19 increases nurses' safety and improves the quality of care provided to those patients. This study emphasized the need for nursing curricula to include training on how to care for patients during pandemics, like COVID-19. © 2023

Kanan, T., Elbes, M., Maria, K.A., Alia, M.

Exploring the Potential of IoT-Based Learning Environments in Education

(2023) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173200991&doi=10.15849%2fIJASCA.230720.11&partnerID=40&md5=eaa040b3e2538fd1c3fe93b25527c681)

[85173200991&doi=10.15849%2fIJASCA.230720.11&partnerID=40&md5=eaa040b3e2538fd1c3fe93b25527c681](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173200991&doi=10.15849%2fIJASCA.230720.11&partnerID=40&md5=eaa040b3e2538fd1c3fe93b25527c681)

AFFILIATIONS: AlZaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The Internet of Things (IoT) has the potential to revolutionize the education sector by creating smart learning environments that enable personalized learning experiences, improved teacher-student interactions, and enhanced collaboration. The traditional education system has been based on a one-size-fits-all approach, which may not be the most effective for all students. IoT-based education can provide personalized learning experiences that are tailored to individual students' needs and abilities. IoT-enabled devices can collect data on students' learning habits, preferences, and progress, which can be used to create customized learning paths that meet the specific needs of each student. Moreover, IoT in education can enhance collaboration among students and between students and teachers. However, its adoption and integration into the traditional education system pose significant challenges, including privacy concerns, cybersecurity risks, and the need for technical expertise to manage and maintain the IoT-enabled devices. This paper provides a comprehensive review of the literature on IoT in education, with a focus on its potential benefits, challenges, and implications. The paper also discusses the current state of IoT in education, and provides recommendations for future research on IoT in education. Overall, this paper highlights the potential of IoT to transform education, but also emphasizes the need for careful consideration of the challenges and implications associated with its adoption. © 2023, Al-Zaytoonah University of Jordan. All rights reserved.

Jaradat, R., Jaradat, G.M., Alsmadi, M., Alzaqebah, M., Almarashdeh, I., Althunibat, A., Al-Tarawneh, H.

A Hybrid Sentiment Discourse Analysis Model for Ukraine Crisis Facebook Posts with a Jordanian Dialect

(2023) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173192617&doi=10.15849%2fIJASCA.230720.16&partnerID=40&md5=c76ac7ddc6ed170ebca718c5570941f2)

[85173192617&doi=10.15849%2fIJASCA.230720.16&partnerID=40&md5=c76ac7ddc6ed170ebca718c5570941f2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85173192617&doi=10.15849%2fIJASCA.230720.16&partnerID=40&md5=c76ac7ddc6ed170ebca718c5570941f2)

AFFILIATIONS: Department of Modern Languages, Faculty of Arts, Yarmouk University, 655-21110, Irbid, Jordan;

Department of Computer Science and Information Systems, Faculty of Computer Sciences and Informatics, Amman Arab University, 2234-11953, Amman, Jordan;

Department of Department of Management Information Systems, College of Applied Studies and Community Service, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam, Saudi Arabia;

Department of Mathematics, College of Science, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam, Saudi Arabia;

Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130-11733, Amman, Jordan;

Department of Data sciences and Artificial Intelligence, Al-Ahliyya Amman University, Amman, Jordan

ABSTRACT: Sentiment analysis has gained attention in computational linguistics, where algorithms are dedicated to recognizing sentiments to take better decisions in each context. However, this is difficult to achieve in social networks due to linguistic features. A text classification model of combined lexical-based and machine-learning techniques is presented in this paper; it uses discourse structure including its relations to improve sentiment analysis. The model aims at extracting information about opinion polarity posted by users; then modelling users' usual polarity to detect significant polarity. The model extracts posted texts on Facebook, then it classifies them according to their polarity, which shows the detection of polarity. It provides interesting results using Ukraine crisis argued by Jordanian news followers. Obtained results show a high accuracy (94.68%). It is useful to have information about users' sentiments. It may serve feedback for politicians and

jurists, where direct contact with war victims is extremely difficult. © 2023, Al-Zaytoonah University of Jordan. All rights reserved.

Obeidat, I., Mughaid, A., AlZu'bi, S., AL-Arjan, A., AL-Amrat, R., AL-Ajmi, R., AL-Hayajneh, R., Abuhaija, B., Abualigah, L.

A novel secure cryptography model for data transmission based on Rotor64 technique

(2023) Multimedia Tools and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172989513&doi=10.1007%2fs11042-023-16889-3&partnerID=40&md5=dde85bab6b12ad5b0618089c9dc0b6f8>

AFFILIATIONS: Department of Information Technology, Faculty of Prince AL-Hussein Bin Abdullah II of Information Technology, The Hashemite University, P.O box 330127, Zarqa, 13133, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Wenzhou - Kean University, Wenzhou, China;

Department of Electrical and Computer Engineering, Lebanese American University, Byblos, 13-5053, Lebanon;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

MEU Research Unit, Middle East University, Amman, 11831, Jordan

ABSTRACT: In recent years, there have been many Security vulnerabilities that threaten user security, these threats have led to the finding of user files, so the use of the Internet has become unlimited, and the number of digital network devices has increased, Therefore, maintaining the confidentiality and integrity of information has become an urgent necessity to preserve user information, due to the increase in hackers and intruders, and the innovation of modern methods of penetration every day. Data cryptography has proven to be a secure way to protect a user's data. Many current cryptography algorithms are considered weak regarding data transmission over the Internet, so newly updated algorithms are in high demand. In this paper, we proposed to develop the ancient rotor machine depending on the base64 coding technique, in which we replaced the alphabets of the ancient rotor machine with the alphabets of base64 that contain 64 characters. Furthermore, we proposed a key exchange based on One-time password OTP code via SMS, OTP is mechanism for logging on to a network using unique password that can only be used once, to overcome the static password method that is least secure, and used it to generate the subkeys for rotor machines based on hash and random permutation techniques. MD5 algorithm function is used to authenticate the original message, Finally, we experimented with these techniques of secure sending e-mails by encrypting the contents of them with the proposed technique. However, the proposed security technique got promising results. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Amro, R., Althunibat, A., Hawashin, B.

Arabic User Requirements Classification Using Machine Learning

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171805703&doi=10.1109%2fICIT58056.2023.10225936&partnerID=40&md5=adea759b2c772f1a79221fbbcc877a24)

[85171805703&doi=10.1109%2fICIT58056.2023.10225936&partnerID=40&md5=adea759b2c772f1a79221fbbcc877a24](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171805703&doi=10.1109%2fICIT58056.2023.10225936&partnerID=40&md5=adea759b2c772f1a79221fbbcc877a24)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Requirement engineering is a crucial step in software engineering as it forms the foundation for all subsequent stages and significantly affects whether software development is successful or unsuccessful. The same software requirement document generally includes both functional and non-functional requirements are essential. However, expressing these requirements in natural language necessitates considerable human effort to classify them. Manual classification can be laborious, time-consuming, expensive, and prone to inaccuracies. Inaccurate classification can result in misunderstandings or ambiguities in requirements, leading to incomplete products that fail to meet customer demands. While many studies have proposed English language requirements classification techniques, there is an absence of research in Arabic requirements classification. Moreover, there aren't many Arabic datasets that are openly accessible in this sector. In this paper, we offer a method for gathering Arabic data sets for needs and utilizing machine learning techniques to automatically categorize software requirements written in Arabic into functional and non-functional requirements. This study intends to assist software developers in time savings, lower the cost and effort associated with the manual classification process, and improve the effectiveness of the requirements engineering phase. Further gives scholars in this subject a new topic to explore. © 2023 IEEE.

Masoud, M.Z., Manasrah, A., Jaradat, Y., Shaban, N.A.A.

How Data can Mislead Machine Learning Prediction Process: Case Study of Building Cooling and Heating Loads

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171805477&doi=10.1109%2FICIT58056.2023.10225944&partnerID=40&md5=5b8896bc59d4c7721cbacba2738a028c)

85171805477&doi=10.1109%2FICIT58056.2023.10225944&partnerID=40&md5=5b8896bc59d4c7721cbacba2738a028c

AFFILIATIONS: Al-Zaytoonah University of Jordan, Electrical Engineering Department, Amman, Jordan;
Al-Zaytoonah University of Jordan, Mechanical Engineering Department, Amman, Jordan

ABSTRACT: Building heating and cooling power consumption optimization is an important field to reduce and optimize power consumption and to reach green building. To optimize the loads, the building can be constructed utilizing simulation software with its real materials, diminutions, glazing and orientation. Subsequently, the cooling and heating consumptions can be calculated. This method is a complex process. To reduce its complexity, machine learning (ML) has emerged to predict the cooling and heating loads of buildings. However, these algorithms require datasets to train, validate and to be tested. In this work, we attempted to work with a building dataset to predict its heating and cooling loads. Five different supervised machine learning regression algorithms are leveraged. In addition, a new hybrid multi-layer machine learning algorithm (HMLM) is proposed. The dataset utilized is a dataset constructed from simulation software. Our main purpose in this work is to show that simulation datasets may mislead the ML algorithms since their data has been extracted utilizing different assumptions and different preconfigured values. Moreover, simulation datasets should be verified with any real datasets before utilizing them. We have reduced the features in the dataset to only the building height. Our results show that with only this variable an acceptable model with accuracy exceeds 91% can be trained. This is misleading information obtained from the model. © 2023 IEEE.

Qousini, M., Ghanam, O.

A Brief Review for Separation Axioms in Bitopological Spaces

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171804900&doi=10.1109%2FICIT58056.2023.10226068&partnerID=40&md5=cf48dc92222808f00491cd209aad5c61)

85171804900&doi=10.1109%2FICIT58056.2023.10226068&partnerID=40&md5=cf48dc92222808f00491cd209aad5c61

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: In this paper we introduce the definition of bitopological spaces and define some main concepts related to this definition basically separation axioms, and we introduce some examples for some of them as well. © 2023 IEEE.

Altalihin, I., Alzu'Bi, S., Alqudah, A., Mughaid, A.

Unmasking the Truth: A Deep Learning Approach to Detecting Deepfake Audio Through MFCC Features

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171803970&doi=10.1109%2FICIT58056.2023.10226172&partnerID=40&md5=ceefcffa8e05715a012018cac1b537bf)

85171803970&doi=10.1109%2FICIT58056.2023.10226172&partnerID=40&md5=ceefcffa8e05715a012018cac1b537bf

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;
The Hashemite University, Faculty of Prince Al-Hussien Bin Abdullah for IT, Dept. of Information Technology, P.O. Box 330127, Zarqa, 13133, Jordan

ABSTRACT: Deepfake content is artificially created or altered using artificial intelligence (AI) methods to appear real. Synthesis can include audio, video, images, and text. Deepfakes may now produce content that looks normal, making it more difficult to identify. Significant progress has been made in identifying video deep fakes in recent years; However, most of the investigations into voice deep fake detection have used the ASVspoof-2019 dataset and several machine learning and deep learning algorithms. This research uses machine-based and deep-learning approaches to identify fake audio. Melted frequency cepstral coefficients (MFCCs) are used to extract the most useful information from the sound. We choose the 2019 ASVspoof dataset, which is the latest reference dataset. Experimental results show that Convolutional Neural Networks (CNN): (CNN-LSTM) outperformed other machine learning (ML) models in terms of accuracy, achieving an accuracy of up to 88%. © 2023 IEEE.

Al-Mahadeen, B.M., Alhuweimel, R., Jaber, K.M.

Prayer Sitting.. Is it a Biometric?

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171803488&doi=10.1109%2FICIT58056.2023.10225886&partnerID=40&md5=356fb5d81f56f8660f3e17bfbd88d249)

85171803488&doi=10.1109%2FICIT58056.2023.10225886&partnerID=40&md5=356fb5d81f56f8660f3e17bfbd88d249

AFFILIATIONS: Mutah University, Dept. of Computer Science, Karak, Jordan;

Al-Zaytoonah University of Jordan, Department of Computer Science, Amman, Jordan

ABSTRACT: sometimes the available data and its nature determine us in choosing what biometric to rely on for identifying people. From here, we thought outside the box in a mechanism for building the biometric that we can rely on in order to overcome the challenges that arise in human identification. So, in this research paper we find a way to link between foot geometry with the way of sitting in prayer and adopting it to distinguish between persons. We used a Convolutional Neural Network (CNN)

algorithm on 900 images of different persons while sitting to perform the prayer; the collected images were preprocessed using different sharpening filters then making segmentation to highlight fine details and enhance edges, then divided into two groups: training set and testing set to be inserted into an algorithm to extract unique characteristics from them and train the CNN on them, store as a template to be compared in testing cases. We obtained a result that the prayer sitting is biometric with an accuracy of 91.2% based on the data set that was used. © 2023 IEEE.

Ghanam, O., Alzaareer, H.

Sequentially compact and compactly generated groups

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171798628&doi=10.1109%2FICIT58056.2023.10225771&partnerID=40&md5=028daa836bbb134e329208e9b2707ca5)

85171798628&doi=10.1109%2FICIT58056.2023.10225771&partnerID=40&md5=028daa836bbb134e329208e9b2707ca5

AFFILIATIONS: Al-Zaytoonah University, Dept. of Mathematics, Amman, Jordan

ABSTRACT: The concepts of sequentially compact and compactly generated spaces have been recognized as significant tools in general topology. Building upon these fundamental concepts, this paper proposes the definition of a sequential compact topological group and explores some of its fundamental properties, including a discussion on its relationship with compactly generated topological groups. © 2023 IEEE.

Alsawareah, B., Althunibat, A., Hawashin, B.

Classification of Arabic Software Requirements Using Machine Learning Techniques

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171797438&doi=10.1109%2FICIT58056.2023.10225789&partnerID=40&md5=e753b06a34997eefe268d79903d883d9)

85171797438&doi=10.1109%2FICIT58056.2023.10225789&partnerID=40&md5=e753b06a34997eefe268d79903d883d9

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Ambiguity is a crucial problem in Software Requirements Specification (SRS) documents since most SRS documents are written in natural language, which is generally ambiguous. A variety of strategies have been employed to detect ambiguity in SRS papers. This paper will present techniques to classify Arabic language requirements through machine learning techniques. The proposed framework could help streamline the classification process for software development in Arabic-speaking countries by automating tasks and reducing the time taken. © 2023 IEEE.

Fezari, M., Dahoud, A.A., Arif, M., Al-Dahoud, A., Al-Mimi, H.M.

Sound Noise Monitoring using Wireless Sensor Networks in Annaba City

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171797154&doi=10.1109%2FICIT58056.2023.10225878&partnerID=40&md5=fbb86c82d4fd564bf537e5737c362725)

85171797154&doi=10.1109%2FICIT58056.2023.10225878&partnerID=40&md5=fbb86c82d4fd564bf537e5737c362725

AFFILIATIONS: Badji Mokhtar Annaba University, Laboratory of Automatic and Signals Annaba, Faculty of Engineering, Annaba, Algeria;

Al-Zaytoonah University of Jordan, Faculty of IT, Dept. of Computer Science, Amman, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Architecture and Design, Amman, Jordan

ABSTRACT: The aim of this work is to design a sound logger system for environmental monitoring using wireless sensors network WSN. The proposed solution is to place nodes in a fixed location in the city center of Annaba. These devices collect noise levels, process the information then transmit a code containing node position, sound level, and other data concerning the environment. A central unit will process the collected information from different nodes again then a GUI program will represent the data on a map concerning the selected area of Annaba city. The improvement is done on the choice of quality/price sensors; on designing an easy-to-understand and monitor GUI. © 2023 IEEE.

Alqudah, A.A.M., Alshraideh, M.A.M., Sharieh, A.A.S., Abushariah, M.A.M., Quiam, F.M.D.

Arabic Automatic Speech Recognition for Speakers with Speech Disorders: A Comprehensive Review

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171795234&doi=10.1109%2FICIT58056.2023.10225965&partnerID=40&md5=641eba64d9fbb7774530a7ea759095a9)

85171795234&doi=10.1109%2FICIT58056.2023.10225965&partnerID=40&md5=641eba64d9fbb7774530a7ea759095a9

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;

The University of Jordan, Department of Computer Science, Amman, Jordan;

The University of Jordan, Department of Computer Information Systems, Amman, Jordan

ABSTRACT: Automatic speech recognition (ASR) aims to convert human speech signal into text, where the quality of the speech signal is essential to assure correct recognition. However, some people suffer speech disorders (SD) of various kinds such as distortion and substitution, which may degrade the recognition of the speech signal in ASR domain. Based on our literature investigation, most of the

available ASR systems handle normal/regular speech with no consideration for SD and disabilities. This paper provides a comprehensive review on Arabic ASR for speakers suffering SD. In this paper, classifications of SD are provided. In addition, research attempts on Arabic ASR for speakers suffering SD are also highlighted in order to identify the benchmark datasets, tools, algorithms, and research gaps. To the best of our knowledge, all previous research attempts on Arabic ASR for speakers suffering SD focused on the Arabic letter /r/ in limited isolated words mode. This shows that there is a need to consider other types of SD in ASR domain for Arabic language, and consider continuous speech mode. In addition, Arabic speech datasets are very limited for SD research, which can be treated as an important research gap to be considered. © 2023 IEEE.

Abrikah, S.A., Farraj, G., Hammad, M.A.

Bayes Estimators of the Log-Normal Distribution Parameters Using Lindley's Approximation (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171794695&doi=10.1109%2FICIT58056.2023.10225832&partnerID=40&md5=4c36cdb93e704627404b265e19e690da)

[85171794695&doi=10.1109%2FICIT58056.2023.10225832&partnerID=40&md5=4c36cdb93e704627404b265e19e690da](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171794695&doi=10.1109%2FICIT58056.2023.10225832&partnerID=40&md5=4c36cdb93e704627404b265e19e690da)

AFFILIATIONS: Sebha University of Libya, Department of Statistics, Sebha, State of Libya;

The University of Jordan, Department of Mathematics, Amman, Jordan;

Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: In this paper, we will consider the problem of estimating the parameters of the Log-normal distribution using Lindley's approximation method where Lindley's approximation is considered when no closed-form Bayes estimators exist. Only Squared Error loss function will be considered. Applies Lindley's approximation to the proposed Bayesian treatment of the Lognormal distribution when both location and scale parameters have prior distributions. Introduces the simulation results of this Bayesian treatment. And By using Mathematica12, a simulation study to illustrate several numerical examples, estimators' performance is demonstrated. © 2023 IEEE.

Aljamal, M., Alquran, R., Al-Aiash, I., Mughaid, A., Alzu'Bi, S., Abutabanjeh, A.A.

A Novel Machine Learning Cyber Approach for Detecting WannaLocker Ransomware Attack on Android Devices

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171791460&doi=10.1109%2FICIT58056.2023.10226130&partnerID=40&md5=f6b8c2d1c682ae36b2e7ad562a60650f)

[85171791460&doi=10.1109%2FICIT58056.2023.10226130&partnerID=40&md5=f6b8c2d1c682ae36b2e7ad562a60650f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171791460&doi=10.1109%2FICIT58056.2023.10226130&partnerID=40&md5=f6b8c2d1c682ae36b2e7ad562a60650f)

AFFILIATIONS: Al-Hussien Bin Abdullah for IT the Hashemite University, Faculty of Prince, Department of Information Technology, PO Box 330127, Zarqa, 13133, Jordan;

Al Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

Concordia University, Department of Business Administration, Chicago, IL, United States

ABSTRACT: The widespread use of Android mobile phones in recent years has increased the risk of vulnerabilities that attackers can exploit, potentially leading to malware downloads and system damage. This paper presents an effective solution utilizing Machine Learning (ML), a subset of artificial intelligence, to detect Wannalocker ransomware specifically targeting Android devices. To achieve this objective, we employed the CICAndMal2017 dataset with several modifications to make it suitable for ML analysis. These modifications included data normalization, label encoding, attribute name resolution, and addressing data imbalance through the Synthetic Minority Over-sampling Technique (SMOTE). Furthermore, we performed feature selection using three distinct methods and applied a voting principle to select the most frequently occurring attributes. The resulting dataset was then subjected to various classifiers, yielding exceptional classification accuracy compared to previous studies. Notably, the BayesNet classifier achieved an accuracy of 99.1%. These findings demonstrate the efficacy of the proposed ML-based approach in bol-stering Android device security against Wannalocker ransomware, providing a valuable contribution to the field of mobile device security © 2023 IEEE.

Afaneh, S., Rasmi Al-Mousa, M., Shrif Al-Hamid, H., Suliman Al-Awasa, B., Alia, M., Almimi, H., A Alkhatib, A.

Security Challenges Review in Agile and DevOps Practices

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171791221&doi=10.1109%2FICIT58056.2023.10226018&partnerID=40&md5=dc984d173997f24f08f289e9ef2b5f3e)

[85171791221&doi=10.1109%2FICIT58056.2023.10226018&partnerID=40&md5=dc984d173997f24f08f289e9ef2b5f3e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171791221&doi=10.1109%2FICIT58056.2023.10226018&partnerID=40&md5=dc984d173997f24f08f289e9ef2b5f3e)

AFFILIATIONS: Zarqa University, Department of Cybersecurity, Zarka, Jordan;

Zarqa University, Software Engineering, Zarqa, Jordan;

Al-zaytoonah University of Amman, Cybersecurity Department, Jordan

ABSTRACT: Agile and DevOps methodologies are becoming increasingly popular in software development, as they offer many benefits to software development teams and the organizations they work for. Agile

methods depend on speed in development, repetition, and an increase in focus on the main characteristics and functions of the system. The DevOps approach aims at continuous integration, continuous delivery, continuous improvement, and faster feedback. Security is a critical component of Agile and DevOps methodologies. Integrating security into the development process from the outset can help to reduce the risk of security vulnerabilities, improve collaboration between development and security teams, enable rapid response to security incidents, increase automation, and ensure compliance with regulatory requirements. In conclusion, security has challenges in agile and DevOps approaches, so this paper discusses the most important challenges of combining ensuring security and continuous development. © 2023 IEEE.

Alzu'Bi, S., Hendawi, S., Elbes, M., Kanan, T., Mughaid, A.

Towards a Sustainable Future: Exploring Key Features, Challenges, and Global Examples of Building Smart Cities

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171790332&doi=10.1109%2FICIT58056.2023.10225987&partnerID=40&md5=8a3b21d3cb086777cef0bdecc2e87e71)

[85171790332&doi=10.1109%2FICIT58056.2023.10225987&partnerID=40&md5=8a3b21d3cb086777cef0bdecc2e87e71](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171790332&doi=10.1109%2FICIT58056.2023.10225987&partnerID=40&md5=8a3b21d3cb086777cef0bdecc2e87e71)

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;

Alzaytoonah University of Jordan, Department of Artificial Intelligence, Amman, Jordan;

The Hashemite University, FAC of Prince Al-Hussien Bin Abdullah for IT., Department of Information Technology, Zarqa, Jordan

ABSTRACT: As cities continue to grow and evolve, the need for sustainable smart cities becomes increasingly important. Sustainable smart cities aim to improve the quality of life for citizens in these cities by leveraging technology and innovation. This paper provides an overview of sustainable smart cities around the world, focusing on key features, challenges, and examples. Sustainable smart cities integrate smart technology, citizen engagement, environmental sustainability, inclusivity, and equity. The challenges facing sustainable smart cities include governance, data privacy, the digital divide, and collaboration. The paper highlights examples of sustainable smart cities, such as Amsterdam, Singapore, and Stockholm. The conclusion emphasizes the importance of prioritizing sustainability and collaboration to create a more livable and equitable urban future. © 2023 IEEE.

Sharieh, A., Hamad, N.A., Abu Kaf, H.I., Abuadas, F.H.

Predicting Patient's Willingness for Colorectal Cancer Screening Practices Using Machine Learning Classifiers

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171790144&doi=10.1109%2FICIT58056.2023.10226053&partnerID=40&md5=2b3855f7a0404c76975064801798617e)

[85171790144&doi=10.1109%2FICIT58056.2023.10226053&partnerID=40&md5=2b3855f7a0404c76975064801798617e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171790144&doi=10.1109%2FICIT58056.2023.10226053&partnerID=40&md5=2b3855f7a0404c76975064801798617e)

AFFILIATIONS: The University of Jordan, Department of Computer Science, Amman, Jordan;

Al-Zaytoonah University of Jordan, Department of Artificial Intelligence, Amman, Jordan;

Jouf University, Community Health Nursing Department, Sakaka, Saudi Arabia

ABSTRACT: Diagnosing and treating colorectal cancer (CRC) at its earlier stages is considered a significant public health issue since it is the second and third most commonly diagnosed cancer in both genders. However, early identification and screening of CRC can increase the survival rate to more than 90%. Employing machine learning to study individual predictors (socio-demographics, level of knowledge, and health beliefs) can affect the willingness to screen for CRC and enhance screening rates. This paper presents the application of five machine learning classifiers for predicting the patient's willingness for CRC screening. The classifiers are tested on a dataset obtained from Jordan University Hospital (JUH) and Albasheer Hospital in Amman, Jordan. The dataset is used to train and test the machine learning models with attributes related to socio-demographics, level of knowledge, and health beliefs. By applying 10-fold cross-validation, 90.9% is the best-obtained accuracy using Random Forest (RF) classifier compared to the accuracies achieved by Multi-layer Perceptron (MLP) Neural Network, Logistic Regression (LR), Random Forest (RF), J48 with Decorate algorithm, and multi-objective evolutionary fuzzy classifier. Additionally, this paper presents the importance of the attributes obtained by the RF. The results show that the level of knowledge and health beliefs impact the prediction accuracy almost as well as the socio-demographic attributes, where omitting them decreases the accuracy. © 2023 IEEE.

Hamdan, S., Mizher, M., Mimi, H., Maria, E.A., Heyari, A.M.

Feature Extraction with Differential Evolution Algorithm

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171790051&doi=10.1109%2FICIT58056.2023.10226067&partnerID=40&md5=40766f1b462f809e8fab9c1e464dfd35)

[85171790051&doi=10.1109%2FICIT58056.2023.10226067&partnerID=40&md5=40766f1b462f809e8fab9c1e464dfd35](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171790051&doi=10.1109%2FICIT58056.2023.10226067&partnerID=40&md5=40766f1b462f809e8fab9c1e464dfd35)

AFFILIATIONS: Al-Zaytoonah University, Cyber Security Department, Amman, Jordan;

Cyber Security Department, Amman, Jordan

ABSTRACT: In this study, we presented a feature extraction approach that addresses the difficulties arising from high dimensionality and large datasets in classification tasks. Our method combined differential evolution algorithm with Support Vector Machines (SVM). The experimental results demonstrated that SVM struggled when applied to large datasets. The proposed approach aimed to identify the most relevant features from the dataset, ultimately improving the accuracy of classification tasks. By reducing the data's dimensionality, we achieved storage efficiency and enhanced the classification process. This research provides valuable insights into the effectiveness of DE algorithm in overcoming challenges related to high-dimensional and large datasets, making a significant contribution to the field of feature selection and classification. Future research can explore the application of these approaches to other datasets and explore ways to further improve the efficiency and effectiveness of classification tasks. © 2023 IEEE.

Alhalaybeh, A., Alkhatib, A.A.A., Albustanji, R.N., Elmanaseer, S., Kanan, T., Alsakarnah, R.
Facilitating Metaverse Integration in Education via Extended Reality and the Internet of Things: AN OVERVIEW

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171789681&doi=10.1109%2FICIT58056.2023.10226029&partnerID=40&md5=597fbc8477d8d1fc5c50746ba35ff43)

[85171789681&doi=10.1109%2FICIT58056.2023.10226029&partnerID=40&md5=597fbc8477d8d1fc5c50746ba35ff43](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171789681&doi=10.1109%2FICIT58056.2023.10226029&partnerID=40&md5=597fbc8477d8d1fc5c50746ba35ff43)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The metaverse, a virtual space that combines elements of the physical and virtual worlds, has gained significant attention in recent years. Its potential to transform education is considerable, with extended reality (XR) technologies, such as virtual and augmented reality, and the Internet of Everything (IoE) enabling the creation of immersive, interactive learning experiences that can enhance learning outcomes and promote educational accessibility. However, implementing a metaverse in education also poses challenges, including the need for standardized XR content, the expense of hardware and software, and concerns regarding privacy and security. This paper aims to investigate the opportunities and challenges associated with using XR and IoE to facilitate a metaverse in education. Moreover, this study offers a comparative analysis of different approaches to implementing a metaverse in education. Our findings suggest that the benefits of a metaverse in education are substantial and that careful planning, research, and collaboration can help overcome the challenges and realize the potential of this technology in education. © 2023 IEEE.

Alhalaybeh, A., Althunibat, A., Al-Mahadeen, B.M., Habashneh, K.K., Daradkeh, A.M.

Towards a Conceptual Model for Assessing User Satisfaction in Metaverse-Based Learning

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171788064&doi=10.1109%2FICIT58056.2023.10226119&partnerID=40&md5=0e348a34c202cf752466c91de43da412)

[85171788064&doi=10.1109%2FICIT58056.2023.10226119&partnerID=40&md5=0e348a34c202cf752466c91de43da412](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171788064&doi=10.1109%2FICIT58056.2023.10226119&partnerID=40&md5=0e348a34c202cf752466c91de43da412)

AFFILIATIONS: Software Engineering, Al-Zaytoonah University of Jordan, Madaba, Jordan;

Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Mu'Tah University, Department of Computer Science, Alkarak, Jordan;

Al-Zaytoonah University of Jordan, Department of Basic Sciences (Humanities and Scientifics), Faculty of Arts, Amman, Jordan;

Accreditation of Higher Education Institutions and Quality Assurance (AQACHEI), Amman, Jordan

ABSTRACT: this paper proposes a conceptual model for assessing user satisfaction in metaverse-based learning, a novel field that utilizes virtual reality technology to create an immersive and interactive learning experience. Despite the growing popularity of metaverse-based learning, there is a lack of research on how to evaluate user satisfaction in this type of learning environment. The proposed model includes four factors: Perceived Trialability, Perceived Observability, User Compatibility, and Perceived Complexity, each of which can be measured using statistical methods. The study aims to address the research gap in evaluating user satisfaction in metaverse-based learning and provides a model for educators and researchers to assess and improve user satisfaction in this innovative learning environment. The findings of this study contribute to the growing body of literature on metaverse-based learning and provide insights into the unique challenges associated with implementing this technology in educational settings. © 2023 IEEE.

Mizher, M., Hamdan, S., Mizher, M., Mazhar, A.A., Mimi, H., Heyari, A.M.

Three Dimensional Objects Encryption Algorithms: A Review

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171787154&doi=10.1109%2FICIT58056.2023.10226134&partnerID=40&md5=cfcbb41f9a862cab8e1e71d889abc51)

[85171787154&doi=10.1109%2FICIT58056.2023.10226134&partnerID=40&md5=cfcbb41f9a862cab8e1e71d889abc51](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171787154&doi=10.1109%2FICIT58056.2023.10226134&partnerID=40&md5=cfcbb41f9a862cab8e1e71d889abc51)

AFFILIATIONS: Cyber Security Department, Al-Zaytoonah University, Amman, Jordan;

Amman Arab University, Department of Cyber Security, Amman, Jordan;
University of Sharjah, Department of Mass Communication, United Arab Emirates
ABSTRACT: Three-dimensional object encryption involves converting a 3D object into a secure and encrypted format to restrict access to authorized individuals. The primary objective is to protect the confidentiality, authenticity, and integrity of 3D objects, particularly in the face of rising cyber-attacks during storage, transmission, and processing. The choice of encryption technique depends on the required level of security and the specific application. This literature review provides an overview of existing algorithms and previous research on 3D object encryption which published in highly-cited peer-reviewed journals. It summarizes achievements, techniques, datasets of these algorithms while highlighting research gaps and issues in these literature review articles. © 2023 IEEE.

Mazhar, A.A., Al Rifaae, M.M.
A Systematic Review of the use of Virtual Reality in Education
(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171787034&doi=10.1109%2fICIT58056.2023.10225794&partnerID=40&md5=6d693f27dd1ffffe3c4759ac84dbf2147>
AFFILIATIONS: College of Communication, University of Sharjah, Sharjah, United Arab Emirates; Al-Zaytoonah University, Faculty of Architecture and Design, Amman, Jordan
ABSTRACT: The emergence of affordable virtual reality technology has opened up new possibilities for immersive and engaging education and training. In the past, technical challenges and high costs have hindered the progress of virtual reality in education, but now educational institutions and industries are quickly adopting it as a key training tool. Virtual learning environments have proven to be successful in various domains due to their ability to create a powerful sense of presence and effective immersion. This study examined a virtual reality application that offers safe and controlled on-site training experiences that can revolutionize education and training by providing learners with interactive, engaging, and effective learning experiences. The study involved analyzing the benefits and limitations of using this application, as well as providing recommendations for how it could be improved or used more effectively in educational settings. The goal of the study is to determine whether virtual reality has the potential to revolutionize education and training by providing learners with interactive, engaging, and effective learning experiences that are tailored to their individual needs. © 2023 IEEE.

Albakhit, S., Alkhatib, A.A.A., Albustanji, R.N., Elmanaseer, S., Salah, M., Amro, R.
A Survey of IoT Healthcare Applications
(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171785768&doi=10.1109%2fICIT58056.2023.10226022&partnerID=40&md5=4710c53dfe62495afe2953a28eec63d8>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Integrating Internet of Things (IoT) technology in health monitoring systems enables healthcare professionals to remotely track patients' vital signs and other health-related data through internet-connected sensors and devices. These systems possess the potential to significantly enhance patient care and management, particularly for those with chronic conditions. Continuous monitoring of vital signs can be achieved through the utilization of wireless implantable sensors. Automation of data analysis can be achieved through various approaches, including time series models. The development and application of IoT healthcare solutions necessitate the consideration of semantic data and the imperative need to safeguard patients' personal and health-related data. In addition, realtime integration platforms for telemetry systems, like the E-AMBULANCE system, can be employed to improve patient care and communication during transport to healthcare facilities. This work explores the different applications in IoT Healthcare. © 2023 IEEE.

Alwadi, B.M., Aravamudhan, V., Mohanasundaram, K., Abduljawad, M.
The Role of Smart Technologies in Reducing Energy Consumption and Promoting Sustainable Practices in Households and Businesses
(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171785296&doi=10.1109%2fICIT58056.2023.10225813&partnerID=40&md5=f632f7006fb2176078ed2c6ffa9a5d78>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan; Alliance University, India
ABSTRACT: Smart technologies play a very vital and useful role in solving power consumption issues and encouraging sustainable practices in businesses and households for a sustainable future. A smart approach is needed to promote knowledge sharing to solve the major problems of modern societies.

These days, reducing the effects of greenhouse gases and ensuring balanced economic growth are the major challenges. All engineers and experts should collaborate closely to achieve interdisciplinary synergies to bridge the challenging tasks of engineering. It is important to direct intense research efforts to balance resource usage, energy-efficient technologies, the integration of green energy solutions, and the effective integration of approaches for the circular economy. This study is based on relevant data collected from recent studies conducted by engineers and research scholars for knowledge integration and to know the efforts made for developing smart and sustainable technologies. The strategic aim of the study is to help solve major issues of modern times, especially those associated with the smart utilization and sustainability of valuable and limited resources. This study discusses new ideas, current issues, and challenges for a sustainable future on the basis of smart technologies. © 2023 IEEE.

Lafi, M., Abdelqader, A.

Automated Business Rules Classification Using Machine Learning to Enhance Software Requirements Elicitation

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171784894&doi=10.1109%2fICIT58056.2023.10226076&partnerID=40&md5=214f73503d1d8592cc73cde0a47c621b)

[85171784894&doi=10.1109%2fICIT58056.2023.10226076&partnerID=40&md5=214f73503d1d8592cc73cde0a47c621b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171784894&doi=10.1109%2fICIT58056.2023.10226076&partnerID=40&md5=214f73503d1d8592cc73cde0a47c621b)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Dept. of Software Engineering, Amman, Jordan

ABSTRACT: The elicitation of software requirements is an essential phase in building commercial software. Business rules can be an important source of software requirements specifications. Business rules are the description of the business process. Categorization and classification of these business rules can enhance the process of software requirements elicitation. We proposed an approach to categorize and classify business rules based on Witt's approach, which classifies business rules into four main categories. The proposed approach showed good accuracy, recall, and F1-scores values compared to the state-of-art approach. © 2023 IEEE.

Abu-Shanab, S.A., Alzu'Bi, S., Zraiqat, A.

A Novel Virtual Cosmetics Recommender System Based on Pre-Trained Computer Vision Models

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171784177&doi=10.1109%2fICIT58056.2023.10225835&partnerID=40&md5=636933b531d18b2f1d187d6301807fbd)

[85171784177&doi=10.1109%2fICIT58056.2023.10225835&partnerID=40&md5=636933b531d18b2f1d187d6301807fbd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171784177&doi=10.1109%2fICIT58056.2023.10225835&partnerID=40&md5=636933b531d18b2f1d187d6301807fbd)

AFFILIATIONS: Al Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

Al Zaytoonah University of Jordan, Mathematics Department, Amman, Jordan

ABSTRACT: The cosmetics industry has witnessed significant growth over the years, driven by changing beauty ideals, economic factors, and the rise of natural and organic beauty products. Artificial intelligence (AI) has played a crucial role in revolutionizing the cosmetics and personal care sector. This paper presents a virtual cosmetics recommender system that leverages AI and machine learning techniques to provide personalized cosmetic recommendations based on user images. The system utilizes a dataset comprising various well-known cosmetic brands, and the recommendation process involves image feature extraction, similarity analysis, and brand mapping. The proposed system aims to enhance decision-making and provide an interactive user interface for cosmetic brand classification. The experimental results demonstrate the effectiveness of the system in generating accurate cosmetic recommendations. © 2023 IEEE.

Al-Kassab, M.M., Al-Masalha, H., Abu Hammad, L.M., Daradkeh, A.M., Al-Khawaja, H.

Utilization of Information and Communication Technology (ICT) by Faculty Members at Information and Communication Technology College Al-Zaytoonah University in Jordan

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171783911&doi=10.1109%2fICIT58056.2023.10225928&partnerID=40&md5=4f2199dc563b20c59914cf05c8fcc267)

[85171783911&doi=10.1109%2fICIT58056.2023.10225928&partnerID=40&md5=4f2199dc563b20c59914cf05c8fcc267](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171783911&doi=10.1109%2fICIT58056.2023.10225928&partnerID=40&md5=4f2199dc563b20c59914cf05c8fcc267)

AFFILIATIONS: Tishk International University, Department of Mathematics Education, Erbil, Iraq;

Al-Zaytoonah University of Jordan, Faculty of Education, Amman, Jordan;

Mutah University, Faculty of Law, Al Kerak, Jordan;

Accreditation of Higher Education Institutions and Quality Assurance (AQACHEI), Amman, Jordan;

Amman Arab University, Faculty of Business, Amman, Jordan

ABSTRACT: The aim of this study is to evaluate the use of information and communication technology by faculty members at Al-Zaytoonah University in Jordan. Data were obtained from 42 faculty members from the faculties of information technology. A standardized questionnaire was used to obtain data from the research participants. Descriptive statistics, confidence interval, one-sample t-test, two-sample t-test, and one-way ANOVA were used to analyze the obtained data. This made it easier to assess the differences in usage by the different departments and faculties of the university. The result of the

study was that there were no differences in the use of information and communication technology with regard to the educational status of the participants, ages, gender, and marital status. However, a difference was found in the academic degree and there were no differences in the number of hours and academic rank. © 2023 IEEE.

Jarrar, Y., Abudahab, S., Abdul-Wahab, G., Zaiter, D., Madani, A., Abaalkhail, S.J., Abulebdah, D., Alhawari, H., Musleh, R., Lee, S.-J.

Clinical Significance of NAT2 Genetic Variations in Type II Diabetes Mellitus and Lipid Regulation (2023) Pharmacogenomics and Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171783531&doi=10.2147%2fPGPM.S422495&partnerID=40&md5=3ff1b7e807d06fe5c43e416474e5425b)

[85171783531&doi=10.2147%2fPGPM.S422495&partnerID=40&md5=3ff1b7e807d06fe5c43e416474e5425b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171783531&doi=10.2147%2fPGPM.S422495&partnerID=40&md5=3ff1b7e807d06fe5c43e416474e5425b)

AFFILIATIONS: Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, Jordan;

Department of Pharmacotherapy and Outcomes Science, School of Pharmacy, Virginia Commonwealth University, Richmond, VA, United States;

Department of Oral Surgery and Periodontology, College of Dentistry, Al-Mustansiriya University, Baghdad, Iraq;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Internal Medicine, School of Medicine, The University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Department of Pharmacology, Pharmacogenomics Research Center, College of Medicine, Inje University, Busan, South Korea

ABSTRACT: Background: N-acetyltransferase 2 (NAT2) enzyme is a Phase II drug-metabolizing enzyme that metabolizes different compounds. Genetic variations in NAT2 can influence the enzyme's activity and potentially lead to the development of certain diseases. Aim: This study aimed to investigate the association of NAT2 variants with the risk of Type II diabetes mellitus (T2DM) and the lipid profile among Jordanian patients. Methods: We sequenced the whole protein-coding region in NAT2 using Sanger's method among a sample of 45 Jordanian T2DM patients and 50 control subjects. Moreover, we analyzed the lipid profiles of the patients and examined any potential associations with NAT2 variants. Results: This study revealed that the heterozygous NAT2*13 C/T genotype is significantly ($P = 0.03$) more common among T2DM (44%) than non-T2DM subjects (23.5%). Furthermore, the frequency of homozygous NAT2*13 T/T genotype was found to be significantly higher ($P = 0.03$) among T2DM patients (26.7%) compared to that of non-T2DM subjects (11%). The heterozygous NAT2*7 G/A genotype was exclusively observed in T2DM patients (11.1%) and absent in the control non-T2DM group. Moreover, among T2DM patients, those with a homozygous NAT2*11 T/T genotype exhibited significantly higher levels of triglycerides (381.50 ± 9.19 ng/dL) with a P value of 0.01 compared to those with heterozygous NAT2*11 C/T (136.23 ± 51.12 ng/dL) or wild-type NAT2*11 C/C (193.65 ± 109.89 ng/dL) genotypes. T2DM patients with homozygous NAT2*12 G/G genotype had a significantly ($P = 0.04$) higher triglyceride levels (275.67 ± 183.42 ng/dL) than the heterozygous NAT2*12 A/G (140.02 ± 49.53 ng/dL) and the wild NAT2*12 A/A (193.65 ± 109.89 ng/dL). Conclusion: The finding in this study suggests that the NAT2 gene is a potential biomarker for the development of T2DM and changes in triglyceride levels among Jordanians. However, it is important to note that our sample size was limited; therefore, further clinical studies with a larger cohort are necessary to validate these findings. © 2023 Jarrar et al. This work is published and licensed by Dove Medical Press Limited.

Jraiban, T.F.A.

Degree of Employing Distance Learning Technology by Faculty Members and its Role in Students' Acquisition of Self-Learning Skills

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171781114&doi=10.1109%2fICIT58056.2023.10225979&partnerID=40&md5=462b10f12b63a90f42e596d6c113def1)

[85171781114&doi=10.1109%2fICIT58056.2023.10225979&partnerID=40&md5=462b10f12b63a90f42e596d6c113def1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171781114&doi=10.1109%2fICIT58056.2023.10225979&partnerID=40&md5=462b10f12b63a90f42e596d6c113def1)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Arts, Basic Sciences Department, Amman, Jordan

ABSTRACT: The current study identifies the degree of employing distance learning technology by faculty members and its role in students' acquisition of self-learning skills. The descriptive survey approach was used. To collect data, two questionnaires were distributed to (240) faculty members at Jordanian universities: the first 13-item questionnaire measures the faculty members' use of distance learning technology, while the second 10-item questionnaire measures students' acquisition of self-learning skills. The findings indicate the degree of employing distance learning technology by faculty members is medium. The results also show that students' acquisition of self-learning skills is high. Given the results, the study recommends preparing and training faculty members on how to use distance learning technology to improve its impact on students and to increase their acquisition of self-learning skills. © 2023 IEEE.

Al Sous, A.M., Hammad, M.A.

Distribution of Shannon Statistic from Nakagami Sample

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171780496&doi=10.1109%2FICIT58056.2023.10225919&partnerID=40&md5=7f86aca984051b3cf9b9d47c4665c20b>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: This paper calculates the exact quantiles of the MLE of Shannon entropy of the Nakagami distributions and approximate quantiles of the asymptotic distribution of this statistic. In addition, the paper proposes a new version of that statistic and shows that, even for small samples, through the quantiles of the chi-square distribution, it offers formula for quantiles of the precise distribution of statistic and derives some characteristics from the MLE Shannon entropy of the Nakagami distributions. Tables and graphs were created using Wolfram Mathematica 12. © 2023 IEEE.

Zraiqat, A.

Welcome Message

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171779646&doi=10.1109%2FICIT58056.2023.10225823&partnerID=40&md5=e4f3837980fe146b5eca85b2ff13b5a8>

AFFILIATIONS: Dean of Science and IT Faculty, Al-Zaytoonah University of Jordan, Jordan

Almutlak, S., Farraj, G., Zraiqat, A., Al Abdallah, A., Abrikah, S.A., Alkhalaileh, B.

Properties of Conformable Fractional Maxwell-Boltzmann Probability Distribution

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171779135&doi=10.1109%2FICIT58056.2023.10226126&partnerID=40&md5=f6d6c4d0f6a41904562c79d45c3d66d1>

AFFILIATIONS: Saudi Electronic University, Department of Basic Sciences, Riyadh, 11673, Saudi Arabia; The University of Jordan, Department of Mathematics, Amman, Jordan;

Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

Sebha University of Libya, Department of Statistics, Sebha, State of Libya;

Saudi Electronic University, American Diploma, Near School, Department of Mathematics, Saudi Arabia

ABSTRACT: This research aims to generate the properties of a conformable fractional Maxwell-Boltzmann probability distribution. The Maxwell-Boltzmann distribution is a probability distribution with applications in physics and chemistry. The most common application is in the field of statistical mechanics. Fractional calculus (FC) has become an essential computational method for describing appropriate kinetic energy problems. Fractional derivatives have mathematically interpreted many physical models of kinetic energy. This study investigates conformable fractional analogs of some basic concepts related to probability distributions of random variables, namely density, cumulative distribution, survival, and hazard functions. Moreover, we used comfortable fractional analogs for expected values, moments, central moments, mean, variance, skewness, and kurtosis. In addition, it introduces conformable fractional analogs to some entropy measures, namely, Shannon and Renyi entropy measures, together with Awad sup- entropy counter parts of these three measures. All these concepts have been applied to the fractional Maxwell probability distribution, which is very useful in a wide range of disciplines that are used for describing the speeds of various particles within a stationary container at a specific temperature © 2023 IEEE.

Quiam, F., Alqudah, A.A.M., Nabulsi, M.A., Alzu'Bi, S.

Examining the Validity of Inference Rules: Utilizing Truth Tables and Contrapositive Analysis

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171778920&doi=10.1109%2FICIT58056.2023.10226089&partnerID=40&md5=a7f4aef06cbc620ca1f27d3995cf7d67>

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan

ABSTRACT: In mathematical discrete logic, rules of inference play a fundamental role in reasoning and drawing valid conclusions. This paper focuses on proving the common rules of inference using truth tables for the contrapositive. The contrapositive is a powerful tool that allows for the examination of the logical relationships between conditional statements. By constructing truth tables for the contrapositive of each rule of inference, we can systematically evaluate the validity of the rules. The analysis involves assigning truth values to the premises and determining the truth values of the conclusions based on the contrapositive truth tables. The results demonstrate the consistency and soundness of the rules of inference, providing a rigorous foundation for logical reasoning in mathematical discrete logic. This approach showcases the applicability of truth tables and the

contrapositive in establishing the validity of the rules of inference, thereby enhancing our understanding and utilization of logical principles in mathematical discrete logic. © 2023 IEEE.

Alamereah, H., Alkhatib, A.A.A., Elmanaseer, S., Albustanji, R.N., Al-Mimi, H.M., Al Rawajbeh, M.
A Survey on Cyber Security in Smart Grids using Internet of Things

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-8517177856&doi=10.1109%2FICIT58056.2023.10225873&partnerID=40&md5=f294aa05849cc1596fa87721a3163518)

8517177856&doi=10.1109%2FICIT58056.2023.10225873&partnerID=40&md5=f294aa05849cc1596fa87721a3163518

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Smart grid technology is a critical application of the Internet of Things, and it is gaining popularity in the science and technology arena. However, it is also highly vulnerable to cyber attacks and threats. To address this issue, we conducted a survey to identify various studies that propose solutions for enhancing cyber security in smart grids based on the Internet of Things. We created a questionnaire that compared the studies in terms of their problem statements, proposed solutions, research methodology, and results. The objective of this paper is to emphasize the significance of cyber security for smart grids and to identify appropriate solutions to safeguard them from potential attacks and threats. © 2023 IEEE.

Al-Shaar, F.S., Aloudat, A., Hamadneh, T.

On the Optimization of Bi-variate Logarithmic Functions Using Bernstein-Lagrange Method

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-8517177746&doi=10.1109%2FICIT58056.2023.10225876&partnerID=40&md5=cf6ef22b8420593cc38af3660f7233b7)

8517177746&doi=10.1109%2FICIT58056.2023.10225876&partnerID=40&md5=cf6ef22b8420593cc38af3660f7233b7

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: In this paper, we consider bi-variate Logarithmic functions over two dimensional box. We convert the bi-variate differentiable logarithmic functions to Lagrange's polynomials of two variables and finite degree. Subsequently, we expand the Lagrange polynomial onto Bernstein form over the same domain. Furthermore, we prove that the Lagrange polynomial is optimized by the Bernstein enclosure with error bound. If the error is not bounded, we optimize the alternative discrete Logarithmic functions by the enclosure bound at the corresponding values of the given nodes. Eventually, we extend Bernstein properties to the Bernstein-Lagrange Form. © 2023 IEEE.

Altarawneh, M., Al-Ghammaz, S.A.-D.

The Journey of E-Learning Technology from Application to Challenges: Evidence from Jordan

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-8517177701&doi=10.1109%2FICIT58056.2023.10226094&partnerID=40&md5=5499a9cc860f04bf5d4f641f9a08cf95)

8517177701&doi=10.1109%2FICIT58056.2023.10226094&partnerID=40&md5=5499a9cc860f04bf5d4f641f9a08cf95

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Arts, Classroom Teacher Department, Amman, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Arts, English Literature Department, Amman, Jordan

ABSTRACT: The paper investigates the degree of implementing e-learning technology in the learning-teaching process in the education system post-COVID-19 world. The challenges and possibilities to utilize e-learning technologies are always on the rise among researchers and scholars. A discussion related to the most used e-learning platforms is also tailored in this paper. An analysis of the nature, pros, and cons of the most used e-learning platforms is identified, as well. Given the related findings, the challenges relating to the future successful adoption and use of e-learning technologies are properly set. © 2023 IEEE.

Abu Hammad, M., Al Abdallah, A., Ali Abrikah, S., Farraj, G.

Distribution of Shannon Statistic from Exponential Sample

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171776397&doi=10.1109%2FICIT58056.2023.10226138&partnerID=40&md5=293d34ccf89e334c8bcffa96bcd03986)

85171776397&doi=10.1109%2FICIT58056.2023.10226138&partnerID=40&md5=293d34ccf89e334c8bcffa96bcd03986

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

Sebha University of Libya, Department of Statistics, Sebha, State of Libya;

The University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: This paper provides a brief overview of the exponential distribution and its properties, we will define the Shannon statistic and discuss its properties and derive the exact distribution of a standardized version of MLE of Shannon entropy from exponential distribution and finally we compare its exact quantiles with those of quantiles of asymptotic distribution of this statistic. Moreover it suggests modified version of that statistic and shows that this modified one is much closer to

normality even for small samples. © 2023 IEEE.

Al-Tawil, M., Al-Zoubi, M.B., Majdalawi, Y.K., Almarabeh, T., Al Dahoud, A.
Geospatial Analysis of COVID-19 Lockdown Effects on Air Quality in Jordan and Surrounding Countries (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171775922&doi=10.1109%2FICIT58056.2023.10226137&partnerID=40&md5=046593029fbd02709a1023d1bfc090e>
AFFILIATIONS: The University of Jordan, Dept. Computer Information Systems, Amman, Jordan;
AL Zaytoonah University of Jordan, Faculty of Science and IT, Jordan
ABSTRACT: In spite of the adverse effects of the COVID-19 pandemic on the global economy, it has had a positive impact on the environment. To combat the spread of the virus, many countries, including Jordan, imposed lockdown measures that involved the suspension of economic activities such as manufacturing operations, transportation, and construction (with some exceptions for essential services). Consequently, the levels of certain atmospheric pollutants, such as NO₂ and CO, decreased by an average of 54% and 7%, respectively, during the lockdown period in Jordan. By conducting a systematic review of the lockdown measures and applying spatiotemporal analysis, this study established a methodology to analyze the influence of pandemic mitigation measures on regional air quality. The findings revealed a significant improvement in air quality throughout the study area during the lockdown period. © 2023 IEEE.

Alshehadeh, A.R., Al-Khawaja, H., Alia, M.A., Kourtel, F., Injadat, E., Jebril, I.H.
The Impact of Operational Characteristics on the Total Risk Management: Evidence from the Industrial Firms (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171774212&doi=10.1109%2FICIT58056.2023.10225809&partnerID=40&md5=0be11597ed2b53c3dad1b7f634ec27d9>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Amman, Jordan;
Swiss FinTech Innovation Lab University of Zurich, Zurich, Switzerland;
Setif University, Department of Marketing, Setif, Algeria;
WISE, Faculty of Business, Amman, Jordan
ABSTRACT: This paper examines the impact of the operational characteristics of the firms represented by firm size, financial leverage level, operating cash flow, and profitability on the total risks of the ASE-listed industrial public shareholding firms. The research population consists of (53) industrial firms listed on the Amman Stock Exchange (ASE), while the study sample comprises (26) firms between (2017) and (2021). Given the statistical analysis, the results show that the operational characteristics of the ASE-listed industrial public shareholding firms represented by firm size, financial leverage level, operating cash flow, and profitability affect the total risks. The findings also indicate that these four independent variables separately affect the total risks to varying degrees. The variable of the financial leverage level is ranked first in the strength of influence, while the variable of firm size is ranked last. This result can be expounded by the fact that the indebtedness in the industrial firms has a large size and thus has a greater impact on achieving the total risks of these firms. In light of these results, the officials in these firms whose shares are listed on the Amman Stock Exchange (ASE) must develop methods and tools to assess the relationship between the operational characteristics of the firms and the total risks by analyzing the ability of the firms to operate resources in operations that achieve actual cash flows exceeding the value of the cost of capital represented in stock returns and payments due for short- and long-term liabilities. © 2023 IEEE.

Abdallah, M., Hammad, A., Staegemann, D.
A Data Collection Quality Model for Big Data Systems (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171773185&doi=10.1109%2FICIT58056.2023.10226013&partnerID=40&md5=2d125db4c22f26502bcd0d95b2939241>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and IT, Amman, Jordan;
MRCC VLBA Otto-von-Guericke University Magdeburg, Magdeburg, Germany
ABSTRACT: Big data applications have gained widespread usage across various fields, including healthcare, business, and education. The effectiveness and accuracy of these applications heavily rely on the availability of a large volume of data. However, the collected and generated data for these applications often suffer from incompleteness, inaccuracy, and lack of structure. Consequently, significant efforts are required to clean and process the vast amount of data collected. In this research, we conduct a comprehensive review of existing data quality models that address data and big data quality in general. Building upon this review, we propose a data collection quality model that

incorporates a wide range of quality factors. Our model aims to produce clear and accurate data that can be readily utilized, thereby enhancing the value of data and supporting the performance of big data systems. Additionally, the proposed model contributes to reducing storage space requirements and processing time for data. To validate the effectiveness of the model, a case study is conducted using a predefined dataset. The results indicate that the model significantly streamlines the process of obtaining clean and accurate data. Nonetheless, further investigation is necessary to address additional aspects such as legal and privacy considerations pertaining to the collected data. Overall, this research presents a robust data collection quality model that addresses existing challenges and provides a foundation for improved utilization of big data in various domains. © 2023 IEEE.

Zaqebah, A.A., Almomani, O., Almomani, M., Alsaaidah, A., Abu-Shareha, A.A., Althunibat, A. Improving Routing Decision Algorithm for RPL Networks (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171771384&doi=10.1109%2FICIT58056.2023.10226111&partnerID=40&md5=1a522290414fb67a27614e7fab1df74a)

[85171771384&doi=10.1109%2FICIT58056.2023.10226111&partnerID=40&md5=1a522290414fb67a27614e7fab1df74a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171771384&doi=10.1109%2FICIT58056.2023.10226111&partnerID=40&md5=1a522290414fb67a27614e7fab1df74a)

AFFILIATIONS: The World Islamic Sciences and Education University, Department of Computer Science, Amman, Jordan;

The World Islamic Sciences and Education University, Department of Information System and Networks, Amman, Jordan;

Software Engineering, The World Islamic Sciences and Education University, Amman, Jordan;

Al-Ahliyya Amman University, Department of Networks and Information Security, Amman, Jordan;

Al-Ahliyya Amman University, Department of Data Science and Artificial Intelligence, Amman, Jordan;

Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, 11733, Jordan

ABSTRACT: Low Power Networks are spreading worldwide, seeking to enable small devices to join wireless networks. This requires a routing mechanism that makes it possible and seamless. This research aims to create a Low Power and Lossy Networks (RPL) routing protocol that balances power usage and node dependability. The main emphasis of the algorithm presented here is the choice made by network nodes (Zigbees) regarding which path to deliver the message along. Results for this routing technique seem promising. Utilizing it increased packet transfer reliability while enforcing power conservation. Furthermore, a 10% reduction in the network's overall power consumption was made. © 2023 IEEE.

Rasem, S., Zraiqat, A.M., Alshanti, W.G., Farah, A., Hammad, M.A.

Bayesian Estimation for Inverse-Gaussian Distribution under Square Error Loss Function

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171768954&doi=10.1109%2FICIT58056.2023.10225829&partnerID=40&md5=c3def67c4c9d44376674e0ebc28f8df2)

[85171768954&doi=10.1109%2FICIT58056.2023.10225829&partnerID=40&md5=c3def67c4c9d44376674e0ebc28f8df2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171768954&doi=10.1109%2FICIT58056.2023.10225829&partnerID=40&md5=c3def67c4c9d44376674e0ebc28f8df2)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Al-Zaytoonah University of Jordan, Department of Mathematic, Amman, Jordan;

Isra University, Department of Mathematic, Amman, Jordan

ABSTRACT: In this paper, with no closed-form Bayes estimators available, Lindley's approximation is taken into consideration when trying to estimate the parameters of the inverse Gaussian distribution. We shall only take into account the squared error loss function. When both the location and scale parameters have different prior distributions, this applies Lindley's approximation to the suggested Bayesian treatment of the inverse Gaussian distribution. Introduces the Bayesian treatment's simulated results. And A simulation study using Mathematica 12 is used to explain numerous numerical situations and show how well estimators function. © 2023 IEEE.

Alshehadeh, A.R., Rezig, K., Al-Khawaja, H., Jebiril, I., Injadat, E., Al-Abbadi, A.F.A.

The Disclosure Governance and its Role in the Operational Risk Management: Evidence from Commercial Banks

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171767824&doi=10.1109%2FICIT58056.2023.10225992&partnerID=40&md5=2b06b2f490577804c072f1a064c2761a)

[85171767824&doi=10.1109%2FICIT58056.2023.10225992&partnerID=40&md5=2b06b2f490577804c072f1a064c2761a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171767824&doi=10.1109%2FICIT58056.2023.10225992&partnerID=40&md5=2b06b2f490577804c072f1a064c2761a)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Amman, Jordan;

University of Blida - Algeria, Faculty of Business, Blida, Algeria;

Amman Arab University, Faculty of Business, Amman, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Amman, Jordan;

WISE University, Faculty of Business, Amman, Jordan

ABSTRACT: The purpose of the study was to identify the role of disclosure governance in the operational risk management (ORM) in the commercial banks of Jordan. A questionnaire has been

designed for this purpose, consisting (28) paragraphs to measure the independent and the dependent variable. It has been distributed to the community members of the study, consisting of a sample of the commercial banks of Jordan. (175) Questionnaires had been collected of (130) distributed. These were statistically processes using descriptive statistics and correlation coefficients. The results of the study showed a statistically significant role among disclosure governance, and the operational risk management in the commercial banks of Jordan. In light of these findings the study recommended the need to disclose all relative important information, in addition to those established by the law or international standards, on time to ensure timely reception of information to all stakeholders. © 2023 IEEE.

Staegemann, D., Volk, M., Abdallah, M., Turowski, K.

Towards the Application of Test Driven Development in Big Data Engineering

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171767752&doi=10.1109%2fICIT58056.2023.10225767&partnerID=40&md5=0fc0fa21c901c86665a30d383370ee6f)

[85171767752&doi=10.1109%2fICIT58056.2023.10225767&partnerID=40&md5=0fc0fa21c901c86665a30d383370ee6f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171767752&doi=10.1109%2fICIT58056.2023.10225767&partnerID=40&md5=0fc0fa21c901c86665a30d383370ee6f)

AFFILIATIONS: Otto-von-Guericke University Magdeburg, MRCC VLBA, Magdeburg, Germany;

Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, Jordan

ABSTRACT: Big data analytics have claimed an important role in today's society. Consequently, ways of improving the design and development of the corresponding applications are highly sought after. One rather current proposition is the application of test driven development (TDD) in the big data domain. The idea behind it is to increase the quality and the flexibility of the developed solutions. However, the application of TDD is often seen as a rather challenging task. Therefore, to increase the accessibility and facilitate its use, it is necessary to provide information that give orientation for interested developers. Hence, the publication at hand focuses on the question which considerations, information, and resources need to be provided to facilitate the widespread utilization of TDD in the big data domain. In doing so, it can be used as the foundation for an inventory of the current state of the related literature but also as a call for action to fill remaining gaps by conducting corresponding research endeavours. © 2023 IEEE.

Abujazoh, M., Al-Darras, D., Hamad, N.A., Al-Sharaeh, S.

Feature Selection for High-Dimensional Imbalanced Malware Data Using Filter and Wrapper Selection Methods

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171765556&doi=10.1109%2fICIT58056.2023.10226049&partnerID=40&md5=c277f950708d9e985759a9a325fb30ad)

[85171765556&doi=10.1109%2fICIT58056.2023.10226049&partnerID=40&md5=c277f950708d9e985759a9a325fb30ad](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171765556&doi=10.1109%2fICIT58056.2023.10226049&partnerID=40&md5=c277f950708d9e985759a9a325fb30ad)

AFFILIATIONS: University of Jordan, Department of Computer Science, Amman, Jordan;

Al-zaytoonah University of Jordan, Department of Artificial Intelligence, Amman, Jordan

ABSTRACT: Feature selection is a vital preprocessing step before utilizing any machine learning algorithm. It aims at reducing the number of features in the dataset by removing irrelevant, noisy, and redundant features. The feature selection problem can be viewed as an optimization problem where the goal is to maximize or minimize an evaluation measure for the machine learning tasks, mainly classification tasks. Metaheuristic algorithms are optimization algorithms that can be applied to feature selection. In this research, a comparison between the wrapper feature selection model based on the Differential Evolution (DE) and filter methods like Chi2 and ReliefF is conducted to evaluate both approaches. Three classification algorithms k-Nearest Neighbors (KNN), Support Vector Machines (SVM), and Decision Trees (DT) are used to evaluate the utilized feature selection algorithms. The proposed model is tested on a recent malware dataset obtained from the UCI repository. The results show that DT achieves the highest accuracy and consistently performs well in both wrapper and filter feature selection techniques. Thus, DT can be considered the most effective algorithm for the given dataset. However, SVM and KNN also offer viable alternatives depending on specific requirements or preferences. © 2023 IEEE.

Elmanaseer, S., Alzyadat, W.

Intelligent Agents and Neural Fuzzy Logic: Enhancing Agent Intelligence in Complex Environments

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171765200&doi=10.1109%2fICIT58056.2023.10225843&partnerID=40&md5=56794421bc5915794a280eab38f1edec)

[85171765200&doi=10.1109%2fICIT58056.2023.10225843&partnerID=40&md5=56794421bc5915794a280eab38f1edec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171765200&doi=10.1109%2fICIT58056.2023.10225843&partnerID=40&md5=56794421bc5915794a280eab38f1edec)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Intelligent agents have become increasingly significant in numerous fields including autonomous systems, robotics, and smart environments. Neural fuzzy logic, an amalgamation of fuzzy logic and neural networks, offers a propitious solution to incumbent-addressed roadblocks to sub-optimal decision-making and limited adaptability. This paper presents a methodology for integrating

neural fuzzy logic into intelligent agent systems, with a focus on a case study involving a robotic vacuum cleaner, constructing a smart cleaning device that continues to learn and optimize its cleaning performance based on experiences. The proposed approach leverages the power of neural fuzzy logic and robotics to create an intelligent and adaptive cleaning device. The iterative nature of the proposed approach allows the robot vacuum cleaner to continuously adapt its behavior based on real-time feedback and learning capabilities, enhancing the intelligence and autonomy of the agent. © 2023 IEEE.

Abzakh, A., Althunibat, A.

A Review: Human Factor and Cybersecurity

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171764715&doi=10.1109%2fICIT58056.2023.10225828&partnerID=40&md5=b71b2c63056e5d522f257fca831b08a7)

85171764715&doi=10.1109%2fICIT58056.2023.10225828&partnerID=40&md5=b71b2c63056e5d522f257fca831b08a7
AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, 11733, Jordan

ABSTRACT: Nowadays cybersecurity became more important for a world that is moving exponentially towards Internet of Things (IoT), automation, and online services, Thus protecting information and data about people, industrial secrets, government assets and much more information sources became even more important. And to understand cybersecurity we have to break it into segments related to technology, people, procedures and policies, and physical security, this will insure clear definition for the process of risk assessment of factors and the way they interact with the remaining elements according to MITRE ATT&CK framework [1]. By doing that experts found that the human factor is considered the weakest and hardest to include in the cybersecurity framework of any establishment, this is because the complex nature of people and the easiness of falling victims to Social Engineering (SE) attacks due to the exploitation of psychology, financial factors, environmental factors, social factors and even educational or lack of education and awareness. © 2023 IEEE.

Hammad, M.A., Qousini, M.M.M., Rabab'H, Z.M.

Approximate Bayes Estimators of Laplace Distribution under Linex Loss Function

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171764534&doi=10.1109%2fICIT58056.2023.10225897&partnerID=40&md5=c83faffe815f36f7a42d521ded76a60b)

85171764534&doi=10.1109%2fICIT58056.2023.10225897&partnerID=40&md5=c83faffe815f36f7a42d521ded76a60b
AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: When evaluating this work, Laplace distribution is used. The Laplace distribution's unknown shape parameter, reliability, and failure rate functions are estimated using the maximum likelihood, Bayes, and empirical Bayes techniques of estimation under the assumption that the other shape parameter is known. By using Mathematica13, simulation study to illustrate several numerical examples, estimators' performance is demonstrated. © 2023 IEEE.

Adawy, M., Almomani, O., Tahboush, M., Althunibat, A.

Integrated Boolean Sensing and Event Radius Model on Data Aggregation in Wireless Sensor Networks

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171763270&doi=10.1109%2fICIT58056.2023.10225782&partnerID=40&md5=65fadc3b93d39016e149364b3983c48a)

85171763270&doi=10.1109%2fICIT58056.2023.10225782&partnerID=40&md5=65fadc3b93d39016e149364b3983c48a
AFFILIATIONS: The World Islamic Sciences and Education University, Department of Information System and Networks, Jordan;

Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, 11733, Jordan

ABSTRACT: In Wireless Sensor Network (WSN), sensor nodes are densely and arbitrarily deployed in monitoring areas and most of them generate redundant data due to sense same events in the overlapping area. Thus, they spent more of energy from their limited batteries that reduce the chance of its survival and continuity. This paper integrates two mathematical models namely Boolean Sensing Model and Event Radius Model in the cluster WSN. The proposed model analyses an event coverage area to compute minimum number of active source nodes required to transmit data events to CH node rather than all nodes within cluster. OMNeT++ simulation tool has been using to performs experimental study and obtain the result. The simulation result shows that 4 source nodes are become active and transmit their data to CH node whereby 12 source nodes turn off and become sleep in the cluster. In addition, the proposed model reduces the source nodes energy consumption about 80 % comparing with LEACH scheme. © 2023 IEEE.

Alzyadat, W., Al-Madi, M., Muhairat, M., Al-Madi, N., Altarawneh, F.

A Roadmap for Artificial Intelligence Augmented Software Development Life Cycle: Aspects of Knowledge Vaporization

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171758067&doi=10.1109%2fICIT58056.2023.10226133&partnerID=40&md5=f4341f576313af29f4b76752c5ff37ff>
AFFILIATIONS: Alzaytoonah University of Jordan, Faculty of Science and IT, Department of Software Engineering, Amman, Jordan;

Al-Zaytoonah University of Jordan, Computer Science, Amman, Jordan;

Alzaytoonah University of Jordan, Artificial Intelligence, Faculty of Science and IT, Amman, Jordan

ABSTRACT: Artificial Intelligence Augmented Software Development Life Cycle is a process for developing software that incorporates AI techniques and technologies. One aspect of AIASDL is knowledge vaporization, which refers to the process of extracting and encapsulating knowledge from the AI model during development and making it available for use in other parts of the software development life cycle. The advantages of AIASDL include; improved performance, increased efficiency, better decision-making, better user experience, better scalability, better security and compliance, and knowledge vaporization. Requirement engineering is the process of gathering, analyzing, and specifying the requirements for a software system. The context boundary, domain knowledge, application domain, and system boundary are all important concepts in requirement engineering that help define the scope and constraints of the system being developed. Understanding the context boundary is important because it helps identify the external factors that will affect the requirements of the system. Domain knowledge is the understanding and expertise in a specific field or area that is necessary for effective requirement engineering. The application domain is the specific area or field where the system will be used, and it is important to understand the application domain to gather and document the correct requirements for the system © 2023 IEEE.

Alsamir, H., Qawaqneh, H.

Fixed point results using cyclic $(\rho - \theta)$ -admissible mapping and extended simulation function concept in rectangular b-metric space

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171757192&doi=10.1109%2fICIT58056.2023.10225775&partnerID=40&md5=1110040167fda42363654eccf34c83c0>

AFFILIATIONS: College of Business Dar Al-Uloom University, Department of Administration-Finance, Saudi Arabia;

Alzaytoonah University of Jordan, Faculty of Technology and Science, Department of Mathematics, Amman, Jordan

ABSTRACT: In this paper, we present a new concept of generalized cyclic (ρ, θ) - ψ contraction via the extended MF-simulation function and establish the existence of such a contraction in a rectangular b-metric space. Our proposed contraction generalizes and extends several existing works in the literature. Moreover, we provide an illustrative example to validate and support the effectiveness of our proposed concept. © 2023 IEEE.

Elmanaseer, S., Alkhatib, A.A.A., Albustanji, R.N.

A Proposed Technique for Business Process Modeling Diagram Using Natural Language Processing (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171756767&doi=10.1109%2fICIT58056.2023.10225761&partnerID=40&md5=b2fa4ec6aa3d79b8d124b1c59fa6372c>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Business Process Modeling Notation (BPMN) offers a dynamic graphical language that simplifies the creation of business process diagrams for organizations. This standardized visual representation allows for effortless understanding, analysis, and optimization of processes. By integrating Natural Language Processing (NLP), an artificial intelligence branch that enables computers to comprehend and process human language, BPMN diagrams can now be generated from natural language descriptions of processes. Utilizing NLP to convert process descriptions into structured forms streamlines the creation and maintenance of BPMN diagrams, saving both time and effort. This fusion of BPMN and NLP results in a potent tool for analyzing and enhancing business processes. This paper introduces a BPMN diagramming method using NLP while addressing previous studies' shortcomings. The proposed technique manages natural language with multiple meanings by applying Probabilistic Latent Semantic Analysis (PLSA) in the pre-processing stage. © 2023 IEEE.

Abu Hammad, M., Al-Zoubi, H., Al Abdallah, A.

Bayes Estimation of the Parameters of the Kumaraswamy Probability Distribution

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85171756390&doi=10.1109%2fICIT58056.2023.10225802&partnerID=40&md5=83680ab5365c094925f32467fb0f8cdb
AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan
ABSTRACT: In this paper, we will consider the problem of estimating the parameters of the Kumaraswamy distribution using the maximum likelihood, method of moments, some Bayes methods under different prior distributions and different loss functions, where Lindley's approximation is considered when no closed-form Bayes estimators exist. And By using Mathematica 12, a simulation study to illustrate several numerical examples, estimators' performance is demonstrated. © 2023 IEEE.

Kanan, T., Hendawi, S., Alzu'Bi, S., Elbes, M., Mughaid, A.
Revolutionizing Cyberbullying Prevention: A Cutting-Edge Natural Language Processing-Based Approach (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171755260&doi=10.1109%2fICIT58056.2023.10225847&partnerID=40&md5=d8462589f81fa40902fcc8a0932c7b1f>
AFFILIATIONS: Alzaytoonah University of Jordan, Department of Artificial Intelligence, Amman, Jordan; Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan; The Hashemite University, FAC of Prince Al-Hussien Bin Abdullah for IT, Department of Information Technology, Zarqa, Jordan
ABSTRACT: The rise of social media has brought about new cybersecurity threats that can affect individuals and organizations. To ensure safe social media usage, there is a need for effective cybersecurity applications that can mitigate these threats. Cyberbullying is a serious issue that affects many individuals, particularly young people, and can have long-lasting effects on mental health and well-being. Natural language processing (NLP) techniques can be used to detect cyberbullying in online content. This study utilized the cyberbullying-tweets.csv dataset from Kaggle and implemented two classifiers, Logistic Regression and Decision Tree, to detect cyberbullying in tweets. The results showed that Logistic Regression achieved an accuracy of 91%, while Decision Tree achieved an accuracy of 89%. These findings highlight the potential of NLP techniques to accurately detect cyberbullying and help prevent this harmful behavior on social media platforms. © 2023 IEEE.

Alshanti, W.G., Alshanty, A., Aljawarneh, B., Khalil, R.
A Reliable Analytical Method for Solving Klein-Gordan Equation by Tensor Product Theory of Banach Spaces (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171754824&doi=10.1109%2fICIT58056.2023.10225893&partnerID=40&md5=fbd277e608be5ade023d9d5f4a9ed84e>
AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan; Isra University, Cyber Security Department, Amman, Jordan; Al Zaytoonah University of Jordan, Department of Physics, Amman, Jordan; The University of Jordan, Department of Mathematics, Amman, Jordan
ABSTRACT: In this paper, we use an effective method for solving second order linear homogeneous Klein-Gordan equation. The new method is based on the theory of tensor product in Banach spaces coupled with some properties of atoms operators. The obtained solutions in this case are called atomic. © 2023 IEEE.

Abusukhon, A., Alghannam, B.
The Role of the Internet of Things in Monitoring Air Pollution-A Survey (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171754668&doi=10.1109%2fICIT58056.2023.10225826&partnerID=40&md5=27a2d17721ce290156b52d42d2cbf783>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Computer Science Dep., Amman, Jordan; College of Business Studies the Public Authority for Applied Education and Training, Department of Computer Science and Information System, Kuwait City, Kuwait
ABSTRACT: Air pollution is one of the most common problems that the world is facing today. In fact, there are numerous causes of air pollution, including the large number of industries and automobiles that emit carbon dioxide (CO2) and carbon monoxide. Pollution is increasing on a daily basis, making air quality monitoring and management a major challenge for governments in both developed and developing countries. Air pollution affects human health as well as the atmosphere, causing climate change. One of the techniques used for monitoring air pollution is the Internet of Things (IoT). In this paper, we demonstrate various techniques for monitoring air quality using IoT and make a comparison based on various factors elicited from the previous work. © 2023 IEEE.

Aloudat, A., Al-Sha'Ar, F.S., Al-Qawaqneh, H., Dababneh, A.

The Bernstein Expansion for Rational Differentiable Functions in Newton Divided Differences Form (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171753248&doi=10.1109%2FICIT58056.2023.10226097&partnerID=40&md5=d8a5130fde44f05de68e5379577121f8>

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: In this paper, we address the Bernstein expansion of rational Differentiable functions in Newton Divided Differences form. We extend the approach of Bernstein to rational polynomials and approximate the truncation error. Additionally, we show essential properties for the approach in the Newton Divided Differences. Subsequently, we prove that rational continuous functions can be optimized by the minimum and maximum Bernstein control points that occur at the corresponding nodes. © 2023 IEEE.

Hawashin, B., Althunibat, A., Kanan, T., Alzu'Bi, S., Sharrab, Y.

Improving Arabic Fake News Detection Using Optimized Feature Selection

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171747684&doi=10.1109%2FICIT58056.2023.10225974&partnerID=40&md5=3f08f100aafbecae2247be5aa39c06b9>

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Artificial Intelligence, Amman, Jordan; Alzaytoonah University of Jordan, Department of Software Engineering, Amman, Jordan;

Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;

Isra'a University, Department of Artificial Intelligence, Amman, Jordan

ABSTRACT: It is of no doubt that the advent of social media has brought several important benefits. However, there have been also attempts of abusing social media in several ways, one of which is by distributing fake news. Fake news is able to change public opinion, and it is necessary to detect such attempts. Despite its importance, there is a lack of research work that has been done in this topic on Arabic posts. The few works that studied this topic in Arabic language did not give much attention to optimizing the feature selection process, which can play an important role in further improving the detection accuracy. This work further improves fake news detection performance by optimizing the feature selection phase. Experimental work has shown that such optimizing improved the detection accuracy for traditional machine learning methods. © 2023 IEEE.

Abdelqader, A., Lafi, M., Awad, K., Abdelqader, M.A.

A Novel Approach to Elicit Software Requirements for IoT Systems Using SVM Classifier

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171747258&doi=10.1109%2FICIT58056.2023.10225969&partnerID=40&md5=2bd12879ef67601b0ed51304a8cb8c7a>

AFFILIATIONS: AL Zaytoonah University of Jordan, Dept. Software Engineering, Amman, Jordan; AL Zaytoonah University of Jordan, Dept. Cybersecurity, Amman, Jordan

ABSTRACT: Internet of Things (IoT) is one of the most growing technologies that embedded in most application systems in our life. IoT aimed to solve real world problems in different environmental fields such as industry, education, healthcare, intelligent systems and many other areas. IoT embedded rapidly in most daily devices and technologies with new efficient and creative needs of functional and nonfunctional requirements that are complicated compared with traditional requirements engineering (RE) systems. In addition, remotely smart systems present new challenges and lacks in RE process that needs a solution. IoT systems open a new research issues in (RE) such as elicitation, analysis, specification and management of IoT RE. To solve this lack of RE new smart techniques based on AI must be applied in elicitation RE process. In this paper we present a new smart dynamic approach in RE elicitation phase to build dynamic functional requirements based on AI models. The new stakeholder expectation needs from the smart IOT system are collected and stored in requirements dataset. These new requirements are analyzed and classified into new requirement features using Support Vector Machine (SVM) classifier to classify the new requirement and/or duplicated requirement. These classified functional requirements compared to the IoT system, the positive training requirements are added to the smart functional requirement presented in the IoT system. In addition, the proposed work presents the most used functional requirements to appear first to the system Stakeholder as the most functionality used in IoT system. © 2023 IEEE.

ABSTRACT: Internet of Things (IoT) is one of the most growing technologies that embedded in most application systems in our life. IoT aimed to solve real world problems in different environmental fields such as industry, education, healthcare, intelligent systems and many other areas. IoT embedded rapidly in most daily devices and technologies with new efficient and creative needs of functional and nonfunctional requirements that are complicated compared with traditional requirements engineering (RE) systems. In addition, remotely smart systems present new challenges and lacks in RE process that needs a solution. IoT systems open a new research issues in (RE) such as elicitation, analysis, specification and management of IoT RE. To solve this lack of RE new smart techniques based on AI must be applied in elicitation RE process. In this paper we present a new smart dynamic approach in RE elicitation phase to build dynamic functional requirements based on AI models. The new stakeholder expectation needs from the smart IOT system are collected and stored in requirements dataset. These new requirements are analyzed and classified into new requirement features using Support Vector Machine (SVM) classifier to classify the new requirement and/or duplicated requirement. These classified functional requirements compared to the IoT system, the positive training requirements are added to the smart functional requirement presented in the IoT system. In addition, the proposed work presents the most used functional requirements to appear first to the system Stakeholder as the most functionality used in IoT system. © 2023 IEEE.

Abzakh, A., Alkhatib, A.A.A., Rabayah, O., Elmanaseer, S., Albustanji, R.N., Almadi, N.

A Survey: Threat Hunting for the OT Systems

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171746395&doi=10.1109%2FICIT58056.2023.10225758&partnerID=40&md5=7b32b0565b7d7f256f45e4561526faa0>

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Cybersecurity, Amman, Jordan

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Threat hunting is an essential practice in protecting operational technology (OT) systems from cyber threats. The convergence of information technology (IT) and OT systems has increased the attack surface and complexity of security threats in OT environments. As a result, proactive threat hunting has become critical in identifying and mitigating potential security breaches. Threat hunting in OT systems involves the continuous monitoring and analysis of network traffic and system logs to identify and isolate threats before they can cause significant damage. This approach allows security teams to identify malicious activity that traditional security measures may not detect, such as advanced persistent threats (APTs) and zero-day exploits. Effective threat hunting requires specialized skills and expertise to navigate the unique challenges of OT environments, including limited resources, outdated technology, and a lack of standardization. It also involves collaboration between IT and OT teams to ensure comprehensive coverage of the attack surface. Threat hunting in OT systems is an ongoing process that requires a proactive approach to security. This paper presents a survey of threat hunting practices and methodologies in operational technology (OT) systems, this involves implementing continuous monitoring, conducting regular security assessments, and leveraging the latest threat intelligence to identify and mitigate emerging threats. By adopting a proactive and collaborative approach to threat hunting, organizations can protect their critical infrastructure systems and ensure the continuity of essential services. © 2023 IEEE.

Alshorm, S., Batiha, I.M., Jebriil, I., Dababneh, A.

Handling Systems of Incommensurate Fractional Order Equations Using Improved Fractional Euler Method (2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171746131&doi=10.1109%2FICIT58056.2023.10226115&partnerID=40&md5=99684190d9168ea6fa7d959a902366ae)

[85171746131&doi=10.1109%2FICIT58056.2023.10226115&partnerID=40&md5=99684190d9168ea6fa7d959a902366ae](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171746131&doi=10.1109%2FICIT58056.2023.10226115&partnerID=40&md5=99684190d9168ea6fa7d959a902366ae)

AFFILIATIONS: Al Zaytoonah University, Department of Mathematics, Amman, 11733, Jordan

ABSTRACT: This paper targets to introduce a new numerical scheme for solving an incommensurate system of fractional order differential equations, which would be carried out by using a recent numerical modification for the fractional Euler method called an Improved Modified Fractional Euler Method (IMFEM). An illustrative numerical example will be provided for completeness. © 2023 IEEE.

Al-Dabbas, L., Al-Tarawneh, H., Al-Rawashdeh, T.A.

Customer Personality Segmentation Using K-Means Clustering

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171745063&doi=10.1109%2FICIT58056.2023.10225996&partnerID=40&md5=c22d3a23e31204a49d8231dd93d3ec59)

[85171745063&doi=10.1109%2FICIT58056.2023.10225996&partnerID=40&md5=c22d3a23e31204a49d8231dd93d3ec59](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171745063&doi=10.1109%2FICIT58056.2023.10225996&partnerID=40&md5=c22d3a23e31204a49d8231dd93d3ec59)

AFFILIATIONS: Al-Ahliyya Amman University, Department of Data Sciences and Artificial Intelligence, Amman, Jordan;

Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, Jordan

ABSTRACT: Enhancing sales strategies and developing targeted marketing approaches that effectively resonate with customers are crucial for achieving success in today's highly competitive marketplace. To accomplish this, sales organizations can invest in their teams and equip them with analytical tools to examine customer personality and behavior. By employing unsupervised learning algorithms such as K-Means clustering, customer data can be efficiently analyzed, facilitating the grouping of customers into clusters based on shared characteristics. This enables the identification of patterns in customer behavior, allowing companies to create tailored marketing strategies. This study provides practical recommendations for companies to enhance their sales and marketing strategies based on the analysis of a benchmark dataset from Kaggle, revealing three primary customer clusters: new customers with lower income and spending, old customers with average income and behavior, and old customers with higher income and spending. These insights empower companies to align their efforts with customer preferences and improve. © 2023 IEEE.

Aletabi, H., Abdallah, M.

A Proposed Cloud Quality Model (IaaSQual) for 'Infrastructure as a Service (IaaS)' from User's Perspective

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171743932&doi=10.1109%2FICIT58056.2023.10225894&partnerID=40&md5=9127e26efed3dcf1d230b15783b72424)

[85171743932&doi=10.1109%2FICIT58056.2023.10225894&partnerID=40&md5=9127e26efed3dcf1d230b15783b72424](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171743932&doi=10.1109%2FICIT58056.2023.10225894&partnerID=40&md5=9127e26efed3dcf1d230b15783b72424)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Dept. of Software Engineering, Amman, Jordan

ABSTRACT: Infrastructure as a Service (IaaS) is a service provided by cloud computing systems vendors. IaaS provides virtual computing resources to the users such as hardware, servers, data center space and storage, and network components all over the internet. Just like any other growing technology, cloud computing and specifically IaaS faces some challenges that affect the quality of

service and must be conquered to achieve users' satisfaction and the most reliable service. Therefore, the service must be dependable to satisfy the business. In this study, a quality model will be proposed from the users' perspective to help the IaaS vendor to understand the IaaS users' nonfunctional requirements. © 2023 IEEE.

Alhalaybeh, A., Althunibat, A.

Measuring Acceptance of Adoption Metaverse in eLearning by Using TAM Model

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171741710&doi=10.1109%2fICIT58056.2023.10226171&partnerID=40&md5=45237c9a139fb8fa7f5b6f3d28e1c4e1)

85171741710&doi=10.1109%2fICIT58056.2023.10226171&partnerID=40&md5=45237c9a139fb8fa7f5b6f3d28e1c4e1

AFFILIATIONS: Software Engineering, Al-Zaytoonah University of Jordan, Madaba, Jordan;

Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper examines the Acceptance of Adoption Metaverse (AAM) in eLearning by utilizing the Technology Acceptance Model (TAM) framework. The TAM model is a widely recognized theoretical framework that is used to understand the factors that influence users' acceptance of technology. In this study, we explore the relationship between AAM and eLearning adoption by investigating the key factors that influence users' behavioral intention towards AAM. The Metaverse is a virtual world that simulates the real-world environment and offers learners an interactive, immersive, and collaborative learning experience. It posits that perceived usefulness and perceived ease of use are the key factors that influence users' behavioral intention to use technology. The study employs a quantitative research approach to collect data from students through a survey questionnaire. The data collected will be analyzed using both multiple linear regression model and simple linear regression model to examine the relationship between Model variables for the acceptance of AAM in eLearning. © 2023 IEEE.

Abdel-Fattah, F., Fayyad, S., Heyari, A.M., Al-Zoubi, H.

A Survey of Internet of Things (IoT) Forensics Frameworks and Challenges

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171739314&doi=10.1109%2fICIT58056.2023.10226103&partnerID=40&md5=3fb829a7ba62805e01975c284689cc28)

85171739314&doi=10.1109%2fICIT58056.2023.10226103&partnerID=40&md5=3fb829a7ba62805e01975c284689cc28

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology,

Amman, Jordan

ABSTRACT: The Internet of Things has led to the deployment of billions of interconnected devices in critical infrastructures such as health, transportation, environmental control, and home automation. IoT offers convenience and dependability, but it also presents new risks for hackers and hurdles for digital forensics. Digital forensic investigations are made more difficult by the enormous range of IoT devices, non-standard file formats, and cloud infrastructure. End-to-end encryption puts forensic investigation success and privacy at risk. In particular, all legal, privacy, and cloud security issues will be addressed in this article along with other key issues that arise during the complex investigation process involving IoT. Also, this study offers a summary of the previous and present theoretical frameworks in the field of digital forensics © 2023 IEEE.

Amro, R., Althunibat, A., Hawashin, B.

Arabic Non-Functional Requirements Extraction Using Machine Learning

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171738786&doi=10.1109%2fICIT58056.2023.10225951&partnerID=40&md5=4dcc78d564c56455f6e6f9c10c125eb1)

85171738786&doi=10.1109%2fICIT58056.2023.10225951&partnerID=40&md5=4dcc78d564c56455f6e6f9c10c125eb1

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Non-Functional Requirements (NFR) are a set of quality attributes that software must have, such as security, reliability, and performance. Extracting NFR from software requirement specifications can help developers deliver quality software that meets users' expectations. However, since functional and non-functional requirements are mixed in the same SRS, it requires a lot of human effort to distinguish them. While many studies have proposed English language requirements extracting techniques, there is a lack of research in Arabic requirements extracting, as well as a lack of publicly available Arabic datasets in this field. In this study, we propose an automatic NFR extraction method for quality software development by combining machine learning and feature extraction techniques. Also, we will collect an Arabic dataset for requirements. This study aims to help software engineers save time, reduce costs and effort in the manual extraction process, and make the requirements engineering phase more efficient. Additionally, it provides new research areas in this field. © 2023 IEEE.

Elbes, M., Hendawi, S., Alzu'Bi, S., Kanan, T., Mughaid, A.

Unleashing the Full Potential of Artificial Intelligence and Machine Learning in Cybersecurity Vulnerability Management

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171737802&doi=10.1109%2fICIT58056.2023.10225910&partnerID=40&md5=954ac95c7d397b7e082a579c3373a717)

[85171737802&doi=10.1109%2fICIT58056.2023.10225910&partnerID=40&md5=954ac95c7d397b7e082a579c3373a717](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171737802&doi=10.1109%2fICIT58056.2023.10225910&partnerID=40&md5=954ac95c7d397b7e082a579c3373a717)

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;

Alzaytoonah University of Jordan, Department of Artificial Intelligence, Amman, Jordan;

The Hashemite University, FAC of Prince Al-Hussien Bin Abdullah for IT, Department of Information Technology, Zarqa, Jordan

ABSTRACT: This research paper investigates the role of Artificial Intelligence (AI) and Machine Learning (ML) in Cybersecurity Threat Detection. With the increasing frequency and complexity of cyber-attacks, cybersecurity has become a major concern for individuals and organizations alike. AI and ML offer promising solutions to this problem by providing advanced analytics, automation, and decision-making capabilities to improve cybersecurity threat detection. In this paper, we examine various AI and ML techniques for threat detection, vulnerability management, password cracking, drones and robots, text, and Natural Language Processing (NLP). Furthermore, we present a case study on fake news prediction, using a dataset consisting of fake and real news, and propose a classifier model based on different ML algorithms, namely Multinomial Naive Bayes, Bernoulli Naive Bayes, Gaussian Naive Bayes, and Logistic Regression. The study shows that the proposed model can effectively predict fake news, achieving an accuracy of 0.99 %. Overall, this research sheds light on the potential of AI and ML in cybersecurity and demonstrates how these technologies can be used to detect cyber threats and enhance cybersecurity. © 2023 IEEE.

Ahmad, F.B., Qawaqneh, H., Zraiqat, A., Jamil Al Nawaiseh, S.

The Effectiveness of Nearpod in Developing Online Interactive Lesson Design Skills for Mathematics and Computer Teachers

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171737371&doi=10.1109%2fICIT58056.2023.10225760&partnerID=40&md5=48402e6e524e3bc2b4d5f7a19b210883)

[85171737371&doi=10.1109%2fICIT58056.2023.10225760&partnerID=40&md5=48402e6e524e3bc2b4d5f7a19b210883](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171737371&doi=10.1109%2fICIT58056.2023.10225760&partnerID=40&md5=48402e6e524e3bc2b4d5f7a19b210883)

AFFILIATIONS: Arab Open University, Jordan;

AL-Zaytoonah University of Jordan, Faculty of Science and Technology, Department of Mathematical Sciences, Jordan;

Middle East University, Faculty of Educational Sciences, Department of Educational Technology, Jordan

ABSTRACT: The paper investigates the significance of interactive lesson design skills on the effectiveness of Nearpod in developing the online interactive lesson design skills of mathematics and computer teachers. Achieving the study objectives necessitates adopting the semi-experimental approach through one experimental group and two pre- and post-measurements. The study sample consisted of (50) male and female teachers from the Directorate of Naour District. The study sample consisted of (50) male and female teachers from the Directorate of Education for Naour District in Amman. The note card is used as the study instrument. The findings indicate apparent differences in the means and standard deviations of the responses of the study sample in the pre- and post-measurements of the practical performance note card of 'Nearpod' and its use in designing and producing digital interactive lessons. © 2023 IEEE.

Al-Kafaween, M., Alzaareer, H., Alzoubi, H.

Quadratics of Coordinate Finite Type

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171735934&doi=10.1109%2fICIT58056.2023.10225914&partnerID=40&md5=36c273e7aa77c02f9b285c2abbbba5b61)

[85171735934&doi=10.1109%2fICIT58056.2023.10225914&partnerID=40&md5=36c273e7aa77c02f9b285c2abbbba5b61](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171735934&doi=10.1109%2fICIT58056.2023.10225914&partnerID=40&md5=36c273e7aa77c02f9b285c2abbbba5b61)

AFFILIATIONS: Al-Zaytoonah University, Dept. of Mathematics, Amman, Jordan;

Al-Zaytoonah University of Jordan, Dept. of Mathematics, Amman, Jordan

ABSTRACT: In this article, we focus on quadric surfaces from two sides. On one side, we study quadric surfaces of the first kind whose position vector r satisfies a relation of the form $\Delta I r = A r$, where A is a square matrix of order 3 and Δ is the second Laplace operator. On the other side, we study quadric surfaces of the second kind with the same property. © 2023 IEEE.

Al-Madi, N., Al-Madi, M., Alzyadat, W., Mariah, K.A., Al-Khateeb, A., Al-Madi, F.

Arcaboard: An Overview of the SElectromagnetic HoverBoard

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171734726&doi=10.1109%2fICIT58056.2023.10225770&partnerID=40&md5=8990243b291f67f1b7a29c939c84eedb)

[85171734726&doi=10.1109%2fICIT58056.2023.10225770&partnerID=40&md5=8990243b291f67f1b7a29c939c84eedb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171734726&doi=10.1109%2fICIT58056.2023.10225770&partnerID=40&md5=8990243b291f67f1b7a29c939c84eedb)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Artificial Intelligence, Amman, Jordan;
Al-Zaytoonah University of Jordan, Computer Information Systems, Amman, Jordan;
Canadian University Dubai, Faculty of Communication Arts & Sciences, Dubai, United Arab Emirates
ABSTRACT: Many users are nowadays interested in keeping pace with the development of smart technology and its invention. Such technology is factual with the assistance of smart technology and science. Hoverboard can be alike to a skateboard but the unconventionality is that it depends on super-strong electromagnetic levitation and magnets to remain aloft. The term levitation means a technology class, which makes use of electromagnetic levitation to propel vehicles, including electromagnets instead of wheel axles, and bearings. Hoverboards represent a resolution for the future demands of the globe. This paper provides a notion regarding self-levitating boards and how these boards function effectively. © 2023 IEEE.

Alshanti, W.G., Alshanty, A., Khalil, R.

On α -Homogeneous Fractional Differential Equations

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171734306&doi=10.1109%2FICIT58056.2023.10225871&partnerID=40&md5=ed9c35639334a79d3396d5693dff7c24)

[85171734306&doi=10.1109%2FICIT58056.2023.10225871&partnerID=40&md5=ed9c35639334a79d3396d5693dff7c24](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171734306&doi=10.1109%2FICIT58056.2023.10225871&partnerID=40&md5=ed9c35639334a79d3396d5693dff7c24)

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

Isra University, Cyber Security Department, Amman, Jordan;

The University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: In this paper, we utilize the conformable fractional derivative to define a new type of fractional differential equations, namely, α -homogeneous fractional differential equations with $\alpha \in (0,1)$. We introduce a method for solving such fractional differential equations. Moreover, some examples are provided. © 2023 IEEE.

Batiha, I.M., Alshorm, S., Zraiqat, A., Alia, M., Jebril, I.

Numerical Solution for Incommensurate System of Fractional Order Differential Equations

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171732899&doi=10.1109%2FICIT58056.2023.10225807&partnerID=40&md5=2fc4a04dbcf0a40025e1b4f1f5350412)

[85171732899&doi=10.1109%2FICIT58056.2023.10225807&partnerID=40&md5=2fc4a04dbcf0a40025e1b4f1f5350412](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171732899&doi=10.1109%2FICIT58056.2023.10225807&partnerID=40&md5=2fc4a04dbcf0a40025e1b4f1f5350412)

AFFILIATIONS: Al Zaytoonah University, Department of Mathematics, Amman, 11733, Jordan

ABSTRACT: A Modified Fractional Euler Method (MFEM), a recent numerical modification of the fractional Euler method, will be used to solve the incommensurate system of fractional differential equations. For the purpose of clarity, an illustrative numerical example will also be provided. © 2023 IEEE.

Sawalhi, G., Abdallah, M.

A Proposed Quality Model for Social Media Websites

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171732833&doi=10.1109%2FICIT58056.2023.10225851&partnerID=40&md5=0fb3faca10be1541df2a827037ea66c5)

[85171732833&doi=10.1109%2FICIT58056.2023.10225851&partnerID=40&md5=0fb3faca10be1541df2a827037ea66c5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171732833&doi=10.1109%2FICIT58056.2023.10225851&partnerID=40&md5=0fb3faca10be1541df2a827037ea66c5)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Software Engineering Department, Amman, Jordan

ABSTRACT: This research paper proposes a new quality model for social media websites based on an extensive literature review and analysis of previous studies. The study identifies seven key quality factors that are essential for evaluating social networking websites: user friendliness, community-drivenness, website appearance, entertainment, security and privacy, efficiency, and navigability. These factors were selected based on their prominence in previous research and their relevance to user satisfaction in the context of social media platforms. The paper explores each quality factor, providing definitions and highlighting their significance in shaping users' perceptions of website quality and satisfaction. The research aims to contribute to a deeper understanding of the factors that influence user experiences and satisfaction with social media websites, providing valuable insight to website designers and developers to enhance user engagement and overall website quality. © 2023 IEEE.

Sous, A.M.A., Hammad, M.A.

Properties of Conformable Fractional Half-Normal Distribution

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171732701&doi=10.1109%2FICIT58056.2023.10225963&partnerID=40&md5=a42ea9fd4d8456280f83e50ad24379f4)

[85171732701&doi=10.1109%2FICIT58056.2023.10225963&partnerID=40&md5=a42ea9fd4d8456280f83e50ad24379f4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171732701&doi=10.1109%2FICIT58056.2023.10225963&partnerID=40&md5=a42ea9fd4d8456280f83e50ad24379f4)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: The paper introduces conformable fractional analogs of some basic concepts related to

probability distributions of random variables, namely density, cumulative distribution, survival and hazard functions. Moreover, it introduces conformable fractional analogs to expected values, r th moments, r th central moments, mean, variance, skewness and kurtosis. In addition, it introduces conformable fractional analogs to some entropy measures, namely, Shannon, Renyi and Tsallis entropy measures. All these concepts had been applied to the conformable fractional half-normal distribution. © 2023 IEEE.

Alzoubi, H., Al-Mashaleh, W., Qawaqneh, H., Al-Kafaween, M.

Helicoidal Surfaces Satisfying $\Delta IIIr = Ar$

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171731276&doi=10.1109%2FICIT58056.2023.10225989&partnerID=40&md5=8435cb339f4c5fac3f4138a462a64e79)

85171731276&doi=10.1109%2FICIT58056.2023.10225989&partnerID=40&md5=8435cb339f4c5fac3f4138a462a64e79

AFFILIATIONS: Al-Zaytoonah University of Jordan, Dept. of Mathematics, Amman, Jordan

ABSTRACT: We consider helicoidal surfaces in the 3-dimensional Euclidean space of coordinate finite type with respect to the third fundamental form III, i.e., their position vector x satisfies the relation $\Delta IIIr = Ar$, where A is a square matrix of order 3. We show that helicoid is the only helicoidal surface satisfying $\Delta IIIr = Ar$. © 2023 IEEE.

Hendawi, S., Altalihin, I., Alzu'Bi, S., Abdalla, A.

Diameter-Constrained Minimum Spanning Tree Problems: A Survey

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171730297&doi=10.1109%2FICIT58056.2023.10226075&partnerID=40&md5=91c83311b940b2da36c98e7f99cee244)

85171730297&doi=10.1109%2FICIT58056.2023.10226075&partnerID=40&md5=91c83311b940b2da36c98e7f99cee244

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan

ABSTRACT: The diameter of a tree is a measure of the longest path between any two nodes in the tree where this path is defined in terms of the number of edges. A Diameter-Constrained Minimum Spanning Tree (DCMST) is a minimum-weight spanning tree with a diameter less than a given integer. Finding a DCMST is an NP-complete problem, and it may require searching through all possible spanning trees with acceptable diameters and finding the minimum. There have been a number of algorithms proposed for finding a DCMST efficiently. These algorithms can be broadly classified into two categories: exact algorithms and approximate algorithms. Exact algorithms are able to find the exact DCMST but generally have a higher time complexity and they are not suitable for very large trees. Approximate algorithms, on the other hand, are able to find an approximate DCMST, but may not be as accurate as the exact algorithms. In this survey, we review various algorithms that have been proposed for solving the DCMST problem and compare their performance in terms of time complexity, accuracy, and other relevant factors. Over-all, the problem of finding the DCMST is an active area of research, and there is still room for further improvement in the efficiency and accuracy of the existing algorithms. © 2023 IEEE.

Makki, Q.H., Abdalla, A.M.

An Image Encryption Algorithm Based on XOR, Flipping, Expansion Permutation and Shifting

(2023) 2023 International Conference on Information Technology: Cybersecurity Challenges for Sustainable Cities, ICIT 2023 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171730122&doi=10.1109%2FICIT58056.2023.10225920&partnerID=40&md5=158587b8add3439f632674b7e6e9288)

85171730122&doi=10.1109%2FICIT58056.2023.10225920&partnerID=40&md5=158587b8add3439f632674b7e6e9288

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, P.O. Box 130, Amman, (11733), Jordan

ABSTRACT: In this paper, we propose a new algorithm to encrypt color and grayscale images by creating a strong private key and using XOR, flipping, expansion permutation, and variable circular shifting. The implementation results of the proposed algorithm showed that it is resistant to statistical, differential, and brute force attacks, as verified through the measures of entropy, histograms, correlation, key Sensitivity, key space, PSNR, MSE, SSIM, NPCR, and UACI. The overall results demonstrated the efficacy and robustness of the new algorithm. © 2023 IEEE.

Jarab, A.S., Al-Qerem, W., Almomani, N., Abu Heshmeh, S., Mukattash, T.L., Al Hamarneh, Y.N.

Colorectal cancer screening among the public: knowledge, attitudes, and the perceived barriers

(2023) International Journal of Environmental Health Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171638843&doi=10.1080%2F09603123.2023.2260320&partnerID=40&md5=58eb98a4171ab3aafdd4c0540e953b63)

85171638843&doi=10.1080%2F09603123.2023.2260320&partnerID=40&md5=58eb98a4171ab3aafdd4c0540e953b63

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, AL Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Canada

ABSTRACT: Colorectal cancer (CRC) 1 screening tests help in early detection of CRC and improve disease prognosis. This study aimed to assess knowledge, attitude, and barriers to CRC screening and the associated factors among the general population in Jordan. A validated self-administered online survey was distributed on 1542 individuals in Jordan. The participants (n = 1542) reported several barriers and demonstrated insufficient knowledge but positive attitude towards CRC screening. Older age (OR = 1.021, 95% CI = 1.010–1.032, P < 0.001), working in medical field (OR = 3.198, 95% CI = 2.499–4.092, P < 0.001), family history of cancer (OR = 1.248, 95% CI = 1.002–1.555, P < 0.05), and knowing someone with CRC (OR = 1.601, 95% CI = 1.186–2.161, P < 0.01) were significantly associated with higher knowledge. Personal history of CRC (OR = 3.157, 95% CI = 1.188–8.387, P < 0.05), and high knowledge of CRC (OR = 2.795, 95% CI = 2.242–3.484, P < 0.001) were significantly associated with the positive attitude. Future healthcare programs should devise effective techniques to improve public understanding and perception of CRC screening and overcome the identified barriers. © 2023 Informa UK Limited, trading as Taylor & Francis Group.

Ghadi, M.Q.

Multilevel Analysis of Road Accident Frequency: The Impact of the Road Category (2023) International Journal of Transport Development and Integration, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171278222&doi=10.18280%2fijtdi.070207&partnerID=40&md5=1f311db74864f7b6b553cfe989bad7a3)

[85171278222&doi=10.18280%2fijtdi.070207&partnerID=40&md5=1f311db74864f7b6b553cfe989bad7a3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171278222&doi=10.18280%2fijtdi.070207&partnerID=40&md5=1f311db74864f7b6b553cfe989bad7a3)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This work attempts to develop a universal model for predicting micro-and macro-level accident frequency. The study implies that the number of accidents may vary depending on the type of roadway and the characteristics of its small segments, both at the group and individual levels. A multilevel model has been designed to address the nested link between individual road segments and multiple road classifications. The multilevel analysis allows one to investigate the hierarchical nature of road accident parameters at the micro and macro levels to comprehend the risk of specific road segments within distinct roadway categories. To accomplish this, a case study of fifty-seven roads has been selected, covering five main categories: motorway, expressway, primary arterial, secondary main roads, and minor roads. In addition, each roadway has been subdivided into several flexible-length segments, each of which is identified by its traffic and geometrical characteristics. The outcome confirms that the accident frequency per road segment is more likely to vary between roads with distinct categories. Moreover, road types with low design requirements are more hazardous than well-designed roads, even with lower speed restrictions and traffic numbers. © 2023 WITPress. All rights reserved.

Batiha, I.M., Jebril, I., Alshorm, S., Al-Nana, A.A.

SOME RESULTS ON ZEROS OF THE MONIC POLYNOMIAL OF THE FROBENIUS COMPANION MATRIX

(2023) Advances in Fixed Point Theory, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171256905&doi=10.28919%2fafpt%2f8138&partnerID=40&md5=08790494185886c9a8d5d5b74297e486)

[85171256905&doi=10.28919%2fafpt%2f8138&partnerID=40&md5=08790494185886c9a8d5d5b74297e486](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171256905&doi=10.28919%2fafpt%2f8138&partnerID=40&md5=08790494185886c9a8d5d5b74297e486)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Mathematics, Prince Sattam Bin Abdulaziz University, Alkharj, 11942, Saudi Arabia

ABSTRACT: In this work, we intend to present some results related to the zeros of the monic polynomial of the Frobenius companion matrix. These results would certainly contribute to obtaining some new upper bounds for the zeros of such polynomials. © 2023 the author(s).

Jarab, A.S., Abu Heshmeh, S.R., Al-Qerem, W.A., Mukattash, T.L., Beiram, R., Aburuz, S.

Non-adherence to pharmacotherapy and its associated factors in outpatients with rheumatoid arthritis (2023) Pharmacy Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171156666&doi=10.18549%2fPharmPract.2023.2.2822&partnerID=40&md5=6467881de277dab382aab3944b46a096)

[85171156666&doi=10.18549%2fPharmPract.2023.2.2822&partnerID=40&md5=6467881de277dab382aab3944b46a096](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171156666&doi=10.18549%2fPharmPract.2023.2.2822&partnerID=40&md5=6467881de277dab382aab3944b46a096)

AFFILIATIONS: College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: Background: Despite the availability of effective pharmacotherapy for the management of

rheumatoid arthritis (RA), health outcomes are suboptimal due to poor adherence to the prescribed treatment. Limited research has been conducted to investigate medication non-adherence and its associated factors among patients with RA. Objective: This study aimed to assess medication adherence and to explore the factors associated with medication non-adherence among outpatients with RA in Jordan. Methods: The current cross-sectional study was conducted at outpatient rheumatology clinics at two teaching hospitals in Jordan. Variables including socio-demographics and biomedical variables, in addition to disease and medication characteristics, were collected using medical records and custom-designed questionnaire. Medication adherence was assessed using the validated 5-item Compliance Questionnaire for Rheumatology. Stepwise Logistic Regression analysis was performed to identify the factors that are independently and significantly associated with medication non-adherence. Results: A total of 261 patients participated in the study, from which, 43.3% were found non-adherent. Binary regression analysis results revealed that low monthly income (OR= 0.239, CI= 0.130-0.440, $P<0.01$), the presence of chronic respiratory disease (OR= 2.727, CI= 1.059-7.022, $P<0.05$), lower medication necessity scores (OR= 1.177, CI= 1.10-1.259, $P<0.01$) and higher concerns about RA medications (OR= 0.917, CI= 0.860-0.978, $P<0.01$) were significant and independent predictors of medication non-adherence in patients with RA. Conclusion: Future pharmaceutical care and clinical pharmacy service programs should emphasize medications benefits and minimizing medication-related concerns by selecting safe medications and providing guidance on mitigating side effects, particularly for RA patients who have low income and those who suffer from other comorbid diseases. © the Authors.

Alawneh, Y.J., Al-Momani, T., Salman, F.N., Al-Ahmad, S.D., Kaddumi, T.A., Al-Dlalah, M.
The Extent of the Prevalence of Pronunciation Problems among Students of the First Primary Stage in the Point of View of Their Teachers and Treatment Methods

(2023) Educational Administration: Theory and Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171147377&doi=10.52152%2fkuey.v29i3.579&partnerID=40&md5=db71939600ceac22b2b16ed47b078022)

[85171147377&doi=10.52152%2fkuey.v29i3.579&partnerID=40&md5=db71939600ceac22b2b16ed47b078022](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171147377&doi=10.52152%2fkuey.v29i3.579&partnerID=40&md5=db71939600ceac22b2b16ed47b078022)

AFFILIATIONS: College of Education Technology, The Islamic University, Minnetonka, United States; Curriculum and Instruction in Mathematics Education, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Education, Al-Quds Open University, Nablus, Palestine;

College of Education, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Applied Science Private University, Amman, Jordan;

Faculty of Education, Isra University, Amman, Jordan

ABSTRACT: This research aims to learn more about the nature and scope of the speech disorder problem among first graders informed the perspective of both classroom teachers' and students' experiences with available interventions. The descriptive approach was relied on to achieve the study's objectives with its quantitative and qualitative methods. The study consisted of two instruments: the first tool was a questionnaire prepared by researchers. It consisted of 40 paragraphs divided into four areas. It was distributed to a sample of 47 primary school teachers in Nablus and Amman. They were selected most feasibly. Concerning second tool, it was an interview that consisted of 4 questions through which methods of treating speech problems were reached. It was found that there are no statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the responses of the study sample members about the prevalence of pronunciation problems among the first primary stage students in the point of view of their teachers due to each of the variables (gender, years of experience). The most important methods of treating pronunciation problems were to practice pronouncing some words and sounds and continuing to repeat them and evaluation by teachers and parents. We hope that the valuable results presented by this study will be used to treat pronunciation problems depending on their type of problem. © 2023, Auricle Global Society of Education and Research. All rights reserved.

Hamed, R., Obeid, R.Z., Abu-Huwaij, R.

Plant mediated-green synthesis of zinc oxide nanoparticles: An insight into biomedical applications (2023) Nanotechnology Reviews, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170828593&doi=10.1515%2fntrev-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170828593&doi=10.1515%2fntrev-2023-0112&partnerID=40&md5=ca716f29df0fcf9567a243a118b88db5)

[0112&partnerID=40&md5=ca716f29df0fcf9567a243a118b88db5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170828593&doi=10.1515%2fntrev-2023-0112&partnerID=40&md5=ca716f29df0fcf9567a243a118b88db5)

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pharmacy Department, College of Pharmacy, Amman Arab University, Mubis, Jordan

ABSTRACT: Green synthesis of zinc oxide (ZnO) nanoparticles (NPs) using various plant extracts as reducing and capping agents has gained attention in recent research. The green synthesis of ZnO NPs offers several advantages such as being simple, eco-friendly, safe, cost-effective, and reproducible approach with high stability. Hence, this article provides an overview of zinc metal and ZnO compounds, and traditional chemical and physical synthesis of ZnO NPs with primary focuses on the green synthesis of ZnO NPs. This study discusses various plant extracts used and the proposed

mechanisms in the green synthesis of ZnO NPs. Additionally, it explores the cytotoxic mechanisms of the green-synthesized ZnO NPs and addresses the various biomedical applications of ZnO NPs, including antibacterial, anticancer, antidiabetic, antioxidant, antifungal, antiviral, antiparasitic, anti-inflammatory, and wound healing. Moreover, the review critically discusses the toxicity of ZnO NPs and emphasizes the need for more toxicological studies to ensure the safety and facilitate the risk assessments and risk management of ZnO NPs. Furthermore, this review underlines the challenges associated with the translation process of ZnO NPs from bench to market, including the complex and time-consuming regulatory approval process for ZnO NPs, which requires a multidisciplinary approach involving scientists, regulators, and manufacturers. © 2023 the author(s), published by De Gruyter.

Al-Showarah, S., Al-Taie, A., Salman, H.E., Alzyadat, W., Alkhalaleh, M.
Predicting Quality Medical Drug Data Towards Meaningful Data using Machine Learning
(2023) International Journal of Advanced Computer Science and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170642053&doi=10.14569%2fIJACSA.2023.01408114&partnerID=40&md5=b13d67ee336b52731c808706bb585d2f)

[85170642053&doi=10.14569%2fIJACSA.2023.01408114&partnerID=40&md5=b13d67ee336b52731c808706bb585d2f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170642053&doi=10.14569%2fIJACSA.2023.01408114&partnerID=40&md5=b13d67ee336b52731c808706bb585d2f)
AFFILIATIONS: Software Engineering Department, Faculty of Information Technology, Mutah University, Karak, Jordan;

Computer Science Department, Faculty of Information Technology, Mutah University, Karak, Jordan;
Software Engineering Department, Faculty of Science and IT, Al-Zaytoonah University, Amman, Jordan;
College of Education, Humanities and Social Sciences, Al Ain University, Al-Ain City, United Arab Emirates

ABSTRACT: This research aims to improve the process of finding alternative drugs by utilizing artificial intelligence algorithms. It is not an easy task for human beings to classify the drugs manually, as this requires much longer time and more effort than doing it using classifiers. The study focuses on predicting high-quality medical drug data by considering ingredients, dosage forms, and strengths as features. Two datasets were generated from the original drug dataset, and four machine learning classifiers were applied to these datasets: Random Forest, Support Vector Machine, Naive Bayes, and Decision Tree. The classification performance was evaluated under three different scenarios, which varied the ratio of the training and test data for both datasets, as follows: (i) 80% (training) and 20% (test dataset), (ii) 70% (training) and 30% (test dataset), and (iii) 50% (training) and 50% (test dataset). The results indicated that the Decision Tree, Naive Bayes, and Random Forest classifiers showed superior performance in terms of classification accuracy, with over 90% accuracy achieved in all scenarios. The results also showed that there was no significant difference between the results of the two datasets. The findings of this study have implications for streamlining the process of identifying alternative drugs. © (2023), (Science and Information Organization). All Rights Reserved.

Al-Nawaiseh, H.N., Nawaiseh, M.E., Bader, A., Mubaset, Z., Adel, A.

Sustainability Reporting Adoption in Jordanian Listed Firms: Does Corporate Social Responsibility Matter?

(2023) Studies in Big Data, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169845848&doi=10.1007%2f978-3-031-42455-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169845848&doi=10.1007%2f978-3-031-42455-7_6&partnerID=40&md5=8f936b3ceb0ea90ed39aa98b2800b09c)

[7_6&partnerID=40&md5=8f936b3ceb0ea90ed39aa98b2800b09c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169845848&doi=10.1007%2f978-3-031-42455-7_6&partnerID=40&md5=8f936b3ceb0ea90ed39aa98b2800b09c)
AFFILIATIONS: Luminus Technical University College, Bridge, Jordan;
Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The study aims to examine the corporate social responsibility disclosure (CSR) levels for industrial firms listed on Amman Stock Exchange (ASE), and to explore the impact of firm size on these levels. The methods of collecting data were the narrative parts of annual reports published by firms in 2021 using content analysis, as well as a short descriptive questionnaire circulated to the CEO to assess the obstacles. The findings indicated that SRD categories were not distributed equally; the average disclosure of the employee category (EM), the environmental category (EN), and the community-related information category (CU) was 52.03%, 36.96%, and 51.60% respectively; the combined average disclosure for all dimensions was 46.7%. The study concludes that lack of top management support, followed by insufficient financial resources of the industrial sector are the main obstacle to deter the decision to disclose less information. However, there is a positively significant effect of firm size on the three CSR dimensions (EM, EN, and CU). The study inferred that large firms obtained higher percentages of EM, EN, and CU. The obstacles companies might encounter obtained an average score of (3.39) or (72%). The study concludes that firms' strategies should give more attention on disclosing EM, EN, and CU-related information in their reports. Future studies are recommended to encourage other sectors to do CSR between developing and developed countries. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Hijazi, R., Abudaabes, A.

PMT and Mobile Payment Continuance Intention: The Moderating Influence of Digitalization Anxiety
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169844119&doi=10.1007%2f978-3-031-42455-7_32&partnerID=40&md5=a5753560a06b82eed1b3756e1bd7a7fa

AFFILIATIONS: Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Management, Faculty of Business Administration, Liwa College of Technology, Abu Dhabi, United Arab Emirates

ABSTRACT: This study aims to investigate the potential effects of the protection motive theory (PMT) and digitalization anxiety on consumers' continuance intentions (CI) toward mobile payment (M-pay) usage. This cross-sectional, exploratory study makes use of a quantitative research methodology. Jordanians who used any M-Pay application in the past two years were the target population for this investigation. The online questionnaire was distributed via social media (mainly via Facebook). Analysis was done on 202 valid surveys in total. The role of PMT and digitalization anxiety as CI factors were examined through the moderation evaluation. To conduct the analysis, the PLS-SEM method was used. The results support the role of PMT in raising CI. It was discovered that digitalization anxiety has a negative impact on CI and decreases the PMT's preferred role in developing CI to use M-pay. This research helps M-pay service providers who want to increase client loyalty by improving M-pay services. The behavioral intention analysis will reveal important details about consumers' CI and point out potential improvement areas. By integrating a PMT with digitalization anxiety, this research investigates customers' CI to use M-pay services from a human psychology perspective, making a novel contribution to the body of literature on M-pay services. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Azzam, Z.A., Hamdan, A., Ali, N., Aggad, K.

Impact of Digital Advertising via Social Media Tools on the Buying Behavior of Fast Food Consumers. A Case of Jordan

(2023) Studies in Systems, Decision and Control, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169836976&doi=10.1007%2f978-3-031-39158-3_44&partnerID=40&md5=f70a494a8ba89a9ea1548f1a8999cc43

AFFILIATIONS: Marketing Department, Zarqa University, Zarqa, Jordan;

Marketing Department, Al Zaytoonah University of Jordan, Amman, Jordan;

Department of Marketing, University of Business and Technology, Jeddah, Saudi Arabia

ABSTRACT: The study aims to find out the impact of digital advertising through social media on buying behavior and targeted fast-food consumers in Jordan. The study consisted of one independent variable, which were measured through six dimensions: characteristics of digital advertising, stimuli of digital advertising, the content of the digital advertising message interaction with digital advertising, and ease of access to digital advertising, the credibility of digital advertising through social media, and one dependent variable represents buying behavior. The study followed the descriptive-analytical method, using suitable statistical analysis program to analyze the data. (465) questionnaire were distributed to the study sample, and a total of (416) questionnaire were retrieved with a response rate of (89%). The study reached several results, the most important of which are: The digital advertisement has a significant statistical impact on buying behavior, and this effect is considered positive as it helps in improving the buying behavior of fast-food consumers in Jordan, which motivates them to buy and make the purchasing decision, and that the electronic advertisement has an explanatory ability to achieve buying behavior by a percentage of (75%). Digital advertising incentives have the strongest positive impact on the buying behavior of fast food consumers with an interpretive capacity of 68%, while the digital advertising credibility variable has the lowest impact on buying behavior among fast food consumers by 36%. The study recommended that fast-food restaurants owners must enhance the credibility of fast-food restaurants advertisements through punctuality and promises and choosing specialized experts in designing promotional campaigns to ensure high-quality advertising content that contains different stimuli. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Khedaywi, T., Bani Baker, M., Al-Kattab, T.

Effect of Waste Ceramic Powder on the Properties of Asphalt Binder and Asphalt Concrete Mixtures (2023) International Journal of Pavement Research and Technology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169833062&doi=10.1007%2fs42947-023-00375-y&partnerID=40&md5=51526bcfecc429dd8b82ec20ad6457fd>

AFFILIATIONS: Civil Engineering Department, Jordan University of Science and Technology, Irbid, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In the past decades, there has been an increase in traffic volumes and loads on pavement roads. Thus, there has been a need to enhance the properties of road pavements using certain additives in hot mix asphalt (HMA). In this research waste ceramic powder (WCP) was used as a filler replacing the conventionally used limestone filler by different percentages (0, 25, 50, 75 and 100%) by weight of mineral filler in the HMA specimens and their respective asphalt mastic. The research

aimed to study the practicality of using WCP in asphalt mixes and its effect on their properties, specifically using the dynamic creep and indirect tensile tests which have not been conducted on WCP-HMA prior to this research. The rotational viscosity (RV) test results showed that increasing the WCP% increased the dynamic viscosity of the mastic. The dynamic shear rheometer (DSR) test results showed that increasing the WCP percentage slightly enhanced the rutting resistance, but results of the PAV-aged mastics showed that increasing the WCP percentage slightly decreased the fatigue cracking resistance. The bending beam rheometer (BBR) test results showed that increasing the WCP percentage in the mastic slightly decreased the low-temperature cracking resistance. Overall, the WCP replacement increase in the asphalt mastics was not very effective. The HMA testing results showed that the WCP significantly increased the Marshall stability of the asphalt mixes. As for the dynamic creep test, the results showed that the highest resilient modulus and creep modulus values were mostly at 100% WCP. The indirect tensile modulus test results showed that at 5 and 25 °C 25% WCP was the optimum percentage, and at 40 °C 50%WCP was the optimum percentage. © 2023, The Author(s), under exclusive licence to Chinese Society of Pavement Engineering.

Ashour, M.L., Allan, M.S., Al-Adayleh, M.M.

Consumer Adoption of e-Payment Services Using the Theory of Planned Behavior

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169832821&doi=10.1007%2f978-3-031-42455-7_35&partnerID=40&md5=ea6b2372497939e529748ce2e86b8185

AFFILIATIONS: Faculty of Business, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study aims to evaluate estimated factors influencing consumer adoption of e-payment services. A theoretical framework has been proposed based on the Theory of Planned Behavior. The study used the convenience sampling method targeting users of electronic payment services. A total of usable 384 questionnaires were retrieved from respondents. Empirical results pointed out the strong relationship between attitude, subject norm, perceived behavioral control, culture and both customer intention and actual use e-payment services. In addition, the results demonstrated the significant influence of the consumer's attitude toward e-payment services and culture as two essential influencing factors that explaining about 60% of consumer intention for adopting e-payment services. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Ahmad, A., Dajani, D., Ali, N.

Consumers' Adoption of E-Wallet Services in Jordan: Mediating Effect of Perceived Usefulness

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169831383&doi=10.1007%2f978-3-031-42455-7_29&partnerID=40&md5=5b36518d861532bac4aa6d9948cd6970

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The current research examines the environmental drivers of consumers' adoption of e-wallet services. It investigates how environmental factors, such as social influence, technology readiness, and government support affect the consumers' intention to use e-wallet services. In addition, the research assesses the mediating role of perceived usefulness in this relationship. Data was collected through a questionnaire with a sample size of 324 respondents. Structural equation modeling was employed to analyze the collected data. The results showed that all hypotheses were accepted, indicating that the environmental drivers significantly impact users' intention to use e-wallet services. Also, perceived usefulness positively mediates the relationship between environmental drivers and the intention to use e-wallet services. Further, the results showed that digital wallets are quickly becoming a popular online payment method. Customers are quickly adopting digital wallets due to their convenience and ease of use. Customers are becoming tech-savvy and they are increasingly looking for creative solutions. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Rawashdeh, A., Alfawaer, M., Al Dweiri, M., Mubaset, T.

The Mediating Role of Green Supply Chain Management in the Relationship Between Green Human Resource Management Practices and Entrepreneurial Performance

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169823365&doi=10.1007%2f978-3-031-42455-7_28&partnerID=40&md5=182f5bbe477a7280edf0d7a8b381f6cd

AFFILIATIONS: AL- Zaytoonh University of Jordan, Amman, Jordan

ABSTRACT: Environmental issues and climate change have prompted business organizations to refocus their operations on environmental sustainability. Organizations are aware that integrating greening into their practices of managing their human resources may help to address environmental issues. The purpose of the current research is to examine the relationship between green human resource management (GHRM) practices and entrepreneurial performance (EP). It is assumed that using eco-friendly human resource practices facilitates the development of entrepreneurial performance which aids the organization gain a strategic competitive advantage. Furthermore, it focuses on exploring

the mediated effects of green supply chain management (GSCM) on entrepreneurial performance, that is to address the spread, and extent, of the link between green human resource management practices and entrepreneurial performance that has not been covered in the empirical literature. A quantitative exploratory research method was used in the investigation. The sample consisted of 285 managers from five-star hotels in Jordan. PLS structural equation modeling was used to test the hypotheses. The findings of this study revealed that green human resource management practices positively impacted entrepreneurial performance. It is also found that green supply chain management is positively affecting entrepreneurial performance. In addition, green supply chain management partially mediated the relationship between green human resource management practices and entrepreneurial performance. The research findings may inspire human resource managers to implement green human resource management practices to foster entrepreneurial performance. Overall, by supporting the empirical relationship between green human resource management, entrepreneurial performance, and green supply chain management, which until now has mostly been limited, this study has contributed to the literature on the sustainability of the environment. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al Khaldy, M.A., Al-Obaydi, B.A.A., al Shari, A.J.

The Impact of Predictive Analytics and AI on Digital Marketing Strategy and ROI

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169820154&doi=10.1007%2f978-3-031-42455-7_31&partnerID=40&md5=4d2ceb3a752526438ce7035695e1095b

AFFILIATIONS: Business Intelligence Department, University of Petra, Amman, Jordan;

Graphic Design Department, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: The study explores the effects of artificial intelligence (AI) and predictive analytics on digital marketing strategy and return on investment (ROI). It reviews relevant literature on the use of AI and predictive analytics in digital marketing, focusing on email marketing, customization, social media marketing optimization, and consumer segmentation. The research methodology is described, including data collection and analysis procedures. The findings highlight the significant impact of predictive analytics and AI on digital marketing strategy and ROI, with businesses that effectively utilize these technologies reporting higher engagement, conversions, and revenue growth. The study acknowledges limitations and proposes future research directions of successful AI and predictive analytics integration in digital marketing campaigns. It concludes with recommendations for businesses to invest in predictive analytics and AI to remain competitive in the dynamic digital landscape. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Azzam, Z., Salman, R., Allan, M., Farsi, S.

Study on Customer Comfort as a Behavioral Construct Between Service Quality and Customer Satisfaction in Light of Digital Transformation. A Case of Jordan

(2023) Studies in Systems, Decision and Control, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169811415&doi=10.1007%2f978-3-031-39158-3_4&partnerID=40&md5=b6791450b6f00d8fe420d418655ef6fb

AFFILIATIONS: Marketing Department, Zarqa University, Zarqa, Jordan;

Marketing Department, Al Zaytoonah University of Jordan, Amman, Jordan;

Department of HRM, University of Business and Technology, Jeddah, Saudi Arabia

ABSTRACT: This paper attempts to identify the effect of service quality on Customer Comfort and the effect of customer comfort as a mediating variable on customer satisfaction of services in Jordan. For this purpose, a set of related independent variables to service quality which are (Reliability, Responsiveness, Assurance, Failure recovery), one mediating variable (Customer Comfort) and one dependent variable (Customer Satisfaction) which are adopted in the study model. A questionnaire is designed as a research instrument and distributed to 480 respondents who deals with services organizations in Jordan, (89%) were valid for analysis. Thus (409) respondents are assured to be the sample size of the present study. The study concluded that there is statistical significant effect of service quality (Reliability, Responsiveness, Assurance, Failure Recovery) on customer comfort and there is a strong direct relationship between customer comfort and customer satisfaction. The study recommended that services companies should create a systematic procedures that help to develop failure recovery mechanism, and it should offer training courses for its employees to enhance responsiveness. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Abuhammad, M., Abdallah, A.A., Alshanti, W.G., Abrikah, S.A.

Application of Conformable Fractional Kumaraswamy Distribution

(2023) Iberian Conference on Information Systems and Technologies, CISTI, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169808287&doi=10.23919%2fCISTI58278.2023.10211666&partnerID=40&md5=a6530a1fbdfa939b0bac29d280c904f3>

AFFILIATIONS: Al-Zaytoonah University, Department of Mathematics, Amman, Jordan;

Sebha University, Department of Statistics, Sebha, State of Libya

ABSTRACT: In probability and other applied sciences, distributions are used extensively. We employ fractional differential equations in this study (FDE). The work offers conformable fractional analogs of density, cumulative distribution, survival and hazard functions, four fundamental ideas in probability distributions of random variables. Additionally, it introduces r th moments, r th central moments, variance, skewness, and kurtosis as well as conformable fractional analogs to anticipated values. Additionally, it introduces conformable fractional analogs of Shannon and other entropy metrics. To the conformable fractional Kumaraswamy distribution, all notions had been applied. © 2023 ITMA.

Eletter, S.F., Yasmin, T., Elrefae, G.A., Qasem, A., Yaseen, S.G.
The Impact of AI and the Internet of Things on Healthcare Delivery

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169808104&doi=10.1007%2f978-3-031-42455-7_33&partnerID=40&md5=fe6b0cb2d6da500efbd5dbce4ea213f1

AFFILIATIONS: College of Business, Al Ain University, Al Ain, United Arab Emirates;
College of Business, Al Zaytoonah University, Amman, Jordan

ABSTRACT: The Internet of Things and artificial intelligence made their development in healthcare possible by ensuring quality, providing services, and monitoring and analyzing outcomes. AI improves the delivery and efficacy of healthcare. Combining AI and machine learning with existing neural interfaces enabled the development of intelligent and small devices for treating neurological disorders. This article employs a case study approach to examine the recently introduced technology by Elon Musk to assist patients with neurological disorders. The introduction of a brain microchip would have a profound effect on the neurotechnology industry. With the advent of neurochips, there is growing optimism that AI and neurology can collaborate. Modern technology can help individuals with cerebral palsy feel emotionally better and prevent physical deterioration. The thought of using this technology to manipulate is terrifying. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al-Arasi, S., Al-Jabra, A., Al-Ofaishat, M.

Legal Problems of the Intervention of Artificial Intelligence in the Medical Field: Obligations and Challenges

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169801579&doi=10.1007%2f978-3-031-42455-7_34&partnerID=40&md5=eea660b5d6ce147ed8c7b63c8b087edb

AFFILIATIONS: Faculty of Law, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Artificial intelligence became a fact that cannot be denied in all aspects of economic, industrial and educational life and the medical one, too, because of the advantages provided by those robots included superior ability to think, elicit make decision, accuracy, velocity and others, especially to develop themselves automatically without human intervention. However, no matter how accurate they are in medical work, there is no doubt they that they sometimes derail which makes malpractice these smart robots make malpractice that requires punishment and legal liability; this issue addresses the following question: who is the legally responsible party for those medical malpractice when automatic robots committed them? Are the manufacturers, the programmers of these devices or those who use them? The current study seeks to show the legal obligations that led to use of artificial intelligence in the medical field in terms of their obligations, what they are, advantages, disadvantages and applications, then explain the legal challenges in facing medical malpractice resulted from using them. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al-Omoush, K.S., Yaseen, S., Al-Qirem, R., Al-Khatib, A.W.

Women Empowerment in the Age of Social Commerce: An Empirical Study

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169707952&doi=10.1007%2f978-3-031-42463-2_13&partnerID=40&md5=ff944f9ed186f692d7396fec27ae569b

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Luminous Technical University College, Amman, Jordan

ABSTRACT: This study aimed to explore the drivers of social commerce adoption and women empowerment during covid-19 pandemic. Data were collected from a sample of 223 participants, using Structural equation modeling through the Amos program for analysis and testing the research model and hypotheses. Empirical results showed that hedonic motivations, utilitarian motivations, and social support positively affected social commerce adoption among women during the COVID-19 crisis. The results also revealed that social commerce adoption positively affected women's empowerment during the crisis This study made a theoretical and managerial contribution to the social commerce adoption and women empowerment literature. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al-Dahoud, A., Fezari, M., Alkhatib, A.A.A., Haoufa, M.A., Al-Dahoud, A., Mimi, H.
Cost Efficient IoT as Wearable Device in E-Health Monitoring System for Elderly People
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169704782&doi=10.1007%2f978-3-031-42455-7_19&partnerID=40&md5=9cf5a0221b71bfd36d4c3b98c48e7e5b

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;
Laboratory of Automatic and Signals Annaba, Faculty of Engineering, Badji Mokhtar Annaba University,
Annaba, Algeria;

Faculty Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The world is experiencing a demographic shift, with an increasing number of elderly individuals who require regular health monitoring. In this context, the development of e-health monitoring systems has become increasingly important in improving the quality of life for elderly individuals. Wearable devices have emerged as a popular choice for remote health monitoring, owing to their convenience and ease of use. However, the cost of such devices can be prohibitive, especially for elderly individuals who may have limited financial resources. This paper introduces a low-cost design for an IoT embedded system that monitors the physiological signals of elderly individuals in their homes or smart cities. The Internet of Things (IoT) aims to extend the network and data exchange to physical objects in everyday life. The proposed system is an embedded stand-alone design that utilizes off-the-shelf components to capture various physiological signals such as heart rate, temperature, body moisture, respiration rate, and patient motion. The system processes the signals and verifies the value of the collected data before transmitting it via RF-transmitters to the treating physician in the form of a file or SMS message. The data is processed via a server and can be recorded in a patient file. The system's main sensors, including heart rate, respiration, and motion, were tested, and the results were positive. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Ayoush, M., Rabayah, H., Toumeh, A., Aboushi, A., Alawneh, R.

Circular Economy Practices in Higher Education Institutions: Towards Sustainable Development
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169697833&doi=10.1007%2f978-3-031-42463-2_27&partnerID=40&md5=fbda443089a0e9ec985d6e0621efc4ed

AFFILIATIONS: Al-Zaytoonah University of Jordan, 130, Amman, 11733, Jordan

ABSTRACT: There is a growing global interest in shifting from linear to Circular Economy (CE), which is closely linked to the implementation of sustainable development. Higher Education Institutions (HEIs) can play a major role in the dissemination of CE practices, skills and knowledge. This study provides a review of current practices of CE in HEIs. For this purpose, a number of recent articles have been reviewed and analyzed. This study provides a framework for CE application in HEIs. A case study shows how a university has applied CE practices and how its UI GreenMetric® evaluation can be used to assess the level of universities' engagement in the CE. The results showed that CE practices in HEIs could be categorized into six groups. Furthermore, the case study reflects an example of CE practices in HEIs and a high correlation of UI GreenMetric® with the degree of CE application. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Qatawneh, A.M., Ramayah, T., Ekanem, I.

Influence of Artificial Intelligence on Quality of AIS Outcomes: Moderating Role of Accountants' Experience
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169697786&doi=10.1007%2f978-3-031-42455-7_24&partnerID=40&md5=1efd0d89bfc0a81a9a086208b9a459ca

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;
School of Management, University Sains Malaysia, Gelugor, Malaysia;
Business School, Middlesex University, London, United Kingdom

ABSTRACT: This study is aimed at exploring the moderating role of accountants' experience in the relationship between artificial intelligence (AI) and the quality of accounting information system AIS. A quantitative approach was adopted, and the questionnaires were distributed to 237 managers of finance and accounts departments in small and medium organizations (SMEs) in Jordan. SPSS was employed to screen and analyze gathered data. The results of the study suggest the acceptance of study's hypothesis that "accountants' experience moderates the relationship between Artificial Intelligence characteristics and quality of AIS outcomes" The evidence also suggests that the influence of AI characteristics on the quality of AI outcomes may vary depending on the level of experience of the accountant using the AI system. Experienced accountants may be better equipped to leverage the strengths of AI systems and produce high-quality outcomes, while inexperienced accountants may be more likely to produce inaccurate or biased outcomes. The study recommends that AI systems should be employed in accounting as an approach to detecting and preventing fraud and

irregular entries in AIS applications. Further recommendations are presented in the paper. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Alnadawi, A.A., Omran, F.M., Abdulrahman, M.

The Impact of Sustainable Supply Chain Management on the Environmental Performance of Jordan's Construction Organizations

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169692151&doi=10.1007%2f978-3-031-42455-7_21&partnerID=40&md5=94bfcc19274a876a86dde6d11fab424d

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This research aims to investigate the impact of sustainable supply chain management on the environmental performance of Jordanian construction organizations. This research dealt with a set of supply chain practices in organizations which included: design, packaging, purchasing, storage, transportation, and their relationship with environmental performance. In order to achieve the objectives of the research, literature related to sustainable supply chain management was reviewed, regarding environmental performance elements in construction organizations. The study population consisted of 13 construction companies, and the study sample included a set of job titles (director, branch manager, department head). The study sample was (346). The questionnaire method was used to collect data, and (SPSS) was used to analyse the data and extract the results. Results and conclusions of the study illustrated the impact of sustainable supply chain management on environmental performance. One of the most notable findings of the study is the presence of a clear and statistically significant impact of sustainable supply chain management on the environmental performance of Jordanian construction organizations. The main recommendations of the study are as follows: Business organizations should adopt and apply economic, societal and environmental supply chain practices in order to achieve sustainable development. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Yaseen, S.G., Dajani, D., Odeh, M.

Intellectual Capital and Sustainable Competitive Advantage: The Mediating Role of Marketing Knowledge Management

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169690979&doi=10.1007%2f978-3-031-42463-2_22&partnerID=40&md5=113ae115909a0e0ec63a0e965ea9a7f5

AFFILIATIONS: Dean of Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Head of Digital Marketing Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The objective of this research is to investigate how intellectual capital affects sustainable competitive advantage in the Jordanian telecommunication industry, with a focus on the mediating effect of marketing knowledge management. An online questionnaire was randomly distributed to 300 participants from various managerial levels. The proposed conceptual model and associated hypothesis were tested using SEM-PLS. The findings indicated that only Human Capital exerted a direct significant impact on sustainable competitive advantage. Marketing knowledge management fully mediated the relationship between relational capital, structural capital, and sustainable competitive advantage. The research highlights the importance of how the telecommunication sector management uses intellectual capital and marketing knowledge management in determining the sustainable competitive advantage of their business. Furthermore, it fills the gap and aids telecommunication sector management in focusing on the critical role of marketing knowledge management in achieving sustainable competitive advantage. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

AlMomani, K.M.'K., AlWadi, B.M., Al-Wadi, S.

The Nexus of Intellectual Capital and Firm Performance: Evidence from Jordanian Pharmaceutical Companies

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169688207&doi=10.1007%2f978-3-031-42455-7_16&partnerID=40&md5=dc405f361af815b99aef3db61568a4ff

AFFILIATIONS: Hittien College, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper examines the relationship between intellectual capital (IC) and the financial performance of Jordanian pharmaceutical companies (JPCs). We used secondary data collected from six JPCs, listed on the Amman Stock Exchange (ASE) over the period 2012-2016 to measure the Value-added intellectual coefficient (VAIC™) model, which is used to measure IC and its components, including an additional element, namely Relational Capital Efficiency (RCE). Earning per Share (EPS) and Asset Turnover Ratio (ATR) were used to measure financial performance. The results indicated no significant

relationship between IC and the financial performance of Jordanian Pharmaceutical Companies. Further regression analysis on the individual components of IC showed that only Human Capital Efficiency (HCE) had a significant positive relationship with financial performance indicators, EPS, and ATR. The main limitation of this study is that it was conducted during the Arab Spring, which negatively affected the Jordanian economy. The findings imply that JPCs have utilized their human capital resources efficiently, and this component is vital for their competitive advantage. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Hamad, M.'J., Yassin, M.M., Shaban, O.S., Amoush, A.H.
Using Business Intelligence Tools in Accounting Education
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169688018&doi=10.1007%2f978-3-031-42463-2_16&partnerID=40&md5=fa978e20aa1038da55049841f110e8a8

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study aimed at surveying the beliefs of academics about the benefits and challenges of using Power BI as a sample of business intelligence tools in accounting education. A survey of 60 faculty members in the faculty of business et al.-Zaytoonah university of Jordan revealed that developing the data interpretive ability, data gathering skills, and problem-solving skills are the most important benefits that could be gained from using Power BI in accounting education. The main challenges that could face the dissemination of Power BI tool in accounting education include resisting the change learning type, poor experience in the BI tools for faculty members. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Alshehadeh, A.R., Abdallah, A.A.J., Kourtel, F., El-Qirem, I.A., Injadat, E.
The Impact of Cash Liquidity on Sustainable Financial Growth: A Study on ASE-Listed Industrial Companies
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169686830&doi=10.1007%2f978-3-031-42463-2_19&partnerID=40&md5=dc39615371b082528322033a11dd8865

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; Department of Marketing, Setif University, Setif, Algeria;

Faculty of Business, The World Islamic Science and Education University, Amman, Jordan

ABSTRACT: This study examines the impact of cash liquidity on the financial sustainability of industrial public shareholding companies listed on the Amman Stock Exchange (ASE) between 2015 and 2021. A purposeful sample of 28 companies was selected from the population of 53 listed companies based on the availability of complete financial data. Statistical methods using SPSS were employed to analyze the data. The study found that cash flow, as measured by net cash flow from all activities to total assets, net cash flow from all activities to total equity, net cash flow from all activities to total profit, and net operating cash flow to total assets, significantly affects the sustainability of profit growth, sales, and assets of these companies. However, the net cash flow from all activities to total equity does not impact sales growth. The study recommends that companies pay more attention to the cash flow statement and utilize the data therein to make investment and financing decisions. Additionally, companies should focus on improving cash liquidity management and determining the appropriate combination of equity and debt sources to reduce the cost of capital and maximize sustainable financial growth, leading to more profitable investment opportunities. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Hijazi, R.
Perceived Service Quality of Mobile Banking and Co-creation Intention: The Mediating Role of Epistemic Value and the Moderating Influence of Digitalization Anxiety
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169685318&doi=10.1007%2f978-3-031-42463-2_30&partnerID=40&md5=475cd0d89834aaad50a93a46c975285c

AFFILIATIONS: Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this paper, the Service-Dominant Logic (SDL) and the Electronic Service Quality Model (E-S-QUAL) are combined to assess customer value co-creation intention (CCI). To achieve this, participants among mobile banking users in Jordan were administered questionnaires. To evaluate the importance of mobile banking service quality (MBSQ), epistemic value, and digitalization anxiety in determining CCI, the SPSS, and Smart PLS software were used to perform mediation and moderation analyses. The findings confirm the assumption that MBSQ, epistemic value, and digitalization anxiety all impact CCI. Bank managers can use this research to help them allocate resources whilst developing m-banking platforms. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Shaban, O.S., Yassin, M.M., Al-hawatmah, Z., Amoush, A.H., Hamad, M.J.
Maximizing Financial Performance and Sustainability Through Innovative Dividend Policies: Evidence from Emerging Market
(2023) Studies in Big Data, .
https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169682915&doi=10.1007%2f978-3-031-42455-7_12&partnerID=40&md5=49d6fa097091169b95766d4b1dfd58b7

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study aims to investigate the impact of dividend policy on financial performance in the context of Jordanian commercial banks and explores how innovative dividend policies can contribute to both financial performance and sustainability. Specifically, the study analyzes the relationship between dividend per share (DPS), earnings per share (EPS), and price-earnings ratio (P/E ratio) with financial performance, represented by return on assets (ROA) and return on equity (ROE), for 13 Jordanian commercial banks from 2012 to 2021. Data was collected from the financial statements of the sample banks and analyzed using descriptive statistics, correlation analysis, and multiple linear regression analysis. The study found that EPS, DPS, and P/E ratio positively impact financial performance and that increasing EPS and DPS while maintaining a lower P/E ratio could be key to achieving financial performance in the context of Jordanian commercial banks. The study concluded that innovative dividend policies have the potential to enhance both financial performance and sustainability in Jordanian commercial banks. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Ali, N.

Influence of Data-Driven Digital Marketing Strategies on Organizational Marketing Performance: Mediating Role of IT Infrastructure
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169682106&doi=10.1007%2f978-3-031-42463-2_31&partnerID=40&md5=935fff91131ccb7836593b859b462ad6

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The purpose of this research was to investigate the function that IT infrastructure played as a mediator between data-driven digital marketing strategies and the marketing performance of organizations. Dimensions of data-drive digital marketing strategies adopted included (Data collection, Data analysis, Segmentation, Targeting, Personalization, Automation and Optimization). The quantitative method was used to successfully complete the study's objectives, a questionnaire was distributed on a sample of (84) marketing managers and leaders within delivery services companies which are licensed and operating in Jordan. Results of study indicated that IT infrastructure mediates the relationship between Data-driven digital marketing strategies and marketing performance. Study recommended before implementing any data-driven marketing strategy, it is important to have clear business goals and metrics in place. Further recommendations were presented in the study. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Saleh, I., Abu Afifa, M., Alkhawaja, A., Marei, Y.

Big Data Analytics and Sustainability Accounting and Reporting: Evidence from Canada
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169682021&doi=10.1007%2f978-3-031-42463-2_29&partnerID=40&md5=ab4b57a949b97f3760485704d6e27631

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Finance and Economics, Griffith Business School, Griffith University, Brisbane, QLD, Australia;

Department of Accounting, Seneca College of Applied Arts and Technology, Toronto, Canada

ABSTRACT: The purpose of this study is to examine how Big Data and Big Data Analytics (BDA) affect sustainability accounting and reporting. It provides qualitative evidence from financial managers perspective working in Canadian public firms listed on the Toronto Stock Exchange in the year 2023. This research evidence suggests BDA impact the proficiency and expertise of financial administrators when conducting engagement practices in public firms. Furthermore, the use of Big Data enables a more streamlined and precise reportage, increases profitability, enhances risk management techniques, and discovers potential for reducing costs. Finally, as with any technology, the comprehensive utilization of big data will incur certain adverse outcomes, some of which can be predicted, and a few, conversely remain completely unpredictable. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Bataineh, A.Q., Qasim, D.

Artificial Intelligence and Digital Marketing in Jordan: Opportunities and Challenges
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169680044&doi=10.1007%2f978-3-031-42455-7_26&partnerID=40&md5=9efc2c487855f2319bda29b85bfa05d4

AFFILIATIONS: Faculty of Business, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This research explores the opportunities and challenges of artificial intelligence (AI) to improve technologies used in digital marketing. It aims to understand the impact of AI tools on digital marketing performance in Jordan. For this reason, we revised the literature published in previous empirical studies in Jordan. Those studies focused on local marketing agencies; Xotox Branding Agency, Bidaya Marketing Communications, FOCUS Marketing & Advertising and Brandsberry, that uses AI tools to improve their digital marketing capabilities. This returned several key areas: customer acceptance, ROI, and data security, which identified the main problems preventing businesses from getting the most out of their AI investments. Additionally, it provided some solutions and best practices for companies to consider when adapting AI technologies for digital marketing strategies. Furthermore, this research has yielded important insights into the potential for AI to revolutionise digital marketing in terms of automation, optimisation, personalisation, and cost and time savings within the Jordanian market. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Yaseen, S.G., Al-Samhour, N.

Impact of Dynamic Capabilities and Organizational Agility on the Competitive Performance: The Mediating Role of Organizational Learning

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169677951&doi=10.1007%2f978-3-031-42463-2_11&partnerID=40&md5=c4d4d62a38b9ca0c13834be45ab7408c

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This research attempts to ascertain the mediating role of organizational learning between dynamic capabilities, organizational agility and competitive performance in the Jordanian commercial banks. Findings from partial least square structural equation modeling revealed that dynamic capabilities and organizational agility have a significant impact on competitive performance. Furthermore, the finding that organizational learning partially mediates the effects of dynamic capabilities, organizational agility and competitive performance suggests that the ability to learn is a crucial component of the bank's competitiveness. The current research provides new insight on how banks can develop and leverage their dynamic capabilities, agility and learning to enhance competitive performance. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Aljawazneh, H., Yaseen, S.G., Al-Shayea, Q.

Bagging vs Boosting Ensemble Classifiers in Predicting Companies' Financial Status

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169675909&doi=10.1007%2f978-3-031-42463-2_11&partnerID=40&md5=838d1df4f05c9421f8b453e742598997

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Nowadays, predicting companies' financial status became an essential part of the researchers' interest, given its importance and impact on several parities (i.e., stockholders, banks and workers). In this work, we propose ensemble bagging and boosting algorithms for predicting companies' financial status. In addition, real vastly imbalanced Polish companies' dataset considered to train and test the classifiers. SMOTE and SMOTE ENN balancing techniques used to solve the data imbalanced distribution problem. Accordingly, the ensemble boosting classifiers outperform the bagging classifiers in predicting companies' financial status. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Abu Afifa, M., Saleh, I., Van, H.V., Alkhawaja, A., Bader, A., Al-Hroot, Y.

Digital CSR and Corporate Sustainability Moderated by Perceived Technological Environmental Uncertainty: Empirical Evidence

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169673023&doi=10.1007%2f978-3-031-42463-2_10&partnerID=40&md5=66b77fd4907d4283191940c2ae7dbc63

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Accounting Department, Tien Giang University, Tien Giang Province, My Tho, Viet Nam;

Department of Accounting, Finance and Economics, Griffith Business School, Griffith University, Brisbane, QLD, Australia;

Department of Accounting, Faculty of Administrative and Financial Sciences, Philadelphia University, Amman, Jordan

ABSTRACT: This study investigates the nexus among digital corporate social responsibility (CSR) practices and corporate sustainability as well as the moderating impact of perceived technological

environmental uncertainty in this context. It provides empirical evidence from the Jordanian market. To achieve the study's purpose, 170 e-survey questionnaires were emailed to all Jordanian corporations listed on the Amman Stock Exchange. In the research letter, we invited the respondent to be the chief executive officer (CEO). Using a partial least squares structural equation modeling (PLS-SEM), the results show that corporate sustainability is positively affected by digital CSR practices and that the relationship between digital CSR practices and corporate sustainability is positively moderated by perceived technological environmental uncertainty. Finally, this study has immediate impact for a wide range of managers, decision-makers, consultants, and policymakers. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Shahrouri, A.D.M.

The Cultural and Social Impact of Artificial Intelligence on Islamic Law Standard: A Fundamental Purposeful Study

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169672864&doi=10.1007%2f978-3-031-42455-7_18&partnerID=40&md5=121c023135ffd7e2383a6c60cefb7b50

AFFILIATIONS: College of Law, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: The study tackled the cultural and social impact of artificial intelligence on the Islamic law traits - a fundamental purposeful study. It also discussed the advantages and disadvantages of dealing with this sophisticated technology - Artificial Intelligence - in light of Islamic law. The paper attempted to establish the legal perspective in using this technology. One of the foremost important results the study came up with is that discovering the goals of those working in this technology with regard to development and promotion. One of the most important recommendations the study also came up with, is Islamic legal authorities need to serve Sharia's goals and to be independent from others. "And pursue not that of which thou hast no knowledge; for surely the hearing, the sight, the heart all of those shall be questioned of." (36) Al-Isra'. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Altarawneh, M., Aravamudhan, V., Sundaram, K.M., AlWadi, B.M.

Sustainable Business Excellence Through Digitalisation: From an Educational and Businesses Point of View

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169669502&doi=10.1007%2f978-3-031-42455-7_20&partnerID=40&md5=8d691a772d016ecf701c2578ab9bf5ba

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Alliance University, Bengaluru, India

ABSTRACT: Businesses, social organizations, including academic and educational institutions as well, even the types of government in place today will all undergo fundamental shifts due to the advent of digital technology. In this sense, we will approach the company's digitalization from the viewpoint of the three pillars, namely social, economic, and environmental, to conclude the degree to which this new and last revolution corresponds to the principles of sustainable development. Through the use of econometric analysis, this research aims to investigate the economic connections between the digitalization of business and sustainable development. The findings of the econometric study will be used to assess the degree to which the occurrence of this phenomenon will impact the characteristics that define sustainable development. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Ngoc, H.P.T., Abu Afifa, M.

The Bitcoin Market and Post Covid-19: Empirical Evidence from Asian Countries

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169669366&doi=10.1007%2f978-3-031-42455-7_11&partnerID=40&md5=8bb6c45599e8158c8c8847821aa4692e

AFFILIATIONS: Accounting Department, Tien Giang University, Tien Giang Province, My Tho, Viet Nam; Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Our paper aims to scrutinize the COVID-19 indicators and blockchain (BC) features on the returns of Bitcoin. This paper focus on the most owned and used cryptocurrencies in Asian countries. The ARDL panel is used for hypothesis testing. Random effects modeling (REM) and Generalized Moment Method (GMM) were utilized to scan the robustness of the results. Two newly discovered results have divulged; firstly, Vaccine Confidence Index (VCI) boosts economic recuperation and increases Bitcoin returns. Secondly, disclosed block chain size is required for Bitcoin. Despite the uncertain post-Covid-19 conditions and the unregulated crypto market, the government plays an important role, significantly driving the economic recovery. This benefits policymakers and investors. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Najm, N.A., Yousif, A.S.H., Al-Ensour, J.A., Alnidawy, A.A.B.

The Impact of Sustainability Principles on Organizational Commitments and the Mediating Effect of Digital Transformation Process

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169668862&doi=10.1007%2f978-3-031-42455-7_25&partnerID=40&md5=9d52aaedca6eb3988af98d7b7ec71ea5

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study seeks to determine the impact of the five principles of sustainability (pollution reduction, recycling, renewable resources, green innovation, and ethical sustainability) on the types of organizational commitment (affective, continuance, and normative). It also seeks to explore the mediating effect of digital transformation on the relationship between sustainability principles and organizational commitment. A random sample of 202 respondents was taken from 4 Jordanian pharmaceutical companies. The results confirmed that there is positive effect of two principles (renewable resources, green innovation) on the three types of organizational commitment (affective, continuance, and normative). The results also showed that there was no significant effect of other three principles (pollution reduction, recycling, and ethical sustainability) on the three types of organizational commitment. The results of the study proved that the digital transformation had a significant positive impact on the relationship between the principles of sustainability and types of organizational commitment. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Toumeh, A.A., Ayoush, M., Ahmad, H.

An Empirical Study of the Effect of Enterprise Resource Planning System on Tobin's Q

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169666028&doi=10.1007%2f978-3-031-42463-2_6&partnerID=40&md5=7b54b1e20b9fbf587d54a9ae1ef6e3b0

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The purpose of this article is to investigate the nexus between Enterprise Resource Planning (ERP) system and company market performance measured by Tobin's Q in Jordan. This research employs a matched-pair design and the robust standard errors for random-effects regression model to draw conclusions. The study sample is based on 58 non-financial firms listed on Amman Stock Exchange (ASE) from 2020 to 2022. The results show that ERP implementation is positively and significantly related to company market performance, indicating that cutting-edge technologies (i.e. ERP system) can be crucial in improving the firm market performance and an important measure for the sustainability of Jordanian businesses. This article provides novel evidence detailing the effect of ERP adoption towards market performance in an emerging market following the limited amount of research on the topic. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Kasasbeh, H.A., Alzoubi, M., Jaradat, H.M., Alsmadi, A.A.

The Impact of E-Government and Size on Corruption: An Empirical Study on Jordan

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169663790&doi=10.1007%2f978-3-031-42455-7_10&partnerID=40&md5=2b6b759dec6e6e748ea6fc5b996b3cd6

AFFILIATIONS: AlZaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study examines the effect of e-government and the size of government on corruption using Jordan as a case study during the period 2001-2020 by employing the Vector Error Correction Model (VECM). It is unique as it is the first of its kind that tackles the issue of corruption in Jordan. It provides empirical evidence that the implementation of e-government (GI) reduced corruption and rising government size (GER) along with economic freedom (EF), and democracy index (DI or lowering democracy) positively affect the corruption perception index CI (i.e. lowering corruption). The positive correlation between GER and CI is obtained in association with improved economic freedom and the implementation of e-government. It is surprising that when the DI increases (i.e. lowering democracy level) CI also increases (i.e. lowering corruption). This be avoided through improved political freedom and participation, minimized income inequality, so as to widen middle income class, in the presence of improved and strengthened Judiciary system and the rule of law. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Srouji, A.F., Hamdallah, M.E., Zulkarnain, L.

The Mediating Role of Green Disclosures on the Relationship Between Sustainability and Financial Performance in an Emerging Market

(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169662333&doi=10.1007%2f978-3-031-42463-2_28&partnerID=40&md5=8431770e79735ab85d20ef1460bff2ad

AFFILIATIONS: Accounting Department, Princess Sumaya University for Technology, Aljubaiha, Amman, 1483, Jordan;

Accounting Department, Al-Zaytoonah University, Airport Road, Amman, Jordan;
Agribusiness Department, Universitas Medan Area, Medan, Indonesia

ABSTRACT: This study aims to determine whether executive compensation intends to spur managers to pursue Financial Performance (FP) issues as assessed by sustainability Performance (SP) disclosures, in connection to Jordanian banks from 2018 to 2020, influenced by ROA and Tobin-Q, as FP indicators. Based on stakeholder theory, this study also provides discussion of the mediating function of green accounting indicators (GI). Results showed only a relationship in terms of SP on ROA, according to the regression association between SP and FP. The GI findings indicate that there is no correlation between SP and Tobin-Q as a performance measure, but that there is a mediating role for green accounting indicators within the relationship between SP and FP directed by ROA. This suggests that Jordanian banks may be more inclined to pursue sustainability disclosure indicators in the future and emerging-market exporters' adoption of more green techniques as an incentive; ultimately, that influences a firm's financial performance. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Rifai, F., Alrawashdeh, N., Alsmadi, A.A., Kasasbeh, H.A., Alzoubi, M.
Cutting-Edge Technology and Blockchain: A Bibliometric Analysis (2017-2022)
(2023) Studies in Big Data, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169662180&doi=10.1007%2f978-3-031-42455-7_15&partnerID=40&md5=515d86233834c87a5d7b7f06a8f0fa40

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;
Isra University (Jordan), Amman, Jordan

ABSTRACT: This paper aims to analyze the Scopus-indexed English-language literature and apply the bibliometric methodology to show the reality of blockchain and cutting-edge technology intellectual structure and emerging trends from a large quantity of data between (2017) and (2022). The bibliometric analysis, therefore, is applied to describe this domain's evolution and structure, including co-authorship, bibliographical coupling, and co-citation. The findings demonstrate that China is the most relevant country, the Hua Zhong University of Science and Technology is the most pertinent institution, and the ACM international conference proceeding series is the most applicable source. This paper mainly contributes to the existing literature by identifying the benchmark authors, locations of blockchain and cutting-edge technology, and journals, summarizing the most cited papers, and classifying the research classes of research streams in cutting-edge technology and blockchain, namely: blockchain, cutting-edge technology, and artificial intelligence, demonstrating the future upcoming trends. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Benguesmia, A., Batiha, I.M., Oussaeif, T.-E., Ouannas, A., Alshanti, W.G.
Inverse Problem of a Semilinear Parabolic Equation with an Integral Overdetermination Condition
(2023) Nonlinear Dynamics and Systems Theory, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169562520&partnerID=40&md5=b4db56a318f5e77f7d265d58ff08bff2>

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;
Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;
Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria

ABSTRACT: The solvability of the semilinear parabolic problem with integral overdetermination condition for an inverse problem is investigated in this work. Accordingly, we solve the generated direct problem by using the so-called "energy inequality" method and then the inverse problem is handled with the use of the fixed point technique. © 2023 InforMath Publishing Group.

Shamsheer, R., Sunoqrot, S., Kasabri, V., Shalabi, D., Alkhateeb, R., Alhiari, Y., Ababneh, R., Ikhmais, B., Abumansour, H.

Preparation and Characterization of Capsaicin Encapsulated Polymeric Micelles and Studies of Synergism with Nicotinic Acids as Potential Anticancer Nanomedicines
(2023) Journal of Pharmacy and Bioallied Sciences, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169511286&doi=10.4103%2fjpbs.jpbs_311_22&partnerID=40&md5=9e948e9156df98eddb51151c507371a8

AFFILIATIONS: Department of Clinical Pharmacy and Biopharmaceutics, School of Pharmacy, University of Jordan, Amman, Jordan;

Department of Pharmacy, School of Pharmacy, AL-Zaytoonah University of Jordan, Amman, Jordan;
Physics Department, Yarmouk University, Irbid, Jordan

ABSTRACT: Background/Objective/Methods: Capsaicin micelles were prepared by the direct dissolution using the amphiphilic copolymer Pluronic P123 and advanced for substantially novel submicro-nanocytotoxicity. Results: Superior cytotoxicity of capsaicin loaded nanomicelles vs. both the raw capsaicin and reference cisplatin in pancreatic PANC1, breast MCF7, colorectal resistant CACO2, skin

A375, lung A549 and prostate PC3 cancer cell lines were delineated. Nicotinic acid (NA) derivative 39 (2-Amino IsoNA) had antiinflammatory potential but consistently lacked antiproliferation in MCF7, PANC1 and CACO2. Besides NA derivatives 8 (5-MethylNA) and 44 (6-AminoNA) exhibited lack of antiinflammation but had comparable antitumorigenesis potency to cisplatin in PANC1 cells. Though capsaicin loaded nanomicelles exerted pronounced antiinflammation (with IC 50 value of 510 nM vs. Indomethacin's) in lipopolysacchride-induced inflammation of RAW247.6 macrophages; they lacked DPPH scavenging propensities. Free capsaicin proved more efficacious vs. its loaded nanocarriers to chemosensitize cytotoxicity of combinations with NAs 1(6-Hexyloxy Nicotinic Acid), 5(6-OctyloxyNA), 8(5-MethylNA), 12(6-Thien-2yl-NA), 13(5,6-DichloroNA) and 44(6-AminoNA) in CACO2, PANC1 and prostate PC3. Conclusion: Capsaicin loaded nanomicelles proved more efficacious vs. free capsaicin to chemosensitize antiproliferation of cotreatments with NA derivatives, 1, 5, 8, 12, 13 and 44 (in skin A375), 1, 5, 8 and 12 (in breast MCF7), and 1, 5, 12 and 44 (in lung A549). © 2023 Journal of Pharmacy and Bioallied Sciences.

Qawaqneh, H., Ahmad, F.B., Alawamreh, A.R.

The Impact of Artificial Intelligence-Based Virtual Laboratories on Developing Students' Motivation Towards Learning Mathematics

(2023) International Journal of Emerging Technologies in Learning, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169005989&doi=10.3991%2fijet.v18i14.39873&partnerID=40&md5=3221d80ec0fec7f73a03884ef95053f9)

[85169005989&doi=10.3991%2fijet.v18i14.39873&partnerID=40&md5=3221d80ec0fec7f73a03884ef95053f9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85169005989&doi=10.3991%2fijet.v18i14.39873&partnerID=40&md5=3221d80ec0fec7f73a03884ef95053f9)

AFFILIATIONS: Department of Mathematical Sciences, Faculty of Science and Technology, Al-Zaytoonah University, Amman, Jordan;

Arab Open University, Amman, Jordan;

Faculty of Educational Sciences, Zarqa University, Zarqa, Jordan

ABSTRACT: This research investigates the impact of virtual laboratories (VLabs) based on artificial intelligence (AI) on developing students' motivation toward learning mathematics. A semiexperimental approach is used to achieve the research objectives. The research sample, consisting of 80 students from the seventh grade, is selected by the purposeful sampling approach. The research sample is randomly distributed into three groups: two experimental groups and one control group. The first group of 26 students is taught using the AI-based VLabs, while the second group of 27 students is taught using a VLab based on 3D visual imaging, and the third group, a control group consisting of 27 students, is taught using the traditional approach. The research instrument, a questionnaire for learning motivation, was designed after ensuring its validity and reliability. The findings of the motivation questionnaire indicate that students in the first experimental group have more motivation to learn mathematics than students in the second experimental group and the control group. The results also show that the students in the second experimental group have more motivation to learn mathematics than the students in the control group. Given the said findings, the research recommends using virtual laboratories based on artificial intelligence and all its applications in the learning process due to their impact on students' mathematics learning. © 2023 by the authors of this article. Published under CC-BY.

Amer, B., Ayed, A., Malak, M., Bashtawy, M.

Nursing Informatics Competency and Self-Efficacy in Clinical Practice among Nurses in Palestinian Hospitals

(2023) Hospital Topics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168869464&doi=10.1080%2f00185868.2023.2252974&partnerID=40&md5=faf9152e5f24aedf848133f11a4b0b17)

[85168869464&doi=10.1080%2f00185868.2023.2252974&partnerID=40&md5=faf9152e5f24aedf848133f11a4b0b17](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168869464&doi=10.1080%2f00185868.2023.2252974&partnerID=40&md5=faf9152e5f24aedf848133f11a4b0b17)

AFFILIATIONS: Health informatics, Ministry of Health, Jenin, Palestine;

Pediatric Health Nursing, Faculty of Nursing, Arab American University, Jenin, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Princess Salma Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan

ABSTRACT: This study purposed to determine the levels of nursing informatics competency and self-efficacy in clinical practice and influencing factors on self-efficacy among Palestinian nurses in hospitals. A descriptive-correlational design was adopted. The nurses who worked in the North West Bank of Palestine (N = 331) were recruited. The data were collected using the Self-Assessment of Nursing Informatics Competencies Scale (SANICS) which consists of 30 items rated on a 5-point Likert scale, ranging from 1(not competent) to 5 (expert), and scored by calculating the mean as follows: novice/low (1.00-2.59), beginner/moderate (2.60-3.39), and competent/high (3.40-5.00); and the New General Self-Efficacy Scale (NGSE) that consists of eight items rated on a 5-point Likert scale, ranging from 1(strongly disagree) to 5(strongly agree) and scored according to the average of the scale, whereas the average of > 3 indicated high self-efficacy, and ≤ 3 reflected low self-efficacy. The data were collected during the period from September to November 2020. Findings showed that the total mean score for the nursing informatics competency scale was 2.9 (SD = 0.7), which indicated that the nurses had a moderate level of nursing informatics competency. The average score for the self-efficacy scale was 3.5 (SD = 0.8), which reflected that nurses had high self-efficacy. Self-

efficacy in clinical practice increased with age and with nursing informatics competency. Thus, it is necessary to enhance nurses' informatics competency by developing continuous educational programs about this technology for nurses and engaging nurses in such programs to enhance their competencies in this system. © 2023 Taylor & Francis Group, LLC.

Goussous, J., Hmood, K.F.

Reconstruction of the Urban Historical Centre: Contemporary Problems, Difficulties, and Perspectives [Rekonstrukcja Miejskiego Centrum Historycznego: współczesne problemy, trudności i perspektywy] (2023) Problemy Ekorozwoju, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168841558&doi=10.35784%2fpreko.4040&partnerID=40&md5=ec16f3042e585ae57eb9cf85ad1a5870)

[85168841558&doi=10.35784%2fpreko.4040&partnerID=40&md5=ec16f3042e585ae57eb9cf85ad1a5870](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168841558&doi=10.35784%2fpreko.4040&partnerID=40&md5=ec16f3042e585ae57eb9cf85ad1a5870)

AFFILIATIONS: University of Jordan, Department of Architecture Engineering, Amman, 11942, Jordan; Al-Zaytoonah University of Jordan, Faculty of Architecture and Design, Department of Architecture, Jordan

ABSTRACT: Adapting historical city buildings into modern facilities is a basic problem in architecture today. In many large cities, historical centers preserve cultural heritage, including spiritual, cultural, economic, and social capital of irreplaceable value. Because of their importance, these centers must consider the unique characteristics of their surroundings, including harmony of size, spatial composition, architectural environment, facades, and the facilities in general. Disharmony in the architectural design of these centers is evident in the non-compliance of new objects, particularly in historical areas of the city. The restoration, reconstruction, and repair of these historical sites require special knowledge. Experts with this special knowledge can implement modern methods, strategic and operational modes of architecture, and public programs to preserve the historical and cultural values of these sites, thus pre-serving them for the future, which follows the sustainable development concept. The main conclusion of the re-search is that unique modern buildings, including novel architectural and constructive elements, can coexist with historical ones by using right policies and methods. © 2023, Politechnika Lubelska. All rights reserved.

Jebril, I., Dhanaraj, P., Abdulsahib, G.M., Palanisamy, S., Prabhu, T., Khalaf, O.I.

Analysis of Electrically Couple SRR EBG Structure for Sub 6 GHz Wireless Applications

(2023) Advances in Decision Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168837621&doi=10.47654%2fv26Y2022I5P102-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168837621&doi=10.47654%2fv26Y2022I5P102-123&partnerID=40&md5=ceb333209793cc52468180db49e36dab)

[123&partnerID=40&md5=ceb333209793cc52468180db49e36dab](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168837621&doi=10.47654%2fv26Y2022I5P102-123&partnerID=40&md5=ceb333209793cc52468180db49e36dab)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11942, Jordan;

Special Coverage Division, Net Coverage Solutions Limited, Camberley, United Kingdom;

Department of Computer Engineering, University of Technology, Baghdad, Iraq;

Department of ECE, Coimbatore Institute of Technology, Tamilnadu, Coimbatore, India;

Department of Electronics and Communication Engineering, Presidency University, Karnataka, Bengaluru, India;

Department of Solar, Al-Nahrain Research Center for Renewable Energy, Al-Nahrain University, Jadriya, Baghdad, Iraq

ABSTRACT: Purpose – For 5G wireless communication at frequencies below 6 GHz, this research describes an electromagnetic bandgap (EBG) structure based on an electrically coupled split-ring resonator (ECSRR). To create the EBG, the ECSRR is embedded within a structure similar to an interdigital capacitor. Design/methodology/approach – The proposed EBG design is composed of an electrically coupled structure that resembles an interdigital capacitor and a structure built of split-ring resonators. The proposed EBG structure was printed on a FR4 substrate that had a 4.4, 1.6 millimeters thickness, and a $\tan \delta = 0.025$. An interdigital capacitor-like structure is connected to the inner split-rings, and the top layer consists of two sets of split-ring resonators that are electrically connected. A wire-like structure is printed on the substrate's bottom layer. Findings – The suggested ECSRR EBG structure has a reflection phase bandwidth of 2.65 GHz between 3.5 and 6.15 GHz, and also a bandgap property bandwidth of 2.9 GHz between 3.3 and 6.2 GHz. Without an EBG structure, the CPW-fed microstrip quarter wave monopole antenna has a gain(maximum) of 2.574 dBi at 4.15 GHz and a bandwidth of 4.6 GHz between 3.4 and 8 GHz. Gain(maximum)of 8.785 dBi is achieved at 4.15 GHz when the ECSRR EBG structure is combined with a CPW-fed microstrip quarter wave monopole antenna . Originality– The suggested ECSRR EBG structure is merged with a two-element ECSRR bowtie antenna to verify its bandgap property. By inserting the ECSRR EBG structure's 2x4 array in between the two elements of the bow-tie antenna, we can decrease their mutual coupling. Maximum isolation is achieved at 4.9 GHz, with mutual coupling below -32 dB over the whole operational frequency range. Decision science enables antenna designers to analyze, optimize, and track the performance of the antenna characteristics. The following are some of the potential benefits of the proposed study: It is argued that statistical and regression properties can be used to create a powerful tool for feature extraction. To better understand how antenna design choices affect antenna performance, we compare different regression models. To accurately calculate the S parameters from the relevant UWB antenna dimensions, a random

forest classifier that has been optimized for this task has been developed. © 2023 Hindawi Limited. All rights reserved.

Khleifat, K.M., Al-Tawarah, N.M., Al-Kafaween, M.A., Al-Ksasbeh, W., Qaralleh, H., Alqaraleh, M., Al-Hamaideh, K.D., Al-Saraireh, Y.M., Alsarayreh, A., Al Qaisi, Y., Hilmi, A.B.M.

Memory Enhancing and Neurogenesis Activity of Honey Bee Venom in the Symptoms of Amnesia: Using Rats with Amnesia-like Alzheimer's Disease as a Model

(2023) Current Alzheimer Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168807024&doi=10.2174%2f1567205020666230614143027&partnerID=40&md5=987c08c01bd0c1352bf4549d564ce485)

[85168807024&doi=10.2174%2f1567205020666230614143027&partnerID=40&md5=987c08c01bd0c1352bf4549d564ce485](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168807024&doi=10.2174%2f1567205020666230614143027&partnerID=40&md5=987c08c01bd0c1352bf4549d564ce485)

AFFILIATIONS: Department of Biological Sciences, Faculty of Science, Mutah University, Al-Karak, Jordan;

Department of Medical Laboratory Sciences, Faculty of Science, Mutah University, Al-Karak, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pharmacological and Diagnostic Research Center (PDRC), Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Pharmacology, Faculty of Medicine, Mutah University, P.O. Box 7, Al-Karak, 61710, Jordan;

Department of Biomedicine, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Background/Objective: Alzheimer's disease (AD) is mainly characterized by amnesia that affects millions of people worldwide. This study aims to explore the effectiveness capacities of bee venom (BV) for the enhancement of the memory process in a rat model with amnesia-like AD. Methods: The study protocol contains two successive phases, nootropic and therapeutic, in which two BV doses (D1; 0.25 and D2: 0.5 mg/kg i.p.) were used. In the nootropic phase, treatment groups were compared statistically with a normal group. Meanwhile, in the therapeutic phase, BV was administered to scopolamine (1mg/kg) to induce amnesia-like AD in a rat model in which therapeutic groups were compared with a positive group (donepezil; 1mg/kg i.p.). Behavioral analysis was performed after each phase by Working Memory (WM) and Long-Term Memory (LTM) assessments using radial arm maze (RAM) and passive avoidance tests (PAT). Neurogenic factors; Brain-derived neurotrophic factor (BDNF), and Doublecortin (DCX) were measured in plasma using ELISA and Immunohistochemistry analysis of hippocampal tissues, respectively. Results: During the nootropic phase, treatment groups demonstrated a significant ($P < 0.05$) reduction in RAM latency times, spatial WM errors, and spatial reference errors compared with the normal group. In addition, the PA test revealed a significant ($P < 0.05$) enhancement of LTM after 72 hours in both treatment groups; D1 and D2. In the therapeutic phase, treatment groups reflected a significant ($P < 0.05$) potent enhancement in the memory process compared with the positive group; less spatial WM errors, spatial reference errors, and latency time during the RAM test, and more latency time after 72 hours in the light room. Moreover, results presented a marked increase in the plasma level of BDNF, as well as increased hippocampal DCX-positive data in the sub-granular zone within the D1 and D2 groups compared with the negative group ($P < 0.05$) in a dose-dependent manner. Conclusion: This study revealed that injecting BV enhances and increases the performance of both WM and LTM. Conclusively, BV has a potential nootropic and therapeutic activity that enhances hippocampal growth and plasticity, which in turn improves WM and LTM. Given that this research was conducted using scopolamine-induced amnesia-like AD in rats, it suggests that BV has a potential therapeutic activity for the enhancement of memory in AD patients in a dose-dependent manner but further investigations are needed. © 2023 Bentham Science Publishers.

Shtaiwi, M., Alemleh, M., Abu-Safieh, K.A., Salameh, B.A., Shtaiwi, A., Alwahsh, M., Hamadneh, L., Khanfar, M.A.

Design, Synthesis, Crystal Structure, Biological Activity and Molecular Modeling of Novel Schiff Bases Derived from Chalcones and 5-Hydrazino-1,3-Dimethyl-4-Nitropyrazole as Anticancer Agents

(2023) Polycyclic Aromatic Compounds, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168660951&doi=10.1080%2f10406638.2023.2247118&partnerID=40&md5=ba825a8c27c02447d30e5d7574c9f467)

[85168660951&doi=10.1080%2f10406638.2023.2247118&partnerID=40&md5=ba825a8c27c02447d30e5d7574c9f467](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168660951&doi=10.1080%2f10406638.2023.2247118&partnerID=40&md5=ba825a8c27c02447d30e5d7574c9f467)

AFFILIATIONS: Department of Chemistry, The Hashemite University, Zarqa, Jordan;

Middle East University, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Chemistry, University of Sharjah, Sharjah, United Arab Emirates;

Department of Chemistry, The University of Jordan, Amman, Jordan

ABSTRACT: The synthesis of novel 5-(2-((1(E/Z),2E)-1,3-disubstitutedallylidene)hydrazinyl)-1,3-dimethyl-4-nitro-1H-pyrazole (4a-k) was attempted via reaction involves a nucleophilic attack which takes place at the carbonyl group of the α,β -unsaturated carbonyls. The transformation proceeds via an effective addition-elimination reaction in the presence of catalytic amount of concentrated H₂SO₄.

The cytotoxicity of synthesized compounds was evaluated against two tumor cell lines, MCF-7 and MDA-MB-231, via MTT assay. The compounds 4a-d showed better toxicity than tamoxifen on MCF-7 cells, ranging from 26.28 to 12.96 μM with 4b having the lowest IC50 among the compounds tested. On the other hand, the compounds have moderate toxicity on MDA-MB-231 with 4c showing the lowest IC50. The docking study suggests that these Schiff bases chalcone scaffolds might facilitate the further development of investigated compounds as anticancer agents. © 2023 Taylor & Francis Group, LLC.

Alsarairah, A., Yehia, D., Khalaf, A.

Knowledge and Attitudes of Midwives Concerning the Interpretation and Use of Cardiotocographs in Jordan

(2023) Journal of Holistic Nursing and Midwifery, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168611643&doi=10.32598%2fJHNM.33.3.2461&partnerID=40&md5=277bdd230833da797b10b481fcdded95)

[85168611643&doi=10.32598%2fJHNM.33.3.2461&partnerID=40&md5=277bdd230833da797b10b481fcdded95](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168611643&doi=10.32598%2fJHNM.33.3.2461&partnerID=40&md5=277bdd230833da797b10b481fcdded95)

AFFILIATIONS: Department of Maternal and Child Health, Faculty of Nursing, Mutah University, Al Karak, Jordan;

College of Nursing, Sultan Qaboos University, Muscat, Oman;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Health Sciences, Kristianstad University, Kristianstad, Sweden

ABSTRACT: Introduction: A midwife needs to know how to assess fetal heart rates, recognize and interpret fetal heart patterns, report any substandard patterns, and initiate supportive measures as necessary. Objective: This study aims to assess the knowledge and attitudes of midwives concerning the interpretation and use of cardiotocographs. Materials and Methods: This cross-sectional study involves 183 midwives working in maternity units across all Jordanian regions. An online survey was used to collect data, including 6 demographic questions, 10 questions about knowledge, and 25 questions about attitude. The data were analyzed using descriptive statistics (Mean \pm SD, No. [%]), ANOVA, and the Pearson correlation tests. The significance level was set to be <0.05 . Results: Most participants were 21 to 30 years old, and most midwives (59.6%) had no more than six years of experience. The result showed that the total scores for the knowledge and attitude regarding cardiotocographs (CTGs) interpretation and usage were 68.7% and 73.0%, respectively. There is a significant relationship between the knowledge about the interpretation and use of CTGs and the years of experience ($P=0.003$), with higher knowledge scores among midwives with fewer than 6 years of experience. Furthermore, there is a significant relationship between the knowledge of CTGs and level of education ($P=0.002$), indicating higher knowledge scores among midwives with a degree. The knowledge about classifying the CTG traces was significantly correlated with the region of work ($P=0.018$), with higher scores among midwives from the southern region. Finally, there was a positive correlation between knowledge and attitude ($r=0.007$, $P<0.05$). Conclusion: Based on the study result, the participant's knowledge and attitudes are not satisfactory; thus, comprehensive education and training should be prioritized to improve midwives' knowledge and attitudes toward using cardiotocograph. © 2023, Journal of Holistic Nursing and Midwifery. All Rights Reserved.

Al Hadid, L., Al-Rajabi, O.Z., Al Barmawi, M., AL-Sagarat, A.Y.

The Relationship Between Maternal Obesity With Pregnancy-associated Hypothyroidism, Fetal Health, and Pregnancy Outcomes

(2023) Journal of Holistic Nursing and Midwifery, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168576945&doi=10.32598%2fJHNM.33.3.2400&partnerID=40&md5=0c7897dd4b4ece53f032bf983610e9c4)

[85168576945&doi=10.32598%2fJHNM.33.3.2400&partnerID=40&md5=0c7897dd4b4ece53f032bf983610e9c4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168576945&doi=10.32598%2fJHNM.33.3.2400&partnerID=40&md5=0c7897dd4b4ece53f032bf983610e9c4)

AFFILIATIONS: Faculty of Nursing, Al-Balqa Applied University, Salt, Jordan;

Rufaida Al-Aslamiah College of Nursing, Al-Balqa Applied University, Salt, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan;

Mental Health Nursing, Department of Community and Mental Health Nursing, Faculty of Nursing, Mutah University, AL-Karak, Jordan

ABSTRACT: Introduction: The prevalence of obesity is increasing worldwide, especially among pregnant women. Maternal obesity is a serious risk factor during pregnancy associated with pregnancy-related complications for the mother and her child. Objective: This study aimed to estimate the prevalence of Jordanian pregnant women who are overweight or obese. The relationship between high body mass index and selected obstetrical conditions was also investigated. Materials and Methods: A descriptive, correlational, cross-sectional design was used on a purposive convenience sample of 411 pregnant women in Jordan. Results were obtained through structured interviews, antenatal routine lab tests, physical measurements (height and weight), body mass index (BMI), thyroid function tests (free thyroxine [FT4] and 2e [TSH]), and Edinburgh postnatal depression scale. Descriptive statistics, including means, standard deviation, and inferential statistics, such as Pearson correlation, t-test, and ANOVA, were used to describe and examine the relationship among the study variables. Results: Based on the results, 58.4% of the participants had one to four pregnancies, and 54.5% had at least one abortion. Based on their weight before pregnancy, there was a high frequency of overweight (29.7%) and obesity (25%) among pregnant women. High maternal BMI for the mother is correlated

significantly with pregnancy complications and offspring neurocognitive impairments. Additionally, maternal obesity is a risk factor for hypothyroidism. BMI was correlated with hypothyroidism ($r=0.141$, $P=0.004$), fetal distress ($r=0.217$, $P=0.0001$), postnatal depression ($r=0.161$, $P=0.0001$), and preterm labor ($r=0.115$, $P=0.020$). The thyroid function tests and thyroid stimulating hormone levels were correlated with maternal and fetal conditions, such as infertility, fetal death, hemorrhage, and cerebral palsy among children. Conclusion: High BMI associated with old age is a critical factor related to many maternal and infant health conditions. Repeated pregnancy failures, fetal health conditions, and maternal complications, including hypothyroidism, can be associated with maternal obesity. Healthcare providers should raise awareness among mothers and care providers on the serious conditions associated with obesity. © 2023, Journal of Holistic Nursing and Midwifery. All Rights Reserved.

Salah, M., Abdalla, A., Abdallah, M.

Evaluation of Existing Virtual Tour Studies and Their Applicability to Jordanian Universities (2023) 2023 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168558428&doi=10.1109%2fJEEIT58638.2023.10185675&partnerID=40&md5=a85ae71431bd5a36bbb34faf2f27d413)

85168558428&doi=10.1109%2fJEEIT58638.2023.10185675&partnerID=40&md5=a85ae71431bd5a36bbb34faf2f27d413
AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Multimedia Technology, Amman, Jordan;
Al-Zaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;
Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, Jordan

ABSTRACT: Several studies were conducted in the past for evaluating the benefits and shortcomings of virtual tours in various sites including university campuses. The previous studies addressed numerous issues such as providing initial perceptions, guiding visitors, etc. Most of these issues can be related, up to some extent, to Jordanian universities in general. However, there are issues specific to Jordan that need to be addressed such as the availability of fast internet connection and suitable data caps. Furthermore, new demands rose recently such as the need for social distancing under COVID-19 restrictions, thus limiting the sizes of physical tour groups. This paper reviews previous studies on virtual tours and evaluates their applicability to Jordanian university and their present practicality. Then, the paper outlines the motivations and limitations of virtual campus tours in Jordan. © 2023 IEEE.

Aldalahmeh, S.A., Hayajneh, A.M., Zeidan, M., Al-Shawabkeh, A., Alasali, F.

Power Load Estimation in Smart Grids via k-Means Clustering using Sensor Networks (2023) 2023 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168546254&doi=10.1109%2fJEEIT58638.2023.10185690&partnerID=40&md5=7a257f6f807a2d47e767613fc5e71cdc)

85168546254&doi=10.1109%2fJEEIT58638.2023.10185690&partnerID=40&md5=7a257f6f807a2d47e767613fc5e71cdc
AFFILIATIONS: Al-Zaytoonah University of Jordan, Dept. of Communication and Computer Eng., Amman, Jordan;

The Hashemite University, Dept. of Electrical Eng., Amman, Jordan;

Al-Zaytoonah University of Jordan, Dept. of Power and Control Eng., Amman, Jordan

ABSTRACT: In this paper, estimating real and reactive power measurements provided in smart grids through wireless sensor networks is considered. The communication channel is assumed to suffer from additive white Gaussian noise (AWGN). k-means clustering is used to learn the underlying structure of the collected power measurements. Then, nearest-neighbour method is used to estimate the power measurements from the noisy received measurements. Two clustering approaches are proposed. First, clustering the real and reactive power measurements individually. Second, combining the power measurements and clustering jointly. Simulation results show very small estimation errors for both methods even if a small number of clusters is small, where, the individual clustering performs better. On the other hand, the joint clustering method performs better if the number of clusters increases. © 2023 IEEE.

Abadla, R., Alseiari, A., Alheili, A., Daoud, M.S., Al-Mimi, H.M.

Intelligent Phishing Email Detection with Multi-Feature Analysis (IPED-MFA) (2023) 2023 International Conference on Intelligent Computing, Communication, Networking and Services, ICCNS 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168375358&doi=10.1109%2fICCNS58795.2023.10193714&partnerID=40&md5=bddf8922d229e0c3c24c9ba9f9373a6b)

85168375358&doi=10.1109%2fICCNS58795.2023.10193714&partnerID=40&md5=bddf8922d229e0c3c24c9ba9f9373a6b
AFFILIATIONS: Al Ain University, Abu Dhabi, United Arab Emirates;
Al Ain University, College of Engineering, Abu Dhabi, United Arab Emirates;
Al-Zaytoonah University, Cybersecurity Department, Amman, Jordan

ABSTRACT: The rise in bulk email phishing attempts has emerged as a serious cyber-risk for businesses given the pervasive usage of email as a primary form of communication. Despite the existence of manual and technical countermeasures, phishing emails still pose a risk of deceiving employees.

Machine learning has played a vital role in improving the detection of many types of cyberattacks, including email phishing. In this paper, the utilization of a machine learning-based IDS model to detect phishing emails before they reach inboxes is proposed. A review of phishing email detection techniques and algorithms is presented, and a publicly available dataset of ham and phishing emails is discussed and used. Multiple machine learning classifiers were deployed (RF, SVM, Adaboost, Logistic Regression, and KNN), and their evaluation scores were generated and analysed. Using recursive feature elimination and multi-feature analysis, Random Forest outperformed the other classifiers with an accuracy of 98.6%, closely followed by Adaboost with 98.1%. © 2023 IEEE.

Daoud, M.S., Shehab, M., Abualigah, L., Alshinwan, M., Elaziz, M.A., Shambour, M.K.Y., Oliva, D., Alia, M.A., Zitar, R.A.

Erratum to: Recent Advances of Chimp Optimization Algorithm: Variants and Applications (Journal of Bionic Engineering, (2023), 10.1007/s42235-023-00414-1)

(2023) Journal of Bionic Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168364921&doi=10.1007%2fs42235-023-00427-w&partnerID=40&md5=edd9b51e37214c79573d5107c8a5>

AFFILIATIONS: College of Engineering, Al Ain University, Abu Dhabi, 112612, United Arab Emirates; College of Computer Sciences and Informatics, Amman Arab University, Amman, 11953, Jordan; Computer Science Department, Prince Hussein Bin Abdullah Faculty for Information Technology, Al Al-Bayt University, Mafraq, 25113, Jordan; Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan; MEU Research Unit, Middle East University, Amman, 11831, Jordan; Applied Science Research Center, Applied Science Private University, Amman, 11931, Jordan; School of Computer Sciences, Universiti Sains Malaysia, Pulau Pinang, 11800, Malaysia; Faculty of Information Technology, Applied Science Private University, Amman, 11931, Jordan; Department of Mathematics, Faculty of Science, Zagazig University, Zagazig, 7120001, Egypt; The Custodian of the Two Holy Mosques Institute for Hajj and Umrah Research, Umm Al-Qura University, Makkah, 24382, Saudi Arabia; Depto. de Innovación Basada en la Información y el Conocimiento, Universidad de Guadalajara, CUCEI, Guadalajara, 45129, Mexico; Cyber Security Department, Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, 11733, Jordan; Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, 38044, United Arab Emirates; School of Engineering and Technology, Sunway University Malaysia, Petaling Jaya, 27500, Malaysia
ABSTRACT: In this article the statement in the Funding information section was incorrectly given as '22UQU4361183DSR03' and should have read '23UQU4361183DSR03'. The original article has been corrected. © 2023, Jilin University.

Hammad, M.A., Jebril, I.H., Alshorm, S., Batiha, I.M., Hammad, N.A.

Numerical Solution for Fractional-Order Mathematical Model of Immune-Chemotherapeutic Treatment for Breast Cancer Using Modified Fractional Formula

(2023) International Journal of Analysis and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168292369&doi=10.28924%2f2291-8639-21-2023-89&partnerID=40&md5=222959d72cf5bd1a0d9240940542097b>

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University, Amman, 11733, Jordan; Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates; Department of Hematopathology, Princess Iman Research and Laboratory Sciences Center, Amman, Jordan
ABSTRACT: Cancer is a complex and diverse group of diseases characterized by the uncontrolled growth and spread of abnormal cells in the body. Tumors, which are commonly associated with cancer, refer to abnormal masses of tissue that can develop in various organs or tissues. Cancer can arise from almost any cell type in the body and can affect different organs and systems. The disease occurs when the normal processes of cell division and growth go awry, leading to the formation of malignant tumors. These tumors have the potential to invade nearby tissues and spread to distant parts of the body through a process known as metastasis. In this paper, we aim to present a numerical solution for a recent fractional-order model related to Immune-Chemotherapeutic Treatment for Breast Cancer (ICT) using a novel numerical scheme called the Modified Fractional Euler Method (MFEM). We will also compare our proposed scheme with the traditional numerical scheme, Fractional Euler Method (FEM), through numerical simulations. © 2023 the author(s).

Abu Afifa, M.M., Saadeh, M.

Does information asymmetry mediate the relationship between voluntary disclosure and cost of capital? Evidence from a developing economy

(2023) Journal of Financial Reporting and Accounting, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168119739&doi=10.1108%2fJFRA-02-2023->

0103&partnerID=40&md5=0635b8e60db2d9e0e99d8e00e7326411

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Terengganu, Malaysia

ABSTRACT: Purpose: This paper aims to investigate the relationship between voluntary disclosure and the cost of capital as a direct relationship and as an indirect relationship mediated by information asymmetry. It provides evidence from Jordan as a developing economy. Design/methodology/approach: The sample was selected from the companies listed in the first market of the Amman Stock Exchange during the period 2010-2019. Four exclusion criteria were used in selecting the companies for analysis. Findings: The findings show that the cost of capital and information asymmetry are negatively affected by voluntary disclosure, as well as that the cost of capital is positively affected by information asymmetry. In addition, information asymmetry does not mediate the relationship between voluntary disclosure and the cost of capital. Originality/value: This research looks at the mediating effect of information asymmetry in the relationship between voluntary disclosure and the cost of capital; thus, it provides new explanations about it using empirical evidence from a developing economy. As a necessary consequence, this research has the potential to significantly contribute to the existing body of knowledge and literature in this field. © 2023, Emerald Publishing Limited.

Alsswey, A., Malak, M.Z., El-Qirem, F.A.

Perceptions of social media users to government regulations and measures during COVID-19 pandemic in Jordan: a qualitative study

(2023) New Review of Hypermedia and Multimedia, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168005197&doi=10.1080%2f13614568.2023.2246423&partnerID=40&md5=4d0c43841b343394685e14f297cf1bc2)

[85168005197&doi=10.1080%2f13614568.2023.2246423&partnerID=40&md5=4d0c43841b343394685e14f297cf1bc2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168005197&doi=10.1080%2f13614568.2023.2246423&partnerID=40&md5=4d0c43841b343394685e14f297cf1bc2)

AFFILIATIONS: Department of Multimedia Technology, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: During the COVID-19 pandemic, social media played an important role in disseminating information and procedures for dealing with this pandemic, however, there is a lack of studies investigating the perceptions of social media users concerning the regulations and measures issued by authorities to encounter and cope with the COVID-19 pandemic, which was exceptional at that time. Therefore, this study purposed to explore the perceptions of social media users about the regulations and instructions of the authorities' measures in times of the COVID-19 pandemic in Jordan. A qualitative method including thematic analysis and content analysis was adopted to evaluate social media posts, which involved the text and images found in these posts during the period from March 2020 to June 2020. Three social media websites were included in the study, namely Facebook, Snapchat, and Twitter. Five themes were extracted from 317 posts, including COVID-19 is a bubble economy, COVID-19 is a political game, health-related information about COVID-19 and safety precautions, COVID-19 regulations influenced personal restrictions and freedom confiscation, and COVID-19 is a financial burden. Thus, this study may provide recommendations for policy-makers to develop campaigns and activities based on people's perspectives and design the appropriate health and economic promotions and interventions. © 2023 Informa UK Limited, trading as Taylor & Francis Group.

Al-Zu'bi, S., Badarneh, O., Hawashin, B., Al-Ayyoub, M., Alhindawi, N., Alsmearat, K.

Multi-Label Classification of Emotions in Arabic Tweets From Different Perspectives

(2023) 2023 International Conference on Multimedia Computing, Networking and Applications, MCNA 2023,

.

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167805018&doi=10.1109%2fMCNA59361.2023.10185882&partnerID=40&md5=5bb08da3c22958409f30e2ffbe37447a)

[85167805018&doi=10.1109%2fMCNA59361.2023.10185882&partnerID=40&md5=5bb08da3c22958409f30e2ffbe37447a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167805018&doi=10.1109%2fMCNA59361.2023.10185882&partnerID=40&md5=5bb08da3c22958409f30e2ffbe37447a)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan;

Jadara University, Irbid, Jordan;

Amman Arab University, Amman, Jordan

ABSTRACT: Sentiment analysis has been studied widely in the literature. Despite these many works, there is a lack of works that concentrates on finding the basic emotions behind these sentiments. This problem becomes more challenging in under-resourced languages, such as Arabic. Furthermore, to our knowl-edge, no works have studied this problem from the reader's versus the writer's perspectives. In this work, we study sentiment analysis and basic emotions extraction from the writer's perspec-tive, which is the person who wrote the text, to complement an earlier work of ours focusing on the reader perceptive. Using a dataset of Arabic tweets, we compare the two perspectives. Since each tweet may contain multiple emotions, we use Multi-Label Classification (MLC) techniques. Three classifiers are compared: Decision Trees (DT), Random Forest (RF), and K-Nearest Neighbor (KNN). Prior results showed that the top performing classifier in the case of the reader dataset was RF. For this work focusing on the writer dataset, RF is not a clear winner for all performance

metrics under consideration as DT produces competitive results. © 2023 IEEE.

Elbes, M., Alzu'bi, S., Kanan, T.

Deep Learning-Based Earthquake Prediction Technique Using Seismic Data

(2023) 2023 International Conference on Multimedia Computing, Networking and Applications, MCNA 2023,

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167798724&doi=10.1109%2fMCNA59361.2023.10185869&partnerID=40&md5=910c6b124f4a687a67bb73b413d63456)

[85167798724&doi=10.1109%2fMCNA59361.2023.10185869&partnerID=40&md5=910c6b124f4a687a67bb73b413d63456](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167798724&doi=10.1109%2fMCNA59361.2023.10185869&partnerID=40&md5=910c6b124f4a687a67bb73b413d63456)

AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;

Alzaytoonah University of Jordan, Department of Artificial Intelligence, Amman, Jordan

ABSTRACT: Earthquakes are natural disasters that can cause severe damage to human life and infrastructure. Therefore, accurate earthquake prediction is crucial for disaster prepared-ness and risk reduction. Recently, machine learning techniques have shown promise in earthquake prediction. In this paper, we present a comprehensive study on the application of machine learning techniques for earthquake prediction. We first review the existing literature on earthquake prediction using machine learning techniques, including neural networks. We then propose a machine learning approach for earthquake prediction, based on analyzing seismic data. The proposed approach uses a convolutional neural network to extract relevant features from the seismic data, and a long short-term memory network to predict the probability of an earthquake. We evaluate the performance of the proposed approach on earthquake datasets from different regions and demonstrate its high accuracy in earthquake prediction. Our study provides a new perspective on earthquake prediction using machine learning techniques and highlights the potential of deep learning approaches for improving earthquake prediction. The proposed approach can be used in conjunction with existing earthquake prediction methods to provide more accurate and reliable predictions, which can help mitigate the potential impact of earthquakes on human life and infrastructure. © 2023 IEEE.

Batiha, I.M., Barrouk, N., Ouannas, A., Farah, A.

A STUDY ON INVARIANT REGIONS, EXISTENCE AND UNIQUENESS OF THE GLOBAL SOLUTION FOR TRIDIAGONAL REACTION-DIFFUSION SYSTEMS

(2023) Journal of Applied Mathematics and Informatics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167715917&doi=10.14317%2fjami.2023.893&partnerID=40&md5=747e0027d07cb6ecef975d36cabe4f5d)

[85167715917&doi=10.14317%2fjami.2023.893&partnerID=40&md5=747e0027d07cb6ecef975d36cabe4f5d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167715917&doi=10.14317%2fjami.2023.893&partnerID=40&md5=747e0027d07cb6ecef975d36cabe4f5d)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Mathematics and Informatics, Mohamed Cherif Messaadia University, Souk Ahras, 41000, Algeria;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Mathematics, Isra University, Amman, Jordan

ABSTRACT: In this article, we are devoted to study the problem of the existence, uniqueness and positivity of the global solutions of the 3×3 reaction-diffusion systems with the total mass of the components with time. We also suppose that the nonlinear reaction term has a critical growth with respect to the gradient. The technique that we used to prove the global existence is the method of the compact semigroup. © 2023 KSCAM.

Oudetallah, J., Abu-Alkishik, N., Batiha, I.M.

Nigh-Open Sets in Topological Space

(2023) International Journal of Analysis and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167699641&doi=10.28924%2f2291-8639-21-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167699641&doi=10.28924%2f2291-8639-21-2023-83&partnerID=40&md5=2eec13a899d7b7896b26c4ba4104a021)

[83&partnerID=40&md5=2eec13a899d7b7896b26c4ba4104a021](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167699641&doi=10.28924%2f2291-8639-21-2023-83&partnerID=40&md5=2eec13a899d7b7896b26c4ba4104a021)

AFFILIATIONS: Department of Mathematics, Irbid National University, Irbid, 21110, Jordan;

Department of Mathematics, Jerash University, Jerash, 2600, Jordan;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: In this paper, we aim to introduce a new class of open sets namely nigh-open set. Accordingly, we define a topological space called a nigh-topological space. This consequently leads us to outline several new operations in connection with the sets in nigh-topological space coupled with deriving several their properties and relations. © 2023 the author(s).

Abu Helal, A.-R.

A probabilistic semantics for modal QAD in standard Arabic

(2023) Cogent Arts and Humanities, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167366193&doi=10.1080%2f23311983.2023.2241239&partnerID=40&md5=b4f9859bf177e0260d008d8602b15b5d)

[85167366193&doi=10.1080%2f23311983.2023.2241239&partnerID=40&md5=b4f9859bf177e0260d008d8602b15b5d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85167366193&doi=10.1080%2f23311983.2023.2241239&partnerID=40&md5=b4f9859bf177e0260d008d8602b15b5d)

AFFILIATIONS: College of Arts Department of English Language and Literature, Al-Zaytoonah University

of Jordan, Amman, Jordan

ABSTRACT: Gradable Epistemic Modals (GEMs) such as certain or likely have been analyzed to have the semantics of gradable adjectives, which constrain their epistemic modality. This squib analyzes the modal use of the sentential particle qad in Standard Arabic which has the following puzzling behavior: particle qad gives rise to the certainty/likelihood modality meaning only when it is composed with the tense expression of its propositional complement. Modal qad then manifests itself as an extreme, non-gradable modal with no lexically encoded but grammatically derived scale meaning. A probabilistic semantics is proposed to derive the truth conditions of the epistemic modal meaning of qad based on a monotonic, probabilistic time-world branching model. The analysis assigns maximum degree of likelihood to qad in the past tense which triggers certainty. It also assigns a minimum degree of likelihoods to qad in the present tense which triggers possibility. © 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Najm, N.A., Alhmeidiyeen, M.S., Abuyassin, N.A., Al-Nasour, J.A.

Project management ethics and corporate reputation: the mediating role of employee satisfaction (2023) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166410498&doi=10.1504%2fIJPQM.2023.132267&partnerID=40&md5=0dca5d95653d61d13bae6f848bb4f0)

[85166410498&doi=10.1504%2fIJPQM.2023.132267&partnerID=40&md5=0dca5d95653d61d13bae6f848bb4f0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166410498&doi=10.1504%2fIJPQM.2023.132267&partnerID=40&md5=0dca5d95653d61d13bae6f848bb4f0)

AFFILIATIONS: Business Administration Department, Al-Zaytoonah University of Jordan, Amman, Jordan; Lahore Business School, The University of Lahore, Pakistan;

Abu-Ghazaleh University College for Innovation, Amman, Jordan

ABSTRACT: This study seeks to explore the impact of project management ethics on the corporate reputation. Project management ethics included five dimensions: the first four dimensions (responsibility, respect for commitments, fairness, and honesty) were taken from the project management ethics code issued by the American project management institute, with a fifth dimension being ethical citizenship proposed by the researchers. The study also sought to determine the impact of employee satisfaction as a mediating variable on the relationship between project management ethics and company reputation. The study was carried out on the Greater Amman Municipality (the capital of Jordan), which is characterised by a number of projects implemented in many sites by its engineering units. The number of respondents participating in the study sample was 112 respondents, including engineers, technicians, and administrative employees. The results of the study confirmed that all dimensions of project management ethics had a positive impact on the company's reputation, with the exception of ethical citizenship, which had no significant impact on the corporate reputation. In addition, employee satisfaction as a mediating variable had a significant impact on the relationship between ethics and the corporate reputation. Copyright © 2023 Inderscience Enterprises Ltd.

Jaradat, Y.M., Zerek, A.R., Masoud, M.Z., Manasrah, A.A., Abdaljlil, S.A., Alheyasat, O.

Analysis of the Scientific Publication of Libyan State: A Bibliometric Review

(2023) Proceeding - 2023 IEEE 3rd International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, MI-STA 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166362025&doi=10.1109%2fMI-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166362025&doi=10.1109%2fMI-STA57575.2023.10169544&partnerID=40&md5=49eee7d9f9764db2bc126046eacd7493)

[STA57575.2023.10169544&partnerID=40&md5=49eee7d9f9764db2bc126046eacd7493](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166362025&doi=10.1109%2fMI-STA57575.2023.10169544&partnerID=40&md5=49eee7d9f9764db2bc126046eacd7493)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Communications and Computer Engineering, Amman, Jordan;

Libya Open University, Communication Engineering, Tripoli, State of Libya;

Al-Zaytoonah University of Jordan, Mechanical Engineering, Amman, Jordan;

AlBalqa' Applied University, Computer Engineering Department, Salt, Jordan

ABSTRACT: This paper provides a detailed bibliometric analysis of the Libyan State's scientific publications (Libya). The study is based on data from the well-known Scopus database. The study spans the years 1948 to 2022. The study examines the growth of annual publications and citations. It has been demonstrated that over the last five years, 36% of total publications and 66% of total citations have been achieved. Science mapping activities such as co-occurrence and co-citation networks were used to reveal thematic clustering and research topic trends. The top source title with the most articles is the 2021 1ST MI-STA conference, which has 142 articles. The LANCET journal is the most frequently cited locally, with 1181 articles citing it, and the most prolific author is Dr. ElHadi from the University of Tripoli with 76 articles. © 2023 IEEE.

Manasrah, A., Masoud, M., Jaradat, Y., Irshaidat, M., Shaban, N.A., Zerek, A.

Students Engagement in Blended Learning: Evidence from Moodle A Case Study from Engineering Courses (2023) Proceeding - 2023 IEEE 3rd International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, MI-STA 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166318518&doi=10.1109%2fMI-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166318518&doi=10.1109%2fMI-STA57575.2023.10169635&partnerID=40&md5=1a2f1c001ece73eab036cf28dcf7ef19)

[STA57575.2023.10169635&partnerID=40&md5=1a2f1c001ece73eab036cf28dcf7ef19](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166318518&doi=10.1109%2fMI-STA57575.2023.10169635&partnerID=40&md5=1a2f1c001ece73eab036cf28dcf7ef19)

AFFILIATIONS: Al Zaytoonah University of Jordan, Dept. of Mechanical Engineering, Amman, Jordan;

Al Zaytoonah University of Jordan, Dept. of Electrical Engineering, Amman, Jordan;
University of Zawia, Dept. of Communication Engineering, Zawia, State of Libya
ABSTRACT: Recent years have witnessed significant and rapid developments in technological trends of teaching in educational institutions worldwide. We have seen online learning methods offering sufficient and effective solutions during 2020 and 2021. Although online learning had many merits, it did not offer a classroom-like environment. Blended learning has re-appeared as a good alternative that combines between the advantages of online and face-to-face (F2F) learning using learning management systems (LMS) like Moodle. In this paper, a series of Moodle reports were utilized to evaluate students' performance and engagement in two blended engineering courses throughout four consecutive semesters. Results showed that the online part of the courses had about 110 views and 9 posts per student in all four semesters. This paper also presents findings on two formats of blended learning: (67% F2F and 33% online) and (50% F2F and 50% online). Results showed that there was a change in students' engagement and studying behaviour between the two formats. Finally, students' views and posts in the courses are compared against the timings at which midterm and final exams occurred. © 2023 IEEE.

Al-Momany, B., Abu-Romman, S.

Cucumber and salinity

(2023) Australian Journal of Crop Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166021681&doi=10.21475%2fajcs.23.17.06.p3915&partnerID=40&md5=b946e54faaa368fd998403d62c6a06)

[85166021681&doi=10.21475%2fajcs.23.17.06.p3915&partnerID=40&md5=b946e54faaa368fd998403d62c6a06](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166021681&doi=10.21475%2fajcs.23.17.06.p3915&partnerID=40&md5=b946e54faaa368fd998403d62c6a06)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biotechnology, Faculty of Agricultural Technology, Al-Balqa Applied University, Al-Salt, 19117, Jordan

ABSTRACT: Salinity is becoming more expanded globally. Soil salinity imposes a great challenge for vegetable-crops production in arid and semiarid regions. Cucumber (*Cucumis sativus* L.) is the fourth most important vegetable crop worldwide. In this review, we discuss the complex network of effects, and the ways cucumber responds to salinity. Salt stress inhibits almost all growth phases and yield components of cucumber. Accumulation of Na⁺ and/or Cl⁻ ions in cucumber tissues disturbs the absorption of other ions causing ionic imbalance which affect stomatal opening. Nevertheless, high levels of NaCl in soil inhibit water uptake in the root medium exposing cucumber to osmotic stress. Osmotic stress broadly interrupts metabolic pathways by altering enzymatic activity. Both, ionic and osmotic stresses induce ROS amassing in cucumber tissues. ROS directly constrain photosynthesis by decreasing levels of total chlorophyll and degrading PSII as well as corrupting thylakoid membranes. Ultimately, NaCl-induced stress inhibits cucumber seed germination, roots and shoots growth and development, fruit quality and yield production. © 2023, Australian Journal of Crop Science. All Rights Reserved.

Sumaqa, Y.A., Hayajneh, F.A., Alhamory, S., Rayan, A., Alnaeem, M., Al Tarawneh, T.R., Assaf Alrida, N.A., Abu-abbas, M., Suhemat, A., Ayasreh, I.R.

Consequences of Psychological Aspects: From Jordanian Heart Failure Patients' Beliefs

(2023) SAGE Open Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165996819&doi=10.1177%2f23779608231189128&partnerID=40&md5=f36664b5934a224f871a2febb997539b)

[85165996819&doi=10.1177%2f23779608231189128&partnerID=40&md5=f36664b5934a224f871a2febb997539b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165996819&doi=10.1177%2f23779608231189128&partnerID=40&md5=f36664b5934a224f871a2febb997539b)

AFFILIATIONS: Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Faculty of Nursing, University of Jordan Amman, Amman, Jordan;

Faculty of Nursing, Al-Zaytoonah University, Amman, Jordan;

Faculty of Nursing, University of Mutah, Alkarak, Jordan;

Faculty of Nursing, Al-Balqa Applied University, Amman, Jordan;

Faculty of Nursing, Jerash University, Jerash, Jordan

ABSTRACT: Introduction: Psychological aspects are common in patients with heart failure (HF). Psychological aspects have negative consequences in patients with HF. Objective: This study was conducted to gain a deeper understanding of the consequences of psychological aspects in Jordanian patients with HF. Methods: This study is a qualitative study conducted with the participation of 24 patients with HF. Data were collected using semi-structured interviews. Results: The main theme of the findings can be expressed as "Consequences of psychological aspects of HF." The following four sub-themes emerged from the data: social isolation, disturbance of feelings, being non-compliant, and growing burden on the health care system. Conclusion: The findings revealed the need for informing healthcare providers about the negative consequences of psychological aspects and develop clinical guidelines to evaluate psychological aspects to support these patients. © The Author(s) 2023.

Al-Diabat, A.M., Algadri, N.A., Ahmad, N.M., Alrajhi, A.H., Abuelsamen, A., Ali, A.M.A., Al-Wasli, S.A.

Optimize the Properties of Carbon Nanotubes Synthesized using a Microwave Oven

(2023) WSEAS Transactions on Environment and Development, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165987623&doi=10.37394%2f232015.2023.19.68&partnerID=40&md5=dadabaa33ae3f6468465935cbf43e6)

[85165987623&doi=10.37394%2f232015.2023.19.68&partnerID=40&md5=dadabaa33ae3f6468465935cbf43e6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165987623&doi=10.37394%2f232015.2023.19.68&partnerID=40&md5=dadabaa33ae3f6468465935cbf43e6)

AFFILIATIONS: Department of Physics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Physics, Isra University, Amman, Jordan;

School of Physics, Universiti Sains Malaysia, Penang, Malaysia;

Aqaba University of Technology, Aqaba, Jordan

ABSTRACT: In this paper, carbon nanotubes (CNT) are synthesized using the microwave oven method, which offers several advantages, including a simple, quick, inexpensive, and solvent-free growing method. To produce CNT, a mixture of graphite and ferrocene catalysts had to be flattened inside a microwave oven for five seconds at room temperature. CNT was produced using various ratios of graphite and ferrocene, and analyses indicated that a 70:30 graphite/ferrocene ratio produced better nanocrystalline CNT. To optimize CNT properties, five processes of purification were used to dispose of impurities like metal particles and support material from the as-produced carbon nanotubes. Raman spectroscopy, field emission scanning electron microscopy (FESEM), energy dispersive X-ray spectroscopy (EDX), X-ray diffraction (XRD), and Fourier transform infrared spectroscopy (FTIR) was used to characterize the CNTs both after and before purification. After acid treatment and centrifugation, the amount of amorphous carbon and iron particles significantly decreased. Additionally, following the purification process, the ID/IG decreased by 0.14 and the I2D/ID increased by 0.55 for the purified CNTs. Furthermore, the FTIR spectra of the untreated and functionalized CNTs confirm the presence of carboxyl groups on pure CNTs and -OH moieties in sorbed water. © 2023, World Scientific and Engineering Academy and Society. All rights reserved.

Al-Okaily, M., Alsmadi, A.A., Alrawashdeh, N., Al-Okaily, A., Oroud, Y., Al-Gasaymeh, A.S.

The role of digital accounting transformation in the banking industry sector: an integrated model

(2023) Journal of Financial Reporting and Accounting, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165908637&doi=10.1108%2fJFRA-04-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165908637&doi=10.1108%2fJFRA-04-2023-0214&partnerID=40&md5=eca893517fc1b49705cbcac9db924d93)

[0214&partnerID=40&md5=eca893517fc1b49705cbcac9db924d93](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165908637&doi=10.1108%2fJFRA-04-2023-0214&partnerID=40&md5=eca893517fc1b49705cbcac9db924d93)

AFFILIATIONS: School of Business, Jadara University, Irbid, Jordan;

Faculty of Business, Al Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Isra University, Amman, Jordan;

Graduate School of Business, Universiti Sains Malaysia, George Town, Malaysia;

Faculty of Business, Applied Science Private University, Amman, Jordan

ABSTRACT: Purpose: The digital transformation revolution has brought outstanding changes to business organizations, especially in the digital accounting transformation domain. Consequently, the purpose of this study is to explore the important role of digital accounting transformation in improving business performance in the context of the banking industry. Design/methodology/approach: Data were collected through a questionnaire from the Jordanian bank sector with a sample of 190 respondents. Partial least squares structural equation modeling (PLS-SEM) was used to analyze the collected data and test the hypotheses. Findings: The results have shown that the adoption of digital accounting, adoption of FinTech innovation and technological competition are the major drivers for improving business performance. All direct paths leading to improving business performance were found to be significant in the hypothesized directions, while technological savvy was found to indirectly affect the relationship between (the adoption of digital accounting and FinTech innovation) and improving business performance. Originality/value: The current study is differentiated from other studies by developing a theoretical research model to incorporate the adoption of digital accounting, adoption of FinTech innovation, technological competition, technological savvy and business performance in the Jordanian context under the digital transformation revolution. For practitioners, the findings provide policymakers with meaningful insight for organizations looking to adopt these digital technologies for improved business performance. © 2023, Emerald Publishing Limited.

Batiha, I.M., Rezzoug, I., Oussaeif, T.-E., Ouannas, A., Jebril, I.H.

POLLUTION DETECTION FOR THE SINGULAR LINEAR PARABOLIC EQUATION

(2023) Journal of Applied Mathematics and Informatics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165882144&doi=10.14317%2fjami.2023.647&partnerID=40&md5=8dae4fd71d8f9aaf485d58a1062105)

[85165882144&doi=10.14317%2fjami.2023.647&partnerID=40&md5=8dae4fd71d8f9aaf485d58a1062105](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165882144&doi=10.14317%2fjami.2023.647&partnerID=40&md5=8dae4fd71d8f9aaf485d58a1062105)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi,

Algeria

ABSTRACT: In this work, we are concerned by the problem of identification of noisy terms which arise in singular problem as for remote sensing problems, and which are modeled by a linear singular parabolic equation. For the reason of missing some data that could be arisen when using the traditional sentinel method, the later will be changed by a new sentinel method for attaining the same purpose. Such new method is a particular least square-like method which permits one to

distinguish between the missing terms and the pollution terms. In particular, a sentinel method will be given here in its more realistic setting for singular parabolic problems, where in this case, the observation and the control have their support in different open sets. The problem of finding a new sentinel is equivalent to finding singular optimality system of the least square control for the parabolic equation that we solve. © 2023 KSCAM.

Bashayreh, E., Alkhalil, S., Abdelhafez, E.

Predicting the Effect of the COVID-19 Pandemic on Air Pollution in Amman, Jordan Using an Artificial Neural Network Model

(2023) International Review of Electrical Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165873069&doi=10.15866%2firee.v18i2.22136&partnerID=40&md5=149513d6a6705047f7555da884c4f314)

[85165873069&doi=10.15866%2firee.v18i2.22136&partnerID=40&md5=149513d6a6705047f7555da884c4f314](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165873069&doi=10.15866%2firee.v18i2.22136&partnerID=40&md5=149513d6a6705047f7555da884c4f314)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Electrical Engineering/ Communications and Computer Engineering, Amman, 11733, Jordan;

Al-Zaytoonah University of Jordan, Department of Mechanical Engineering, Amman, 11733, Jordan;

Al-Zaytoonah University of Jordan, Department of Alternative Energy Technology, Amman, 11733, Jordan

ABSTRACT: This study aims to see how well three different types of Artificial Neural Networks (ANNs) can predict the concentrations of four air pollutants (CO, NO₂, PM₁₀, and SO₂) before, during, and after the COVID-19 pandemic. MATLAB software was used to construct and test the suggested networks. The World Air Quality Project website included the metrological data and data on air pollutant concentrations. The data were utilized to approximate and estimate the actual performance of proposed models during the development phase. The ANN findings were validated using the results generated during the training phase. Statistics on the three metrology variables were used to compare the performance of the three models (R, RMSE, and MBE). The Elman model was the best and most accurate coefficient of correlation (R) and provided the more precise correlation between meteorological factors and air pollution concentrations in Amman, Jordan. © 2023 Praise Worthy Prize S.r.l.-All rights reserved.

Alkhatib, N.S., Halloush, S., Abraham, I.

The status and preparation for the next decade of biosimilars in the Middle Eastern and North African region

(2023) Expert Opinion on Biological Therapy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165699102&doi=10.1080%2f14712598.2023.2241346&partnerID=40&md5=a840dee7fe458f8ba74a97eb0b64c77a)

[85165699102&doi=10.1080%2f14712598.2023.2241346&partnerID=40&md5=a840dee7fe458f8ba74a97eb0b64c77a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165699102&doi=10.1080%2f14712598.2023.2241346&partnerID=40&md5=a840dee7fe458f8ba74a97eb0b64c77a)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Center for Health Outcomes and PharmacoEconomic Evaluation, University of Arizona, Tucson, AZ, United States;

Pi Pharma Intelligence, LLC, Amman, Jordan;

Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Matrix45, LLC, Tucson, AZ, United States

ABSTRACT: Introduction: Little is known about the status and the future potential of biosimilars in the Middle East and North Africa (MENA) region. Areas covered: This perspective provides insights into the current regulatory landscape of some MENA countries, currently available biosimilars, the potential of biosimilars in the next decade, and challenges to overcome. Expert opinion: Given the economic and demographic heterogeneity across the MENA countries, biosimilars could reduce significant economic unmet needs in these countries. In the next decade, biosimilars may witness higher approval rates and market share over their originators in the MENA countries. We argue that the regulatory bodies in the MENA countries should adopt the new policies of the FDA, the EMA, and the WHO, that aim to ease the biosimilar approval process. These policies are to adopt technology in the process of approval; engage health technology assessment bodies in price assessment; provide educational materials to increase awareness among providers, patients, and payers. Further, MENA countries should upgrade the external-reference pricing systems to more sophisticated ones that consider the heterogeneity in economics and needs. © 2023 Informa UK Limited, trading as Taylor & Francis Group.

Alsmadi, A.A., Shuhaiber, A., Al-Omoush, K.S.

Risky? So, why people are getting back to invest in cryptocurrencies? The United Arab Emirates as a case

(2023) Kybernetes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165625707&doi=10.1108%2fK-04-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165625707&doi=10.1108%2fK-04-2023-0572&partnerID=40&md5=dee216e461315e122c3a9a15d9e91734)

[0572&partnerID=40&md5=dee216e461315e122c3a9a15d9e91734](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165625707&doi=10.1108%2fK-04-2023-0572&partnerID=40&md5=dee216e461315e122c3a9a15d9e91734)

AFFILIATIONS: Department of Banking and Financial Sciences, Al-Zaytoonah University of Jordan, Amman, Jordan;

Information Systems and Technology Management Department, College of Technological Innovation, Zayed University, Dubai, United Arab Emirates;

Department of MIS, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The purpose of this paper is to investigate the determinants of users' intention to continue to invest in cryptocurrencies. The paper also aims to examine the impact of hedonic motivation and the legal environment on perceived value in cryptocurrencies.

Design/methodology/approach: A questionnaire was designed to obtain data from 258 respondents in UAE. The Structural Equation Modeling - Partial Least Squares (SEM-PLS) was used to evaluate the research model and test the hypotheses. **Findings:** The results of smart PLS path analysis showed that perceived value, hedonic motivation, gambling attitude, and price volatility were significant determinants of the continued intention to invest in cryptocurrency. This study also revealed that hedonic motivation enhances perceived value and improves the perception of cryptocurrencies value from user's perspective. **Originality/value:** This study provides new insights into the literature on cryptocurrencies adoption, and delivers advanced understanding about the determinants of user's intention to continue investing in cryptocurrencies. In addition, the study provides important practical implications for cryptocurrencies companies to promote this financial technology to users by enhancing the knowledge of policy makers about how investors think and get motivated towards a continued investment of cryptocurrencies. © 2023, Emerald Publishing Limited.

Hammad, M.A., Alrowaily, A.W., Shah, R., Ismaeel, S.M.E., A. El-Tantawy, S.

Analytical analysis of fractional nonlinear Jaulent-Miodek system with energy-dependent Schrödinger potential

(2023) *Frontiers in Physics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165568427&doi=10.3389%2ffphy.2023.1148306&partnerID=40&md5=5e28cf774eedb40257bae0ac9897c59a)

[85165568427&doi=10.3389%2ffphy.2023.1148306&partnerID=40&md5=5e28cf774eedb40257bae0ac9897c59a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165568427&doi=10.3389%2ffphy.2023.1148306&partnerID=40&md5=5e28cf774eedb40257bae0ac9897c59a)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia;

Department of Mathematics, Abdul Wali Khan University Mardan, Mardan, Pakistan;

Department of Physics, College of Science and Humanities in Al-Kharj, Prince Sattam Bin Abdulaziz University, Riyadh, Saudi Arabia;

Department of Physics, Faculty of Science, Ain Shams University, Cairo, Egypt;

Department of Physics, Faculty of Science, Port Said University, Port Said, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Baha University, Al Baha, Saudi Arabia

ABSTRACT: In this work, a novel technique is considered for analyzing the fractional-order Jaulent-Miodek system. The suggested approach is based on the use of the residual power series technique in conjunction with the Laplace transform and Caputo operator to solve the system of equations. The Caputo derivative is applied to express the fractional operator, which is more suitable for modeling real-world phenomena with memory effects. As a real example, the proposed technique is implemented for analyzing the Jaulent-Miodek equation under suitable initial conditions. Additionally, the proposed technique's validity (accuracy and effectiveness) is examined by studying some numerical examples. The obtained solutions show that the suggested technique can provide a reliable solution for the fractional-order Jaulent-Miodek system, making it a helpful tool for researchers in different areas, including engineering, physics, and mathematics. We also analyze the absolute error between the derived approximations and the analytical solutions to check the validation and accuracy of the obtained approximations. Many researchers can benefit from both the obtained approximations and the suggested method in analyzing many complicated nonlinear systems in plasma physics and nonlinear optics, and many others. Copyright © 2023 Hammad, Alrowaily, Shah, Ismaeel and A. El-Tantawy.

Alhamory, S., Khalaf, I., Alshraideh, J.A., Al-Ghabeesh, S., Abu Sumaqa, Y., Bani Hani, S., Salameh, I., Abu Alruz, H.

Nurses' competencies in providing care to COVID-19 patient: survey of Jordanian nurses

(2023) *Working with Older People*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165473864&doi=10.1108%2ffWWOP-04-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165473864&doi=10.1108%2ffWWOP-04-2023-0012&partnerID=40&md5=448b3affee653209eb1f3e8cefde4fc5)

[0012&partnerID=40&md5=448b3affee653209eb1f3e8cefde4fc5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165473864&doi=10.1108%2ffWWOP-04-2023-0012&partnerID=40&md5=448b3affee653209eb1f3e8cefde4fc5)

AFFILIATIONS: Department of Nursing, School of Nursing, Al-Zaytoonah University, Amman, Jordan;

School of Nursing, The University of Jordan, Amman, Jordan;

School of Nursing, Al-Zaytoonah University, Amman, Jordan;

Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Department of Adult Health Nursing, Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The purpose of this paper is to assess the level of nurses' competencies while providing care to COVID-19 patients. **Design/methodology/approach:** A descriptive, correlational design was used to collect data from nurses who were providing care to COVID-19 patients at four public hospitals. **Findings:** A total of 377 nurses (64.5% females) aged 23-50 consented to participate and completed the survey. The mean score of nurses' competencies in providing care to COVID-19 patients

was 2.5 (SD = 0.81). The results of correlation coefficient tests disclosed a significant positive correlation between reported competence level and sex $rpb(377) = 0.18, p < 0.01$; working area $rpb(377) = 0.2, p < 0.01$; disaster experience $rpb(377) = 0.16, p < 0.01$; disaster education $rpb(377) = 0.25, p < 0.01$; and disaster training $rpb(377) = 0.31, p < 0.01$. Research limitations/implications: The COVID-19 pandemic response heavily relied on nurses. However, they had a gap in clinical competencies that indicates an urgent need to incorporate disaster management courses in basic nursing education and to update training in hospitals based on nurses' needs to improve their capabilities in dealing with COVID-19 pandemic. Originality/value: To the best of the authors' knowledge, this is the first study that investigated the perceived level of Jordanian nurses' competencies in providing care to COVID-19. © 2023, Emerald Publishing Limited.

Aboushi, A.A., Abdelhafez, E., Hamdan, M., Ajib, S., Alsaqoor, S.

Utilization of Desulfurized Heavy Liquid Fuel Blends in Domestic Boiler

(2023) Journal of Ecological Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165443011&doi=10.12911%2f22998993%2f165782&partnerID=40&md5=856f22fd0d2558bfbf2b961e53224982)

[85165443011&doi=10.12911%2f22998993%2f165782&partnerID=40&md5=856f22fd0d2558bfbf2b961e53224982](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165443011&doi=10.12911%2f22998993%2f165782&partnerID=40&md5=856f22fd0d2558bfbf2b961e53224982)

AFFILIATIONS: Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Alternative Energy Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Applied Science Private University, Renewable Energy Technology Department, P.O. Box 541350, Amman, 11937, Jordan;

Department of Renewable Energies and Decentralized Energy Supplying, Faculty of Environmental Engineering and Applied Informatics, Technische Hochschule Ostwestfalen-Lippe, University of Applied Sciences and Arts, Lemgo, 32657, Germany;

Department of Mechanical Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan

ABSTRACT: One way to cut down the consumption of diesel fuel in domestic heating in Jordan is to blend it with shale oil, which may be extracted from oil shale. This leads to a cut down in the national fuel bill in Jordan. Unfortunately, shale oil contains significant amounts of sulfur as impurities and upon burning sulfur oxides are emitted causing a negative environmental impact, and hence desulfurization of such fuel blends is essential. This may be achieved by adding activated carbon to the fluids. The process of removing sulfur from shale oil is crucial for safeguarding the environment, human well-being, and equipment, as well as meeting regulatory requirements and creating superior-quality goods. In this study, a domestic boiler was utilized to evaluate the degree of desulfurization process of blends of diesel and shale oil fuels upon their burning in a domestic boiler, to achieve this, blends of both fuels were prepared with varying amounts of shale oil (10%, 20%, 30%, and 40%) and various amounts of activated carbon were added to the prepared mixtures of diesel fuel and shale oil. The assessment of performance included examining the environmental impact, specifically by analyzing exhaust gases to measure the concentration of Sulfur Oxide (SO₂). It was found that an increase in the concentration of shale oil in the mixture led to an increase in the concentration of SO₂. However, adding more activated carbon to the mixture from the fuels resulted in a decrease in the SO₂ concentration. The lowest SO₂ concentration was observed when 1g of activated carbon was added per liter of the fuel mixture at a 20% concentration of shale oil, and 0.6g of activated carbon per liter of the fuel mixture at a 40% concentration of oil shale. © (2023), All Rights Reserved.

Mustafa, B., Ibrahim, A.

Graphic Design and the Role of Motion Graphics in Enriching and Promoting Tourism Advertising

[(Motion Graphic) في إثراء وترويج الإعلان السياحيالتصميم الجرافيكي ودور الرسوم التوضيحية المتحركة]

(2023) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165102120&doi=10.35516%2fhum.v50i2.4962&partnerID=40&md5=95e37b606b24e49f17014f5c9b619e1b)

[85165102120&doi=10.35516%2fhum.v50i2.4962&partnerID=40&md5=95e37b606b24e49f17014f5c9b619e1b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165102120&doi=10.35516%2fhum.v50i2.4962&partnerID=40&md5=95e37b606b24e49f17014f5c9b619e1b)

AFFILIATIONS: Technology of Multimedia and Graphic, Faculty of Computer Studies, Arab Open University, Jordan Branch, Amman, Jordan;

Department of Graphic Design, Faculty of Architecture and Design, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objectives: The study aims to introduce the challenges faced by the reality of designing animated illustrations in advertising for tourism promotion in the Arab world. It explores the interest in designing animated illustrations in the Arab world and the challenges it faces, while seeking positive solutions capable of advancing the design and development of animated illustrations in the region. Methods: This study utilizes a descriptive analytical approach, chosen for its suitability in achieving the study's objectives. Results: The motion graphic industry is complex, requiring careful planning and decision-making on both the economic and technical fronts. It emphasizes the significance of graphic design and its role in motion graphic design, showcasing

destinations in a captivating manner that sparks the tourists' desire to experience them in person. The study identifies the various steps involved in motion graphic design, including script writing, storyboarding, graphics, animation, and the creation of scenes for designing animated illustrations in tourism advertising. Furthermore, it focuses on processing these illustrations and presenting them in their final form. Conclusions: The study highlights the necessity for designers to be proficient in all design programs, stay updated with their advancements, and be familiar with their utilization to accurately accomplish their work and enhance the quality of motion graphics design.. © 2023 DSR Publishers/ The University of Jordan.

Dajani, R., Tabbaa, Z., Hakooz, N., Al-Nadaf, A., Al-Halaih, F., Alqatawneh, S.

Three Circles of Aemat: Growth and Sustainability through Mentoring

(2023) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165092900&doi=10.35516%2fhum.v50i2.4922&partnerID=40&md5=ac4066343657d8ce0e0281ccb98da4b4)

[85165092900&doi=10.35516%2fhum.v50i2.4922&partnerID=40&md5=ac4066343657d8ce0e0281ccb98da4b4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165092900&doi=10.35516%2fhum.v50i2.4922&partnerID=40&md5=ac4066343657d8ce0e0281ccb98da4b4)

AFFILIATIONS: Biology and Biotechnology Department, Hashemite University, Zarqa-Jordan, University of Richmond-Virginia, United States;

Jordan Society for Scientific Research, Entrepreneurship, and Creativity (JSSREC), Amman, Jordan;

Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, University of Jordan, Amman, Jordan;

Department of Pharmaceutical Chemistry, School of Pharmacy, Mutah University, Jordan;

Faculty of Nursing, Philadelphia University, Amman, Jordan;

Department of Multimedia Technology, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objectives: The present study aimed to present and analyze a collection of caricature artworks reflecting the artist's standpoint on introducing and addressing terrorism. It also sought to provide insights and recommendations on the potential use of caricature art in countering terrorism in contemporary society. Methods: Researchers employed a descriptive analytical design, which is the most appropriate scientific method for studying the sample. The methods used were as follows: Survey Method - Gathering, studying, and describing a collection of notable cartoonists' works addressing terrorism. Content Analysis Method - Examining and analyzing caricature works from the study sample. Results: The study yielded several findings, with the most important being that in most countries worldwide, the majority of cartoonists have committed themselves to countering the widespread terrorism in contemporary societies. However, their efforts are insufficient in light of the growing phenomenon. Conclusions: Caricature art plays a prominent role in countering the causes of terrorism, even before its emergence. This is achieved through the significant influence of caricature art in shaping the cultural and emotional perspectives of society members. Moreover, caricature art is free from negative beliefs and attitudes that can serve as a foundation for extremism and terrorist activities. © 2023 DSR Publishers/ The University of Jordan.

Hammad, M.M.A., Jebril, I., Khalil, R.

Large Fractional Linear Type Differential Equations

(2023) International Journal of Analysis and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165010923&doi=10.28924%2f2291-8639-21-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165010923&doi=10.28924%2f2291-8639-21-2023-65&partnerID=40&md5=af5e8664b1ff7275bdf95a5adcf3c3ce1)

[65&partnerID=40&md5=af5e8664b1ff7275bdf95a5adcf3c3ce1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85165010923&doi=10.28924%2f2291-8639-21-2023-65&partnerID=40&md5=af5e8664b1ff7275bdf95a5adcf3c3ce1)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11942, Jordan;

Department of Mathematics, The University of Jordan, Amman, Jordan

ABSTRACT: This paper aims to handle some types of fractional differential equations with a fractional-order values $\beta > 1$. In particular, we propose a novel analytical solution called an atomic solution for certain fractional linear type differential equations as well as for some other types of partial differential equations with fractional-order values exceeding one. Some examples are provided to validate our findings. © 2023 the author(s).

Jarab, A.S., Al-Qerem, W., Alzoubi, K.H., Abu Heshmeh, S., Alzoubi, A.N.A., Mukattash, T.L., Alazab, B., Al Hamarneh, Y.N.

Public perception, satisfaction and expectations from community pharmacy services and the barriers to consult the community pharmacist

(2023) International Journal of Environmental Health Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164906771&doi=10.1080%2f09603123.2023.2231364&partnerID=40&md5=feecdbbc337d4f13081656462c98dc5)

[85164906771&doi=10.1080%2f09603123.2023.2231364&partnerID=40&md5=feecdbbc337d4f13081656462c98dc5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164906771&doi=10.1080%2f09603123.2023.2231364&partnerID=40&md5=feecdbbc337d4f13081656462c98dc5)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Canada

ABSTRACT: This cross-sectional study aimed to evaluate public perception, satisfaction, expectations, and barriers to utilize the community pharmacy services. A validated self-reported online survey was distributed on 681 individuals in different regions across Jordan. The mean age of the participants was 29 (± 10) years. The most reported reason for choosing a particular community pharmacy was its closure to home or workplace (79.1%), while the main reason for visiting a community pharmacy was to obtain over the counter medications (66.2%). The participants showed good perception, satisfaction, and expectations of community pharmacy services. However, several barriers were identified, including higher participants' trust in physicians when compared to pharmacists (63.1%), and lack of privacy in the pharmacy (45.7%). Community pharmacists should participate in successful education and training programs in order to raise the quality of the provided services, meet patient requirements, and re-establish consumer confidence in community pharmacists. © 2023 Informa UK Limited, trading as Taylor & Francis Group.

Batiha, I.M., Momani, S., Alshorm, S., Ouannas, A.

Numerical Solutions of Stochastic Differential Equation Using Modified Three-Point Fractional Formula (2023) 2023 International Conference on Fractional Differentiation and Its Applications, ICFDA 2023,

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164540013&doi=10.1109%2fICFDA58234.2023.10153192&partnerID=40&md5=3cfd8a5806e9159dbc69d5c89ddc0603)

85164540013&doi=10.1109%2fICFDA58234.2023.10153192&partnerID=40&md5=3cfd8a5806e9159dbc69d5c89ddc0603

AFFILIATIONS: Al Zaytoonah University, Department of Mathematics, Amman, 11733, Jordan;

Ajman University, Nonlinear Dynamics Research Center, Ajman, United Arab Emirates;

The University of Jordan, Department of Mathematics, Amman, 11942, Jordan;

University of Oum EL-Bouaghi, Department of Mathematics and Computer Science, Oum El Bouaghi, Algeria

ABSTRACT: This paper aims to present a numerical solution to the fractional stochastic differential equation by using modified three-point fractional formula. Such a formula, which can be derived from the generalized Taylor theorem, is used to approximate Riemann-Liouville fractional integral operator. To show the effectiveness of the numerical method, the approximate solution is compared with the exact solution coupled with the approximate solution generated from the Euler-Maruyama method. Finally, the results of numerical experiments are supported with graphs for completeness. © 2023 IEEE.

Momani, S., Batiha, I.M., Hioual, A., Ouannas, A.

Fractional Neural Networks: Finite time stability and its application to synchronization

(2023) 2023 International Conference on Fractional Differentiation and Its Applications, ICFDA 2023,

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164539581&doi=10.1109%2fICFDA58234.2023.10153178&partnerID=40&md5=9d2cea88204fe99df33078104bb7c285)

85164539581&doi=10.1109%2fICFDA58234.2023.10153178&partnerID=40&md5=9d2cea88204fe99df33078104bb7c285

AFFILIATIONS: Ajman University, Nonlinear Dynamics Research Center (NDRC), Ajman, 346, United Arab Emirates;

The University of Jordan, Department of Mathematics, Amman, Jordan;

Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

University of Larbi Ben m'Hidi, Department of Mathematics and Computer Science, Oum El Bouaghi, Algeria

ABSTRACT: Fractional-order discrete-time neural networks are kind of discrete-time models described by fractional-order difference operators. Despite the fact that the stability of such networks is required for their effective implementations, extremely low publications on the subject have been published. In this article, finite-time stability of fractional difference neural networks with discrete Mittag-Leffler kernels is investigated. First, with the use of a new generalization of the Gronwall inequality by means of the Atangana-Baleanu fractional difference sum operator, we generate some finite-time stability conditions of the discrete-time neural networks in their fractional-order cases with discrete Mittag-Leffler kernel. Then, the finite time stability coupled with the modified Gronwall inequality requirements are used to establish an adequate condition, which can provide these networks with a finite-time synchronization on the basis of a specific state feedback control approach. In addition, we develop a type of variable fractional-order discrete-time neural networks as well as we establish a new theorem that can be used to guarantee the finite-time stability of these networks. Finally, with the use of some performed numerical solutions, the discrete-time fractional-order neural networks are investigated to validate the gained findings. © 2023 IEEE.

Karoun, R.C., Ouannas, A., Horani, M.A., Ziar, T., Batiha, I.M., Dibi, Z.

Chaos in The Fractional Variable Order Discrete-Time Neural Networks

(2023) 2023 International Conference on Fractional Differentiation and Its Applications, ICFDA 2023,

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85164538518&doi=10.1109%2FICFDA58234.2023.10153184&partnerID=40&md5=556171520bd307aadbdb0ff545c63cbb
 AFFILIATIONS: The University of Jordan, Department of Mathematics, Amman, Jordan;
 University of Larbi Ben m'Hidi, Department of Mathematics and Computer Science, Oum El Bouaghi,
 Algeria;
 University of Larbi Ben m'Hidi, Department of Material Sciences, Oum El Bouaghi, Algeria;
 Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;
 Ajman University, Nonlinear Dynamics Research Center, Ajman, United Arab Emirates;
 University of Larbi Ben m'Hidi, Laboratoire d'Electronique Avancée, Oum El Bouaghi, Algeria
 ABSTRACT: In this paper, a three dimensional discrete time Hopfield neural network with commensurate
 fractional variable order is presented based on the Caputo like difference operator. The dynamics of
 the proposed system is investigated by means of chaotic attractors, bifurcation diagram and maximum
 Lyapunov exponents, It is shown that the discrete time Hopfield neural network has complex behaviour
 for several fractional variable orders and different system parameter values. Moreover, the
 approximate entropy and the C0 complexity algorithms of the system are performed to prove the
 existence of chaos. Finally, the corresponding simulations are carried out on Matlab to illustrate
 the theoretical results. © 2023 IEEE.

Almuzini, M., Batiha, I.M., Momani, S.

A study of fractional-order monkeypox mathematical model with its stability analysis
 (2023) 2023 International Conference on Fractional Differentiation and Its Applications, ICFDA 2023,

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164537032&doi=10.1109%2FICFDA58234.2023.10153214&partnerID=40&md5=867430308eb5d1b9a7fa6911fd63a5c5)

85164537032&doi=10.1109%2FICFDA58234.2023.10153214&partnerID=40&md5=867430308eb5d1b9a7fa6911fd63a5c5
 AFFILIATIONS: University Sains Malaysia, School of Mathematical Sciences, USM Penang11800, Malaysia;
 Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;
 Ajman University, Nonlinear Dynamics Research Center, Ajman, 346, United Arab Emirates;
 The University of Jordan, Department of Mathematics, Amman, 11942, Jordan

ABSTRACT: In more recent times, many monkeypox disease cases have steadily increased and the range of
 the projected outbreaks in human populations has grown constantly. In the light of these aspects,
 this work proposes a new fractional-order version for one of the Susceptible-Exposed-Infectious-
 Recovered models (or simply SEIR models). This model, which is formulated in the sense of Caputo
 fractional differentiator, is first analyzed in terms of finding some theoretical results related to
 the stability analysis and the basic reproduction number. Then, with the help of using a novel recent
 version of the fractional Euler method, called Fractional Modified Euler Method (FMEM), the proposed
 model is solved numerically. Several numerical simulations are presented afterward for completeness.
 © 2023 IEEE.

Batiha, I.M., Djenina, N., Ouannas, A., Oussaeif, T.-E., Aoua, L.B., Momani, S.

Control of chaos in incommensurate fractional order discrete system
 (2023) 2023 International Conference on Fractional Differentiation and Its Applications, ICFDA 2023,

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164535700&doi=10.1109%2FICFDA58234.2023.10153180&partnerID=40&md5=d8fb2b8c17b76375d7bc576fd55dbd9b)

85164535700&doi=10.1109%2FICFDA58234.2023.10153180&partnerID=40&md5=d8fb2b8c17b76375d7bc576fd55dbd9b
 AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;
 Ajman University, Nonlinear Dynamics Research Center (NDRC), Ajman, United Arab Emirates;
 University of Larbi Ben m'Hidi, Laboratory of Dynamical Systems and Control, Oum El Bouaghi, Algeria;
 University of Oum EL-Bouaghi, Department of Mathematics and Computer Science, Oum El Bouaghi,
 Algeria;
 University of Larbi Ben m'Hidi, Department of Mathematics and Computer Science, Oum El Bouaghi,
 Algeria

ABSTRACT: The mathematical study of the growth of a cancer tumor gives us great progress in knowing
 the behavior of the cancer tumor as well as taking appropriate therapeutic measures. In this article,
 we endeavor to investigate a mathematical model of a cancer tumor and study its stabilization. In
 particular, we first discretize the continuous model connected with the dynamics of cancer tumor to
 get the discrete model. Then we perform several numerical simulations that will show that the
 proposed discrete model can behave chaotically. As a result, we study the unique fixed point
 stability that has a physical meaning, and finally we controlled the proposed system to stabilize
 its dynamics at such a point. © 2023 IEEE.

Ahmed, S.B., Ouannas, A., Horani, M.A., Khennaoui, A.A., Batiha, I.M.

Chaotic Attractors in Quadratic Discrete Tinkerbell System With Non-Commensurate Fractional Variable-
 Orders: Complexity, Chaos and Entropy*

(2023) 2023 International Conference on Fractional Differentiation and Its Applications, ICFDA 2023,

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85164534899&doi=10.1109%2fICFDA58234.2023.10153217&partnerID=40&md5=48972a3aeb3ef1701d218ad5f8f8be18e
AFFILIATIONS: The University of Jordan, Department of Mathematics, Amman, Jordan;
The University of Oum El Bouaghi, Department of Mathematics and Computer Science, Oum El Bouaghi,
Algeria;
The University of Oum El Bouaghi, Department Laboratory of Dynamical Systems and Control, Oum El
Bouaghi, Algeria;
Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;
Ajman University, Nonlinear Dynamics Research Center, Ajman, United Arab Emirates
ABSTRACT: This manuscript analyzes the dynamical properties of the incommensurate variable fractional
discrete Tinkerbell system. Through time evolution of the states, phase portraits, lyapunov exponents
and bifurcation diagrams, it is indicated that the two dimensional incommensurate fractional
variable-order Tinkerbell map with discrete time exhibits chaotic and periodic behaviour. The
approximation entropy is also used to estimate the complexity of the incommensurate variable
fractional-order Tinkerbell system with discrete time. Finally, the 0-1 test plots of the presented
discrete Tinkerbell map with incommensurate variable fractional-order validate the findings from the
largest lyapunov exponents, bifurcation diagrams and approximate entropy. Numerical results are
provided out to simulate the effectiveness of the approach described herein. © 2023 IEEE.

Ajina, A.S., Joudeh, J.M.M., Ali, N.N., Zamil, A.M., Hashem, T.N.

The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical
study

(2023) Cogent Business and Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164457800&doi=10.1080%2f23311975.2023.2229544&partnerID=40&md5=41b86b33a7e68b04596ecbcb20b0b9ba)

85164457800&doi=10.1080%2f23311975.2023.2229544&partnerID=40&md5=41b86b33a7e68b04596ecbcb20b0b9ba

AFFILIATIONS: Marketing Department, College of Business Administration, Prince Sattam Bin Abdulaziz
University, Al-Kharj, Saudi Arabia;

Marketing Department, Faculty of Business, Applied Science Private University, MEU Research Unit,
Amman, Jordan;

Marketing Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Marketing Department, Business Faculty, Isra University, Amman, Jordan

ABSTRACT: Electronic payment options have mostly superseded traditional cash payment methods. The
growth of digital wallets, e-commerce, mobile payments, and other unusual payment methods has moved
the global economy one step closer to a cashless society. Therefore, this study aims to understand
how mobile-wallet service quality dimensions affect customer satisfaction and loyalty, as well as to
explore users' experiences with these wallets. The dimensions of the mobile wallet adopted were
service quality, ease of use, usefulness, cost, and security. A quantitative approach was used, and a
questionnaire was utilized and distributed based on a convenience sample of 557 respondents who were
located in Jordan. The statistical techniques of AMOS and SPSS have been applied. The analysis
results supported all the main hypotheses, arguing that mobile-wallet service quality leads to
customer satisfaction and loyalty. Additionally, mobile wallet service dimensions have an impact on
customer loyalty through customer satisfaction. Furthermore, it found that the perceived ease of use,
perceived usefulness, and perceived security dimensions have no impact on customer satisfaction.
Moreover, perceived ease of use and perceived security dimensions have no impact on customer loyalty.
The study recommended the need for m-wallet providers to support m-wallets and other electronic
services to enhance the possibility of good control over their technological tools to improve service
quality, reduce costs, improve security, develop the relationship between the organization and its
customers, and learn more about their desires and aspirations. © 2023 The Author(s). Published by
Informa UK Limited, trading as Taylor & Francis Group.

Halawah, H.H., Alkhatib, N.S., Almutairi, A.R., Saleh, M., Halloush, S.S., Rashdan, O., Masadh, L.,
Abusara, O.H., Abraham, I.

Cost-efficiency analysis and expanded treatment access modeling of conversion to rituximab
biosimilars from reference rituximab in Jordan

(2023) Journal of Medical Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164230961&doi=10.1080%2f13696998.2023.2226007&partnerID=40&md5=9e08dc52ae862b2aadb67166311b218c)

85164230961&doi=10.1080%2f13696998.2023.2226007&partnerID=40&md5=9e08dc52ae862b2aadb67166311b218c

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Center for Health Outcomes and PharmacoEconomic Research, University of Arizon, Tucson, AZ, United
States;

PI Pharma Intelligence, Amman, Jordan;

Saudi Food and Drug Authority, Riyadh, Saudi Arabia;

School of Pharmacy, University of Jordan, Amman, Jordan;

Applied Science Private University, Amman, Jordan;

School of Pharmacy, Middle East University, Amman, Jordan;

Ministry of Health, Amman, Jordan;

University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;
Matrix45, Tucson, AZ, United States

ABSTRACT: Aim: To assess the cost-efficiency and expanded access of three rituximab biosimilars versus the reference rituximab from the perspective of the Jordanian national health payer. Methods: A 1-year cost-efficiency and expanded access model of conversion from reference rituximab (Mabthera) to the approved biosimilars (Truxima, Rixathon, and Tromax) to assess five metrics: total annual cost to treat a hypothetical patient; head-to-head cost comparison; changes in patients' access to rituximab; number-needed-to-convert (NNC) to provide an additional 10 patients access to a rituximab treatment; and relative amount of Jordanian Dinar (JOD) spent on rituximab options. The model included rituximab doses at 100 mg/10 ml and 500 mg/50 ml and considered both cost-saving and cost-wastage scenarios. Costs of treatments were based on the fiscal year 2022 tender prices received by the Joint Procurement Department (JPD). Results: Rixathon was associated with the lowest average annual cost per patient (JOD2,860) across all six indications among all rituximab comparators, followed by Truxima (JOD4,240), Tromax (JOD4,365) and reference Mabthera (JOD11,431). The highest percentage of patient access to rituximab treatment (321%) was achieved when switching patients from Mabthera to Rixathon in the RA and PV indications. At four patients, Rixathon was associated with the lowest NNC to provide an additional 10 patients access to rituximab treatment. For each JOD1 spent on Rixathon, an additional JOD3.21 must be spent on Mabthera, an additional JOD0.55 on Tromax, and an additional JOD0.53 on Truxima. Conclusion: Rituximab biosimilars were associated with cost savings in all approved indications in Jordan compared to reference rituximab. Rixathon was associated with the lowest annual cost, the highest percentage of expanded patient access for all six indications, and the lowest NNC providing 10 additional patients with access. © 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

AlSaleh, R., Nasir, A., Abu-Alshaikh, I.

Investigating Fractional Damping Effect on Euler-Bernoulli Beam Subjected to a Moving Load (2023) Shock and Vibration, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164224055&doi=10.1155%2f2023%2f9524177&partnerID=40&md5=25f23d3fc6547733d38885c4674ccb82)

[85164224055&doi=10.1155%2f2023%2f9524177&partnerID=40&md5=25f23d3fc6547733d38885c4674ccb82](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85164224055&doi=10.1155%2f2023%2f9524177&partnerID=40&md5=25f23d3fc6547733d38885c4674ccb82)

AFFILIATIONS: German Jordanian University, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan;

The University of Jordan, Amman, Jordan

ABSTRACT: In this work, the dynamic response of Euler-Bernoulli beams of four different boundary conditions with fractional order internal damping under a traversing moving load is investigated. The load is assumed to be moving with different values of constant velocity. A proposed approach to obtain the closed-form solution of the problem based on Green's functions combined with a decomposition technique in the Laplace transform domain is introduced. Several cases are studied and compared to the literature; for instance, if simply supported beam is considered, the following three cases are to be explored: the case of elastic (or undamped) beam, the damped (or viscously damped) beam, and finally the fractionally damped beam modeled by the fractional Kelvin-Voigt model. The effects to the beam dynamic response induced by magnitude of moving load velocity, damping ratio, and fractional damping order are explored. The results expressed sufficient agreement with similar problems found in literature and evidenced that the dynamic response of beams is significantly affected by varying the fractional order of beam damping as well as the moving load velocity. Accordingly, using fractionally damped materials exhibits better realistic behavior of beams and intermediate between elastic and viscous beam behaviors. © 2023 Raed AlSaleh et al.

Jarab, A.S., Al-Qerem, W., Alqudah, S., Abu Heshmeh, S.R., Mukattash, T.L., Beiram, R., Aburuz, S. Glycemic control and its associated factors in hypertensive patients with type 2 diabetes (2023) European Review for Medical and Pharmacological Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163929935&doi=10.26355%2f2023%2f06_32816&partnerID=40&md5=a938f1733d5ecb90b443b335a7122836)

[85163929935&doi=10.26355%2f2023%2f06_32816&partnerID=40&md5=a938f1733d5ecb90b443b335a7122836](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163929935&doi=10.26355%2f2023%2f06_32816&partnerID=40&md5=a938f1733d5ecb90b443b335a7122836)

AFFILIATIONS: College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Jordanian Royal Medical Services, Amman, Jordan;

Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates;

Faculty of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: **OBJECTIVE:** Inadequate glycemic control among patients with type 2 diabetes is growing worldwide. Earlier research studies investigated the predictors of poor glycemic control among patients with diabetes, but not among hypertensive patients who have type 2 diabetes as a comorbid disease. The aim of this study was to explore the factors associated with poor glycemic control in patients with type 2 diabetes and hypertension. **PATIENTS AND METHODS:** In the present retrospective

study, the medical records of two major hospitals were used to collect sociodemographic, biomedical, disease and medication-related information about patients with hypertension and type 2 diabetes. Binary regression analysis was conducted to find the predictors of the study outcome. RESULTS: The data from 522 patients were collected. High physical activity (OR=2.232; 95% CI: 1.368-3.640; $p < 0.01$), receiving insulin (OR=5.094; 95% CI: 3.213-8.076; $p < 0.01$) or GLP1 receptor agonist (OR=2.057; 95% CI: 1.309-3.231; $p < 0.01$) increased the odds of having controlled blood glucose. Increased age (OR=1.041; 95% CI: 1.013-1.070; $p < 0.01$), elevated high-density lipoprotein (HDL) levels (OR=3.727; 95% CI: 1.959-7.092; $p < 0.01$), and lower triglycerides (TGs) levels (OR=0.918; 95% CI: 0.874-0.965; $p < 0.01$) were also associated with improved glycemic control among the study participants. CONCLUSIONS: Most of the current study participants showed uncontrolled type 2 diabetes. Low physical activity, not receiving insulin or GLP1 receptor agonist, younger age, low HDL and high TG levels were independently associated with poor glycemic control. Future interventions should place a strong emphasis on the value of consistent physical activity and a stable lipid profile in enhancing glycemic control, particularly in younger patients and those who are not receiving insulin or GLP1 receptor agonist therapy. © 2023 Verduci Editore s.r.l. All rights reserved.

Jebril, I., Eid, G., Hammad, M.'A., AbuJudeh, D.

Atomic Solution of Euler Equation

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163411386&doi=10.1007%2f978-981-99-0447-1_31&partnerID=40&md5=23b7e93760bef0dc58f0cd2225debb82

AFFILIATIONS: Al-Zaytoonah University of Jordan, Queen Alia Airport St. 594 11942, Amman, Jordan

ABSTRACT: In this paper, we find certain solutions of fractional partial differential questions.

Tensor product of Banach space is used where separation of variables does not work. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Anakira, N., Hioual, A., Ouannas, A., Oussaeif, T.-E., Batiha, I.M.

Global Asymptotic Stability for Discrete-Time SEI Reaction-Diffusion Model

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163411317&doi=10.1007%2f978-981-99-0447-1_30&partnerID=40&md5=0b3d564cf31b81f6dbc298afb4002188

AFFILIATIONS: Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: The global stability of solutions for a discrete-time globally dispersed reaction-diffusion SEI epidemic model with individual immigration is investigated in this work. The global stability is addressed using the Lyapunov functional after giving a discrete form of the reaction-diffusion SEI epidemic model. As in the continuous case, the unique steady-state is proven to be globally stable in the presence of diffusion. To validate the findings of this study, some numerical simulations are provided. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Amr, D., Hammad, M.'A.

Application of Conformable Fractional Nakagami Distribution

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163403005&doi=10.1007%2f978-981-99-0447-1_18&partnerID=40&md5=dcee63d00d8f660b4eb8de09634ad26a

AFFILIATIONS: Al-Zaytoonah University of Jordan, Queen Alia Airport St. 594 11942, Amman, Jordan

ABSTRACT: The paper introduces conformable fractional analogs of some basic concepts related to probability distributions of random variables, namely density, cumulative distribution, survival, and hazard functions. Moreover, it introduces conformable fractional analogs to expected values, r th moments, r th central moments, mean, variance, skewness, and kurtosis. In addition, it introduces conformable fractional analogs to some entropy measures, namely, Shannon, Renyi, and Tsallis entropy. All these concepts had been applied to the conformable fractional Nakagami probability distribution (Abu Hammad et al (2020) J Math Comput Sci 1239-1250; Gaeddert and Annamalai (2005) IEEE 9:22-24). © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Mughaid, A., Alqahtani, A., AlZu'bi, S., Obaidat, I., Alqura'n, R., AlJamal, M., AL-Marayah, R.

Utilizing Machine Learning Algorithms for Effectively Detection IoT DDoS Attacks

(2023) Lecture Notes in Networks and Systems, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163389639&doi=10.1007%2f978-3-031-33743-7_49&partnerID=40&md5=4ac10d6aa06c7ad1a0cde486587cfecf

AFFILIATIONS: Department of Information Technology, Faculty of Prince Al-Hussien Bin Abdullah for IT, The Hashemite University, Zarqa, Jordan;

Department of Networks and Communication Engineering, College of Computer Science and Information Systems, Najran University, Najran, Saudi Arabia;

Computer Science Department, Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: One of the most critical features of the Internet of Things (IoT) is that it allows a massive number of devices to communicate with each other at the same time, for example (cars, smoke alarms, watches, glasses, web cameras, etc.). Given that they can connect to the Internet, the huge demand to convert systems into smart systems that can be controlled remotely increases the chances of cyber-attacks that threaten security and availability becoming more frequent, severe, and in a different form. Distributed Denial of Service (DDoS) attacks have become the most common threats in IoT. These attacks make IoT systems unreliable because complex DDoS attacks cannot be detected by traditional security countermeasures such as firewalls and intrusion detection systems (IDS). In this research, we proposed a model dedicated to work on prediction and detection of DDoS attacks on networks IoT, where we run this model on a NF-BoT-IoT-v2 dataset, which contains 37,763,497 records divided into five categories (Benign, Reconnaissance, DDoS, DoS, and Theft), and then we process our dataset to be more business friendly so it only has two categories (100,000 records broken down into 23,906 benign attacks and 76,094 DDoS attacks). This study used WEKA and MATLAB tools to perform the classification efficiently and find the most important features through feature selection. We used a decision tree (J48) machine learning classifier, a Naive Bayes (NB) classifier, and a random forest (RF) classifier. However, the results were as expected and improved accuracy and efficiency. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Rasem, S., Dabahneh, A., Hammad, M.'A.

Applications of Conformable Fractional Weibull Distribution

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163383402&doi=10.1007%2f978-981-99-0447-1_12&partnerID=40&md5=a6c7353308aefc9e892c8997b1791c65

AFFILIATIONS: Al-Zaytoonah University of Jordan, Queen Alia Airport St. 594, Amman, 11942, Jordan

ABSTRACT: The aim of this research is to generate probability density functions of random variables of the Weibull distribution using fractional differential equations (FDE). And the second aims to find some basic concepts such as cumulative distribution, survival, and hazard functions. Expected values, r th moments, mean, variance, skewness, and kurtosis are all introduced as conformable fractional analogs. It also presents conformable fractional analogs of various entropy measures, such as Shannon, Renyi, and Tsallis entropy measures. Distributions have many applications in probability and other applied sciences. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Albadarneh, R.B., Adawi, A.M., Al-Sa'di, S., Batiha, I.M., Momani, S.

A Pro Rata Definition of the Fractional-Order Derivative

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163358432&doi=10.1007%2f978-981-99-0447-1_6&partnerID=40&md5=25db345dda041bbc9f495c073cc62693

AFFILIATIONS: Department of Mathematics, Faculty of Science, The Hashemite University, P.O Box 330127, Zarqa, 13133, Jordan;

Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: In this paper a novel definition of the fractional-order derivative operator will be introduced. This operator will be called "pro rata" due to its ratio form as well as its geometric behavior that it is proportional to the fractional-order value. Some properties and theorems will be investigated. As an inverse of the fractional-order derivative operator, the integral of fractional order will be introduced. Some illustrative examples will be given. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Alshorm, S.M.

Groups in Which the Commutator Subgroup is Cyclic

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163355396&doi=10.1007%2f978-981-99-0447-1_33&partnerID=40&md5=42d844550fa99318635bc82b58897ba5

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St. 594, Amman, 11733, Jordan

ABSTRACT: So far, our attention was focused on finite groups in which the commutator is in the center and it's called by the class of CC-groups. Since the center of any group is an abelian group, and the fundamental theorem of finitely generated abelian groups asserts that every abelian group is

isomorphic to the direct product of cyclic groups. Then it is reasonable to consider those groups for which the derived subgroup is cyclic. It should be remarked that several authors have investigated particular classes of groups with similar restrictions. For instance, in [1] a bound is obtained for the order of G/G' when G is a p -group, $p \neq 2$, with a cyclic commutator subgroup. In this paper, we prove that every finite group which has a cyclic commutator must be supersolvable. Our result makes it possible to apply all properties of supersolvable groups to the so-called D_c -groups. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Hendawi, S., AlZu'bi, S., Mughaid, A., Alqahtani, N.

Ensuring Cybersecurity While Leveraging Social Media as a Data Source for Internet of Things Applications

(2023) Lecture Notes in Networks and Systems, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163347935&doi=10.1007%2f978-3-031-33743-7_47&partnerID=40&md5=408bace278f4ad84f5e5406d0a97f11b

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Information Technology, The Hashemite University, Amman, Jordan;

Department of Agricultural Systems Engineering, King Faisal University, Al Hofuf, Saudi Arabia

ABSTRACT: Social media and the Internet of Things (IoT) have revolutionized the way we communicate and access information. However, the integration of these technologies also poses significant cybersecurity risks. This paper explores the challenges of using social media data in IoT applications and proposes strategies to ensure the protection of sensitive information. The aim is to strike a balance between leveraging the benefits of social media data and ensuring that adequate measures are taken to secure this information. The authors outline the importance of using secure data-sharing protocols, implementing data privacy policies, and conducting regular security audits to minimize the risk of cyberattacks. In this study, we compared the performance of four popular classifier models: Multinomial Naive Bayes, Bernoulli Naive Bayes, Gaussian Naive Bayes, and Logistic Regression, on a dataset of news articles. Our results showed that the best model for fake news prediction was Logistic Regression, achieving an accuracy of 0.99%. This research provides a promising solution for the automated detection of fake news, which could potentially be used in real-world applications to combat the spread of misinformation. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al Jaraden, J., Sallik, R.A.

The Influence of S -quasinormal Subgroups on the Structure of Finite Groups

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163317904&doi=10.1007%2f978-981-99-0447-1_24&partnerID=40&md5=c09261d68542e756ad5e36df702ec3e5

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Al-Hussein Bin Talal University, Ma'an, Jordan

ABSTRACT: A subgroup H of a group G is called S -quasinormal in G if it permutes with every Sylow subgroup of G . The purpose of this paper is to study the structure of a finite group under the assumption that some subgroups are S -quasinormal in G and Give some examples of groups with these conditions. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Hamadneh, T., Merker, J., Schuldt, G.

Discrete Maximum Principle and Positivity Certificates for the Bernstein Dual Petrov-Galerkin Method

(2023) Springer Proceedings in Mathematics and Statistics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163278527&doi=10.1007%2f978-981-99-0447-1_16&partnerID=40&md5=50bdaaefac3d3c882fd3dcab6f11a4e1

AFFILIATIONS: Al Zaytoonah University of Jordan, Airport Rd., Amman, Jordan;

Leipzig University of Applied Sciences, PF 30 11 66, Leipzig, 04251, Germany

ABSTRACT: In this article, we discuss the validity of the discrete maximum principle for the spectral method called Bernstein-Dual-Petrov-Galerkin method [4] in case of a uniformly elliptic second-order linear partial differential equation (PDE) in divergence form and corresponding Dirichlet boundary values problems on simply connected domains, which have no holes and are therefore diffeomorphic to a cube. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Al-Dahoud, A., Fezari, M., Aldahoud, A.

Machine Learning in Renewable Energy Application: Intelligence System for Solar Panel Cleaning

(2023) WSEAS Transactions on Environment and Development, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163210434&doi=10.37394%2f232015.2023.19.45&partnerID=40&md5=114453e9f3e2b6c88087793780685805>

AFFILIATIONS: Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Electronics and computer architecture at the University of Badji Mokhtar, Annaba, Algeria;

Faculty of Science and IT University of Jordan, Amman, Jordan

ABSTRACT: The objective of this study is to develop an automatic cleaning system for Photovoltaic (PV) solar panels using machine learning algorithms. The experiment includes two phases. Phase one is to perform testing and reading of the sensor in 4 different classes which include no-dust, little dust, dusty, and very dusty during day and night time. The reading was taken using a visual inspection of the solar panel and the sensor reading using a multimeter. Phase two uses supervised learning to test and calibrate the sensor using the KNN algorithm. The classification was done using the data gathered from the sensor with one of the main classes identified. A total of 800 readings were taken. The results show the sensor reading taken during the night was more stable and accurate due to the sensor's sensitivity to noise which includes: heat and light during the daytime. Secondly, using machine learning (KNN algorithm) we get a 95% (with K=5) correct classification for the four main classes which determines the level of cleaning needed for the solar panel. © 2023, World Scientific and Engineering Academy and Society. All rights reserved.

Khan, F., Rawajbeh, M.A., Ramasamy, L.K., Lim, S.

Context-Aware and Click Session-Based Graph Pattern Mining With Recommendations for Smart EMS Through AI

(2023) IEEE Access, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163143646&doi=10.1109/2fACCESS.2023.3285552&partnerID=40&md5=8378821777279fc707c17a5f5b12bee7)

[85163143646&doi=10.1109/2fACCESS.2023.3285552&partnerID=40&md5=8378821777279fc707c17a5f5b12bee7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163143646&doi=10.1109/2fACCESS.2023.3285552&partnerID=40&md5=8378821777279fc707c17a5f5b12bee7)

AFFILIATIONS: Higher Colleges of Technology, Dubai, United Arab Emirates;

Al Zaytoonah University of Jordan, Faculty of Science and Information Technology, Computer Science Department, Amman, 11733, Jordan;

Higher Colleges of Technology, Ras Al Khaimah, United Arab Emirates;

Sungkyul University, Department of Computer Engineering, Anyang, 14097, South Korea

ABSTRACT: In the field of Artificial Intelligence (AI), Smart Enterprise Management Systems (Smart EMS) and big data analytics are the most prominent computing technologies. A key component of the Smart EMS system is E-commerce, especially Session-based Recommender systems (SRS), which are typically utilized to enhance the user experience by providing recommendations analyzing user behavior encoded in browser sessions. Also the work of the recommender is to predict users' next actions (click on an item) using the sequence of actions in the current session. Current developments in session-based recommendation have primarily focused on mining more information accessible within the current session. On the other hand, those approaches ignored sessions with identical context for the current session that includes a wealth of collaborative data. Therefore this paper proposed Context-aware and Click session-based graph pattern mining with recommendations for Smart EMS through AI. It employs a novel Triple Attentive Neural Network (TANN) for SRS. Specifically, TANN contains three main components, i.e., Enhanced Sqrt-Cosine Similarity based Neighborhood Sessions Discovery (NSD), Frequent Subgraph Mining (FSM) using Neighborhood Click session-based graph pattern mining and Top-K possible Next-clicked Items Discovery (TNID). The NSD module uses a session-level attention mechanism to find m most similar sessions of the query session, and the FSM module also extracts the frequent subgraphs from the already discovered m most similar sessions of the query session via item-level attention. Then, TNID module is used to discover the top-K possible next-clicked items using the NSD and FSM module via a target-level attention. Finally, we perform comprehensive experiments on one big dataset, DIGINETICA, to verify the effectiveness of the TANN model, and the results of this experiment clearly illustrate the performance of TANN. © 2013 IEEE.

Al-Dahoud, A., Fezari, M., Alkhatib, A.A., Soltani, M.N., Al-Dahoud, A.

Forest Fire Detection System based on Low-Cost Wireless Sensor Network and Internet of Things

(2023) WSEAS Transactions on Environment and Development, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163094308&doi=10.37394/2f232015.2023.19.49&partnerID=40&md5=e29ef75a48db6a9cf3a7bd9455567984)

[85163094308&doi=10.37394/2f232015.2023.19.49&partnerID=40&md5=e29ef75a48db6a9cf3a7bd9455567984](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163094308&doi=10.37394/2f232015.2023.19.49&partnerID=40&md5=e29ef75a48db6a9cf3a7bd9455567984)

AFFILIATIONS: Department of Computer Science, Al Zaytoonah University of Jordan, Airport St, Amman, Jordan;

Department of Computer Science, Badji Mokhtar Annaba University, Algeria;

Department of Cyber Security, Al Zaytoonah University of Jordan, Airport St, Amman, Jordan;

Faculty of Architecture and Design, Department of Multimedia, Al Zaytoonah University of Jordan, Airport St, Amman, Jordan

ABSTRACT: -Forest fires are one of the most devastating natural disasters that can have a significant impact on the environment, economy, and human lives. Early detection and prompt response are crucial to minimize the damage caused by forest fires. In recent years, Wireless Sensor Networks (WSN) and Internet of Things (IoT) technologies have emerged as promising solutions for forest fire detection due to their low-cost and efficient monitoring capabilities. This paper proposes a low-cost forest fire detection system based on WSN and IoT. The system uses a network of sensor nodes that are strategically placed in the forest to monitor environmental conditions such as temperature, humidity, and smoke. The sensor data is transmitted to a central server, where advanced algorithms are used to detect and predict the occurrence of forest fires. The system provides real-time alerts to forest

authorities and users using a mobile application that shows the fire maps and the current updates. The proposed system has been evaluated using based on experiments, and the results show that it can effectively detect forest fires with high accuracy, low false alarms, and low cost. This system has the potential to provide an efficient and cost-effective solution for forest fire detection and can play a vital role in protecting the environment and saving lives. © 2023, World Scientific and Engineering Academy and Society. All rights reserved.

Khalaf, R.A., Awad, M.

Lycopene as a Potential Bioactive Compound: Chemistry, Extraction, and Anticancer Prospective (2023) Current Cancer Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162805274&doi=10.2174%2f1568009623666230131124236&partnerID=40&md5=e94d0aa8ae689019a878a26108f75116)

[85162805274&doi=10.2174%2f1568009623666230131124236&partnerID=40&md5=e94d0aa8ae689019a878a26108f75116](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162805274&doi=10.2174%2f1568009623666230131124236&partnerID=40&md5=e94d0aa8ae689019a878a26108f75116)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Lycopene, a potential bioactive agent, is a non-pro-vitamin A carotenoid recognized as a potent antioxidant. It is extracted from plants like tomatoes, watermelons, red carrots and papayas and has remarkable health benefits. A significant amount of research has been assisted to date to establish the anticancer activity of lycopene. Our review enhances information about the promising anticancer potential of this compound. The biological activity of lycopene has been described in several studies in regard to pancreatic, breast, prostate, liver, gastric, ovarian, kidney, skin, intestine, brain and spinal cord cancers. Lycopene resists cancer by inhibition of apoptosis, induction of cell proliferation, cell invasion, cell cycle development, metastasis and angiogenesis. The mechanisms of anticancer action of lycopene are attributed to the management of certain signal transduction pathways, such as modulation of insulin-like growth factors system, PI3K/Akt pathway, modification of important gene expression, inhibit the activity of sex steroid hormones, and the conversation of mitochondrial behavior. Hence, this review focuses on current knowledge of sources, extraction techniques, and chemistry of lycopene, as well as the prospective mechanisms of action related with its anticancer activity. Also, it summariz-es the background information about lycopene and the most current research with consideration to its aspect in treating several types of cancer together with future directions. © 2023 Bentham Science Publishers.

Qatawneh, A.M., Makhlof, M.H.

Influence of smart mobile banking services on senior banks' clients intention to use: moderating role of digital accounting

(2023) Global Knowledge, Memory and Communication, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162217304&doi=10.1108%2fGKMC-01-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162217304&doi=10.1108%2fGKMC-01-2023-0018&partnerID=40&md5=5f2343684e5d9f75bfec955e3ef2c1e3)

[0018&partnerID=40&md5=5f2343684e5d9f75bfec955e3ef2c1e3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162217304&doi=10.1108%2fGKMC-01-2023-0018&partnerID=40&md5=5f2343684e5d9f75bfec955e3ef2c1e3)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Isra University, Amman, Jordan

ABSTRACT: Purpose: The current study aims to examine the influence of smart mobile banking services (SMBS) on senior clients' intention to use banking applications through the moderating role of digital accounting. For that sake, features of SMBS were adopted and included (convenience, security, trust and ease of use). Design/methodology/approach: Quantitative approach was used through adopting a questionnaire as a tool of study. The questionnaire was built by researcher through the aid of previous studies; the questionnaire was distributed on a convenient sample of senior bank clients who were above 60 years old as according to UNCEF. After application process, researcher retrieved (306) properly filled questionnaires and SPSS was used to screen and analyze gathered primary data. It is worth mentioning that Cronbach's alpha scored higher than 0.70 which guaranteed the reliability and consistency of study tool. Findings: Results of the study indicated that SMBS influence senior clients' intention to use these applications and this influence is moderated by ramifications of digital accounting. It appeared that features of SMBS were mainly ease of use and trust, which can effect on how senior clients are convinced to use SMBS. Digital accounting appeared in the sense of guaranteeing a high level of stability and accountability to use SMBS through security, easy access, continuous update and valid presentation of application contents. Results of hypothesis testing accepted the main hypothesis which argued that there was a statistically significant influence of SMBS on senior clients' intention to use, with a value of ($R^2 = 0.73$, $p = 0.5$). Based on such results, the study recommended that bank managers should focus on providing reliability and privacy by introducing digital accounting practices in a deeper way to ensure efficiency, reliability and compatibility in the banking services provided. Practical implications: Limitations of current study were presented through the application on senior clients who were above 60 years old according to UNICEF. As for the practical implications of study revealed that understanding the factors that influence senior clients' intention to use SMBS can help banks develop strategies to improve their experience with the banking service. For example, if digital accounting is found to be a significant moderating factor, banks can invest in digital accounting solutions to provide a more user-friendly interface for senior clients. As for theoretical implications, the study can extend the technology

acceptance model by examining the moderating role of digital accounting in the relationship between SMBS and senior clients' intention to use. This can contribute to a better understanding of the factors that influence technology adoption among senior clients. Originality/value: The originality of current study is that it focuses on the use of SMBS, which is a relatively new technology that has gained significant popularity in recent years due to its convenience and accessibility. Also, the study examines senior clients, who are an important demographic for the banking industry, as they represent a large portion of the population that is more likely to face challenges in adopting new technologies. © 2023, Emerald Publishing Limited.

Jebril, I.H., Abdelqader, N.M.

Hyers-Ulam Stability of Quantum Logic Fuzzy Implication

(2023) WSEAS Transactions on Information Science and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162168398&doi=10.37394%2f23209.2023.20.15&partnerID=40&md5=047b24b794f7ed075753c538a3cd5de9)

85162168398&doi=10.37394%2f23209.2023.20.15&partnerID=40&md5=047b24b794f7ed075753c538a3cd5de9

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Queen Alia Airport St. 594, Amman, 11942, Jordan

ABSTRACT: There are four different types of fuzzy implications in fuzzy logic, referred to as (S, N)Implications, R-Implications, QL-Implications, and D-Implications. Only one research work on the implications of two functional equations for the Hyers-Ulam stability for (S, N) has been published recently. The Hyers-Ulam stability of two functional equations for QL-Implication is being examined in this study. © 2023 Authors. All rights reserved.

Jaradat, Z., Al-Ibbini, O.A., Shbail, M.O.A., Jamil, A.A.

Towards sustainability in SMEs post recovery from COVID-19 crisis: the influence of intellectual capital and cost strategy

(2023) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162018853&doi=10.1504%2fIJPQM.2023.130870&partnerID=40&md5=916becb8261e76aca89bd31ab7c9196b)

85162018853&doi=10.1504%2fIJPQM.2023.130870&partnerID=40&md5=916becb8261e76aca89bd31ab7c9196b

AFFILIATIONS: Department of Accounting, School of Business, Al al-Bayt University, P.O. Box 130040, Mafraq, 25113, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: A framework to determine the key factors impacting the economic sustainability post COVID-19 crisis recovery is proposed in this study for SMEs. The study was supported by resource-based-view (RBV) theory. Questionnaires were distributed to the study sample comprising of SME financial managers and heads of accounting departments, in which 190 returned copies were valid for analysis. The impact of human capital, social capital, and relational capital on the economic sustainability in SMEs appeared strong, positive and significant. A significant positive relationship was demonstrated between cost leadership strategy and economic sustainability, and between differentiation strategy and economic sustainability. SMEs could benefit from the study framework as it can guide SMEs in identifying early survival strategies in COVID-19 crisis recovery. For regulators, the framework could assist them in dealing with SMEs post COVID-19. Copyright © 2023 Inderscience Enterprises Ltd.

Abdallah, A., Abran, A., Qasaimeh, M., Ahmad, A., Al-Refai, A.

ANALYSIS OF THE SCALE TYPES AND MEASUREMENT UNITS IN ENTERPRISE ARCHITECTURE (EA) MEASUREMENT

(2023) Interdisciplinary Journal of Information, Knowledge, and Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161995613&doi=10.28945%2f5113&partnerID=40&md5=af8848ee09400cdd76c60e9ba20fffcf)

85161995613&doi=10.28945%2f5113&partnerID=40&md5=af8848ee09400cdd76c60e9ba20fffcf

AFFILIATIONS: King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, Jordan;

Software and IT Engineering Department, École de Technologie Supérieure, University of Québec, Montréal, Canada;

Software Engineering Department, Jordan University of Science and Technology, Irbid, Jordan;

Digital Marketing Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Software Engineering Department, Princess Sumaya University for Technology, Amman, Jordan

ABSTRACT: Aim/Purpose This study identifies the scale types and measurement units used in the measurement of enterprise architecture (EA) and analyzes the admissibility of the mathematical operations used. Background The majority of measurement solutions proposed in the EA literature are based on researchers' opinions and many with limited empirical validation and weak metrological properties. This means that the results generated by these solutions may not be reliable, trustworthy, or comparable, and may even lead to wrong investment decisions. While the literature proposes a number of EA measurement solutions, the designs of the mathematical operations used to measure EA have not yet been independently analyzed. It is imperative that the EA community works towards developing robust, reliable, and widely accepted measurement solutions. Only then can senior management make informed decisions about the allocation of resources for EA initiatives and ensure that their investment yields optimal results. Methodology In previous research, we identified,

through a systematic literature review, the EA measurement solutions proposed in the literature and classified them by EA entity types. In a subsequent study, we evaluated their metrology coverage from both a theoretical and empirical perspective. The metrology coverage was designed using a combination of the evaluation theory, best practices from the software measurement literature including the measurement context model, and representational theory of measurement to evaluate whether EA measurement solutions satisfy the metrology criteria. The research study reported here presents a more in-depth analysis of the mathematical operations within the proposed EA measurement solutions, and for each EA entity type, each mathematical operation used to measure EA was examined in terms of the scale types and measurement units of the inputs, their transformations through mathematical operations, the impact in terms of scale types, and measurement units of the proposed outputs.

Contribution This study adds to the body of knowledge on EA measurement by offering a metrology-based approach to analyze and design better EA measurement solutions that satisfy the validity of scale type transformations in mathematical operations and the use of explicit measurement units to allow measurement consistency for their usage in decision-making models. Findings The findings from this study reveal that some important metrology and quantification issues have been overlooked in the design of EA measurement solutions proposed in the literature: a number of proposed EA mathematical operations produce numbers with unknown units and scale types, often the result of an aggregation of undetermined assumptions rather than explicit quantitative knowledge. The significance of such aggregation is uncertain, leading to numbers that have suffered information loss and lack clear meaning. It is also unclear if it is appropriate to add or multiply these numbers together. Such EA numbers are deemed to have low metrological quality and could potentially lead to incorrect decisions with serious and costly consequences. Recommendations The results of the study provide valuable insights for professionals in the field for Practitioners of EA. Identifying the metrology limitations and weaknesses of existing EA measurement solutions may indicate, for instance, that practitioners should wait before using them until their design has been strengthened. In addition, practitioners can make informed choices and select solutions with a more robust metrology design. This, in turn, will benefit enterprise architects, software engineers, and other EA professionals in decision making, by enabling them to take into consideration factors more adequately such as cost, quality, risk, and value when assessing EA features. The study's findings thus contribute to the development of more reliable and effective EA measurement solutions. Recommendations Researchers can use with greater confidence the EA measurement solutions for Researchers with admissible mathematical operations and measurement units to develop new decision-making models. Other researchers can carry on research to address the weaknesses identified in this study and propose improved ones. Impact on Society Developers, architects, and managers may be making inappropriate decisions based on seriously flawed EA measurement solutions proposed in the literature and providing undue confidence and a waste of resources when based on bad measurement design. Better quantitative tools will ultimately lead to better decision making in the EA domain, as in domains with a long history of rigor in the design of the measurement tools. Such advancements will benefit enterprise architects, software engineers, and other practitioners, by providing them with more meaningful measurements for informed decision making. Future Research While the analysis described in this study has been explicitly applied to evaluating EA measurement solutions, researchers and practitioners in other domains can also examine measurement solutions proposed in their respective domains and design new ones. © 2023 Informing Science Institute. All rights reserved.

Al-Omouh, K.S., Yaseen, S.G.

The determinants of continuance intention to use pandemic contact tracing apps: the case of COVID-19 (2023) International Journal of Intellectual Property Management, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161828310&doi=10.1504%2fIJIPM.2023.130488&partnerID=40&md5=76309bbeb0d864726e601a2dd306cdce>

AFFILIATIONS: Al-Zaytoonah University, Airport Rd., Amman, Jordan

ABSTRACT: This study examines the determinants of pandemic contact tracing apps adoption and explores their impact on the intention to continue use. Data were collected from a sample of 243 users from those who have downloaded and used the 'Aman' app, the Jordanian version of the contact tracing app, to combat the COVID-19. Smart-PLS structural equation modelling software was used to analyse data. The results reveal a significant role of performance expectancy, risk perception and social influence in the intention to continue using contact tracing apps in responding to coronavirus COVID-19. Furthermore, the results did not reveal a significant role of privacy concerns and facilitating conditions in the intention to continue using contact tracing apps. This study adds valuable insights to continued investigation on contact tracing apps adoption and use. The research model offers a practical paradigm that can be employed to develop effective contact tracing apps to combat global epidemic outbreaks. © 2023 Inderscience Enterprises Ltd.

Khader, I.A., Malak, M.Z., Asia, M., Jallad, M., Zahran, H.

Factors correlating with self-care behaviors among patients with coronary artery disease: a cross-sectional study

(2023) Contemporary Nurse, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161553524&doi=10.1080%2f10376178.2023.2220424&partnerID=40&md5=f588a7076e864715c5525e14932088e7)

85161553524&doi=10.1080%2f10376178.2023.2220424&partnerID=40&md5=f588a7076e864715c5525e14932088e7

AFFILIATIONS: Faculty of Nursing, Arab American University of Palestine (AAUP), Jenin, Palestine; Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: In Palestine, there is a lack of studies that examined self-care behaviors among patients with coronary artery disease in outpatient clinics. Objective: This study purposed to evaluate self-care behaviors, examine the relationship between self-care behaviors and selected sociodemographic and psychosocial factors (e.g. depression, anxiety, stress, and social support), and self-efficacy, and determine predictors of self-care behaviors among patients with coronary artery disease in outpatient clinics in the West Bank/Palestine. Design: A cross-sectional study was conducted. Methods: A total of 430 Palestinian adult patients suffering from coronary artery disease attended outpatient clinics were recruited. A self-reported questionnaire consisting of the following tools: Depression, Anxiety, Stress Scale 21, Sullivian's Self-efficacy scale, and Multidimensional Social Support Scale was used to collect data during the period from the beginning of April to the beginning of July 2022. Descriptive and inferential statistics (Pearson's and Point-biserial correlation tests and multiple linear regression) were used for analyzing data. Results: The patients reported low self-care behaviors levels and high self-efficacy levels. The psychosocial reactions endorsed by the patients were 86.3% for depression, 76.3% for anxiety, 43.3% for stress, and 98.6% had moderate and normal social support. A positive correlation was found between self-care behaviors and age ($r = 0.160$, $p < 0.01$), duration of disease ($r = 0.095$, $p < 0.05$), self-efficacy ($r = 0.443$, $p < 0.01$), and social support ($r = 0.266$, $p < 0.01$). Self-efficacy ($B = 0.401$, $p < 0.01$), social support ($B = 0.160$, $p < 0.01$), and age ($B = 0.109$, $p < 0.05$) were significant predictors of self-care behaviors in those patients. Conclusion: Low self-care behaviors were a significant issue among patients with coronary artery disease in outpatient clinics. This study may help healthcare professionals develop health promotion programs for patients with coronary artery disease to improve self-care behaviors. © 2023 Informa UK Limited, trading as Taylor & Francis Group.

Qasim, D., Shuhaiber, A., Bany Mohammed, A., Valeri, M.

E-entrepreneurial attitudes and behaviours in the United Arab Emirates: an empirical investigation in the digital transformation era

(2023) European Journal of Innovation Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161429086&doi=10.1108%2fEJIM-09-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161429086&doi=10.1108%2fEJIM-09-2022-0461&partnerID=40&md5=414850c4390e87a402eb253f63c42cda)

0461&partnerID=40&md5=414850c4390e87a402eb253f63c42cda

AFFILIATIONS: College of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Zayed University, Dubai, United Arab Emirates;

The University of Jordan, Amman, Jordan;

Faculty of Economics, Niccolò Cusano University, Rome, Italy

ABSTRACT: Purpose: This paper aims to understand in-depth the electronic entrepreneurial intentions (EEI) towards launching online start-ups in United Arab Emirates (UAE) by exploring the effect of perceived entrepreneurial culture and risk propensity on EEI amongst the youth in the country, additionally, exploring the differences (if existed) amongst intentions based on gender categories. Design/methodology/approach: This study developed a theoretical framework based on the theory of planned behaviour (TPB) to examine perceived entrepreneurial culture, risk propensity and the moderating role of gender. The researchers followed the partial least squares in structural equation modelling (PLS-SEM) method. The collected responses of 250 online surveys were analysed using the SmartPLS 3.3 software. Findings: The results showed a significant positive influence of risk propensity and perceived entrepreneurial culture on EEI in the UAE. Interestingly, despite that many prior studies showing a significant impact of gender e-EI, the analysis showed no differences between male and female responses regarding EEI. More results are demonstrated in the study. Originality/value: To the best of the authors' knowledge, this study is considered the first in the UAE which investigates empirically the factors that influence youth intentions to launch online start-ups and entrepreneurial ventures in the country. In addition, the results of this study contribute to the relevant literature by adding rich insights into the moderating role of gender in the relationship between perceived entrepreneurial culture and the three constructs of TPB, namely attitude, subjective norm and perceived behavioural control, in order to start an e-entrepreneurial business. Furthermore, this study genuinely addresses the role of risk propensity in impacting the youth intentions in e-entrepreneurial ventures mediated by perceived behavioural control. Therefore, this research study provides original and rich insights into youth attitudes towards and behaviours of launching online start-ups and significantly contributes to the body of the e-entrepreneurship literature. © 2023, Emerald Publishing Limited.

Alzoubi, M.M., Al-Mahasneh, A., Al-Mugheed, K., Barmawi, M.A., Alsenany, S.A., Abdelaliem, S.M.F. Medication Administration Error Perceptions Among Critical Care Nurses: A Cross-Sectional, Descriptive Study

(2023) Journal of Multidisciplinary Healthcare, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161259017&doi=10.2147%2fJMDH.S411840&partnerID=40&md5=92bec3244aea936782a61f0bc73b5cb8)

85161259017&doi=10.2147%2fJMDH.S411840&partnerID=40&md5=92bec3244aea936782a61f0bc73b5cb8

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Nursing, Riyadh Elm University, Riyadh, Saudi Arabia;

Department of Community Health Nursing, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia;

Department of Nursing Management and Education, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia

ABSTRACT: Purpose: This study aimed to investigate the medication administration error perceptions among Jordanian critical care nurses. Methods: A cross-sectional, descriptive design was used among Jordanian critical care nurses. The total number of completed questionnaires submitted for analysis was 340. Data were collected between July and August 2022 in two health sectors (governmental hospitals and educational hospital) in the middle and north region in Jordan through a self-administered questionnaire on medication administration errors which includes 65 items with three parts. Results: Nurses showed negative perceptions toward medication administration errors. The majority of participants agreed that "The packaging of many medications is similar" (76.7%), followed by "different medications look alike" (76.2%), as the main reasons for medication error occurrence. Two thirds of participants agreed that "when med errors occur, nursing administration focuses on the individual rather than looking at the systems as a potential cause of the error" (74.1%). Similarly, 73.5% of them believed nurses were blamed if something happens to the patient as a result of the medication error was the main reason for underreporting of MAEs. The highest reported levels of medication errors were in a range between 41% and 70%, for both types intravenous (IV) medication errors and non-intravenous (non-IV) medication errors. Conclusion: Implement interventions centered on MAEs in particular among critical care nurses, owing to the proven significance of it in foretelling their crucial role in delivering safe care to patients, which will lead to quantifiable returns on both patient outcomes and nurse health, as well as the overall efficiency and image of the organization. © 2023 Alzoubi et al.

Batiha, I.M., Alamarat, N., Alshorm, S., Ababneh, O.Y., Momani, S.

SEMI-ANALYTICAL SOLUTION TO A COUPLED LINEAR INCOMMENSURATE SYSTEM OF FRACTIONAL DIFFERENTIAL EQUATIONS

(2023) Nonlinear Functional Analysis and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85161205815&doi=10.22771%2fnfaa.2023.28.02.09&partnerID=40&md5=9e350536e9293dd0a1b3277b11cacb6e)

85161205815&doi=10.22771%2fnfaa.2023.28.02.09&partnerID=40&md5=9e350536e9293dd0a1b3277b11cacb6e

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Department of Mathematics, Zarqa University, Zarqa, Jordan;

Department of Mathematics, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: In this paper, we study a linear system of homogeneous commensurate /incommensurate fractional-order differential equations by developing a new semi-analytical scheme. In particular, by decoupling the system into two fractional-order differential equations, so that the first equation of order $(\delta + \gamma)$, while the second equation depends on the solution for the first equation, we have solved the under consideration system, where $0 < \delta, \gamma \leq 1$. With the help of using the Adomian decomposition method (ADM), we obtain the general solution. The efficiency of this method is verified by solving several numerical examples. © 2023 Kyungnam University Press

Alshanti, W.G., Batiha, I.M., Alshanty, A.

Atomic Solutions of Partial Differential Equations via Tensor Product Theory of Banach Spaces

(2023) Contemporary Mathematics (Singapore), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160823584&doi=10.37256%2fcm.4220232527&partnerID=40&md5=a8f16ac08c4692be7e0d920443878792)

85160823584&doi=10.37256%2fcm.4220232527&partnerID=40&md5=a8f16ac08c4692be7e0d920443878792

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center, Ajman University, Ajman, United Arab Emirates;

Cyber Security Department, Isra University, Amman, Jordan

ABSTRACT: This work purposes to establish a novel analytical method to obtain the atomic solutions of partial differential equations. This will be carried out by employing the tensor product theory in Banach spaces coupled with some properties of atoms operators. Some illustrative examples will be provided to validate our findings. © 2023 Iqbal M. Batiha, et al.

Al-Naimi, A.A., Al Abed, S., Farooq, U., Qasaimeh, G., Alnaimat, M.A.

Impact of Open Banking Strategy and Fintech on Digital Transformation

(2023) 2nd International Conference on Business Analytics for Technology and Security, ICBATS 2023, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160792043&doi=10.1109%2fICBATS57792.2023.10111137&partnerID=40&md5=d53b8530432bd6b5232bc9e23de6c1bc>

AFFILIATIONS: Applied Science Private University, Faculty of Business, Department of Finance and Banking Sciences, Jordan;

Alahliyya Amman University, Business School, Jordan;

Xi'An Jiaotong University, School of Economics and Finance, Xi'an, 710049, China;

Al-Qadisiyah College, Amman, Jordan;

Alzaytoonah University of Jordan, Faculty of Business, Department of Banking and Financial Sciences, Amman, Jordan

ABSTRACT: Digitalization in a number of financial sectors has forced the financial system to adapt to new standards of technological change. The current regulatory structure also made the financial system reevaluate its business strategies and its interactions with the market. These factors led to the creation of a new type of ecosystem-wide competition in the banking industry that had never been witnessed before. There is a lack of a comprehensive framework for the new ecosystem of banks and financial institutions, which would clarify strategic decisions and organizational structures within the new ecosystems as well as highlight the development lines of open innovation in the banking industry. The objective of this research was to evaluate the open banking strategy and fintech impacts on digital transformation. Empirical evidences collected from banking sector located in Dubai UAE. 102 bank branches were approached to collect data using a descriptive research. A valid sample of 201 employees used for data analysis. SmartPLS 4 software used to measure the hypothesized model. Significant relationships between the variables were found in the results. Additionally, this research is regarded as a fantastic resource for financial knowledge for experts, bankers, professionals, and academics interested in this sector. © 2023 IEEE.

Jebreel, M., Dweiri, M., Zureikat, K., Abuhaq, E.K., Nassoura, A., Alqasass, M.

Factors Affecting the Adoption of Amazon Web Services in Government Institutions in Jordan

(2023) 2nd International Conference on Business Analytics for Technology and Security, ICBATS 2023, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160782998&doi=10.1109%2fICBATS57792.2023.10111180&partnerID=40&md5=ad486fffe3d01fd018be1cbd5d455072>

AFFILIATIONS: Applied Science Private University, Accounting Department, Amman, Jordan;

Alzaytoonah University of Jordan, Management Department, Amman, Jordan;

Isra University, Management Department, Amman, Jordan;

Ministry of Fainance, Internal Audit Department, Amman, Jordan;

Aldar University College, Accounting Department, Dubai, United Arab Emirates

ABSTRACT: In an economic recession, cloud computer infrastructure will play an important role in public organizations and the private sector, as it reduces, in addition to providing many other advantages, the expense of accessing information technology (IT) software. In public sector organizations, cloud computing is currently not widely used, particularly for Jordan for several reasons and factors. The objective of this analysis is to recognize and understand these variables that could influence the adoption of cloud computing in the Jordan government industry, to understand the theoretical context of this issue through the proposal of a conceptual model, and to assist and direct Jordanian government organizations in implementing cloud computing in practice. This study employed a hybrid methodology approach consisting of two steps of data collection and analysis. The first phase of the online survey was based on the literature survey and technically performed. Descriptive and one direction frequency statistics, inferential analysis and regression analysis have been used for the quantitative analyses of the results. 19 theories have been tested. The quantitative data were analyzed to detect factors which can influence the adoption and the importance of cloud computing. To engage in this study four Jordanian organizations have been selected. Thematic interpretation of the results was used to analyses them. The considerations studied were divided into three major categories: the organizational and technical background, environmental and external constraint and the advantages perceived. In addition to this, the study found a theoretical model that does not address the influences and challenges of the adoption of cloud data and proposes a new concept model to improve understanding of these facets by conducting a comprehensive literature survey which would lead to the identification of possible factors that could influence the introduction of cloud computing. © 2023 IEEE.

Najed, A., Al-Malahmeh, H., Al-Amawi, A., Almashaqbeh, M., Alsaaidh, M., Ayman Abdalmajeed, A.

Impact of Cryptocurrency Regulations and Fintech on the Growth of Innovations

(2023) 2nd International Conference on Business Analytics for Technology and Security, ICBATS 2023, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160744028&doi=10.1109%2fICBATS57792.2023.10111475&partnerID=40&md5=785bb99a7c63f95368b6022f40580d7b>

AFFILIATIONS: Isra University, Banking and Financial Management, Amman, Jordan;

Isra University, Management Information Systems, Amman, Jordan;

Alzaytoonah University of Jordan, Banking and Financial Sciences, Amman, Jordan

ABSTRACT: The Fintech industry has grown in importance globally for staying current with advancements and advances in the financial industry. The need of technology in financial institution captured higher attention that signifies Fintech uses specialized software and algorithms. This research is aimed to empirically investigate the impact of cryptocurrency regulations and fintech on growth of innovation in banking sector Dubai UAE. A total of 209 valid respondents collected from managerial departments in the banks using convenient sampling technique. Screened data considered for testing and analysis using SmartPLS 4. A PLS-SEM test run for model evaluation, hypothesis testing, and construct correlation. The findings support the significant association between fintech and innovation growth as well as cryptocurrency regulation is positively associated with innovation growth. The financial sector can benefit from this research's findings, and the researchers' goal is to learn more about financial technology. © 2023 IEEE.

Altarawneh, M., Al-Momani, T., Al-Dlalah, M., Kaddumi, T.

The Impact of Implementing Mind Mapping Technology on Raising the Achievement of Curriculum Processing Unit in Teaching Methodologies & Styles Course

(2023) 2nd International Conference on Business Analytics for Technology and Security, ICBATS 2023, .
[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160702582&doi=10.1109%2fICBATS57792.2023.10111107&partnerID=40&md5=cfa94294be23784953944cad4cacbc78)

[85160702582&doi=10.1109%2fICBATS57792.2023.10111107&partnerID=40&md5=cfa94294be23784953944cad4cacbc78](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160702582&doi=10.1109%2fICBATS57792.2023.10111107&partnerID=40&md5=cfa94294be23784953944cad4cacbc78)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

Isra University, Amman, Jordan;

Jordan MEU Research Unit, Applied Science Private University, Middle East Univesity, Jordan

ABSTRACT: This article aims to pinpoint the impact of implementing the mind mapping technology as one of the active learning models on raising the achievement of the curriculum processing unit in the Teaching Methodologies & Styles Course on classroom teacher department taught to students in the first semester at the faculty of Arts at the Al-Zaytoonah University of Jordan. To achieve the study objectives, the semi-experimental approach is used. The study sample consists of two groups selected by the purposeful method, where the experimental group taught using mind mapping, while the control group taught using the traditional method. The internal validity of the participants of the two groups is determined, and a pre-test is conducted to ensure that the two groups are equal in the study achievement. After implementing the study and ensuring the validity and reliability of the study instrument, the achievement test is conducted at the end of the first semester of the academic year 2021/2022. The findings indicate that there is a statistically significant difference at the level of statistical significance ($\alpha = 0.05$) between the means of the scores of the students of the experimental and control groups in the post-application in the achievement test in favor of the experimental group. The findings also demonstrate a statistically significant difference at the level of statistical significance ($\alpha = 0.05$) between the means of the scores of the experimental group students in the pre and post-application in the achievement test in favor of the post-application. In light of these results, the study recommends using mind mapping in university teaching. © 2023 IEEE.

Al-Ghalith, A., Al-Hadidi, A.

Family Disintegration in Long Day's Journey into Night

(2023) International Journal of Literary Humanities, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160605885&doi=10.18848%2f2327-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160605885&doi=10.18848%2f2327-7912%2fCGP%2fv21i01%2f77-87&partnerID=40&md5=276ee209adfbdd6083a4cf302bd987a1)

[7912%2fCGP%2fv21i01%2f77-87&partnerID=40&md5=276ee209adfbdd6083a4cf302bd987a1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160605885&doi=10.18848%2f2327-7912%2fCGP%2fv21i01%2f77-87&partnerID=40&md5=276ee209adfbdd6083a4cf302bd987a1)

AFFILIATIONS: English Department, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Family relationships are some of the most prominent motifs in drama because the family unit is a microcosm of society and is among its essential pillars. Several American dramatists use real-life events of American families in their works. They intend their plays to be a useful corrective force to afford people a closer look into themselves and consequently elicit positive change. The study is an analytical historical investigation of the theme of family disintegration in Eugene O'Neill's "Long Day's Journey into Night." It approaches the American family motif from different perspectives. Specifically, it deals with how the Tyrone family is represented, the reasons behind its disintegration, the role of parents in its breakup, the effect of the external surrounding conditions on the family, and the influence of the playwright's personal life and background on his play. © 2023 Common Ground Research Networks, Asad Al-Ghalith, Alaa Al-Hadidi,

Morra, S., Fawaz, M., Rayan, A., Malak, M.Z., Abdalrahim, A., Al-Amer, R., Al Omari, O., Aayed, A., Al-Dwaikat, T., Ayasreh, I., Al-Osoufe, L., Mohammad, K.I., Alhroub, N., Al Dameery, K., AlBashtawy, M., Alkhaldeh, A.

Psychological Reactions of Lebanese Nurses to Workplace Violence in Critical Care Units

(2023) SAGE Open Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160412675&doi=10.1177%2f23779608231177800&partnerID=40&md5=07486885a4ce56038aa7961c5a84824d)

[85160412675&doi=10.1177%2f23779608231177800&partnerID=40&md5=07486885a4ce56038aa7961c5a84824d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160412675&doi=10.1177%2f23779608231177800&partnerID=40&md5=07486885a4ce56038aa7961c5a84824d)

AFFILIATIONS: Beirut Arab University, Beirut, Lebanon;

Faculty of Health Sciences, Beirut Arab University, Beirut, Lebanon;

Faculty of Nursing, Zarqa University, Zarqa, Jordan;
 Community Health Nursing, Faculty of Nursing, Al- Zaytoonah University of Jordan, Amman, Jordan;
 Department of Community and Mental Health, Princess Salma Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan;
 Faculty of Nursing, Isra University, Amman, Jordan;
 Faculty of Nursing, Sultan Qaboos University, Muscat, Oman;
 Faculty of Nursing, Arab American University, Jenin, Palestine;
 Community and Mental Health Nursing Department, Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan;
 Department of Adult Nursing, Faculty of Nursing, Jerash University, Jerash, Jordan;
 Department of Pediatric Nursing, Faculty of Nursing, Jerash University, Jerash, Jordan;
 Department of Midwifery, Faculty of Nursing, Jordan University of Science & Technology, Irbid, Jordan;
 Faculty of Nursing, Jerash University, Jerash, Jordan;
 College of Nursing, Sultan Qaboos University, Muscat, Oman

ABSTRACT: Introduction: Workplace violence (WPV) is a growing concern that constitutes a major threat to occupational health and safety, thereby comprising a priority issue for policymakers. Given the increasing prevalence of chronic diseases and comorbidities among the Lebanese population, nurses working in critical care settings encounter intense workloads and high-risk interactions, potentially increasing the risk of WPV. Objectives: This study aimed to investigate the traumatic and psychological reactions of Lebanese critical nurses who have been exposed to WPV, and the risk factors for depression and anxiety. Methods: The study utilized a cross-sectional descriptive correlational design; 112 critical care nurses from diverse departments took part in this study during the period of June to July 2021. Results: A positive, significant correlation between WPV exposure and self-reported anxiety was observed, $p = .03$ with high levels of WPV, especially among patients and their families. Although verbal abuse was found to be more prevalent among critical care nurses in Lebanon compared to physical and sexual violence, the severity of the situation and its impact on the nurses' mental health and well-being cannot be ignored. Conclusions: WPV for critical care nurses is a serious issue that needs to be considered. Policy-makers should develop the politics of regulating the nursing profession, especially for critical care nurses in Lebanon. © The Author(s) 2023.

Jarab, A.S., Al-Qerem, W.A., Hamam, H.W., Alzoubi, K.H., Heshmeh, S.R.A., Mukattash, T.L., Alefishat, E.

Medication Adherence and Its Associated Factors Among Outpatients with Heart Failure (2023) Patient Preference and Adherence, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85160277442&doi=10.2147%2fPPA.S410371&partnerID=40&md5=3d66318f0c2cc68fd5fc1ee8f3ea6a23

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacology, College of Medicine and Health Science, Khalifa University of Science and Technology, Abu Dhabi, 127788, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Center for Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, 127788, United Arab Emirates

ABSTRACT: Background: Poor adherence to heart failure (HF) medications represents a major barrier to achieve the desired health outcomes in those patients. Objective: To assess medication adherence and to explore the factors associated with medication non-adherence among patient with HF in Jordan. Methods: The current cross-sectional study was conducted at the outpatient cardiology clinics at two main hospitals in Jordan from August 2021 through April 2022. Variables including socio-demographics, biomedical variables, in addition to disease and medication characteristics were collected using medical records and custom-designed questionnaire. Medication adherence was assessed using the 4-item Morisky Medication Adherence Scale. Multinomial logistic regression analysis was performed to identify the factors that are significantly and independently associated with medication non-adherence. Results: Of the 427 participating patients, 92.5% had low to moderate medication adherence. Results of the regression analysis revealed that that patients who had higher education level (OR=3.36; 95% CI 1.08–10.43; $P=0.04$) and were not suffering from medication-related side effects (OR=4.7; 95% CI 1.91–11.5; $P=0.001$) had significantly higher odds of being in the moderate adherence group. Patients who were taking statins (OR=16.59; 95% CI 1.79–153.98; $P=0.01$) or ACEIs/ ARBs (OR=3.95; 95% CI 1.01–15.41; $P=0.04$) had significantly higher odds of being in the high

adherence group. Furthermore, Patients who were not taking anticoagulants had higher odds of being in the moderate (OR=2.77; 95% CI 1.2-6.46; P=0.02) and high (OR=4.11; 95% CI 1.27- 13.36; P=0.02) adherence groups when compared to patients who were taking anticoagulants. Conclusion: The poor medication adherence in the present study sheds the light on the importance of implementing intervention programs which focus on improving patients' perception about the prescribed medications particularly for patients who have low educational levels, receive an anticoagulant, and do not receive a statin or an ACEI/ ARB. © 2023 Jarab et al.

Alsmadi, A.A., Shuhaiber, A., Al-Okaily, M., Al-Gasaymeh, A., Alrawashdeh, N.
Big data analytics and innovation in e-commerce: current insights and future directions

(2023) Journal of Financial Services Marketing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160264522&doi=10.1057%2fs41264-023-00235-7&partnerID=40&md5=6ae8e021838278b7c99a66afc4f83477>

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Zayed University, Dubai, United Arab Emirates;

School of Business, Jadara University, Irbid, Jordan;

Applied Science University, Amman, Jordan;

Isra University, Amman, Jordan

ABSTRACT: Big data analytics (BDA), as a new innovation tool, played an important role in helping businesses to survive and thrive during great crises and mega disruptions like COVID-19 by transitioning to and scaling e-commerce. Accordingly, the main purpose of the current research was to have a meaningful comprehensive overview of BDA and innovation in e-commerce research published in journals indexed by the Scopus database. In order to describe, explore, and analyze the evolution of publication (co-citation, co-authorship, bibliographical coupling, etc.), the bibliometric method has been utilized to analyze 541 documents from the international Scopus database by using different programs such as VOSviewer and Rstudio. The results of this paper show that many researchers in the e-commerce area focused on and applied data analytical solutions to fight the COVID-19 disease and establish preventive actions against it in various innovative manners. In addition, BDA and innovation in e-commerce is an interdisciplinary research field that could be explored from different perspectives and approaches, such as technology, business, commerce, finance, sociology, and economics. Moreover, the research findings are considered an invitation to those data analysts and innovators to contribute more to the body of the literature through high-impact industry-oriented research which can improve the adoption process of big data analytics and innovation in organizations. Finally, this study proposes future research agenda and guidelines suggested to be explored further. © 2023, The Author(s), under exclusive licence to Springer Nature Limited.

Talhouni, S., Fadhil, W., Mongan, N.P., Field, L., Hunter, K., Makhsous, S., Maciel-Guerra, A., Kaur, N., Nestarenkaite, A., Laurinavicius, A., Willcox, B.E., Dottorini, T., Spendlove, I., Jackson, A.M., Ilyas, M., Ramage, J.M.

Activated tissue resident memory T-cells (CD8+CD103+CD39+) uniquely predict survival in left sided "immune-hot" colorectal cancers

(2023) Frontiers in Immunology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160032408&doi=10.3389%2ffimmu.2023.1057292&partnerID=40&md5=004b52a51390bb020694578f4ba5ccfc)

[85160032408&doi=10.3389%2ffimmu.2023.1057292&partnerID=40&md5=004b52a51390bb020694578f4ba5ccfc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160032408&doi=10.3389%2ffimmu.2023.1057292&partnerID=40&md5=004b52a51390bb020694578f4ba5ccfc)

AFFILIATIONS: Cancer Immunology Group, School of Medicine, University of Nottingham Biodiscovery

Institute, Nottingham, United Kingdom;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Academic Unit of Translational Medical Sciences, School of Medicine, Queens Medical Centre,

University of Nottingham, Nottingham, United Kingdom;

School of Veterinary Medicine and Sciences, University of Nottingham Biodiscovery Institute, Nottingham, United Kingdom;

Department of Pharmacology, Weill Cornell Medicine, New York, NY, United States;

Birmingham Tissue Analytics, College of Medical and Dental Sciences, University of Birmingham,

Birmingham, United Kingdom;

School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington, United

Kingdom;

Faculty of Medicine, Institute of Biomedical Sciences, Vilnius University, Vilnius, Lithuania;

Institute of Immunology and Immunotherapy, University of Birmingham, Birmingham, United Kingdom;

Host-Tumour Interactions Group, School of Medicine, University of Nottingham Biodiscovery Institute, Nottingham, United Kingdom

ABSTRACT: Introduction: Characterization of the tumour immune infiltrate (notably CD8+ T-cells) has strong predictive survival value for cancer patients. Quantification of CD8 T-cells alone cannot determine antigenic experience, as not all infiltrating T-cells recognize tumour antigens. Activated tumour-specific tissue resident memory CD8 T-cells (TRM) can be defined by the co-express of CD103, CD39 and CD8. We investigated the hypothesis that the abundance and localization of TRM provides a

higher-resolution route to patient stratification. Methods: A comprehensive series of 1000 colorectal cancer (CRC) were arrayed on a tissue microarray, with representative cores from three tumour locations and the adjacent normal mucosa. Using multiplex immunohistochemistry we quantified and determined the localization of TRM. Results: Across all patients, activated TRM were an independent predictor of survival, and superior to CD8 alone. Patients with the best survival had immune-hot tumours heavily infiltrated throughout with activated TRM. Interestingly, differences between right- and left-sided tumours were apparent. In left-sided CRC, only the presence of activated TRM (and not CD8 alone) was prognostically significant. Patients with low numbers of activated TRM cells had a poor prognosis even with high CD8 T-cell infiltration. In contrast, in right-sided CRC, high CD8 T-cell infiltration with low numbers of activated TRM was a good prognosis. Conclusion: The presence of high intra-tumoural CD8 T-cells alone is not a predictor of survival in left-sided CRC and potentially risks under treatment of patients. Measuring both high tumour-associated TRM and total CD8 T-cells in left-sided disease has the potential to minimize current under-treatment of patients. The challenge will be to design immunotherapies, for left-sided CRC patients with high CD8 T-cells and low activate TRM, that result in effective immune responses and thereby improve patient survival. Copyright © 2023 Talhouni, Fadhil, Mongan, Field, Hunter, Makhsous, Maciel-Guerra, Kaur, Nestarenkaite, Laurinavicius, Willcox, Dottorini, Spendlove, Jackson, Ilyas and Ramage.

Jarab, A.S., Al-Qerem, W., Hamam, H., Abu Heshmeh, S., Mukattash, T.L., Alefishat, E.A.

Factors associated with lipid control in outpatients with heart failure

(2023) *Frontiers in Cardiovascular Medicine*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85159875526&doi=10.3389%2ffcvm.2023.1153310&partnerID=40&md5=a121016f43052e487aaa80be1c4aa8ba

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, College of Medicine and Health Science, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, Jordan;

Center for Biotechnology, Khalifa University, Abu Dhabi, United Arab Emirates

ABSTRACT: Background: Dyslipidemia is common among patients with heart failure, and it negatively impacts clinical outcomes. Limited data regarding the factors associated with poor lipid control in patients with HF patients. Therefore, this study aimed to evaluate lipid control and to explore the factors associated with poor lipid control in patients with HF. Methods: The current cross-sectional study was conducted at outpatient cardiology clinics at two major hospitals in Jordan. Variables including socio-demographics, biomedical variables, in addition to disease and medication characteristics were collected using medical records and custom-designed questionnaire. Medication adherence was assessed using the validated 4-item Medication Adherence Scale. Binary logistic regression analysis was conducted to explore significant and independent predictors of poor lipid control among the study participants. Results: A total of 428 HF patients participated in the study. Results showed that 78% of the participants had poor lipid control. The predictors that were associated with poor lipid control included uncontrolled BP (OR = 0.552; 95% CI: 0.330-0.923; P < 0.05), higher Hb levels (OR = 1.178; 95% CI: 1.013-1.369; P < 0.05), and higher WBC (OR = 1.133; 95% CI: 1.031-1.246; P < 0.05). Conclusions: This study revealed poor lipid control among patients with HF. Future intervention programs should focus on blood pressure control in order to improve health outcomes among HF patients with dyslipidemia. 2023 Jarab, Al-Qerem, Hamam, Abu Heshmeh, Mukattash and Alefishat.

Al-Mugheed, K., Farghaly, S.M., Baghdadi, N.A., Oweidat, I., Alzoubi, M.M.

Incidence, knowledge, attitude and practice toward needle stick injury among nursing students in Saudi Arabia

(2023) *Frontiers in Public Health*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85159763286&doi=10.3389%2ffpubh.2023.1160680&partnerID=40&md5=a610517eb3240ca5afc66bec8f589e4

AFFILIATIONS: Adult Health Nursing and Critical Care, Riyadh Elm University, Riyadh, Saudi Arabia;

Department of Nursing Management and Education, Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia;

Department of Nursing Management, Zarqa University, Zarqa, Jordan;

Community Health Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Needle stick injuries constitute the greatest threat to nursing students during clinical practice because of accidental exposure to body fluids and infected blood. The purpose of this study was to (1) determine the prevalence of needle stick injuries and (2) measure the level of knowledge, attitude and practice among nursing students about needle stick injuries. Methods: Three

hundred participants undergraduate nursing students at a private college in Saudi Arabia were included, of whom 281 participated, for an effective response rate of 82%. Results: The participants showed good knowledge scores with a mean score of 6.4 (SD = 1.4), and results showed that students had positive attitudes (Mean = 27.1, SD = 4.12). Students reported a low level of needle stick practice (Mean = 14.1, SD = 2.0). The total prevalence of needle stick injuries in the sample was 14.1%. The majority, 65.1%, reported one incidence in the last year, while (24.4%) 15 students reported two incident of needle stick injuries. Recapping was the most prevalent (74.1%), followed by during injection (22.3%). Most students did not write a report (77.4%), and being worried and afraid were the main reasons for non-reports (91.2%). The results showed that female students and seniors scored higher level in all needle stick injuries domains (knowledge, attitude and practice) than male students and juniors. Students who had needle stick injuries more than three times last year reported a lower level of all needle stick injury domains than other groups (Mean = 1.5, SD =1.1; Mean = 19.5, SD =1.1; Mean = 9.5, SD =1.1, respectively). Conclusion: Although the student's showed good knowledge and positive attitudes in NSI, the students reported a low level of needle stick practice. Raising awareness among nursing students and conducting continuing education related to sharp devices and safety and how to write an incident reporting is highly recommended. Copyright © 2023 Al-Mugheed, Farghaly, Baghdadi, Oweidat and Alzoubi.

Al-Hawatmah, Z., Shaban, O.S.

THE EFFECT OF FINANCIAL LEVERAGE ON COMPANY'S CAPITAL STRUCTURE: EVIDENCE FROM DEVELOPING MARKET (2023) Corporate and Business Strategy Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159181139&doi=10.22495%2fcbstrv4i2art15&partnerID=40&md5=f38f70cffb263e800f14437d6533fda2)

[85159181139&doi=10.22495%2fcbstrv4i2art15&partnerID=40&md5=f38f70cffb263e800f14437d6533fda2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159181139&doi=10.22495%2fcbstrv4i2art15&partnerID=40&md5=f38f70cffb263e800f14437d6533fda2)

AFFILIATIONS: Faculty of Business, Accounting Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Accounting Department, Al-Zaytoonah University of Jordan, P. O. Box 130, Amman, 11733, Jordan

ABSTRACT: This research paper aims to investigate the impact of financial leverage on a company's capital structure. The study focuses on 54 Jordanian industrial companies listed on the Amman Stock Exchange market for the year 2021. The primary objective of the research is to determine whether financial leverage has a significant effect on a company's capital structure, debt, and equity. The study utilizes a purposive sampling technique, and the data is collected from the annual reports of the selected companies. The social statistical tool SPSS is used to analyze the data and test the hypotheses. The study's findings indicate that financial leverage has a considerable impact on the capital structure of the organization. The results suggest that the higher the financial leverage, the higher the proportion of debt in the capital structure. Furthermore, the study also discovered that financial leverage has a large impact on a company's debt and equity, which suggests that financial leverage plays a significant role in determining a company's financing decisions. The study's relevance lies in its contribution to the existing literature on corporate finance, particularly in the context of Jordanian industrial companies. © 2023, Virtus Interpress. All rights reserved.

Abusukhon, A.

IOT Bracelets for Guiding Blind People in an Indoor Environment

(2023) Journal of Communications Software and Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159095991&doi=10.24138%2fjcomss-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159095991&doi=10.24138%2fjcomss-2022-0160&partnerID=40&md5=94e7209262907fd713e4271aa7223fbc)

[0160&partnerID=40&md5=94e7209262907fd713e4271aa7223fbc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159095991&doi=10.24138%2fjcomss-2022-0160&partnerID=40&md5=94e7209262907fd713e4271aa7223fbc)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Every day, we engage in a variety of activities such as shopping, reading, swimming, and so on. Many people in our community, however, are unable to participate in such activities, due to a variety of eye problems. Directing a blind person to the optimal position (the center of a spot where there is enough space in all directions such that a blind person avoids various obstacles) is a challenge. This paper proposes wireless bracelets that are able to guide a blind person to the optimal position. The proposed system employs ultrasonic sensors in order to detect various obstacles in an indoor environment. It also makes use of the Firebase database and NodeMCU WiFi module to enable real-time communication with a blind individual. Furthermore, the suggested system includes a novel fall-detection mechanism. The proposed Internet of Things (IoT) system is evaluated in an indoor environment. Experiment results showed that the proposed system could efficiently direct a blind person to the optimal position. In comparison to the current state of the art, the proposed system is simpler, less expensive, and more efficient in determining the optimal position to which a blind person must navigate. © 2023 CCIS.

Al-Zoubi, H., Senoussi, B., Al-Sabbagh, M., Ozdemir, M.

The Chen type of Hasimoto surfaces in the Euclidean 3-space

(2023) AIMS Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159068334&doi=10.3934%2fmath.2023819&partnerID=40&md5=b49740dc2a4dfe0ff46ed3ff45e455c7)

[85159068334&doi=10.3934%2fmath.2023819&partnerID=40&md5=b49740dc2a4dfe0ff46ed3ff45e455c7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159068334&doi=10.3934%2fmath.2023819&partnerID=40&md5=b49740dc2a4dfe0ff46ed3ff45e455c7)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Mathematics, Ecole Normale Supérieure, 45 rue d'Ulm, Mostaganem, 75230, Algeria;

Department of Basic Engineering Sciences, Imam Abdulrahman bin Faisal University, Dammam, 31441, Saudi Arabia

ABSTRACT: A surface M^2 with position vector $r = r(s, t)$ is called a Hasimoto surface if the relation $r_t = r_s \wedge r_{ss}$ holds. In this paper, we first define the Beltrami-Laplace operator according to the three fundamental forms of the surface, then we classify the J-harmonic Hasimoto surfaces and their Gauss map in E^3 , for $J = II$ and III . © 2023 the Author(s), licensee AIMS Press.

Baker, M.B., Abende, R., Alshorman, B.

Density and Strength Performance of Cellular Concrete Blended with Bentonite Clay and Polypropylene Fiber

(2023) Key Engineering Materials, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85158082744&doi=10.4028%2fv85in5&partnerID=40&md5=1e67ca16c2d118929316f0f8d80771aa>

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Department of Civil Engineering, Jordan University of Science and Technology, P.O.Box 3030, Irbid, 22110, Jordan

ABSTRACT: Cellular concrete (known as foamed concrete) is a lightweight building material with low densities ranging from 900 kg/m³ to 1900 kg/m³, which can have potential applications in civil engineering practices. However, it is very weak in withstanding tensile loads which leads to cracks during shrinkage in the drying stage. Therefore, six different groups of cellular concrete are prepared for a possible application in grouting underneath the foundations to achieve a minimum compressive strength of 2000 psi (13.79 MPa) as per ASTM C476, and for soil nail grout with a minimum compressive strength of 3000 psi (20.86 MPa) as per ASTM C109 at 28 days. Furthermore, these mixtures are undergoing laboratory testing for pushout (using steel cylinders with varied diameters and thicknesses) and pullout tests as the subsequent part of this project. All groups contain 0.34 water-to-cement ratio, same size and amounts of sands and superplasticizer (SP). The first group included four control mixes without bentonite and polypropylene fiber (PPF) additives with varied foam content (C1-F1, F2, F3, F4). The remaining groups consist of 17 different mixes blended with either one or both additives. The content effect of foam agent, bentonite clay, and PPF as additives on the density and compressive and flexural strengths of cellular concrete are investigated in this study. The results revealed that the introduction of bentonite and/or PPF in cellular concrete mixtures increased the density and strength. The results revealed that low dry densities (less than 1900 kg/m³) of blended cellular concrete mixtures can reach high compressive strength of 24.37 MPa with 4.74 MPa flexural strength that make them feasible for geotechnical and structural engineering applications. © 2023 Trans Tech Publications Ltd, Switzerland.

Abu-Sini, M., Al-Kafaween, M.A., Al-Groom, R.M., Hilmi, A.B.M.

Comparative in vitro activity of various antibiotics against planktonic and biofilm and the gene expression profile in *Pseudomonas aeruginosa*

(2023) AIMS Microbiology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85157973708&doi=10.3934%2fmicrobiol.2023017&partnerID=40&md5=1177ab2ccba8bbc748cc67e72e8becdc)

[85157973708&doi=10.3934%2fmicrobiol.2023017&partnerID=40&md5=1177ab2ccba8bbc748cc67e72e8becdc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85157973708&doi=10.3934%2fmicrobiol.2023017&partnerID=40&md5=1177ab2ccba8bbc748cc67e72e8becdc)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Medical Laboratory Science, Faculty of Allied Medical Sciences, Zarqa University, Zarqa, Jordan;

Department of Allied Medical Sciences, Zarqa University College, Balqa Applied University, Al-Salt, Jordan;

Department of Biomedicine, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: *P. aeruginosa* is an opportunistic pathogen that is commonly found in nosocomial infections. The purpose of this study was to investigate the effects of seven antibiotics on *P. aeruginosa* planktonic growth, biofilm formation, and the expression of virulence factors. These antibiotics included Ciprofloxacin (CP), Amikacin (AMK), Vancomycin (VAN), Tetracycline (TET), Gentamicin (GEN), Erythromycin (Ery), and Clindamycin (CLI). Antibiotic susceptibility testing, Minimum Bactericidal Concentration (MBC), Minimum Inhibitory Concentration (MIC), growth curve, time-kill curve, biofilm inhibition and reduction assay, and RT-qPCR were used to assess the effects of these antibiotics on *P. aeruginosa* planktonic and biofilm. The clear zones of inhibition against *P. aeruginosa* for the CP, AMK, VAN, TET, GEN, Ery, and CLI were 26 mm, 20 mm, 21 mm, 22 mm, 20 mm, 25 mm and 23 mm,

respectively. The MIC values for CP, AMK, VAN, TET, GEN, Ery and CLI against *P. aeruginosa* ranged from 0.25 to 1 µg/mL while the MBC values ranged from 1 and 0.5 to 2 µg/mL respectively. The growth, total viable counts (TVCs), bacterial adhesion and biofilm formation of *P. aeruginosa* were reduced after exposure to all the tested antibiotics in a dose-dependent manner. The RT-qPCR analysis showed that all the tested antibiotics share a similar overall pattern of gene expression, with a trend toward reduced expression of the virulence genes of interest (*lasR*, *lasI*, *fleN*, *fleQ* and *fleR*, *oprB* and *oprC*) in *P. aeruginosa*. The results indicate that all of the tested antibiotics possess antimicrobial and anti-biofilm activities, and that they may be multiple inhibitors and moderators of *P. aeruginosa* virulence via a variety of molecular targets. This deduction requires to be investigated in vivo. © 2023 the Author(s), licensee AIMS Press.

Makahleh, F.M., Amer, A., Manasrah, A.A., Attar, H., Solyman, A.A.A., Kamarposhti, M.A., Thounthong, P.

Optimal Management of Energy Storage Systems for Peak Shaving in a Smart Grid (2023) Computers, Materials and Continua, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85154582799&doi=10.32604%2fcmc.2023.035690&partnerID=40&md5=7d87aed5429f9b93ab905480270a6c1b)

[85154582799&doi=10.32604%2fcmc.2023.035690&partnerID=40&md5=7d87aed5429f9b93ab905480270a6c1b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85154582799&doi=10.32604%2fcmc.2023.035690&partnerID=40&md5=7d87aed5429f9b93ab905480270a6c1b)

AFFILIATIONS: Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Energy Engineering, Zarqa University, Zarqa, 13133, Jordan;

Department of Electrical and Electronics Engineering, Faculty of Engineering and Architectures, Nisantasi University, Istanbul, 34398, Turkey;

Department of Electrical Engineering, Jouybar Branch, Islamic Azad University, Jouybar, Iran;

Renewable Energy Research Centre (RERC), Department of Teacher Training in Electrical Engineering,

Faculty of Technical Education, King Mongkut's University of Technology North Bangkok, 1518,

Pracharat 1 Road, Bangsue, Bangkok, 10800, Thailand

ABSTRACT: In this paper, the installation of energy storage systems (EES) and their role in grid peak load shaving in two echelons, their distribution and generation are investigated. First, the optimal placement and capacity of the energy storage is taken into consideration, then, the charge-discharge strategy for this equipment is determined. Here, Genetic Algorithm (GA) and Particle Swarm Optimization (PSO) are used to calculate the minimum and maximum load in the network with the presence of energy storage systems. The energy storage systems were utilized in a distribution system with the aid of a peak load shaving approach. Ultimately, the battery charge-discharge is managed at any time during the day, considering the load consumption at each hour. The results depict that the load curve reached a constant state by managing charge-discharge with no significant changes. This shows the significance of such matters in terms of economy and technicality. © 2023 Tech Science Press. All rights reserved.

Batiha, I.M., Chebana, Z., Oussaeif, T.-E., Ouannas, A., Jebril, I.H., Shatnawi, M.

Solvability of Nonlinear Wave Equation with Nonlinear Integral Neumann Conditions

(2023) International Journal of Analysis and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85154029066&doi=10.28924%2f2291-8639-21-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85154029066&doi=10.28924%2f2291-8639-21-2023-34&partnerID=40&md5=c09afa0dd7d2cbd915f3b6205d23aa65)

[34&partnerID=40&md5=c09afa0dd7d2cbd915f3b6205d23aa65](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85154029066&doi=10.28924%2f2291-8639-21-2023-34&partnerID=40&md5=c09afa0dd7d2cbd915f3b6205d23aa65)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi,

Algeria;

Department of Mathematics, Irbid National University, Irbid, 21110, Jordan

ABSTRACT: In this paper, we examine a nonlinear hyperbolic equation with a nonlinear integral condition. In particular, we prove the existence and the uniqueness of the linear problem by the Fadeo Galerkin method, and by applying an iterative process to some significant results obtained for the linear problem, the existence and the uniqueness of the weak solution for the nonlinear problem are additionally examined. © 2023 the author(s).

Al-Madi, M.A., Abdel-Wahab, A., Alshanty, M., Bawazeer, S., Alzahrani, M.

A Perceptual Data Cleansing Model (SDCM) for Reducing the Dirty Data

(2023) International Conference on Smart Computing and Application, ICSCA 2023, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153877361&doi=10.1109%2fICSCA57840.2023.10087605&partnerID=40&md5=efd60214b2f03dad4d1f68e93197394)

[85153877361&doi=10.1109%2fICSCA57840.2023.10087605&partnerID=40&md5=efd60214b2f03dad4d1f68e93197394](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153877361&doi=10.1109%2fICSCA57840.2023.10087605&partnerID=40&md5=efd60214b2f03dad4d1f68e93197394)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology,

Department of Computer Sciences, Amman, Jordan;

Arab Open University, Faculty of Computer Studies, Riyadh, Saudi Arabia;

Al-Azhar University, Department of Systems and Computers Engineering, Cairo, Egypt

ABSTRACT: Data cleansing approaches aim at revealing and reducing different types of outsourced errors. Such errors introduce a major issue as data cleansing often involves costly computations and

time consumption. Data cleansing is complicated as most of the errors within the obtained data emerge in different forms, such as typos, duplicates, noncompliance with business rules, outdated data, and missing values. In this paper, the Supervised Dataset Cleaning Model (SDCM) is proposed in order to detect and reduce different types of outsourced errors that are stored in the data repository according to the supervised cleaning rules that are practiced from the previous cleaning processes. The findings indicates that the cleaning execution time can be reduced with this supervised model and the accuracy of the model is also increased when it covers the entire training rules and classified error types derived from the data warehouse. There are some expected future directions, which include: implementing full scale of SDCM and comparing the results obtained with different current methods. By comparing different data cleaning algorithms with SDCM, a knowledge gap is likely to arise in the search for further future improvements. © 2023 IEEE.

Yassin, M.M., Al-Kasasbeh, S.A.

Do earnings quality models affect different excess cash holdings models?

(2023) Afro-Asian Journal of Finance and Accounting, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153525626&doi=10.1504%2FAAJFA.2023.129546&partnerID=40&md5=19a3820156094b86c040f80bacd127eb)

[85153525626&doi=10.1504%2FAAJFA.2023.129546&partnerID=40&md5=19a3820156094b86c040f80bacd127eb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153525626&doi=10.1504%2FAAJFA.2023.129546&partnerID=40&md5=19a3820156094b86c040f80bacd127eb)

AFFILIATIONS: Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: With the increasing cost of external financing in Jordan, excess cash holdings are a dominant feature of industrial companies listed on the Amman Stock Exchange (ASE). This study provides empirical evidence of an information asymmetry problem by examining the impact of earnings quality on excess cash holdings. The results aim to help investors and creditors to evaluate the transparency of and confidence in financial reporting to enhance decision making and minimise the risk of default. The study employed three different models for earnings quality and two different models for excess cash holdings. Through examination of panel data, the study found that firms with poor earnings quality tend to accumulate excess cash holdings in order to isolate themselves from an information asymmetry problem. Copyright © 2023 Inderscience Enterprises Ltd.

Al-Omouh, K.S., Anderson, A., Ribeiro-Navarrete, B.

THE IMPACT OF ABSORPTIVE CAPACITY, CORPORATE SOCIAL INNOVATION, AND E-BUSINESS PROACTIVENESS ON SMES' SURVIVAL [SUGERTIES GEBOS, ĮMONIŲ SOCIALINIŲ INOVACIJŲ IR ELEKTRONINIO VERSLO INICIATYVUMO POVEIKIS MVĮ IŠLIKIMUI]

(2023) Transformations in Business and Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153504440&partnerID=40&md5=bd4f311eef06be63d71ac19eef785ab1)

[85153504440&partnerID=40&md5=bd4f311eef06be63d71ac19eef785ab1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153504440&partnerID=40&md5=bd4f311eef06be63d71ac19eef785ab1)

AFFILIATIONS: Management Information Systems, Al-Zaytoonah University of Jordan, Queen Alia Airport Street, Amman, Jordan;

Lancaster University, Management School, United Kingdom;

IUDESCOOP, University of Valencia, Spain

ABSTRACT: This study examines the role of absorptive capacity on corporate social innovation, e-business proactiveness, and SMEs' survival. It also investigates the impact of corporate social innovation and e-business proactiveness, and SMEs' survival. Data were collected from 384 managers and owners of 62 SMEs in Jordan. Smart PLS, version 3, was employed to test hypotheses. The findings reveal that absorptive capacity significantly impacts e-business proactiveness and social innovation. They also show that absorptive capacity, e-business proactiveness, and social innovation significantly impact SMEs' survival. This study enriches the literature on renewable dynamic capabilities, exploring how e-business entrepreneurial orientation and social innovation contribute to SMEs' resilience and survival during global crises. © Vilnius University, 2002-2023.

Al Omouh, K., Lassala, C., Ribeiro-Navarrete, S.

The role of digital business transformation in frugal innovation and SMEs' resilience in emerging markets

(2023) International Journal of Emerging Markets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153386497&doi=10.1108%2fIJOEM-12-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153386497&doi=10.1108%2fIJOEM-12-2022-1937&partnerID=40&md5=095f8608d7c5a90b755b349186b59c50)

[1937&partnerID=40&md5=095f8608d7c5a90b755b349186b59c50](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85153386497&doi=10.1108%2fIJOEM-12-2022-1937&partnerID=40&md5=095f8608d7c5a90b755b349186b59c50)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Universitat de València, Valencia, Spain;

University of Economics and Human Sciences in Warsaw, Warsaw, Poland;

ESIC University, Madrid, Spain

ABSTRACT: Purpose: The present study aims to examine the relationships between digital business transformation, organizational learning, frugal innovation and Small and Medium Enterprises (SMEs) resilience in emerging markets. Design/methodology/approach: Empirical data collection has been implemented using a questionnaire method from 214 owners and managers of SMEs. The partial least squares structural equation modeling (PLS-SEM) approach was used to examine the measurement model and test hypotheses. Findings: The results show that digital business transformation significantly

impacts frugal innovation and SMEs' resilience in emerging markets. They also confirm the significant impact of frugal innovation on SMEs' resilience. Furthermore, the results revealed that organizational learning significantly impacts digital business transformation, frugal innovation and SMEs' resilience. Originality/value: This study provides novel insights into the existing theories and literature regarding the determinants of SMEs' resilience in emerging markets. It also provides practical contributions, confirming the SMEs' need to develop their dynamic capabilities, including digital transformation, frugal innovation and organizational learning to maintain their resilience. © 2023, Emerald Publishing Limited.

Tarawneh, O., Hammad, A.M., Mahfouz, H.A., Hamadneh, L., Hamed, R., Hamadneh, I., Al-Assi, A.R.
DEVELOPMENT OF MUCOADHESIVE CELLULOSE DERIVATIVES BASED FILMS FOR THE TREATMENT OF VAGINAL CANDIDIASIS

(2023) Cellulose Chemistry and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152910330&doi=10.35812%2fCelluloseChemTechnol.2023.57.12&partnerID=40&md5=d1ae29b840925c6bf8889bd1740ef4f0)

[85152910330&doi=10.35812%2fCelluloseChemTechnol.2023.57.12&partnerID=40&md5=d1ae29b840925c6bf8889bd1740ef4f0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152910330&doi=10.35812%2fCelluloseChemTechnol.2023.57.12&partnerID=40&md5=d1ae29b840925c6bf8889bd1740ef4f0)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Chemistry Department, Faculty of Science, University of Jordan, Amman, 11942, Jordan

ABSTRACT: The development of easily administered targeted delivery for vaginal candidiasis is an area of active research. Challenges emerge from the specific conditions that may not permit enough time for the dosage form to reside on the infected area. Herein, we propose to develop films based on cellulose derivatives for the treatment of vaginal candidiasis. Gels of sodium carboxymethyl cellulose (Na-CMC) (F1), equal combination of Na-CMC and hydroxyethyl cellulose (HEC) (F2) and hydroxyethyl cellulose (HEC) (F3) were prepared and loaded with nystatin (NYS). The resultant gels were dried using solvent casting and characterized to detect glass transition temperature (T_g), mechanical properties, mucoadhesion, inhibition of candida growth toxicity on human embryonic kidney 293 cells (HEK) cells and drug release. T_g was affected by the polymer type and was found to be highest in F2, where equal ratios of HEC and Na-CMC were used. Mucoadhesion was highest in F1 (Na-CMC) films. The films showed moderate toxicity. The zone of inhibition was observed for the three formulations. Drug release was affected by the polymer type and was complete after 8 h in F2. The findings allowed concluding that the cellulose derivative based films were successfully prepared and were efficient in allowing the drug to elute and minimizing the growth of candida. © 2023, Publishing House of the Romanian Academy. All rights reserved.

Al-Zoubi, H.

NON-DEGENERATE ROTATIONAL SURFACES OF COORDINATE FINITE II-TYPE

(2023) Asia Pacific Journal of Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152650517&doi=10.28924%2fAPJM%2f10-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152650517&doi=10.28924%2fAPJM%2f10-9&partnerID=40&md5=65461a02a70f42342114530ba211f6d2)

[9&partnerID=40&md5=65461a02a70f42342114530ba211f6d2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152650517&doi=10.28924%2fAPJM%2f10-9&partnerID=40&md5=65461a02a70f42342114530ba211f6d2)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: We study rotational surfaces in the 3-dimensional Euclidean space E^3 . Furthermore, We classify non-degenerate rotational surfaces in E^3 in terms of its finite Chen type Gauss map. We show that the only rotational surfaces in E^3 whose Gauss map is of coordinate finite type are those of constant mean curvature. © 2023 Asia Pacific Journal of Mathematics.

Al-Omoush, K., Ribeiro-Navarrete, B., McDowell, W.C.

The impact of digital corporate social responsibility on social entrepreneurship and organizational resilience

(2023) Management Decision, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152459953&doi=10.1108%2fMD-11-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152459953&doi=10.1108%2fMD-11-2022-1613&partnerID=40&md5=e6411d49f0f379cef7420717f30c3f73)

[1613&partnerID=40&md5=e6411d49f0f379cef7420717f30c3f73](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152459953&doi=10.1108%2fMD-11-2022-1613&partnerID=40&md5=e6411d49f0f379cef7420717f30c3f73)

AFFILIATIONS: Department of MIS, Al-Zaytoonah University of Jordan, Amman, Jordan;

IUDESCOOP-University of Valencia, Valencia, Spain;

Texas State University, San Marcos, TX, United States

ABSTRACT: Purpose: This study examines the impact of digital corporate social responsibility (CSR) on social entrepreneurship, organizational resilience and competitive intelligence during the coronavirus disease 2019 (COVID-19) crisis. It also examines the impact of competitive intelligence on social entrepreneurship and organizational resilience. Design/methodology/approach: Data were collected from telecommunication companies in Jordan with a sample of 223 managers, using Smart-PLS for analysis and testing the research model and hypotheses. Findings: The results reveal a significant impact of digital CSR on social entrepreneurship. They show that digital CSR significantly impacts organizational resilience. The findings also indicate a significant role of digital CSR in competitive intelligence. This study shows that social entrepreneurship significantly impacts organizational resilience. The results also confirm the impact of competitive intelligence on

social entrepreneurship. Finally, the results confirm that competitive intelligence significantly impacts organizational resilience. Originality/value: This study provides valuable academic and practical insights into digital CSR practices, social entrepreneurship and how to support organizational resilience during crises. © 2023, Emerald Publishing Limited.

Alsakarneh, A., Tabaza, T., Kelly, G., Barrett, J.

Impact Dynamics of Nonlinear Materials: FE Analysis

(2023) Journal of Applied and Computational Mechanics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152443016&doi=10.22055/2fjcam.2022.41487.3760&partnerID=40&md5=2cafead32c84f651dc39c78a4f209af1)

[85152443016&doi=10.22055/2fjcam.2022.41487.3760&partnerID=40&md5=2cafead32c84f651dc39c78a4f209af1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152443016&doi=10.22055/2fjcam.2022.41487.3760&partnerID=40&md5=2cafead32c84f651dc39c78a4f209af1)

AFFILIATIONS: Department of Mechanical Engineering, Hijjawi Faculty for Engineering Technology,

Yarmouk University, Irbid, Jordan;

Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Mechanical and Manufacturing Engineering, Munster Technological University, Bishopstown, Cork, Ireland;

Nimbus Research Centre, Munster Technological University, Bishopstown, Cork, Ireland

ABSTRACT: The paper presents an experimentally validated 3D finite element modelling impacts of viscoelastic and natural materials. It considers, in particular, the material set of ash wood and rubber in the context of the impact between the bat (the "hurley" made of ash wood) and the ball (the "sliotar" made of polyurethane-cork composite) in the Irish game of hurling. The hurley is highly anisotropic in its mechanical properties and this impact system therefore presents a unique modelling challenge. The FE models do not rely on either the assumption of linear materials models or on calibrated materials models. The FE models are able to take all three geometric, status and material nonlinearities into account yielding a close correlation with real-world impact scenario. The reported FE results were validated against experimental measurements showing an excellent correlation of more than 91% in term of maximum ball deformation. © 2022 Published by Shahid Chamran University of Ahvaz

Khdair, S.I., Al-Naimat, O.S., Jarrar, W., Al-Qerem, W., Khudeir, F.A.

The Influence of TNF- α , IL-6, TGF- β 1, IFN- γ , IL-10 Polymorphisms on Predisposition to Diabetes Mellitus among Jordanian Patients

(2023) Endocrine, Metabolic and Immune Disorders - Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152376924&doi=10.2174%2f1871530322666220827143530&partnerID=40&md5=eabf7dff05d699b08d9a7a3b3c242529)

[85152376924&doi=10.2174%2f1871530322666220827143530&partnerID=40&md5=eabf7dff05d699b08d9a7a3b3c242529](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152376924&doi=10.2174%2f1871530322666220827143530&partnerID=40&md5=eabf7dff05d699b08d9a7a3b3c242529)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Medicine, Jordan University of Science and Technology, Irbid, 22110, Jordan

ABSTRACT: Background: Diabetes mellitus is a long-term disorder with high prevalence globally. It can be classified into two types: Type 1 diabetes and Type 2 diabetes mellitus. Diabetes mellitus is considered a multifactorial disorder in which genetic factors such as cytokines play a major role. Cytokines play a role in immune modulation and are associated with the development of diabetes mellitus. Single nucleotide polymorphisms in cytokines were studied extensively in different populations to determine their association with a predisposition to diabetes mellitus. Objective: The aim of this study was to estimate the frequency of single nucleotide polymorphisms in the cytokine genes TNF- α , TGF- β , IL-6, IL-10, and IFN- γ in 102 Jordanian diabetes mellitus patients in comparison to 50 controls and their association to diabetes mellitus susceptibility. Methods: Analysis was performed using the highly specific polymerase chain reaction-sequence specific primers methodology. Results: Our findings showed that the IL-10-1082 G/G genotype ($P = 0.02$) and the TGF- β 1 codon 25*G allele ($P < 0.01$) may be considered risk factors for type 2 diabetes mellitus. In addition, the IFN- γ -874*A allele ($P = 0.04$) seems to increase the predisposition to type 1 diabetes. Conclusion: Our study showed that the IL-10-1082 G/G genotype and TGF- β 1 codon 25*G allele are associated with type 2 diabetes mellitus while the IFN- γ -874*A allele is associated with type 1 diabetes. Our findings may help in the early detection of diabetes mellitus, which would in turn help in undergoing the needed preventative measures to delay the onset of diabetes mellitus. © 2023 Bentham Science Publishers.

Abualkishik, A., Alzyadat, W., Share, M.A., Al-Khaifi, S., Nazari, M.

Intelligent Gesture Recognition System for Deaf People by using CNN and IoT

(2023) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152088110&doi=10.15849%2fIJASCA.230320.10&partnerID=40&md5=a2910196c9544aabb450d72c8c762ef0)

[85152088110&doi=10.15849%2fIJASCA.230320.10&partnerID=40&md5=a2910196c9544aabb450d72c8c762ef0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152088110&doi=10.15849%2fIJASCA.230320.10&partnerID=40&md5=a2910196c9544aabb450d72c8c762ef0)

AFFILIATIONS: Faculty of Computing and IT, Sohar University, Oman;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Communication with the hearing impaired is a great challenge in the society today. Sign language is a significant communication method between deaf persons and their societies. However deaf and dumb people have an issue in this field as sign language may cause a lot of misunderstanding.

Today, many new technologies are becoming more applicable and cheaper. The intelligent algorithms and techniques are improved and becomes more accurate. Gesture recognition is one of the key technologies that facilitate many people life. Translating signs language into text and speech is an attractive field for researchers from past few years. However, it did not receive adequate interest in Sultanate of Oman. The proposed recognition system utilizes the Convolution neural network (CNN) method. It aims to convert the dynamic deaf signs from live video to text and speech using raspberry pi device and normal camera. The dataset for this project was created by the researchers. It contains 62000 (64x64 pixel) images of the 30 letter of Alphabets and 1 Word. Each pattern has 2000 images that are divided into 1750 images for training and 250 images for testing. The proposed system achieved 99.8 % accuracy. © Al-Zaytoonah University of Jordan (ZUJ).

Al-Khawaja, H.A., Yamin, I., Alshehadeh, A.R.

The COVID_19 Pandemic's Effects on Fintech in Banking Sector
(2023) Review of Economics and Finance, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151956013&doi=10.55365%2f1923.x2023.21.30&partnerID=40&md5=2c06e9accf1e5c88a7bca8b7293654e2)

[85151956013&doi=10.55365%2f1923.x2023.21.30&partnerID=40&md5=2c06e9accf1e5c88a7bca8b7293654e2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151956013&doi=10.55365%2f1923.x2023.21.30&partnerID=40&md5=2c06e9accf1e5c88a7bca8b7293654e2)

AFFILIATIONS: Faculty of Business, Amman Arab University, Amman, Jordan;

Faculty of Business, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: As a result of the effects of the COVID_19 pandemic, which has greatly affected the global economy, individuals have resorted to using financial technology and modern applications for financial transactions, which help reduce gatherings, given the centralization of the virus and the emergence of new, advanced pests. This paper aims to determine the impact of the COVID_19 pandemic on financial technology in the Jordanian banking sector. However, the quantitative approach was adopted, through electronic survey questionnaires being distributed to 2450 respondents from the population, which are all customers of Jordanian banks who use electronic banking services in the presence of the COVID_19 pandemic. As a result of analyzing 1930 resolution, it was found that the perception of the COVID_19 pandemic has a significant positive impact on Fintech in the Jordanian banking sector and that the perception of the COVID_19 pandemic has a significant positive impact on the dimensions of Fintech in Jordan which are (ease of use, reliability, responsiveness, assurance, interface design, and privacy). This study contributed to determining the extent to which electronic banking services reduce customer visits to branches according to social distancing. The paper explains how the development of technical services should go hand in hand with the bank's development strategies aimed at acquiring and retaining more customers. This paper recommends the need to improve the application of electronic banking services in proportion to customer satisfaction as much as possible. Copyright © 2023. All Rights Reserved.

Al-Gasaymeh, A., Qasaimeh, G.M., Alrawashdeh, N., Alsmadi, A.A., Alzoubi, H.M.

The Impact of Cobit 5 On the Effectiveness of Applying Governance Tools in Jordanian Commercial Banks
(2023) Quality - Access to Success, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151841301&doi=10.47750%2fQAS%2f24.194.42&partnerID=40&md5=d42f54ac955aa03fab42aa9d68f8581)

[85151841301&doi=10.47750%2fQAS%2f24.194.42&partnerID=40&md5=d42f54ac955aa03fab42aa9d68f8581](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151841301&doi=10.47750%2fQAS%2f24.194.42&partnerID=40&md5=d42f54ac955aa03fab42aa9d68f8581)

AFFILIATIONS: Applied Science Private University, Jordan;

Al-Qadisiyah College, Jordan;

Isra University, Jordan;

Al Zaytoonah University of Jordan, Jordan;

Skyline University College, United Arab Emirates

ABSTRACT: The study aimed at showing the impact of COBIT5 with its dimensions (planning and organization, ownership and implementation, support and deliver, follow-up and evaluation, guidance and control) on the effectiveness of governance tools in Jordanian commercial banks. In order to achieve the objectives of the study and answer its questions, the study adopted the descriptive-analytical approach, in order to trace the relationship between the study variables, and to identify their trends and their impact on the study problem. The study population included all the (13) Jordanian commercial banks listed on the Amman Stock Exchange. 350 questionnaires were distributed. 322 of them were recovered, but 32 of them were non-analyzable. Thus, 290 questionnaires could be analyzed. They were analyzed on the program SPSS. The results of testing the hypotheses branching from the main hypothesis showed that there is a statistically significant impact of COBIT5 on the effectiveness of applying governance tools in Jordanian commercial banks, when studying each of them individually. The study recommended the necessity of speed in providing the management of Jordanian commercial banks with all software and special techniques, which help them to respond to any variables that may occur in the work environment. It also recommended the importance of working on developing systems and technologies that are characterized by modernity and accuracy in the event of the emergence of what is new and advanced, thus to document, classify and protect data. © 2023, SRAC - Romanian Society for Quality. All rights reserved.

Alnaimat, M.A., Rudyk, N., Al-Naimi, A.A., Panchenko, A., Turski, I.

The Impact of International Economic Sanctions on the Use of Financial Technologies

(2023) WSEAS Transactions on Business and Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151546845&doi=10.37394%2f23207.2023.20.63&partnerID=40&md5=941b33205f7c85f53c238a024fe5ce06)

[85151546845&doi=10.37394%2f23207.2023.20.63&partnerID=40&md5=941b33205f7c85f53c238a024fe5ce06](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151546845&doi=10.37394%2f23207.2023.20.63&partnerID=40&md5=941b33205f7c85f53c238a024fe5ce06)

AFFILIATIONS: Department of Accounting, Faculty of Business, Alzaytoonah University of Jordan, 594 St., Airport Rd., Amman, Jordan;

Department of Finance named after Victor Fedosov, Faculty of Finance, State Higher Educational, Institution Kyiv National Economic University named after Vadym Hetman, 54/1 Peremogy Av., Kyiv, 03057, Ukraine;

Department of Finance and Banking Sciences, Faculty of Business, Applied Science Private University, 21 Al-Arab St., Amman, Jordan;

Department of Business Economics and Investment, Institute of Economics and Management, Lviv, Polytechnic National University, 12 Bandera Str., Lviv, 79013, Ukraine;

Department of Tourism, Hotel and Restaurant Business, Lutsk National Technical University, 75 Lvivska Str., Lutsk, 43018, Ukraine

ABSTRACT: -The aim of this study was to elaborate a conceptual approach to the development of financial technologies under the impact of restrictions imposed by international economic sanctions. The development of this sector was analyzed based on empirical studies of available information on the state of the FinTech sector in 28 countries that are impacted by international economic sanctions, using the Global Sanctions Database presented by OFAC (Office of Foreign Assets Control). The research involved comprehensive research methods: situational analysis, system analysis, reproductive analysis, structural and functional analysis. The results of the study confirmed the main hypothesis: international economic sanctions do not block the development of financial technologies, as FinTech can ensure the development of the financial sphere of sanctioned countries because of its flexibility and mobility. The calculations proved that depending on the way of combining the internal perception of external restrictions imposed by the sanctions, which is unique for each country, international economic sanctions are a stimulator for some countries (China, Ukraine, Iran), while being a significant development blocker ($r=0.896$) for others (with a financial technology performance less than 1). This study will be useful not only to scholars who deal with the theoretical and methodological framework of the development of the financial sector of countries subject to sanctions. © 2023, World Scientific and Engineering Academy and Society. All rights reserved.

Bagustari, B.A., Yazid, S., Alshehadeh, A.R.

Analyzing Fog Computing Technologies for Enhancing M-Learning Networked Environments

(2023) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151344961&doi=10.15849%2fIJASCA.230320.09&partnerID=40&md5=dae8387523e0052af651f70ad1adeea4)

[85151344961&doi=10.15849%2fIJASCA.230320.09&partnerID=40&md5=dae8387523e0052af651f70ad1adeea4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151344961&doi=10.15849%2fIJASCA.230320.09&partnerID=40&md5=dae8387523e0052af651f70ad1adeea4)

AFFILIATIONS: Faculty of Computer Science, Universitas Indonesia, Indonesia;

Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The use of a wireless communication network has successfully enriched experiences of learning. In the service of mobile computing, education has now led to the implementation of mobile learning (m-learning). Not only to access educational resources quickly but m-learning also contributes to allowing a wide-ranging collaboration between users as learners. Supported by cloud technology, m-learning nowadays has shown its potential solution in making larger capacity and shorter processes. However, a cloud-based learning architecture would only enhance the power of data storing for the applications. The implementation with the growth of billions of various devices which still needs improvements due to computing performance and content delivery need to put the consideration of fog computing as an opportunity to create an effective and efficient educational service. This paper discusses the current implementation of fog technology including a comparative analysis regarding each type of learning situations in m-learning networked environments by using a comprehensive review and expert evaluation. Findings of this study also examine the benefits and future challenges to give a broader perspective for educational purposes. © Al-Zaytoonah University of Jordan (ZUJ).

Shehadeh, H.A., Jebriil, I.H., Jaradat, G.M., Ibrahim, D., Sihwail, R., Al Hamad, H., Chu, S.-C., Alia, M.A.

Intelligent Diagnostic Prediction and Classification System for Parkinson's Disease by Incorporating Sperm Swarm Optimization (SSO) and DensityBased Feature Selection Methods

(2023) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151324406&doi=10.15849%2fIJASCA.230320.08&partnerID=40&md5=a9ecf383d457e77068e16b25bcea89be)

[85151324406&doi=10.15849%2fIJASCA.230320.08&partnerID=40&md5=a9ecf383d457e77068e16b25bcea89be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151324406&doi=10.15849%2fIJASCA.230320.08&partnerID=40&md5=a9ecf383d457e77068e16b25bcea89be)

AFFILIATIONS: Faculty of Computer Science and Informatics, Amman Arab University, Amman, 11953, Jordan;

Faculty of Science and Information Technology, Al-. Zaytoonah University of Jordan, Amman, 11733,

Jordan;
College of Computer Science and Engineering, Shandong University of Science and Technology, Qingdao, 266590, China;
College of Science and Engineering, Flinders University, 1284 South Road, Tonsley, SA 5042, Australia

ABSTRACT: The systems of healthcare are being updated with modern capabilities, such as "Machine Learning (ML)", "Data Mining (DM)", and "Artificial Intelligence (AI)" in order to provide humans with more expert and intelligent services of healthcare. This paper provides a medical system of an intelligent prediction and classification for Parkinson's disease incorporating the "Density based Feature Selection (DFS)" with our optimization algorithm namely, "Sperm Swarm Optimization (SSO) algorithm". Prior to the SSO-based classifier construction, the proposed intelligent system (D-SSO) eradicates redundant or irrelevant features using DFS. Preprocessing, "Feature Selection (FS)", and classification are the three phases of the proposed D-SSO framework. Moreover, the D-SSO algorithm is tested using a benchmark of Parkinson's dataset, which the performance of D-SSO is examined using various evaluation factors. Mainly, the D-SSO algorithm is compared to existing approaches, which the proposed intelligent system outperforms the others, and gets an ideal recognition rate. © Al-Zaytoonah University of Jordan (ZUJ).

Khalaf, R.A., Shaiah, H.A., Sabbah, D.

Trifluoromethylated Aryl Sulfonamides as Novel CETP Inhibitors: Synthesis, Induced Fit Docking, Pharmacophore Mapping and Subsequent In vitro Validation
(2023) Medicinal Chemistry, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85151043293&doi=10.2174%2f1573406418666220908164014&partnerID=40&md5=748e3daefdf322b0bd019ef758c51b21

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Cardiovascular disease is one of the leading causes of death. Atherosclerosis causes arterial constriction or obstruction, resulting in acute cardiovascular illness. Cholesteryl ester transfer protein (CETP) facilitates reverse cholesterol transport. It supports the transfer of cholesteryl ester from HDL to LDL and VLDL. Inhibition of CETP by drugs limits cardiovascular disease by decreasing LDL and increasing HDL. Objectives: In this study, fourteen trifluoromethyl substituted benzene sulfonamides 6a-6g and 7a-7g were prepared. Methods: The synthesized molecules were characterized using ¹H-NMR, ¹³C-NMR, IR and HR-MS. They were in vitro tested to estimate their CETP inhibitory activity. Results: In vitro biological evaluation showed that compounds 7d-7f had the highest inhibitory activity with 100% inhibition, while the inhibition observed by compounds 6a-6g, 7a-7c and 7g ranged from 2%-72% at 10 μM concentration. It was found that the addition of a fourth aromatic ring significantly improved the activity, which may be due to the hydrophobic nature of CETP. Also, the presence of ortho-chloro, meta-chloro and para-methyl substituents results in high inhibitory activity. Conclusion: The induced fit docking studies revealed that hydrophobic interaction guided lig-and/CETP binding interaction in addition to H-bond formation with Q199, R201, and H232. Further-more, pharmacophore mapping demonstrated that this series satisfies the functionalities of the current CETP inhibitors. © 2023 Bentham Science Publishers.

Hamdan, M., Khalil, R.H., Abdelhafez, E., Ajib, S.

The Effect of Nanomaterial Type on Water Disinfection Using Data Mining
(2023) Journal of Ecological Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85150994243&doi=10.12911%2f22998993%2f160093&partnerID=40&md5=89de98e7fdb870075850b5895bf01e70

AFFILIATIONS: Renewable Energy Technology Department, Applied Science Private University, Amman, Jordan;

Renewable Energy Engineering Department, Jadara University, Irbid, Jordan;

Department of Alternative Energy Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Renewable Energies and Decentralized Energy Supply, University of Applied Sciences and Arts, Werftestrasse 4, Luzern, 6002, Switzerland

ABSTRACT: Multiple linear regression and artificial neural network (ANN) models were utilized in this study to assess the type influence of nanomaterials on polluted water disinfection. This was accomplished by estimating E. coli (E.C) and the total coliform (TC) concentrations in contaminated water while nanoparticles were added at various concentrations as input variables, together with water temperature, PH, and turbidity. To achieve this objective, two approaches were implemented: data mining with two types of artificial neural networks (MLP and RBF), and multiple linear regression models (MLR). The simulation was conducted using SPSS software. Data mining was revealed after the estimated findings were checked against the measured data. It was found that MLP was the most promising model in the prediction of the TC and E.C concentration, s followed by the RBF and MLR models, respectively © 2023, Journal of Ecological Engineering. All Rights Reserved.

Amer, A., Makahleh, F.M., Ababneh, J., Attar, H., Solyman, A.A.A., Kamarposhti, M.A., Thounthong, P. Optimal Allocation of STATCOM to Enhance Transient Stability Using Imperialist Competitive Algorithm (2023) Intelligent Automation and Soft Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150869758&doi=10.32604%2fiasc.2023.034854&partnerID=40&md5=741e1d6900fb7c5adbac919a7824c2a7)

[85150869758&doi=10.32604%2fiasc.2023.034854&partnerID=40&md5=741e1d6900fb7c5adbac919a7824c2a7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150869758&doi=10.32604%2fiasc.2023.034854&partnerID=40&md5=741e1d6900fb7c5adbac919a7824c2a7)

AFFILIATIONS: Department of Energy, Zarqa University, Zarqa, 13133, Jordan;

Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Abdul Aziz Al Ghurair School of Advanced Computing (ASAC), Luminus Technical University College, Jordan;

Department of Electrical and Electronics Engineering, Faculty of Engineering and Architectures, Nisantasi University, Istanbul, Turkey;

Department of Electrical Engineering, Jouybar Branch, Islamic Azad University, Jouybar, Iran;

Renewable Energy Research Centre (RERC), Department of Teacher Training in Electrical Engineering,

Faculty of Technical Education, King Mongkut's University of Technology North Bangkok, 1518,

Pracharat 1 Road, Bangsue, Bangkok, 10800, Thailand

ABSTRACT: With the daily expansion of global energy consumption, developing the power grids is of uttermost importance. However, building a new transmission line is costly and time-consuming, so utilizing the same lines with possible higher transmission capacity is very cost-effective. In this regard, to increase the capacity of the transmission lines, the flexible alternating current transmission system (FACTS) has been widely used in power grids in recent years by industrialized countries. One of the essential topics in electrical power systems is the reactive power compensation, and the FACTS plays a significant role in controlling the reactive power current in the power grid and the system voltage oscillations and stability. When a static synchronous compensator (STATCOM) is embedded in a power system to increase the bus voltage, a supplementary damping controller can be designed to enhance the system oscillation damping. Given the expansion of the grids in the power system, the complexity of their optimization and the extraordinary ability of the imperialist competitive algorithm (ICA) for solving such problems, in this paper, the ICA has been used to determine the optimal position and size of the FACTS devices. © 2023, Tech Science Press. All rights reserved.

Abd Ali, D.K., Al-Hadrawi, H.H., Al-Fayyadh, S.A., Abu Kamel, A.M., Al-Zayadi, S.D.

Assessment of Validity and Reliability of the Arabic Nursing Core Competencies Scale-70

(2023) Journal for ReAttach Therapy and Developmental Diversities, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150512128&partnerID=40&md5=7f5f9815410e87e2a01e259f42638239)

[85150512128&partnerID=40&md5=7f5f9815410e87e2a01e259f42638239](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150512128&partnerID=40&md5=7f5f9815410e87e2a01e259f42638239)

AFFILIATIONS: University of Al-Ameed, College of Nursing, Karbala, Iraq;

University of Kufa, College of Nursing, Iraq;

University of Baghdad, College of Nursing, Iraq;

Al-Zaytoonah University of Jordan, Faculty of Nursing, Jordan;

University of Karbala, College of Nursing, Iraq

ABSTRACT: Aim and Objectives: The present study aims to provide an Arabic version scale that is valid and reliable to be used in Arabic countries to assess the level of competencies as it has become a prerequisite for nurses' high-quality performance. Background: Nursing is the profession that holds the health of individuals across life journey. Nurses' responsibilities are varied based on their specialties, but the main role is to support those who are in need for healthcare. Design: A methodological multi-countries study. Methods: the study is conducted on Iraqi and Jordanian hospitals from September, 6th, 2019 to September, 30th, 2021. Participants' Contribution: there is no patients or public contribution, there is only nurses, because the study is focused on their core competencies, not on patients or public persons. After the ethical consideration taken into consideration, nurses who completed the survey were 225; surveys with incomplete information were excluded and the total number left for the study were 217 nurses; male nurses were 132 and female nurses were 85. Results: The study results show that all the calculated values of the reliability parameters (Cronbach's Alpha=0.932, Correlation Between Forms=0.856, Spearman-Brown Coefficient=0.922, and Guttman Split-Half Coefficient=0.918) were within the higher reliability range. Additionally, the results indicate that the scale items can be collected in five domains according to its direction with a maximum determined variance. The scale domains are including the Human understanding and communication skills; Professional attitudes; Critical thinking and evaluation; General clinical performance; and Specific clinical performance. Conclusions: The ANCCS is a valid and reliable scale for measuring the nurses' core competencies in clinical practice, and it is easy to use by students, educators, administrators, and clinical personnel. It is highly recommended for nurses to use the ANCCS as a self-evaluation tool to maintain and improve their practice by identifying their strength and areas of improvement. Relevance to Clinical Practice Nurses' core competencies are a fundamental concept in nursing, it reflects the quality of nursing care. Furthermore, health care systems can integrate the core competencies of ANCCS in their quality

system to evaluate or to motivate nurses in specified and unified evidence-based items. As a conclusion; it has been determined that the ANCCS can be used for specifying nurse's competency level in Arabic population @ 2023, Journal for ReAttach Therapy and Developmental Diversities.All Rights Reserved.

Alsmadi, A.A., Alrawashdeh, N., Al-Gasaymeh, A., Alhawamdeh, L.N., Al_Hazimeh, A.M.

Adoption of Blockchain Technology in Supply Chain

(2023) SAGE Open, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150229778&doi=10.1177%2f21582440231160143&partnerID=40&md5=ac360b54b1ecc6afeba0eb63ed15de47)

[85150229778&doi=10.1177%2f21582440231160143&partnerID=40&md5=ac360b54b1ecc6afeba0eb63ed15de47](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150229778&doi=10.1177%2f21582440231160143&partnerID=40&md5=ac360b54b1ecc6afeba0eb63ed15de47)

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Isra University (Jordan), Amman, Jordan;

Applied Science University, Amman, Jordan;

University of Petra, Amman, Jordan;

Al-Bayt University, Mafraq, Jordan

ABSTRACT: Supply chain management processes and systems in different industries include multiple variables. This study examines the adoption of blockchain technology in supply chain in Malaysia. Data were collected through questionnaire designed as open ended question through 300 respondents while only 256 is used according to completed surveys, statistical analysis of the data obtained in this study was carried out by one sample t-test using the statistical software package (SPSS). we find that, perceived ease, Inter-Organizational Trust, Perceived Usefulness, Data transparency and confidentiality have significant impact on adoption Blockchain in supply chain, while Blockchain technology simplifies inventory financing. The paper use open ended questions so in future can use different kind of scale and different variables which can affect the adoption decisions. © The Author(s) 2023.

Daoud, S., Abutayeh, R., Alabed, S.J., Taha, M.O.

Asenapine as a Potential Lead Inhibitor against Central Ca²⁺/Calmodulin-Dependent Protein Kinase II:

Investigation by Docking Simulation and Experimental Validation

(2023) Open Medicinal Chemistry Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150077565&doi=10.2174%2f18741045-v17-e230217-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150077565&doi=10.2174%2f18741045-v17-e230217-2022-14&partnerID=40&md5=90509289dcb33bb1676d0760e493f610)

[2022-14&partnerID=40&md5=90509289dcb33bb1676d0760e493f610](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150077565&doi=10.2174%2f18741045-v17-e230217-2022-14&partnerID=40&md5=90509289dcb33bb1676d0760e493f610)

AFFILIATIONS: Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, Jordan

ABSTRACT: Aim: The aim of this potential repurposing study is to investigate the potential inhibitory activity of asenapine against central nervous system CaMKII isozymes using docking experiments and enzymatic assay. Background: The Ca²⁺/calmodulin-dependent protein kinase II (CaMKII) is a multifunctional protein kinase ubiquitously expressed throughout the brain. Emerging biological data have indicated that inhibiting central nervous system CaMKII isoforms, namely, CaMKII α and CaMKII β , may be a promising therapeutic strategy for the potential treatment of many neurological diseases including schizophrenia, depression, epilepsy, and learning deficit. Objective: 1-Study the possible attractive interactions of asenapine within the binding sites of the central CaMKII isozymes. 2-Evaluate the inhibitory activities of asenapine against central CaMKII isozymes. Methods: Docking experiments of asenapine and other known CaMKII inhibitors were performed. Docking settings were validated using ROC analysis. After that, the inhibitory activities of asenapine against central CaMKII alpha and beta were evaluated by enzymatic assay. Result: Docking and scoring experiments of asenapine showed several binding interactions anchoring asenapine within CaMKII α and CaMKII β catalytic sites while enzymatic assay results revealed that asenapine can inhibit CaMKII α and CaMKII β in the micromolar range. Conclusion: Our study provides evidence that asenapine can serve as a promising lead for the development of new CaMKII α and CaMKII β inhibitors. Moreover, this study reinforces how the investment in drug repurposing could boost the drug discovery process. © 2023 Daoud et al.

Alsmadi, A.A., Aalrawashdeh, N., Al-Gasaymeh, A., Al_hazimeh, A.M., Alhawamdeh, L.

Adoption of Islamic Fintech in lending services through prediction of behavioural intention

(2023) Kybernetes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149316581&doi=10.1108%2fK-10-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149316581&doi=10.1108%2fK-10-2022-1362&partnerID=40&md5=b2bb92c055f245664212684d2aa1f09d)

[1362&partnerID=40&md5=b2bb92c055f245664212684d2aa1f09d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149316581&doi=10.1108%2fK-10-2022-1362&partnerID=40&md5=b2bb92c055f245664212684d2aa1f09d)

AFFILIATIONS: Department of Banking and Financial Sciences, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Finance, Isra University, Amman, Jordan;

Department of Finance, Faculty of Economics and Administrative Science, Applied Science University, Amman, Jordan;

Department of Accounting, Al al-Bayt University, Mafrqa, Jordan;

Department of Finance, University of Petra, Amman, Jordan

ABSTRACT: Purpose: This study aims to provide a better comprehension of the behavioural intentions that influence the adoption of Islamic financial technology (Fintech) in Malaysia for two kinds of Islamic lending Fintech services, which are crowdfunding and peer-to-peer (P2P) lending.

Design/methodology/approach: From May to July 2022 the primary data were collected by using a questionnaire distributed online to survey 437 Islamic Fintech clients in Malaysia. Structural equation modelling has been used to analyse the data based on using the partial least squares approach. **Findings:** The findings of this paper shows that planned behaviour, acceptance model and technology's use models are positively impacting factors that influence customers' opinions on adapting Islamic Fintech services in lending. The acceptance model was found to exert a negative impact on the intention to adopt Islamic lending P2P Fintech service. In addition, technology's use has a negative impact on the intention to adopt Islamic lending crowdfunding Fintech service.

Research limitations/implications: First, the study is limited to Islamic Fintech customers in Malaysia only, second, the study adopted an online survey but there is no guarantee that the geography area was fully covered. Another limitation is that the study covers only Islamic Fintech services in lending, thus the study did not attend to variables such as religiosity and the authors believe that this will provide useful insights for future research. **Originality/value:** Despite the importance of this topic, there has been a lack of empirical evidence until now. In this paper, the authors take stock of the empirical evidence in the literature through the importance of the adoption Fintech. This study provides a broad view of the market potentials for Fintech providers from the demand side on a wide range of Islamic Fintech services rather than focussing only on payment, transfer, etc. as presented in previous studies. © 2023, Emerald Publishing Limited.

Askar, N., Jarrar, Y., Gharaibeh, M., Alqudah, M.

Upregulation of Beta 1 and Arachidonic Acid Metabolizing Enzymes in the Mouse Hearts and Kidneys after Sub Chronic Administration of Rofecoxib

(2023) Current Molecular Pharmacology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85149205121&doi=10.2174%2f1874467215666220413085316&partnerID=40&md5=4e8ccb088b9236049ef0eda947da1575

AFFILIATIONS: Department of Pharmacology, Faculty of Medicine, The University of Jordan, Amman, Jordan;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pathology & Microbiology, Faculty of Medicine, Jordan University of Science & Technology, Amman, Jordan

ABSTRACT: Background: An imbalance in the levels of arachidonic acid (ARA) metabolites in cardiovascular disorders and drug-induced cardiotoxicity have been previously described. Aims: This study aimed to investigate the influence of cyclooxygenase-2 (COX-2) selective inhibitors on the gene expression of ARA-metabolizing genes and beta1 gene in the hearts and kidneys of experimental mice.

Methods: Thirty-five balb/c mice were divided into five groups with seven mice per group. The groups were then given two distinct types of COX-2 selective inhibitors, rofecoxib and celecoxib, in two different doses equivalent to those used in human treatment for 30 days. The mRNA expression of beta1, ace2, and ARA-metabolizing genes, coxs, lipoygenases (aloxs), and cytochrome p450 (cyp450s) in mice heart and kidneys were assessed. Genes were analyzed using real-time polymerase chain reaction analysis. In addition, rofecoxib-induced histological alterations were examined. **Results:** It was found that only the high dose of rofecoxib (5 mg/kg) caused toxicological alterations, a finding that was indicated by a significant increase ($P < 0.05$) in the relative weight of the mouse hearts and increase in the ventricle wall thickness as observed through pathohistological examination. This increase was associated with a significant increase in the mRNA expression level of the beta1 receptor in both the heart and kidneys of the mice (53-and 12-fold, respectively). The expression of both cox1 and 2 genes was increased 4-fold in the kidneys. In addition, the expression of the alox12 gene increased significantly (by 67-fold in the heart and by 21-fold in the kidney), while alox15 gene expression was upregulated in the heart by 8-fold and 5-fold in the kidney. The genes responsible for synthesizing 20-Hydroxyeicosatetraenoic acid (cyp4a12 and cyp1a1) were significantly upregulated ($P < 0.05$) in the hearts of high-dose rofecoxib-treated mice by 7-and 17-fold, respectively. In addition, the expression of epoxyeicosatrienoic acid-synthesizing genes, cyp2c29 and cyp2j5, was increased significantly ($P < 0.05$) in the hearts of high-dose rofecoxib-treated mice by 4-and 16-fold, respectively. **Conclusion:** Rofecoxib caused upregulation of the mRNA expression of the beta 1 gene in association with increased expression of ARA-metabolizing genes in mouse hearts and kidneys. These findings may help us understand the molecular cardiotoxic mechanism of rofecoxib. © 2023 Bentham Science Publishers.

Ghadi, M.Q.

Decoding Vehicle Motion Data on the Internal Network

(2023) Open Transportation Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149143291&doi=10.2174%2f18744478-v17-e230111-2022-37&partnerID=40&md5=137cb4defa9f26fadfe6e109df8e8c20>

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, St 594, Airport Rd, Amman, 11733, Jordan

ABSTRACT: Background: Encrypting functions of vehicle internal networks makes the lives of third parties more difficult since, in most cases, the meaning of messages carried by the CAN bus is not disclosed Objectives: This paper proposes a reverse engineering method to discover, to a large extent, the semantics of CAN messages in a vehicle internal network. Methods: A filtering mechanism has been applied that includes several statistical processes to interpret the codes of CAN messages. The speed change function of a vehicle has been chosen as an example to be followed in the development steps of this approach to predict the motion mechanism of the vehicle. The selected codes were verified by developing a multilevel model that relates the hierarchical relationship between the bytes and IDs and their impact on the speed factor. Results: The most influential IDs and bytes on vehicle speed functions were: ID 512, ID 520, ID 664, B2, B4, and B6, respectively. Conclusion: The selected codes used to model the observed speed do not mean they all share the speed function, but there is a good possibility that at least some fulfill this function. However, with some optimization, the same methodology can be applied to detect other semantic messages in the CAN network based on the expected data type. © 2023 Maen Qaseem Ghadi.

Batiha, I.M., Barrouk, N., Ouannas, A., Alshanti, W.G.

On Global Existence of the Fractional Reaction-Diffusion System's Solution

(2023) International Journal of Analysis and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148962805&doi=10.28924%2f2291-8639-21-2023-11&partnerID=40&md5=b7460d7a7296f19724a83ca0e5e368f6>

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates; Department of Mathematics and Informatics, Mohamed Cherif Messaadia University, Souk Ahras, Algeria; Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria

ABSTRACT: The purpose of this paper is to prove the global existence of solution for one of most significant fractional partial differential system called the fractional reaction-diffusion system. This will be carried out by combining the compact semigroup methods with some L1-estimate methods. Our investigation can be applied to a wide class of fractional partial differential equations even if they contain nonlinear terms in their constructions. © 2023 the author(s).

Al-Kafaween, M.A., Al-Groom, R.M., Hilmi, A.B.M.

Comparison of the antimicrobial and antivirulence activities of Sidr and Tualang honeys with Manuka honey against *Staphylococcus aureus*

(2023) Iranian Journal of Microbiology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148638072&doi=10.18502%2fijm.v15i1.11923&partnerID=40&md5=b00ab89594e2d5a6d35757293994840c>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Medical Laboratory Science, Faculty of Allied Medical Sciences, Zarqa University, Zarqa, Jordan;

Department of Allied Medical Sciences, Zarqa University College, Balqa Applied University, Al-Salt, Jordan;

Department of Biomedicine, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Background and Objectives: Honey is one of the oldest traditional remedies that has been widely utilized to cure a variety of human ailments. The objective of this research was to test and compare the antibacterial activity of Sidr honey (SH) and Tualang honey (TH) to that of Manuka honey (MH) against *Staphylococcus aureus*. Materials and Methods: The antibacterial activity of MH, SH and TH against *S. aureus* was investigated by agar well dif-fusion, Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), time-kill curve, microtiter plate and RT-qPCR analysis. Results: Agar inhibition assay showed that MH possess highest total antibacterial activity against *S. aureus* with an inhibition zone 25.1 mm compared with that of SH (22.2 mm) and TH (21.3 mm). The findings showed that when compared to SH and TH (MIC: 25% and MBC: 50%), MH honey had the lowest MIC (12.5%) and MBC (25%). After *S. aureus* was exposed to MH, SH, and TH, there was a decrease in colony-forming unit as seen by the time-kill curve. The lowest concentration 20% of MH, SH and TH was significantly found to inhibit *S. aureus* biofilm. The RT-qPCR results revealed that all the selected genes in *S. aureus* were downregulated in gene expression following exposure to each of the tested honeys. Comparing the total antibacterial, antibiofilm, and antivirulence activities of all the tested honeys, MH demonstrated the greatest levels of these properties. Conclusion: According to this study, various types of each evaluated honey have the capacity to effectively suppress and

modify the virulence of *S. aureus* via a variety of molecular targets. © 2023 The Authors..

Malak, M.Z., Al-Amer, R.M., Abu Adas, M.H.

The influence of shift-work on perceived stress, sleep quality, and body mass index among emergency nurses

(2023) *Journal of Human Behavior in the Social Environment*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148229673&doi=10.1080%2f10911359.2023.2177226&partnerID=40&md5=57c6d91b8a9a966e36e9cad1dd3521e2)

[85148229673&doi=10.1080%2f10911359.2023.2177226&partnerID=40&md5=57c6d91b8a9a966e36e9cad1dd3521e2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148229673&doi=10.1080%2f10911359.2023.2177226&partnerID=40&md5=57c6d91b8a9a966e36e9cad1dd3521e2)

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

School of Nursing and Midwifery, Western Sydney University, Sydney, Australia;

Community Health Nursing, College of Nursing-Khamis Mushait, King Khalid University, Abha, Saudi Arabia

ABSTRACT: Shift-work leads to many negative health outcomes among nurses, including overweight/obesity, high stress level, and sleep disturbances. This study purposed to evaluate the influence of shift-work on perceived stress, sleep quality, and Body Mass Index (BMI) among emergency department (ED) nurses in Jordan. A descriptive correlational design was employed. A structured self-reported questionnaire was used to collect data from emergency nurses in government and private hospitals. A total of 450 emergency nurses responded to the questionnaire. Findings found that around 81.1% and 14.0% of the study participants endorsed moderate and high levels of stress, respectively. The majority of the participants (94.5%) had poor sleep quality; 35.3% had overweight and 18.7% had obesity. The study findings indicated that shift-work influenced on perceived stress ($\beta = 0.18$, $p < .001$) and BMI ($\beta = 0.15$, $p < .001$). The mixed shift-workers had lower perceived stress and higher BMI than their counterparts who were doing other shift-work categories. Hence, shift-work had a negative influence on the levels of perceived stress and BMI. Hence, this influence should be taken into consideration when planning interventions and strategies to minimize the negative effects of shift-work. © 2023 Taylor & Francis Group, LLC.

Batiha, I.M., Alshorm, S., Jebril, I., Zraiqat, A., Momani, Z., Momani, S.

Modified 5-point fractional formula with Richardson extrapolation

(2023) *AIMS Mathematics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148210578&doi=10.3934%2fmath.2023480&partnerID=40&md5=bf425fea1d41f052a5b183372f26ffb)

[85148210578&doi=10.3934%2fmath.2023480&partnerID=40&md5=bf425fea1d41f052a5b183372f26ffb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148210578&doi=10.3934%2fmath.2023480&partnerID=40&md5=bf425fea1d41f052a5b183372f26ffb)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Civil Engineering, The University of Texas at Arlington, Box 19308, 428 Nedderman Hall, Arlington, TX 76019, United States;

Department of Mathematics, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: In this paper, we establish a novel fractional numerical modification of the 5-point classical central formula; called the modified 5-point fractional formula for approximating the first fractional-order derivative in the sense of the Caputo operator. Accordingly, we then introduce a new methodology for Richardson extrapolation depending on the fractional central formula in order to obtain a high accuracy for the gained approximations. We compare the efficiency of the proposed methods by using tables and figures to show their reliability. © 2023 the Author(s), licensee AIMS Press.

Alsmadi, A.A., Alrawashdeh, N., Al-Gasaymeh, A., Al-Malahmeh, H., Al-Hazimeh, A.M.

Impact of business enablers on banking performance: A moderating role of Fintech

(2023) *Banks and Bank Systems*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148077535&doi=10.21511%2fbbs.18%281%29.2023.02&partnerID=40&md5=41178ea70eb867dc4c45911ed3ef5278)

[85148077535&doi=10.21511%2fbbs.18%281%29.2023.02&partnerID=40&md5=41178ea70eb867dc4c45911ed3ef5278](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148077535&doi=10.21511%2fbbs.18%281%29.2023.02&partnerID=40&md5=41178ea70eb867dc4c45911ed3ef5278)

AFFILIATIONS: Finance Banking Department, Al Zaytoonah University of Jordan, Jordan;

Financial and Banking Department, Faculty of Business, Isra University, Jordan;

Finance and Banking Department, Applied Science Private University, Jordan;

MIS Department, University, Jordan;

School of Business, Accounting Department, Al-Bayt University, Jordan

ABSTRACT: The main purpose of this paper is to examine the impact of business enablers and financial technology (Fintech) on the banking industry in order to determine whether it is an opportunity or a disruption. The applied research design is quantitative, and the hypotheses and the model were tested. To achieve the objectives, the study used a questionnaire to collect data. 150 managers in Saudi Arabia banks were surveyed. The participants provided 130 substantial and valid responses, and the PLS-SEM technique was used. Based on the analysis, it was concluded that the presence of business enablers facilitated Fintech progress, which led to the increase in bank performance, from the economic, social and environmental point of view. In addition, Fintech also plays a mediating role,

by increasing the positive impact of business enablers. Therefore, Fintech provides several opportunities, not a disruptive technology, for the banking industry. The research paper explains the importance of Fintech progress in Saudi Arabian banking. Many have viewed Fintech as a disruptive technology, but this study found that it presents various opportunities for the Saudi Arabian banking industry. © Ayman Abdalmajeed Alsmadi, Najed Alrawashdeh, Anwar Al-Gasaymeh, Heba Al-Malahmeh, Amer Moh'd Al_hazimeh, 2023.

Alwahsh, M., Farhat, J., Talhouni, S., Hamadneh, L., Hergenröder, R.

BORTEZOMIB ADVANCED MECHANISMS OF ACTION IN MULTIPLE MYELOMA, SOLID AND LIQUID TUMORS ALONG WITH ITS NOVEL THERAPEUTIC APPLICATIONS

(2023) EXCLI Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147296465&doi=10.17179%2fexcli2022-5653&partnerID=40&md5=5aa37d2d07370c85a5295c6164d38fb5>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Leibniz-Institut für Analytische Wissenschaften-ISAS-e.V, Dortmund, 44139, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Center Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Department of Epidemiology and Population Health, College of Medicine and Health Sciences, Khalifa University, PO Box 127788, Abu Dhabi, United Arab Emirates

ABSTRACT: Bortezomib (BTZ) is a first-in-class reversible and selective proteasome inhibitor. It inhibits the ubiquitin proteasome pathway that leads to the degradation of many intracellular proteins. Initially, BTZ was FDA approved for the treatment of refractory or relapsed multiple myeloma (MM) in 2003. Later, its usage was approved for patients with previously untreated MM. In 2006, BTZ was approved for the treatment of relapsed or refractory Mantle Cell Lymphoma (MCL) and, in 2014, for previously untreated MCL. BTZ has been extensively studied either alone or in combination with other drugs for the treatment of different liquid tumors especially in MM. However, limited data evaluated the efficacy and safety of using BTZ in patients with solid tumors. In this review, we will discuss the advanced and novel mechanisms of action of BTZ documented in MM, solid tumors and liquid tumors. Moreover, we will shed the light on the newly discovered pharmacological effects of BTZ in other prevalent diseases. © 2023, Leibniz Research Centre for Working Environment and Human Factors. All rights reserved.

Saleh, M.M., Abuarqoub, D.A., Hammad, A.M., Hossan, M.S., Ahmed, N., Aslam, N., Naser, A.Y., Moody, C.J., Laughton, C.A., Bradshaw, T.D.

In Vitro Anticancer Properties of Novel Bis-Triazoles

(2023) Current Issues in Molecular Biology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146826113&doi=10.3390%2fcimb45010014&partnerID=40&md5=188e601e961855c6badd02852f190fee>

AFFILIATIONS: Department of Applied Pharmaceutical Sciences and Clinical Pharmacy, Faculty of Pharmacy, Isra University, Amman, 11622, Jordan;

Biodiscovery Institute, School of Pharmacy, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom;

Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Cell Therapy Center, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Medicine, Center for Human Genomics and Precision Medicine, University of Wisconsin-Madison, Madison, WI 53705, United States;

Department of Pharmacy, Faculty of Sciences and Engineering, East West University, Dhaka, 1212, Bangladesh;

School of Chemistry, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom

ABSTRACT: Here, we describe the anticancer activity of our novel bis-triazoles MS47 and MS49, developed previously as G-quadruplex stabilizers, focusing specifically upon the human melanoma MDA-MB-435 cell line. At the National Cancer Institute (NCI), USA, bis-triazole MS47 (NCS 778438) was evaluated against a panel of sixty human cancer cell lines, and showed selective, distinct multi-log differential patterns of activity, with GI50 and LC50 values in the sub-micromolar range against human cancer cells. MS47 showed highly selective cytotoxicity towards human melanoma, ovarian, CNS and colon cancer cell lines; in contrast, the leukemia cell lines interestingly showed resistance to MS47 cytotoxic activity. Further studies revealed the potent cell growth inhibiting properties of MS47 and MS49 against the human melanoma MDA-MB-435 cell line, as verified by MTT assays; both ligands were more potent against cancer cells than MRC-5 fetal lung fibroblasts (SI > 9). Melanoma colony formation was significantly suppressed by MS47 and MS49, and time- and dose-dependent apoptosis induction was also observed. Furthermore, MS47 significantly arrested melanoma cells at the G0/G1 cell cycle phase. While the expression levels of Hsp90 protein in melanoma cells were

significantly decreased by MS49, corroborating its binding to the G4-DNA promoter of the Hsp90 gene. Both ligands failed to induce senescence in the human melanoma cells after 72 h of treatment, corroborating their weak stabilization of the telomeric G4-DNA. © 2022 by the authors.

Alrob, O.A., Sankaralingam, S., Alazzam, S., Nusairat, B., Qattoum, M., Nusair, M.B.
Obesity Paradox among Heart Failure with Reduced Ejection Fraction Patients: A Retrospective Cohort Study

(2023) Medicina (Lithuania), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146823839&doi=10.3390%2fmedicina59010060&partnerID=40&md5=e78f4ee35a2168283cdfd8a63cf38ade)

[85146823839&doi=10.3390%2fmedicina59010060&partnerID=40&md5=e78f4ee35a2168283cdfd8a63cf38ade](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146823839&doi=10.3390%2fmedicina59010060&partnerID=40&md5=e78f4ee35a2168283cdfd8a63cf38ade)

AFFILIATIONS: Clinical Pharmacy and Pharmacy Practice Department, Faculty of Pharmacy, Yarmouk University, Irbid, 21163, Jordan;

Clinical Pharmacy and Practice Department, College of Pharmacy, QU Health, Qatar University, Doha, 2713, Qatar;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Sociobehavioral and Administrative Pharmacy, College of Pharmacy, Nova Southeastern University, Fort Lauderdale, FL 33314, United States

ABSTRACT: Background and Objectives: There is consensus on the negative effects of obesity on the development of heart failure. However, several studies have suggested that obesity may have paradoxical survival benefits in heart failure patients. Therefore, the aim of this study is to investigate whether the obesity paradox exists in heart failure with reduced ejection fraction (HFrEF) patients in Jordan. Materials and Methods: In this retrospective cohort study, data were retrieved from electronic hospital records of heart failure patients admitted to King Abdullah University Hospital between January 2010 and January 2020. Patients were divided into five BMI (kg/m²) subgroups: (1) Less than 25.0, (2) Overweight 25.0–29.9, (3) Obese Class I 30.0–34.9, (4) Obese Class II 35.0–39.9, and (5) Obese Class III ≥40.0. Changes in patients' clinical and echocardiographic parameters over one year were analyzed. Results: Data of a total of 297 patients were analyzed to determine the effect of obesity on heart failure. The mean age was 64.6 ± 12.4 years, and most patients (65.7%) were male. Among several co-morbidities, diabetes mellitus and hypertension were the most common and were present in 81.8% and 81.1% of patients, respectively. Over all patients, there was no significant change in EF after 1 year compared to baseline. However, only patients in the Obese Class I group had a statistically significant improvement in EF of 38.0 ± 9.81% vs. 34.8 ± 6.35% (p = 0.004) after 1 year. Importantly, among non-diabetic individuals, only Obese Class I patients had a significant (p < 0.001) increase in EF after 1 year compared to other BMI subgroups, a feature that was not observed among patients with diabetes. On the other hand, only Obese Class I patients with hypertension had a significant improvement (p < 0.05) in EF after 1 year compared to other BMI subgroups, a feature that was not observed among patients without hypertension. Conclusions: Our study demonstrates an inverted U-shaped relationship between BMI and EF such that patients with mild obesity (i.e., Obese Class I) had significant improvement in EF compared to those having a lower and higher BMI. We, therefore, suggest the existence of the obesity paradox among HFrEF patients in Jordan. © 2022 by the authors.

Amjad, Z., Iqbal, J., Laith, H., Mohammad, A.

Remarks on Some Higher Dimensional Hardy Inequalities

(2023) International Journal of Analysis and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146604439&doi=10.28924%2f2291-8639-21-2023-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146604439&doi=10.28924%2f2291-8639-21-2023-2&partnerID=40&md5=a9e26cb1a80bcb5744c7704ad9b6ea28)

[2&partnerID=40&md5=a9e26cb1a80bcb5744c7704ad9b6ea28](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146604439&doi=10.28924%2f2291-8639-21-2023-2&partnerID=40&md5=a9e26cb1a80bcb5744c7704ad9b6ea28)

AFFILIATIONS: Alzaytoonah University of Jordan, Jordan;

School of Basic Sciences and Humanities, German Jordanian University, P.O. Box 35247, Amman, 11180, Jordan

ABSTRACT: In this note, we give an elementary proof of Hardy inequality in higher dimensions introduced by Christ and Grafakos. The advantage of our approach is that it uses the one-dimensional Hardy inequality to obtain higher dimensional versions. We go further and get some well-known weighted estimates using the same approach. © 2023 the author(s).

Livesey, T.C., Mahmoud, L.A.M., Katsikogianni, M.G., Nayak, S.

Metal-Organic Frameworks and Their Biodegradable Composites for Controlled Delivery of Antimicrobial Drugs

(2023) Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146597831&doi=10.3390%2fpharmaceutics15010274&partnerID=40&md5=cd2e8dc44d74da30ab2a5bce47ed9e47)

[85146597831&doi=10.3390%2fpharmaceutics15010274&partnerID=40&md5=cd2e8dc44d74da30ab2a5bce47ed9e47](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146597831&doi=10.3390%2fpharmaceutics15010274&partnerID=40&md5=cd2e8dc44d74da30ab2a5bce47ed9e47)

AFFILIATIONS: School of Chemistry and Biosciences, University of Bradford, Bradford, BD7 1DP, United Kingdom;

School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Antimicrobial resistance (AMR) is a growing global crisis with an increasing number of untreatable or exceedingly difficult-to-treat bacterial infections, due to their growing resistance to existing drugs. It is predicted that AMR will be the leading cause of death by 2050. In addition to ongoing efforts on preventive strategies and infection control, there is ongoing research towards the development of novel vaccines, antimicrobial agents, and optimised diagnostic practices to address AMR. However, developing new therapeutic agents and medicines can be a lengthy process. Therefore, there is a parallel ongoing worldwide effort to develop materials for optimised drug delivery to improve efficacy and minimise AMR. Examples of such materials include functionalisation of surfaces so that they can become self-disinfecting or non-fouling, and the development of nanoparticles with promising antimicrobial properties attributed to their ability to damage numerous essential components of pathogens. A relatively new class of materials, metal-organic frameworks (MOFs), is also being investigated for their ability to act as carriers of antimicrobial agents, because of their ultrahigh porosity and modular structures, which can be engineered to control the delivery mechanism of loaded drugs. Biodegradable polymers have also been found to show promising applications as antimicrobial carriers; and, recently, several studies have been reported on delivery of antimicrobial drugs using composites of MOF and biodegradable polymers. This review article reflects on MOFs and polymer-MOF composites, as carriers and delivery agents of antimicrobial drugs, that have been studied recently, and provides an overview of the state of the art in this highly topical area of research. © 2023 by the authors.

Jarab, A.S., Al-Qerem, W., Mukattash, T.L.

Information technology in pharmacy practice: Barriers and utilization

(2023) Journal of Applied Pharmaceutical Science, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85146307112&doi=10.7324%2fJAPS.2023.130114&partnerID=40&md5=f54e35d9dff4196fa121b229671d15b9

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Clinical Sciences, Faculty of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: A web-based cross-sectional study was conducted to evaluate pharmacists' perception of information technology (IT) utilization and to explore the barriers for its implementation in hospital and community pharmacies. Three scores were calculated including tasks, frequency of use, and capability scores. The majority of the participants (n = 784) were community pharmacists (88.8%) and had less than 10 years of work experience (94.8%). Google was the most frequently used source for information (72.4%). No vision or strategic plan for IT was the most common barrier for IT utilization (41.5%). Pharmacists who had a Doctor of Pharmacy (Pharm. D) degree had a significantly higher mean in the three calculated scores, and females had a significantly higher tasks score mean. Quantile regression results showed that Pharm. D holders had significantly higher task scores (Coefficient = 1.09, p-value < 0.01) than those with Bachelor of Pharmacy (BPharm) degree, who had significantly lower frequency and capability scores (Coefficient = -6.68 and -1.80, p = 0.02 and <0.01, respectively). Efforts should be made by the different healthcare authorities to overcome the identified barriers and to improve pharmacists' utilization of IT in order to improve patient care and health outcomes. © 2023 Anan S. Jarab et al. This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>).

Tamimi, L.N., Zakaraya, Z., Hailat, M., Abu Dayyih, W., Daoud, E., Abed, A., Saadh, M.J., Majeed, B., Abumansour, H., Aburumman, A., Majeed, J.M., Hamad, M.

Anti-diabetic effect of cotreatment with resveratrol and pioglitazone in diabetic rats

(2023) European Review for Medical and Pharmacological Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85146275761&doi=10.26355%2feurrev_202301_30879&partnerID=40&md5=6e9d93522cc48f3d593a8d7b1ff6a145

AFFILIATIONS: Faculty of Pharmacy, Zarqa University, Zarqa, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Al-Salt, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Mutah University, Al Karak, Jordan;

Faculty of Pharmacy, Middle East University, Amman, Jordan;

Applied Science Research Center, Applied Science Private University, Amman, Jordan;

Pharmacy Department, Al-Mustaqbal University College, Baghdad, Iraq;

Department of Basic Medical Science, Faculty of Medicine, Al-Balqa Applied University, As-Salt, Jordan

ABSTRACT: OBJECTIVE: Limitations and side effects associated with current anti-diabetic treatments have necessitated the search for new therapeutic alternatives. This study aimed to explore the combined use of resveratrol (RVT) and established anti-diabetic drug pioglitazone (PGZ) against

streptozotocin (STZ)-induced diabetes mellitus (DM). MATERIALS AND METHODS: STZ was supplemented daily to Sprague-Dawley rats to induce DM. The synergistic effect of the RVT (20 mg/kg) and PGZ (0.65 mg/kg) on DM complications was evaluated after 8 weeks of treatment. Biochemical analyses were performed to evaluate the effectiveness of our treatment on glucose level, insulin sensitivity, lipid disturbances, oxidative mediators and inflammatory markers. RESULTS: STZ induced DM onset that is accompanied with elevated diabetic markers, lipid disturbances, remarkable oxidative damage and hyper-inflammation. The PGZ+RVT combination has the best effect as illustrated by significant ($p < 0.05$) decreases in fasting blood glucose, insulin, HbA1c and HOMA-IR levels. This combination attenuated ($p < 0.05$) lipid disturbances and their associated elevated atherogenic biomarkers. At the same time, treatments with PGZ+RVT exhibited an anti-inflammatory effect as it attenuated the increase in inflammatory parameters (CRP, TNF- α , IL-6). Also, it restored total antioxidant capacity and peroxisome proliferator-activated receptor (PPAR γ) levels that decreased by STZ-DM induction. CONCLUSIONS: This study provides PGZ+RVT as promising DM therapeutic alternative. This synergistic combination alleviates most of DM-related complications and insulin resistance. © 2023 Verduci Editore s.r.l. All rights reserved.

Qawaqneh, H., Noorani, M.S.M., Aydi, H.

Some new characterizations and results for fuzzy contractions in fuzzy b-metric spaces and applications

(2023) AIMS Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146136886&doi=10.3934%2fmath.2023338&partnerID=40&md5=db5eb2b0c9b934349950db747702380a)

85146136886&doi=10.3934%2fmath.2023338&partnerID=40&md5=db5eb2b0c9b934349950db747702380a

AFFILIATIONS: Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Mathematical Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, UKM, Selangor Darul Ehsan 43600, Malaysia;

Université de Sousse, Institut Supérieur d'Informatique et des Techniques de Communication, H. Sousse 4000, Tunisia;

China Medical University Hospital, China Medical University, Taichung, 40402, Taiwan;

Department of Mathematics and Applied Mathematics, Sefako Makgatho Health Sciences University, Ga-Rankuwa, South Africa

ABSTRACT: In this work, we initiate the notion of a fuzzy cyclic (α, β)-admissibility to establish some fixed point results for contraction mappings involving a generalized simulation function in the class of fuzzy b-metric spaces. We give some illustrative examples to validate the new concepts and obtained results. At the end, we present an application on a Fredholm integral equation. © 2023 the Author(s), licensee AIMS Press.

Qatawneh, A.M.

The role of organizational culture in supporting better accounting information systems outcomes

(2023) Cogent Economics and Finance, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146132137&doi=10.1080%2f233222039.2022.2164669&partnerID=40&md5=d735c6dfe8b387f73228b2176ed469ec)

85146132137&doi=10.1080%2f233222039.2022.2164669&partnerID=40&md5=d735c6dfe8b387f73228b2176ed469ec

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The current study aimed at exploring the role of organizational culture in supporting better AIS outcomes from perspective of financial and accounting managers within SMEs in Jordan during the fiscal year 2021–2022. Independent variables of study (organizational culture) included (Involvement, Adaptability, Mission, Consistency), while dependent variable was AIS outcomes within the organization. Quantitative approach was adopted and (318) questionnaire was distributed on financial and accounting managers from different SMEs in the Jordanian capital Amman, during the fiscal year 2021/2022. SPSS was employed so as to reach numerical results that can lead to explaining the phenomenon under study, and it was indicated that the main hypothesis was accepted

“Organizational culture has a statistically positive influence on reaching better AIS outcomes within SMEs in Amman”. Among the sub-variables it was seen that involvement to be the most influential variable with an $R = 0.772$ followed directly by consistency scoring an $R = .608$, other variables were also seen to influential with lower degrees. Study Recommended carrying out a research that explores the influence of AIS outcomes and characteristics on organizational culture, in addition to the need from organizations to employ highly skilled and competent professionals and accountants to generate financial information and have appropriate academic qualifications. Further recommendations were presented later in the study. © 2023 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

Qandil, A., Othman, A., Beithou, N.I.

Experimental Analysis of Atmospheric Water Harvester Using Ammonia Vapour Absorption System

(2023) Journal of Ecological Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85145005063&doi=10.12911%2f22998993%2f156612&partnerID=40&md5=79b6402ab55a3af563a0009c79c2adef
AFFILIATIONS: Faculty of Engineering and Technology, Mechanical Engineering Department, Al Zaytoonah University of Jordan, P.O. Box 130, Amman, Jordan;
Alternative Energy Technology Department, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, Jordan;
Department of Mechanical Engineering, Tafila Technical University, P. O. Box 179, Tafila, Jordan
ABSTRACT: There are increasing concerns for the promising future of atmospheric water harvesters (AWH). AWH have been analysed theoretically and experimentally using different technologies such as Vapour Compression (VC) Thermoelectric (TE), Sorption (absorption, adsorption) and shape-based techniques. These techniques are suffering from low water harvesting or high energy consumption. The ammonia vapour absorption system (VAS) (which can be operated using renewable energy sources) has not yet been analysed experimentally. In this study, the AWH based on ammonia VAS has been studied experimentally, the effect of air flow velocity and ambient conditions have been analysed. The comparison between the existing techniques and VAS was performed to explore the possibility of implementing biomass, geothermal and solar energy in generating water from atmosphere, thus reducing the cost of the m3 of water produced. © 2023, Journal of Ecological Engineering. All Rights Reserved.

Shatnawi, M.T., Abbes, A., Ouannas, A., Batiha, I.M.

A new two-dimensional fractional discrete rational map: chaos and complexity

(2023) Physica Scripta, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144618344&doi=10.1088%2f1402-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144618344&doi=10.1088%2f1402-4896%2faca531&partnerID=40&md5=f93d39fb667ac42988e46046c3498f55)

[4896%2faca531&partnerID=40&md5=f93d39fb667ac42988e46046c3498f55](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144618344&doi=10.1088%2f1402-4896%2faca531&partnerID=40&md5=f93d39fb667ac42988e46046c3498f55)

AFFILIATIONS: Department of Basic Science, Al-Huson University College, Al-Balqa Applied University, Irbid, 21510, Jordan;

Department of mathematics, Badji Mokhtar University, Annaba, Algeria;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: In this paper, a new two-dimensional fractional-order discrete rational map with γ th-Caputo fractional difference operator is introduced. The study of the presence and stability of the fixed points shows that there are four types of these points; no fixed point, a line of fixed points, one fixed point and two fixed points. In addition, in the context of the commensurate and incommensurate instances, the nonlinear dynamics of the suggested fractional-order discrete map in different cases of fixed points are investigated through several numerical techniques including Lyapunov exponents, phase attractors and bifurcation diagrams. These dynamic behaviors suggest that the fractional-order discrete rational map has both hidden and self-excited attractors, which have rarely been described in the literature. Finally, to validate the presence of chaos, a complexity analysis is carried out using approximation entropy (ApEn) and the C_0 -measure. © 2022 IOP Publishing Ltd.

Alqudah, A.M.A.

Data analysis of digital interactive art through information technology

(2023) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144505584&doi=10.5267%2fj.ijdns.2022.9.007&partnerID=40&md5=e7cac9683d17314099fb0386b24aa456)

[85144505584&doi=10.5267%2fj.ijdns.2022.9.007&partnerID=40&md5=e7cac9683d17314099fb0386b24aa456](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144505584&doi=10.5267%2fj.ijdns.2022.9.007&partnerID=40&md5=e7cac9683d17314099fb0386b24aa456)

AFFILIATIONS: Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The primary objective of this paper is the data analysis of digital interactive art on Jordanian university students using information technology. The study also uses information technology because of the opportunities that technology provides for an interactive nature between the innovative process, productivity, and high flexibility. The data is collected using a questionnaire, and the majority of the study population is made up of Jordanian university students. According to the findings of this study, Digital Interactive Art has a substantial influence on Jordanian University Students' Information Technology. © 2023 by the authors; licensee Growing Science, Canada.

Subih, M., Salem, H., Al Omari, D.

Evaluation of compassion fatigue and compassion satisfaction among emergency nurses in Jordan: A cross-sectional study

(2023) International Emergency Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144059506&doi=10.1016%2fj.ienj.2022.101232&partnerID=40&md5=5ab1812fc9c2cc1a58257ea8efa3594a)

[85144059506&doi=10.1016%2fj.ienj.2022.101232&partnerID=40&md5=5ab1812fc9c2cc1a58257ea8efa3594a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144059506&doi=10.1016%2fj.ienj.2022.101232&partnerID=40&md5=5ab1812fc9c2cc1a58257ea8efa3594a)

AFFILIATIONS: School of Nursing - Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan;

Royal Medical Services - King Hussien Medical Center, Jordan;

School of Nursing - Al Zaytoonah University of Jordan, Jordan

ABSTRACT: Background: Nurses working in emergency departments are overworked and exposed to frequent stressors over time, leading to compassion fatigue, burnout, and secondary traumatic stress. Aims: This study aimed to assess the levels of compassion fatigue and compassion satisfaction, and examine the relationship of these two variables with specific demographic, health-related, and work-related factors among emergency nurses in Jordan. Methods: This is a cross-sectional study. The Professional Quality of Life Scale Version 5 was used to collect data. Results: A convenience sampling method was used to recruit 203 registered nurses from emergency departments in Jordan. The mean compassion fatigue and satisfaction scores were moderate. There was a significant but negligible correlation between compassion satisfaction and educational levels ($r = 0.15$, $p < 0.05$) and between secondary traumatic stress and comorbid diseases ($r = -0.16$, $p < 0.05$). Conclusions: Although the levels of compassion fatigue and satisfaction were moderate, both may negatively affect nurses' care and patient outcomes. Conversely, compassion satisfaction should be improved in order to overcome the negative effects of compassion fatigue. © 2022 Elsevier Ltd

Rahman, R.U., Al-Maaaitah, A.F., Qousini, M., Az-Zo'bi, E.A., Eldin, S.M., Abuzar, M.
New soliton solutions and modulation instability analysis of fractional Huxley equation
(2023) Results in Physics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143870549&doi=10.1016%2fj.rinp.2022.106163&partnerID=40&md5=0c421d5d29b8ea21bce9acabe8b8159c)

[85143870549&doi=10.1016%2fj.rinp.2022.106163&partnerID=40&md5=0c421d5d29b8ea21bce9acabe8b8159c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143870549&doi=10.1016%2fj.rinp.2022.106163&partnerID=40&md5=0c421d5d29b8ea21bce9acabe8b8159c)

AFFILIATIONS: Institute for Advanced Study, Shenzhen University, Guangdong, Shenzhen, 518060, China;
Department of Physics, Mutah University, Al-Karak, Jordan;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department Mathematics and Statistics, Mutah University, Al-Karak, Jordan;

Center of Research, Faculty of Engineering, Future University in Egypt, New Cairo, 11835, Egypt;

School of Mathematics, Minhaj University, Lahore, 54590, Pakistan

ABSTRACT: In this research, the new auxiliary equation method (NAEM) for higher order nonlinear fractional Huxley equation is being employed to extricate the novel soliton solutions using Beta and M-Truncated fractional derivatives. For waves of finite amplitude, the Huxley equation demonstrates a substantial transfer of spectrum energy. A comparison of the solutions of the model with both fractional derivatives is also included in this research. Various kinds of solitary traveling wave solutions, such as trigonometric, hyperbolic, exponential, rational functions, etc., are found. These types of solutions demonstrate the superiority of the novelty of the method. This method's key advantage over others is that it provides more broad solutions with certain flexible parameters. 3D and 2D graphs are used graphically to demonstrate the dynamical structures of the solutions. The results are presented in a way that demonstrate the usefulness and competence of the approach used to handle various nonlinear fractional partial differential equations. Lastly, we investigate the comparison of the gain spectra for modulation instability and the depiction of certain noteworthy outcomes by illustratively depicting the 2D figures produced by carefully considering the parameters © 2022 The Author(s)

Theng, L.W., San, M.M., Cheng, O.Z., Shen, W.W., Sumari, P., Abualigah, L., Zitar, R.A., Izci, D., Jamei, M., Al-Zu'bi, S.

Salak Image Classification Method Based Deep Learning Technique Using Two Transfer Learning Models
(2023) Studies in Computational Intelligence, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142664266&doi=10.1007%2f978-3-031-17576-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142664266&doi=10.1007%2f978-3-031-17576-3_4&partnerID=40&md5=2d9685b518d7976dc19fd2700663d649)

[3_4&partnerID=40&md5=2d9685b518d7976dc19fd2700663d649](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142664266&doi=10.1007%2f978-3-031-17576-3_4&partnerID=40&md5=2d9685b518d7976dc19fd2700663d649)
AFFILIATIONS: School of Computer Sciences, Universiti Sains Malaysia, Pulau Pinang, George Town, 11800, Malaysia;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;
Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;

Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, 38044, United Arab Emirates;

Department of Electronics and Automation, Batman University, Batman, 72060, Turkey;

Faculty of Engineering, Shohadaye Hoveizeh Campus of Technology, Shahid Chamran University of Ahvaz, Dashte Azadegan, Iran;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Salak is one of the fruits plants in Southeast Asia; there are at least 30 cultivars of salak. The size, shape, skin color, sweetness or even flesh color will be different depending on the cultivar. Thus, classification of salak based on their cultivar become a daily job for the fruit farmers. There are many techniques that can be used for fruit classification using computer vision technology. Deep learning is the most promising algorithm compared to another Machine Learning (ML) algorithm. This paper presents an image classification method on 4 types of salak (salak pondoh, salak gading, salak sideempuan and salak affinis) using a Convolutional Neural Network (CNN), VGG16 and ResNet50. The dataset consists of 1000 images which having 250 of images for each type of salak. Pre-processing on the dataset is required to standardize the dataset by resizing the image into

224 * 224 pixels, convert into jpg format and augmentation. Based on the accuracy result from the model, the best model for the salak classification is ResNet50 which gave an accuracy of 84% followed by VGG16 that gave an accuracy of 77% and CNN which gave 31%. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Shtaiwi, M., Aljaar, N., Al-Najjar, L., Malakar, C.C., Shtaiwi, A., Abu-Sini, M., Al-Refai, M. Design, Synthesis, Biological Activity, and Molecular Modeling of Novel Spiroquinazoline Derivatives as Acetylcholinesterase Inhibitors for Alzheimer Disease (2023) Polycyclic Aromatic Compounds, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142255335&doi=10.1080%2f10406638.2022.2144911&partnerID=40&md5=c6b69181e9085692785fb969c51eca6a>

AFFILIATIONS: Department of Chemistry, Faculty of Science, The Hashemite University, Zarqa, Jordan; Department of Chemistry, National Institute of Technology Manipur, Imphal, India; Faculty of Pharmacy, Middle East University, Amman, Jordan; Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Chemistry, Al al-Bayt University, Mafraq, Jordan

ABSTRACT: The p-toluene sulfonic acid (p-TSA) catalyzed cascade ring closing transformation has been executed for the preparation of novel spiroquinazolinone compounds 4 and 5 by the reaction between anthranilamide and cyclohexanone followed by subsequent acylation. These molecules were then examined against the inhibitory activity of Acetylcholinesterase (AChE). The tested compounds revealed moderate anti-AChE activity of IC₅₀ values ranging from 46.675 to 14.256 μM). The described results lead toward the development of compounds 4b and 5c having promising anti-AChE activities with IC₅₀ values at the micromolar level. The docking study suggests that these hybrid spiroquinazolinone scaffold might facilitate the further development of investigated compounds as anti-Alzheimer agents. © 2022 Taylor & Francis Group, LLC.

Al-Qerem, W., Jarab, A., Abu Heshmeh, S.R., Ling, J. Variables associated with asthma control among adult patients (2023) Journal of Asthma, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142233634&doi=10.1080%2f02770903.2022.2144351&partnerID=40&md5=c70ae540719a5cf8d8b183636c0ec66c>

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Collage of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Sunderland, United Kingdom

ABSTRACT: Objective: Asthma is one of the most prevalent chronic diseases with a substantial impact on the health status of affected patients. Further research is necessary to identify factors contributing to poor asthma control. The current study aimed to investigate the factors associated with poor asthma control among adult asthmatic patients. Methods: In this case-control study, the Asthma Control Test (ACT) was translated into Arabic and distributed to adults with asthma attending two hospitals in Jordan to evaluate the degree of asthma control. The following variables were collected for each patient: sociodemographic information, comorbidities, appropriate use of inhaler technique, spirometric measurements, and medications use. Binary regression was used to evaluate factors associated with asthma control. Results: A total of 314 participants with a mean age of 51.47 years (±16.37) completed the study. ACT score had a mean of 16.68 (±4.86). The majority of asthmatic patients had insufficiently controlled asthma (64.6%). Binary regression results showed that previous respiratory infection history (p = 0.014, OR = 0.473 (95%CI 0.261–0.857)), higher exposure to irritants (p = 0.010, OR = 0.747 (95%CI 0.598–0.933)) decreased the odds of being in the controlled asthma group. Patients receiving inhaled corticosteroids (ICS) had higher odds of being in the controlled asthma group (p = 0.039, OR = 2.372 (95%CI 1.043–5.392)). Conclusions: The majority of asthma patients had insufficiently managed disease. The main factors that contributed to poor asthma control were respiratory infection history, increased exposure to asthma symptoms triggers, and ICS nonuse. © 2022 Taylor & Francis Group, LLC.

Abd-Alhamid, F., Kent, M., Wu, Y.

Quantifying window view quality: A review on view perception assessment and representation methods (2023) Building and Environment, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142142571&doi=10.1016%2fj.buildenv.2022.109742&partnerID=40&md5=c52f2d5bde8553bb5935568372a60044>

AFFILIATIONS: Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Berkeley Education Alliance for Research in Singapore, Singapore;

Department of Architecture and Built Environment, Faculty of Engineering, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom

ABSTRACT: Views provided by windows are key factors that affect occupants' overall psychological and physiological comfort inside buildings. Despite their importance, there are no established approaches and regulations to guide designers and researchers in investigating view perception. This paper systemically reviews studies on view perception in terms of quality and quantity factors affecting view perception (i.e., content-related factors, design-related factors including window's shape and size, shading devices, mullions, and partitions, dynamic changes in views based on observer-related factors, and view size) and discuss views impact on other visual (i.e., glare) and non-visual (i.e., privacy and thermal comfort) perceptions. In addition, the notion of view quality and quantity is discussed. Furthermore, methods used to visually represent views from windows, and methods used to quantify view perception subjectively and objectively are critically reviewed. As a result, knowledge gaps were identified for future studies in relation to view quality assessment and experimental design; and an all-inclusive comprehensive approach to quantify view quality using subjective and objective assessments along with an adequate representation method is proposed. © 2022 The Authors

Hamdan, S., Almajali, S., Ayyash, M., Bany Salameh, H., Jararweh, Y.

An intelligent edge-enabled distributed multi-task learning architecture for large-scale IoT-based cyber-physical systems

(2023) Simulation Modelling Practice and Theory, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141537157&doi=10.1016%2fj.simpat.2022.102685&partnerID=40&md5=b3cf9112eaa578edc0f2a655093e4f69)

[85141537157&doi=10.1016%2fj.simpat.2022.102685&partnerID=40&md5=b3cf9112eaa578edc0f2a655093e4f69](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141537157&doi=10.1016%2fj.simpat.2022.102685&partnerID=40&md5=b3cf9112eaa578edc0f2a655093e4f69)

AFFILIATIONS: Computer Science Department, Princess Sumaya University for Technology, Amman, Jordan; Cybersecurity Department, Faculty of Science and Information Technology, Al-zaytoonah University of Jordan, Jordan;

CIMST Department, Chicago State UniversityIL, United States;

Department of Networks and Communication Engineering, Al Ain University, Al Ain, United Arab Emirates;

Artificial Intelligence Research Center, Al Ain University, Al Ain, United Arab Emirates;

Department of Telecommunications Engineering, Yarmouk University, Irbid, Jordan;

Computer Science Department, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Internet-of-Things (IoT)-based cyber-physical systems are increasingly being adopted because of the recent technological advancements in sensor technology, edge computing, machine learning, and big data. Integrating machine learning into designing IoT-based cyber-physical systems is essential. However, it is considered a challenging problem. This stems from the fact that IoT devices generate extensive data that requires extensive processing to achieve adequate learning. Relying on local learning by each IoT device is not feasible in most cases due to its limited resources. On the contrary, relying on all cloud-based learning requires transmitting a large amount of data to the cloud to perform the learning process, which is inefficient in large-scale IoT deployments. Therefore, this paper proposes a novel edge-computing architecture that employs the concept of distributed multi-task learning over EC networks in large-scale IoT-based cyber-physical systems. The architecture develops multiple distributed learning algorithms, a data placement architecture, task allocation algorithms, and a network protocol. In addition, it considers the problem of learning model parameters from IoT data distributed over different edge nodes in a large geographical area without sending raw data to the cloud. The architecture supports several distributed machine models that are trained using a combination of machine learning algorithms and population-based search algorithms to optimize the learning process. Population-based search algorithms allow for maintaining a set of candidate solutions, with each solution corresponding to a unique point in the search space for an optimal solution. Having the dataset distributed over several edge nodes, with each node having its own unique set of candidate solutions, increases the chance of finding a solution that generalizes well for the overall dataset combined. Simulation experiments with real IoT datasets are conducted to evaluate the accuracy of the proposed learning models. Results show the ability to achieve high-accuracy results that are close to single-machine models but with significantly efficient edge computing resource utilization. © 2022 Elsevier B.V.

Saleh, I., Abu Afifa, M., Alkhawaja, A.

Internal corporate governance mechanisms and earnings manipulation practices in MENA countries

(2023) Economic Research-Ekonomiska Istrazivanja, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140843543&doi=10.1080%2f1331677X.2022.2134902&partnerID=40&md5=23763cf3a7c4493da67c27731eb171c8)

[85140843543&doi=10.1080%2f1331677X.2022.2134902&partnerID=40&md5=23763cf3a7c4493da67c27731eb171c8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140843543&doi=10.1080%2f1331677X.2022.2134902&partnerID=40&md5=23763cf3a7c4493da67c27731eb171c8)

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Finance and Economics, Griffith Business School, Griffith University, Brisbane, QLD, Australia

ABSTRACT: This study has the objective of examining how internal corporate governance mechanisms are related to earnings manipulation, measured by real-based earnings manipulation (REM) and accrual-based earnings manipulation (AEM). The internal corporate governance mechanisms discussed in this

study signify two main kinds of board characteristics (board size and board independence) and three main kinds of ownership structure (institutional ownership, foreign ownership and business group affiliation). The study models were examined from eight countries selected from the Middle East and North Africa (MENA) region. A total of 480 non-financial firms listed between 2012 and 2019 were examined. Based on panel data-based generalised methods of moments (GMM) estimation, the findings showed that institutional ownership in MENA nations limits the use of REM and AEM. Additionally, we found that larger boards are more likely to participate in REM practices. Board independence has a positive association with REM and AEM. The results also reveal that business group affiliation has a significant effect on both methods of earnings manipulation. Foreign ownership does not seem to significantly impact either of the two manipulation methods. Finally, these results help regulators and policymakers pursue reforms to enhance national governance quality in the MENA region. © 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Alsmadi, A.A., Al_hazimeh, A.M., Al-Afeef, M.A., Al-Smadi, A.W., Rifai, F., Al-Okaily, M.
Banking Services Transformation and Financial Technology Role
(2023) Information Sciences Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140005111&doi=10.18576%2ffis1%2f120126&partnerID=40&md5=b0c2cc30492da752a6cd46a95466e3b7)

[85140005111&doi=10.18576%2ffis1%2f120126&partnerID=40&md5=b0c2cc30492da752a6cd46a95466e3b7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140005111&doi=10.18576%2ffis1%2f120126&partnerID=40&md5=b0c2cc30492da752a6cd46a95466e3b7)

AFFILIATIONS: Faculty of Business, Al Zaytoonah University of Jordan, Amman, Jordan;

School of Business, Accounting Department, Al-Bayt University, P.O.BOX 130040, Mafrq, 25113, Jordan;

School of Business, Finance and Banking Department, Al-Bayt University, P.O.BOX 130040, Mafrq,

25113, Jordan;

Faculty of Busines, Jearsh University, Jerash, Jordan;

School of Business, Jadara University, Irbid, Jordan

ABSTRACT: The primary purpose of this paper is to explore and discuss the role of Fintech in the transformation of Malaysian banking services. The research design is qualitative and secondary source analysis is conducted. Secondary data is collected from relevant journal articles, research papers, editorials, websites and official documents. Based on the analysis, it is concluded that different key drivers played an influential role in the progress of the Fintech industry in Malaysia. Financial literacy programs and Malaysia Stack are some notable initiatives that support the Fintech progress in Malaysia. A range of Fintech businesses is operating in Malaysia that are transforming different banking services including payments solutions, lending personal loans, credit cards, personal finance management solutions and one-stop-shop online banking. Underserved populations, flexible regulatory environment and increased level of interest of state authorities are some of the critical aspects for the future progress of Fintech business in Malaysia. The research paper explains the role of Fintech businesses in the Malaysian banking industry. Many have viewed Fintech as a disruptive technology, however, this study highlighted that Malaysian banking services are transformed by Fintech business and there are still opportunities for the progress of the Fintech industry in Malaysia. © 2023 NSP Natural Sciences Publishing Cor.

Nimer, N., Allan, M., Hashem, T.N.

Applying Marketing Intelligence System in Improving Marketing Performance for Jordanian Corporations During COVID19 Pandemic

(2023) Studies in Systems, Decision and Control, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139484042&doi=10.1007%2f978-3-031-10212-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139484042&doi=10.1007%2f978-3-031-10212-7_2&partnerID=40&md5=bee2432ed54e20e2efbfc92fa1aae415)

[7_2&partnerID=40&md5=bee2432ed54e20e2efbfc92fa1aae415](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139484042&doi=10.1007%2f978-3-031-10212-7_2&partnerID=40&md5=bee2432ed54e20e2efbfc92fa1aae415)

AFFILIATIONS: Marketing Department, Business Faculty, Al-Zaytoonah University of Jordan, Amman, Jordan;

Marketing Department, Isra University, Amman, Jordan

ABSTRACT: The research looks at how a marketing intelligence system might help Jordanian businesses improve their marketing effectiveness in the wake of the COVID19 Pandemic. The study's sample size includes 234 Jordanian marketing managers. A stratified random sample of 146 Jordanian firms was chosen, and 118 valid questionnaires were obtained from marketing managers for statistical analysis, yielding an 80.8% response rate. According to the findings, the marketing intelligence system is crucial in influencing the company's marketing performance, and its simple and practical design increases the possibility of benefiting from it in improving the company's marketing performance. The researchers recommend allocating a separate department for marketing intelligence systems in order to maximize the system's benefit in terms of improving Jordanian corporations' marketing performance, as well as involving the department's director in various strategic decisions affecting the company. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Batiha, I.M., El-Khazali, R., Ababneh, O.Y., Ouannas, A., Batyha, R.M., Momani, S.

Optimal design of PIPDμ-controller for artificial ventilation systems for COVID-19 patients

(2023) AIMS Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85139260622&doi=10.3934%2fmath.2023031&partnerID=40&md5=42ef1bca1eb8832b39c8f71e2fb2c4f6

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

EECS Department, Khalifa University, Abu-Dhabi, United Arab Emirates;

Department of Mathematics, Zarqa University, Zarqa, Jordan;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Computer Science, Faculty of Science and Technology, Irbid National University, Irbid, Jordan;

Department of Mathematics, Faculty of Science, University of Jordan, Amman, 11942, Jordan

ABSTRACT: In light of the COVID-19 pandemic, many patients have suffered from Acute Respiratory Distress Syndrome (ARDS) in Intensive Care Units (ICUs) around the world. In the medical field, it is known that the so-called artificial ventilation device, which has become the mainstay of treatment of such syndrome, decreases mortality in critically ill COVID-19 patients. Due to the high reliability of this device, there is an emergency need to follow up the progress made on designing a robust controller for improving its performance. From this perspective, this work introduces different control design schemes for obtaining an optimal Fractional-order PID controller (or simply PIPD μ -controller) of the Artificial Ventilation (AV) system through two optimization algorithms: the Bacteria Foraging Optimization (BFO) and the Particle Swarm Optimization (PSO) algorithms. The realization of the controller is accomplished using four approximations: Oustaloup's approximation, the Continued Fractional Expansion (CFE) approximation and the 1st-and 2nd-order El-Khazali approximations. The validation of the controller design and the AV system behavior are verified via numerical simulation in order to demonstrate the effectiveness and the potency of all proposed schemes. © 2023 the Author(s), licensee AIMS Press.

Alhusban, A.A., Hammad, A.M., Alzaghari, L.F., Shallan, A.I., Shnewer, K.

Rapid and sensitive HPLC-MS/MS method for the quantification of dopamine, GABA, serotonin, glutamine and glutamate in rat brain regions after exposure to tobacco cigarettes

(2023) Biomedical Chromatography, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85139170354&doi=10.1002%2fbmc.5513&partnerID=40&md5=dda99f4c5069e74a516f82e941b0a5c5

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Analytical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, Egypt;

Smart Medical Labs, Amman, Jordan

ABSTRACT: Tobacco smoking is a preventable main cause of fatal diseases. Accurate measurements of the effects it has on neurotransmitters are essential in developing new strategies for smoking cessation. Moreover, measurements of neurotransmitter levels can aid in developing drugs that counteract the effects of smoking. The aim of this study is to develop and validate a fast, simultaneous and sensitive method for measuring the levels of neurotransmitters in rat brain after the exposure of tobacco cigarettes. The selected neurotransmitters include dopamine, GABA, serotonin, glutamine and glutamate. The method is based on high-performance liquid chromatography-tandem mass spectrometry. Chromatographic separation was achieved within 3 min using a Zorbax SB C18 column (3.0 × 100 mm, 1.8 μ m particle size). The mobile phase consisted of HPLC-grade water and acetonitrile each containing 0.3% heptafluorobutyric acid and 0.5% formic acid at gradient conditions. The linear range was 0.015–0.07, 825–7,218, 140–520, 63.42–160.75 and 38.25 × 10³ to 110.35 × 10³ ng/ml for dopamine, GABA, serotonin, glutamine and glutamate, respectively. Inter- and intra-run accuracy were in the range 97.82–103.37% with a precision (CV%) of \leq 0.90%. The results revealed that 4 weeks of cigarette exposure significantly increased neurotransmitter levels after exposure to tobacco cigarettes in various brain regions, including the hippocampus and the amygdala. This increase in neurotransmitters levels may in turn activate the nicotine dependence pathway. © 2022 John Wiley & Sons Ltd.

Shehadeh, H.A., Jebiril, I.H., Wang, X., Chu, S.-C., Idris, M.Y.I.

Optimal topology planning of electromagnetic waves communication network for underwater sensors using multi-objective optimization algorithms (MOOAs)

(2023) Automatika, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85138832452&doi=10.1080%2f00051144.2022.2123761&partnerID=40&md5=6766e2adfb61d68c26cb83cc485b1256

AFFILIATIONS: Departments of Computer Information System and Computer Sciences, Faculty of Computer Science and Informatics, Amman Arab University, Amman, Jordan;

Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Electrical Engineering and Automation, Fuzhou University, Fuzhou, China;

College of Computer Science and Engineering, Shandong University of Science and Technology, Qingdao, China;

College of Science and Engineering, Flinders University, Tonsley, Australia;
Department of Computer System and Technology, Faculty of Computer Science and Information Technology,
University of Malaya, Kuala Lumpur, Malaysia

ABSTRACT: "Extremely High Frequency (EHF)" and "Very high frequency (VHF)" bands are mainly utilized with "Underwater Wireless Sensor Networks (UWSNs)" for communication purposes. However, due to the mobility of underwater sensors in water because of the water tide, the EHF/VHF signals may attenuate, lose or fade depending on the condition of the water. Therefore, it is a challenging stint of finding the optimal parameters of UWSN topology planning. In this paper, three "Multi-Objective Optimization Algorithms (MOOAs)" have been utilized to mitigate this problem, namely MOSFP, SPEA2 and NSGA-II. This work also intends to minimize path loss. On the other hand, it intends to maximize the power density of the network. Various network configurations, such as distance between sender and receiver, water conductivity and water permeability, are considered to evaluate the proposed objective models. Qualitative and quantitative tests have been conducted to analyze the results. From the analysis of the intersection point of Pareto-front of the objective functions, it is shown that all the algorithms find the optimal distance between transmitter and receiver, which balances the aforementioned maximization and minimization objective functions. This value is 36 m. © 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Al Dasoqi, K.Y., Malak, M.Z., Alhadidi, M., Subih, M.M., Safadi, R.

Postpartum depression among first-time Jordanian mothers: levels and associated factors
(2023) Psychology, Health and Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137731830&doi=10.1080%2f13548506.2022.2119485&partnerID=40&md5=839661f849a04a10dc5399cd2bf3d6a5)

[85137731830&doi=10.1080%2f13548506.2022.2119485&partnerID=40&md5=839661f849a04a10dc5399cd2bf3d6a5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137731830&doi=10.1080%2f13548506.2022.2119485&partnerID=40&md5=839661f849a04a10dc5399cd2bf3d6a5)

AFFILIATIONS: Department of Maternal and Child Health Nursing, School of Nursing, University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Al Balqa' Applied University, Alsalt, Jordan;

Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Postpartum depression among first-time mothers is a sensitive issue and few studies were conducted related to this topic in developing countries including Jordan. Thus, this study purposed to assess postpartum depression levels and associated factors among Jordanian first-time mothers. A cross-sectional design was adopted, and 193 postpartum first-time mothers living in Amman governorate were recruited. A questionnaire consisting of two parts was used to record data, sociodemographic and maternal health, and Patient Health Questionnaire (PHQ-9). Findings showed that 34.1% of the women experienced postpartum depression. The employment, gravida, antenatal health problems, breastfeeding problems, newborn health problems, and availability of assistance during the postpartum period significantly correlated with postpartum depression. Thus, the understanding of postpartum depression and related factors would provide important empirical evidence for healthcare professionals and policy-makers when planning to develop strategies and measures to minimize postpartum depression among first-time mothers. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Algadri, N.A., AL-Diabat, A.M., Ahmed, N.M.

Zinc sulfide based thin film photodetector prepared by spray pyrolysis

(2023) Instrumentation Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135574205&doi=10.1080%2f10739149.2022.2108832&partnerID=40&md5=de9aac5a9a48248f4c1700e63286849a)

[85135574205&doi=10.1080%2f10739149.2022.2108832&partnerID=40&md5=de9aac5a9a48248f4c1700e63286849a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135574205&doi=10.1080%2f10739149.2022.2108832&partnerID=40&md5=de9aac5a9a48248f4c1700e63286849a)

AFFILIATIONS: Department of Physics, Isra University, Amman, Jordan;

Department of Physics, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Physics, Universiti Sains Malaysia, Penang, Malaysia;

Research Center, The University of Mashreq, Baghdad, Iraq

ABSTRACT: The chemical spray pyrolysis technique was used to synthesis zinc sulfide (ZnS) thin films without annealing treatment. The thin films were grown on a glass substrate under various Zn:S ratios (1:1,1:2, 1:3). The spray solution was prepared by combining zinc acetate dihydrate and thiourea as precursor materials for Zn²⁺ and S²⁻ ions, with deionized water serving as the solvent. The results of the ZnS film on glass showed a well-characterized thin film acquired using Zn:S of (1:1,1:2,1:3) molar ratio, nozzle to substrate distance (NSD) of 30 cm and a substrate temperature of 300 °C. Strong peaks (111) were obtained for all samples via X-ray diffraction analysis. The photoluminescence spectrum showed three distinctive peaks at roughly 2.36, 2.98, and 3.6 eV and the energy gap of the synthesized thin film was 3.66 eV. The MSM photodetectors (PDs) made from the layers on glass substrate showed response to UV illumination (400 nm), exhibiting a photosensitivity of 665% at base voltage of 3 V. © 2022 Taylor & Francis Group, LLC.

Al-Shahadah, A.R., Al-Sraheen, D.'A.-D., Khudari, M.

The Earnings Management in Jordanian Banks: Do Profitability Measures Matter?

(2023) Lecture Notes in Networks and Systems, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135097550&doi=10.1007%2f978-3-031-08084-5_24&partnerID=40&md5=8ad7d895a58d2a999f18b09b1da438ec

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
Faculty of Business, Al Albayt University, Amman, Jordan;
College of Graduate Studies, Universiti Tenaga National, Jalan IKRAM-UNITEN, Selangor, Kajang, 43000, Malaysia

ABSTRACT: The purpose of this study is to analyze the relationship between profitability measures and earnings management in Jordanian commercial banks. The quantitative methodology was used to collect the research data from the financial statements of (35) Jordanian commercial banks from (2013 to 2019). The results of the study reveal that there is a negative and significant relationship between Return on Equity (ROE) and earnings management, and a positive and not significant relationship between Return on Deposits (ROD) and earnings management. It's also documented that there is a positive and significant association between each Return on Investment (ROI), Earnings Per Share (EPS), and earnings management. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Abu Lebda, H., Malak, M., Hamaideh, S.H.

Self-awareness, empathy, and patient-centered care among critical care nurses in Jordan (2023) Psychology, Health and Medicine, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133261488&doi=10.1080%2f13548506.2022.2094427&partnerID=40&md5=00c9f594616e5fcb2bae24fdf08572e>

AFFILIATIONS: Registered Nurse, Adult Health Nursing, Royal Hospital, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;
Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;
Community and Mental Health Nursing Department, Faculty of Nursing, The Hashemite University, Zarqa, Jordan

ABSTRACT: Self-awareness, empathy, and patient-centered care are essential components for nurses for improving nurse-patient relationship and providing high-quality care for the patients. There is limited research regarding these components among critical care nurses in Arab countries, including Jordan. Thus, this study purposed to evaluate the self-awareness, empathy, and patient-centered care among critical care nurses in Jordan. A cross-sectional, descriptive correlational design was applied. Data were collected from 140 registered nurses from six hospitals in different health sectors. Findings showed that the mean scores for self-awareness, empathy and patient-centered care were as follows: 1.92 (SD = 0.27), 4.87 (SD = 0.88), and 3.71 (SD = 0.80), respectively. These results indicate that nurses had a high level of self-awareness and empathy and a low level of patient-centered care. There was no relationship between self-awareness and socio-demographic variables, perceived stress, and social support. Also, there was a positive relationship between empathy and social support ($r = 0.310$, $p < 0.001$). Patient-centered care had a positive relationship with social support ($r = 0.202$, $p < 0.05$) and perceived stress ($r = 0.175$, $p < 0.05$), also, male nurses had higher patient-centered care than female encounters. Social support was a predictor of empathy, while social support and perceived stress were the main predictors for patient-centered care. The results of the study reflect the need for educational programs to promote self-awareness and empathy to enhance patient-centered care and achieve high-quality patient care. Additionally, correlating factors with PCC (social support and perceived stress) should be taken into consideration upon implementing any interventional programs. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Nyangaresi, V.O., Mohammad, Z.

Session Key Agreement Protocol for Secure D2D Communication (2023) EAI/Springer Innovations in Communication and Computing, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132974053&doi=10.1007%2f978-3-030-94285-4_6&partnerID=40&md5=f4da6a11415be4d9cdee15aefabaed54

AFFILIATIONS: Tom Mboya University College, Homabay, Kenya;
Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Device to device (D2D) communication offers numerous benefits such as low latencies, high throughputs, spectral efficiency boosting, and base station energy reduction. However, lack of encryption and authentication during device discovery, link setup, and data transmission exposes the transmitted data to numerous security and privacy threats. To counter these security threats, a number of schemes have been developed based on public key infrastructure, bilinear pairing operations, batch verification, pre-computed lookup tables, symmetric cryptography, and elliptic curve cryptography (ECC) among others. However, these techniques experience very high communication and computation overheads or fail to address privacy and security challenges effectively. In this paper, a session key agreement protocol is proposed to address some of these issues. Simulation results showed that the proposed protocol exhibits the lowest communication costs and average computation costs. In addition, security analysis showed that our protocol is resilient against

message replays, masquerade, identity theft, message forgery, and cloning attacks. © 2023, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Alsswey, A., Al-Samarraie, H., Malak, M.

Older adults' satisfaction with mHealth UI design-based culture: A case study of Jordan

(2023) *Journal of Human Behavior in the Social Environment*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131348874&doi=10.1080%2f10911359.2022.2074183&partnerID=40&md5=e0cfcd16493d8422001619dd165aecd)

85131348874&doi=10.1080%2f10911359.2022.2074183&partnerID=40&md5=e0cfcd16493d8422001619dd165aecd

AFFILIATIONS: Department of Multimedia Technology, AL-Zaytoonah University of Jordan, Amman, Jordan;

School of Design, University of Leeds, Leeds, United Kingdom;

Centre for Instructional Technology and Multimedia, Universiti Sains Malaysia, Penang, Malaysia;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The dramatic growth of the older population worldwide has resulted in a renewed need for mobile health applications (mHealth apps). The use of mHealth UI-designed-based culture can be useful in improving the quality of healthcare for elderly users. Therefore, there is a need for a comprehensive examination of the impact of mHealth UI design-based culture on older adult people's satisfaction. This study was conducted to promote older adults' satisfaction with mHealth UI design-based culture in a culturally specific context. We examined the influence of learning, screen, application capabilities, and terminology and application information on older adults' overall satisfaction with mHealth UI. Eighty-five older adults' users from general population in Jordan participated in this study. The results showed different correlation coefficients between these factors. This study paves the way for future research to consider culture in the design of mHealth UI. © 2022 Taylor & Francis Group, LLC.

Abu-Snieneh, H.M., Abdelaziz, E.M.

The nurses' perceptions of spiritual care competency in intensive care units

(2023) *Psychology, Health and Medicine*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130902730&doi=10.1080%2f13548506.2022.2079691&partnerID=40&md5=1aafab3293aec0d281189f336eddf767)

85130902730&doi=10.1080%2f13548506.2022.2079691&partnerID=40&md5=1aafab3293aec0d281189f336eddf767

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Nursing Department, College of Applied Medical Sciences, Jouf University, Jouf, Saudi Arabia;

Lecturer of Psychiatric Mental Health Nursing, Faculty of Nursing, Cairo University, Giza, Egypt

ABSTRACT: The health-care system around the world has recognized the importance and usefulness of spirituality in the delivery of care. The goal of this study was to describe nurses' self-perceived ability in providing spiritual care to patients in Intensive Care Units, as well as to look into the relationship between demographic variables and their competencies. The researchers used a descriptive correlation design. There were 106 surveys distributed in total. Two large hospitals in Jouf, Saudi Arabia, had an 83.01% response rate. The self-reported questionnaire was completed by 88 nurses. The majority of nurses said they were capable of providing spiritual care to patients of the Islamic faith. Religions had statistically significant mean Spiritual Care Competency scores. It is critical to have a unified health strategy based on multidisciplinary collaborations to control spiritual care delivery, particularly in Intensive Care Units. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Abuyaman, O., Hatmal, M.M., Hijjawi, N., Deeb, A.A., Abuothman, M., Taha, M.

Vitamin B12 binding to mutated human transcobalamin, in-silico study of TCN2 alanine scanning and

ClinVar missense mutations/SNPs

(2023) *Journal of Biomolecular Structure and Dynamics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126352677&doi=10.1080%2f07391102.2022.2046638&partnerID=40&md5=a8d6151e98a859d9886dbdad5d3e11fe)

85126352677&doi=10.1080%2f07391102.2022.2046638&partnerID=40&md5=a8d6151e98a859d9886dbdad5d3e11fe

AFFILIATIONS: Department of Medical Laboratory Sciences, Faculty of Applied Medical Sciences, The

Hashemite University, Zarqa, Jordan;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Royal Scientific Society, Amman, Jordan;

Faculty of Pharmacy, Department of Pharmaceutical Sciences, University of Jordan, Amman, Jordan

ABSTRACT: Many missense mutations/SNPs of the TCN2 gene (which yield Transcobalamin (TC)) were reported in the literature but no study is available about their effect on binding to vitamin B12(B12) at the structural level experimentally nor computationally. Predict the effect of TC missense mutations/SNPs on binding affinity to B12 and characterize their contacts to B12 at the structural level. TC-B12 binding energy difference from the wildtype ($\Delta\Delta G_{mut}$) was calculated for 378 alanine scanning mutations and 76 ClinVar missense mutations, repeated on two distinct X-ray structures of holoTC namely 2BB5 and 4ZRP. Destabilizing mutations then went through 100 ns molecular dynamics simulation to study their effect on TC-B12 binding at the structural level employing 2BB5 structure. Out of the studied 454 mutations (378 alanine mutations + 76 ClinVar mutations), 19 were destabilizing representing 17 amino acid locations. Mutation energy results show a neutral effect on

B12 binding of several missense SNPs reported in the literature including I23V, G94S, R215W, P259R, S348F, L376S, and R399Q. Compared to the wildtype, all the destabilizing mutations have higher average RMSD-Ligand in the last 25% of the MD simulation trajectories and lower average hydrogen bond count while the other parameters vary. Previously reported TCN2 SNPs with an unknown effect on TC-B12 binding were found to have a neutral effect in the current study based on mutation energy calculations. Also, we reported 17 possible amino acids that destabilize TC-B12 binding upon mutation (four listed in ClinVar) and studied their structural effect computationally. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Hamed, R., Seder, B.Y., Bardaweel, S.K., Qawass, H.
Lipid-based formulations of microemulsion-loaded oleogels for the oral delivery of carvedilol (2023) Journal of Dispersion Science and Technology, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113742338&doi=10.1080%2f01932691.2021.1964987&partnerID=40&md5=e90d4191fe30fa888e20d4ce4dc408bf>
AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, School of Pharmacy, University of Jordan, Amman, Jordan
ABSTRACT: This work aimed to develop controlled-release lipid-based formulations of microemulsion-loaded oleogels for the oral delivery of the poorly soluble drug carvedilol (CARV). The microemulsion-loaded oleogels were prepared by the oleogelator Compritol® 888 (CP888). CARV was loaded into submicron-sized emulsions (CARV-MEs) of various ratios of surfactant and cosurfactant. The CARV-MEs were entrapped into CP888-based oleogels, forming CARV-ME oleogels. The rheological properties and dissolution studies of the CARV-ME oleogels were determined. MTT assay test was performed to ensure the safety of oleogel formulations. The optimized formulation of CARV-ME oleogel was subjected to stability studies. The results revealed that CARV-MEs were thermodynamically stable of spherical globules of average size 13.3–57.4 nm, polydispersity index (PDI) range of 0.24–0.52, and interfacial tension of 29.9 ± 0.2 mN/m. Oleogels exhibited viscoelastic properties with more elastic behavior. The drug release rate was found to be dependent on the surfactant/cosurfactant ratio. A negative correlation was found between surfactant concentration and IC50. The optimized CARV-MEs oleogel was stable for 3 months at various storage conditions. In conclusion, the entrapment of the CARV-MEs, with various surfactant to cosurfactant ratios, into oleogels influences the dissolution rate and mechanism of drug release and the safety of CARV-MEs oleogels. © 2021 Taylor & Francis Group, LLC.

Al Hadid, L.A., Al-Rajabi, O., Al Barmawi, M., Alhadidi, M., Jaradat, A.M.
Measuring the prevalence of psychological symptoms and the predictors associated with seeking counseling and psychological help among university students (2023) Journal of American College Health, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107495487&doi=10.1080%2f07448481.2021.1891918&partnerID=40&md5=b77a919a2b0dae9bc5fa66b478bf6b17>
AFFILIATIONS: Irbid College, Al Balqa' Applied University, Salt, Jordan;
Nurse and Midwife Educator, Rufaidah Al-Aslamiah College for Nursing and Midwifery, Ministry of Health, Amman, Jordan;
Department of Nursing, Faculty of Nursing, Alzaytoonah University of Jordan (ZUJ), Amman, Jordan;
Mental Health Nursing, Department of Nursing Science, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

ABSTRACT: Objective: To investigate the prevalence of psychological symptoms (PS) among university students and the predictors associated with seeking counseling and psychological help among students. Participants: A total of 663 students from three Jordanian universities participated in this study. Methods: A cross-sectional, correlational design was applied. Participants reported on the Attitude toward Seeking Professional Help Scale and the Hopkins Symptoms Checklist-21. Results: Students reported higher mean scores on the symptom checklist and had a poor attitude toward seeking counseling with low confidence in the counseling services. PS predicted that less than 7% of students would seek counseling with no difference among all age groups, gender, or specializations. Conclusion: High prevalence and low confidence influenced students' behavior toward seeking counseling and psychological help. There is a need to incorporate topics explaining the importance of counseling into different university courses, while emphasizing that it is neither stigmatizing nor shameful to seek professional help. © 2021 Taylor & Francis Group, LLC.

Ayed, A., Malak, M.Z., Alamer, R.M., Batran, A., Salameh, B., Fashafsheh, I.
Effect of high fidelity simulation on clinical decision-making among nursing students (2023) Interactive Learning Environments, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100246446&doi=10.1080%2f10494820.2021.1875004&partnerID=40&md5=4765bd08209c0e982ce77463c97c149f>
AFFILIATIONS: Pediatric Health Nursing, Faculty of Nursing, Arab American University, Jenin,

Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

Western Sydney University, School of Nursing and Midwifer, Sydney, Australia

ABSTRACT: It became necessary to integrate alternative teaching methods having excellent results in the nursing curriculum such as high-fidelity human patient simulation. High fidelity simulation improves nursing students' thinking, and emotional and decision-making capabilities. The pretest-posttest control group design was conducted to examine the effect of high-fidelity simulation (HFS) intervention on clinical decision-making for pediatric nursing students at the Arab American University in Palestine. One hundred fifty participants took part in the present study, where 50% (n = 75) were in each of the intervention and control groups. The intervention group received theory-based learning and high fidelity simulation, while the control group was provided with theory based learning and usual training in the nursing laboratory. Findings showed that after implementing the intervention, a significant change was noticed in means of clinical decision-making between the control and intervention groups. Therefore, high fidelity simulation intervention was effective, thus it could benefit the nursing students by enhancing clinical decision-making. The results support nursing educators and universities especially in developing countries to adopt such an intervention strategy for nursing students. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Alahmer, A.

Assessment of local and overall vehicular thermal human comfort and sensation states for transient, non-uniform conditions under variant air velocity levels

(2023) Australian Journal of Mechanical Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090441909&doi=10.1080%2f14484846.2020.1816750&partnerID=40&md5=7e808cd36cda1253c229b3963624d29b)

[85090441909&doi=10.1080%2f14484846.2020.1816750&partnerID=40&md5=7e808cd36cda1253c229b3963624d29b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090441909&doi=10.1080%2f14484846.2020.1816750&partnerID=40&md5=7e808cd36cda1253c229b3963624d29b)

AFFILIATIONS: Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman, Jordan;

Department of Mechanical Engineering, Tafila Technical University, Tafila, Jordan

ABSTRACT: The main purpose of any vehicular climatic control in terms of heating and air conditioning (AC) systems is to achieve maximum thermal human comfort with energy efficient. Therefore, it is important to analyse the temperature distribution and air-flow field in the cabin compartment to achieve the highest and rapid human comfort. This paper adopted a Berkeley human comfort model to show the behaviour of a vehicular human sensation and comfort at different airflow velocity levels. A temporal history, local sensation (LS), and comfort (LC) were analysed for different body segments with the addition of the overall sensation (OS) and the overall comfort (OC) inside the passenger compartment under summer period weather conditions. This study revealed that: because of the air velocity plays crucial impacts on both convection and evaporation mechanisms which directly effects on the heat losses from the body and thermal human comfort, the controlling of air movement with the temperature helps the environmental cabin to achieve the comfort zone faster than the sole control of the temperature only. When activated the air conditioning systems, the vehicular environmental parameters will change dramatically and a rapid transient occurred especially in the first few minutes. © 2020 Engineers Australia.

Mahmoud, L.A.M., Dos Reis, R.A., Chen, X., Ting, V.P., Nayak, S.

Metal-Organic Frameworks as Potential Agents for Extraction and Delivery of Pesticides and Agrochemicals

(2022) ACS Omega, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143902664&doi=10.1021%2facsomega.2c05978&partnerID=40&md5=310ee2d6230a15cb54061c448b908433)

[85143902664&doi=10.1021%2facsomega.2c05978&partnerID=40&md5=310ee2d6230a15cb54061c448b908433](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143902664&doi=10.1021%2facsomega.2c05978&partnerID=40&md5=310ee2d6230a15cb54061c448b908433)

AFFILIATIONS: School of Chemistry and Biosciences, University of Bradford, Bradford, BD7 1DP, United Kingdom;

School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Centro de Ciências Naturais e Humanas, Universidade Federal Do ABC, SP, Santo André, 09210, Brazil;

School of Engineering, Institute for Bioengineering, The University of Edinburgh, Edinburgh, EH9 3JL, United Kingdom;

Bristol Composites Institute, Department of Mechanical Engineering, University of Bristol, Bristol, BS8 1TR, United Kingdom

ABSTRACT: Pesticide contamination is a global issue, affecting nearly 44% of the global farming population, and disproportionately affecting farmers and agricultural workers in developing countries. Despite this, global pesticide usage is on the rise, with the growing demand of global food production with increasing population. Different types of porous materials, such as carbon and zeolites, have been explored for the remediation of pesticides from the environment. However, there are some limitations with these materials, especially due to lack of functional groups and relatively modest surface areas. In this regard, metal-organic frameworks (MOFs) provide us with a better alternative to conventionally used porous materials due to their versatile and highly porous

structure. Recently, a number of MOFs have been studied for the extraction of pesticides from the environment as well as for targeted and controlled release of agrochemicals. Different types of pesticides and conditions have been investigated, and MOFs have proved their potential in agricultural applications. In this review, the latest studies on delivery and extraction of pesticides using MOFs are systematically reviewed, along with some recent studies on greener ways of pest control through the slow release of chemical compounds from MOF composites. Finally, we present our insights into the key issues concerning the development and translational applications of using MOFs for targeted delivery and pesticide control. © 2022 American Chemical Society.

Alabed, S.J., Zihlif, M., Taha, M.

Discovery of new potent lysine specific histone demethylase-1 inhibitors (LSD-1) using structure based and ligand based molecular modelling and machine learning (2022) RSC Advances, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85145350494&doi=10.1039%2fd2ra05102h&partnerID=40&md5=b7fd1b28d1831602dc486222f9eec976

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, Faculty of Medicine, University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, Jordan

ABSTRACT: Lysine-specific histone demethylase 1 (LSD-1) is an epigenetic enzyme that oxidatively cleaves methyl groups from monomethyl and dimethyl Lys4 of histone H3 and is highly overexpressed in different types of cancer. Therefore, it has been widely recognized as a promising therapeutic target for cancer therapy. Towards this end, we employed various Computer Aided Drug Design (CADD) approaches including pharmacophore modelling and machine learning. Pharmacophores generated by structure-based (SB) (either crystallographic-based or docking-based) and ligand-based (LB) (either supervised or unsupervised) modelling methods were allowed to compete within the context of genetic algorithm/machine learning and were assessed by Shapley additive explanation values (SHAP) to end up with three successful pharmacophores that were used to screen the National Cancer Institute (NCI) database. Seventy-five NCI hits were tested for their LSD-1 inhibitory properties against neuroblastoma SH-SY5Y cells, pancreatic carcinoma Panc-1 cells, glioblastoma U-87 MG cells and in vitro enzymatic assay, culminating in 3 nanomolar LSD-1 inhibitors of novel chemotypes. © 2022 The Royal Society of Chemistry.

Zakaraya, Z.Z., Altamimi, L., Hailat, M., Ahmad, M.N., Qinna, N.A., Ghanim, B.Y., Saadh, M.J., Al-Dmour, N., Dayyih, W.A.

Ameliorative effect of selenium yeast in combination with pioglitazone on diabetes outcomes in streptozotocin-induced (2022) Journal of Population Therapeutics and Clinical Pharmacology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85144675040&doi=10.47750%2fjptcp.2022.1003&partnerID=40&md5=203f42098551308855b92b039be6f69b

AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Nutrition and Food Technology, Human Nutrition and Dietetics, University of Jordan, Amman, Jordan;

Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

University of Petra Pharmaceutical Centre (UPPC), University of Petra, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Middle East University, Amman, Jordan;

Department of Nutrition and Food Processing, Faculty of Agriculture, Mutah University, Al-Karak, Jordan;

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Mutah University, Al-Karak, Jordan

ABSTRACT: Anti-diabetic therapies possess many side effects; thus, searching for alternative strategies with low cost, minimal side effects, and high therapeutic value is very important. The present study aimed to explore the combined use of selenium yeast (SY) and standard anti-diabetic drug pioglitazone (PGZ) for diabetes mellitus (DM) treatment in streptozotocin (STZ)-induced DM. STZ was injected daily intraperitoneally with a low dose (40 mg/kg) into Sprague-Dawley rats to induce DM. The synergistic effect of the SY (0.2 mg/kg) and PGZ (0.65 mg/kg) on DM complications was evaluated after 88 weeks of treatment. The impact of our medication on glucose levels, insulin sensitivity, lipid abnormalities, oxidative mediators, and inflammatory markers was assessed by biochemical techniques. STZ-induced diabetes has toxic effects, including toxic hepatic tissues, lipid disturbances, massive oxidative damage, and hyperinflammation. Experimental rats either treated with monotherapy alone or combined therapy resulted in a significant anti-diabetic effect. The PGZ+ SY combination has the best effect, as illustrated by significant ($P < 0.05$) decreases in fasting

blood glucose, (FBG) insulin, HbA1c, and HOMA-IR levels. This combination attenuated ($P < 0.05$) lipid disturbances and their associated elevated atherogenicity biomarkers. At the same time, treatments with PGZ+ SY exhibited an anti-inflammatory effect as they ameliorated the increase in inflammatory parameters (CRP, TNF- α , IL-6). Also, it restored the total antioxidant capacity and peroxisome proliferator-activated receptor (PPAR γ) levels that were decreased by STZ-DM induction. In conclusion, this study finds PGZ+ SY as a promising DM therapeutic alternative. This synergistic combination alleviates most DM-related complications and insulin resistance. © 2022 Zainab ZZ et al.

Yaseen, S.G., El Qirem, I.A., Dajani, D.

Islamic mobile banking smart services adoption and use in Jordan

(2022) ISRA International Journal of Islamic Finance, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139115218&doi=10.1108%2fIJIF-04-2021-0065&partnerID=40&md5=1937805bfff11cb3d381117f245395f>

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah Private University of Jordan, Amman, Jordan;

Department of Digital Marketing, Al-Zaytoonah Private University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The research identifies the predictors of Islamic mobile banking (IMB) smart services adoption and usage in Jordan. Design/methodology/approach: Based on the Unified Theory of the Acceptance and Use of Technology (UTAUT) and the Unified Theory of the Acceptance and Use of Technology 2 (UTAUT2), an extended and modified model that encompasses perceived trust was developed. The sample comprised 358 customers from Islamic banks (IBs) in Jordan, and structural equation modelling was applied to examine data drawn from the sample. Findings: The research framework presented 0.728% of the behavioural intention variance and 0.455% of the use behaviour. Results discovered that performance expectancy, perceived trust and hedonic motivation have significant relations with behavioural intention. The finding that effort expectancy has an insignificant effect and that social influence has a significant negative influence on behavioural intention was unexpected. Research limitations/implications: The research has successfully verified the effect of performance expectancy, perceived trust and hedonic motivation on the customer's intention to use IMB smart services. However, the research data findings are based on the cross-sectional design. Practical implications: The outcomes hold implications for marketing strategy makers who are responsible for promoting IMB smart services in IBs. Originality/value: This research presents a deeper insight into IMB adoption and use. The research employed UTAUT and UTAUT2 as the baseline model and incorporates perceived trust to estimate behavioural intention. To the best of the authors' knowledge, this could be the first inquiry that examines IMB smart services adoption and use in Jordan. © 2022, Saad G. Yaseen, Ihab Ali El Qirem and Dima Dajani.

Abd-Rabbo, M.

Border Country by Raymond Williams: Attempting to Articulate the "Structure of Feeling"

(2022) Forum for World Literature Studies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148025561&partnerID=40&md5=0aedace6aa90f1242a7a0f842d1d708d>

AFFILIATIONS: Department of English Language, Literature and Translation, Faculty of Arts Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This article demonstrates the "structure of feeling," Raymond Williams' much-debated concept as it appears in his autobiographical novel, *Border Country* (1960). By drawing upon the nuances of Williams' cultural theory, it is the purpose of this article to trace his attempt to articulate diverse dimensions of the "structure of feeling" in this novel. Furthermore, this article touches upon Williams' various epochal classifications of culture such as dominant, residual, emergent and pre-emergent cultural elements as well as the ramifications of the communal and individual realities of England and Wales within the two time frames of the 1920s and the 1950s. Consequently, this article illustrates the manner in which Williams cultivates his artistic talent to embrace both subjective and collective experiences to capture the multi-faceted generational emotional energies depicted in *Border Country*. © 2022 Shanghai Normal University. All rights reserved.

Amr, A., Jaradat, S., AlKhatib, H., Hamadneh, I., Hamadneh, L., Hodali, H., Zeadeh, M., Shahein, M. Extraction of Anthocyanins from Black Grape By-Products and Improving Their Stability Using Cobalt(II) Complexation

(2022) Preventive Nutrition and Food Science, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146998284&doi=10.3746%2fpnf.2022.27.4.457&partnerID=40&md5=d8880b4d7b49df960b2c26db847aa457>

AFFILIATIONS: Department of Nutrition and Food Science, The University of Jordan, Amman, 11941, Jordan;

Department of Pharmaceutics, Pharmaceutical Technology The University of Jordan, Amman, 11941, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11941, Jordan;

Department of Horticulture and Crop Science, The University of Jordan, Amman, 11941, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11941, Jordan

ABSTRACT: This study was conducted to investigate the effect of cobalt complexation on the spectral properties of anthocyanins (AC) extracted from black grape pomace (Black Magic) and the effect of complexation on the pH stability of AC during storage. Initially, cobalt acetate tetrahydrate aqueous solution was complexed with AC crude extract and diluted separately in buffer solutions with different pH (3.5, 4.5, 5.5, and 6.5). Afterward, spectral changes were determined spectrophotometrically. pH stability was investigated using the same buffer solutions and stored for 7 days in the dark at room temperature, and the absorbance of each solution was measured daily using a spectrophotometer. Results indicated that complexation caused similar hypsochromic and hyperchromic shifts in λ_{max} at all pH values. With regard to pH stability, the degradation of complexed AC followed first-order reaction kinetics causing half-lives to increase up to 80-fold as compared with noncomplexed AC, which was due to the sharp decrease in K (per day), indicating an improved pH stability as compared with noncomplexed AC. Therefore, Co(II) could be used in the stabilization of grape AC for the coloration of a wide range of foods and food products at near-neutral pH environments considering the health benefits of grape AC and the maximum nontoxic dose of Co(II) salt. © 2022 The Korean Society of Food Science and Nutrition.

Hajjo, R., Sabbah, D.A., Abusara, O.H., Al Bawab, A.Q.

A Review of the Recent Advances in Alzheimer's Disease Research and the Utilization of Network Biology Approaches for Prioritizing Diagnostics and Therapeutics

(2022) Diagnostics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144906212&doi=10.3390%2fdiagnostics12122975&partnerID=40&md5=e442f9c30835935386ac532b3c6453c9)

[85144906212&doi=10.3390%2fdiagnostics12122975&partnerID=40&md5=e442f9c30835935386ac532b3c6453c9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144906212&doi=10.3390%2fdiagnostics12122975&partnerID=40&md5=e442f9c30835935386ac532b3c6453c9)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, United States;

National Center for Epidemics and Communicable Disease Control, Amman, 11118, Jordan

ABSTRACT: Alzheimer's disease (AD) is a polygenic multifactorial neurodegenerative disease that, after decades of research and development, is still without a cure. There are some symptomatic treatments to manage the psychological symptoms but none of these drugs can halt disease progression. Additionally, over the last few years, many anti-AD drugs failed in late stages of clinical trials and many hypotheses surfaced to explain these failures, including the lack of clear understanding of disease pathways and processes. Recently, different epigenetic factors have been implicated in AD pathogenesis; thus, they could serve as promising AD diagnostic biomarkers. Additionally, network biology approaches have been suggested as effective tools to study AD on the systems level and discover multi-target-directed ligands as novel treatments for AD. Herein, we provide a comprehensive review on Alzheimer's disease pathophysiology to provide a better understanding of disease pathogenesis hypotheses and decipher the role of genetic and epigenetic factors in disease development and progression. We also provide an overview of disease biomarkers and drug targets and suggest network biology approaches as new tools for identifying novel biomarkers and drugs. We also posit that the application of machine learning and artificial intelligence to mining Alzheimer's disease multi-omics data will facilitate drug and biomarker discovery efforts and lead to effective individualized anti-Alzheimer treatments. © 2022 by the authors.

Bani Baker, M., Abendeh, R., Sharo, A., Hanna, A.

Stabilization of Sandy Soils by Bentonite Clay Slurry at Laboratory Bench and Pilot Scales

(2022) Coatings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144902261&doi=10.3390%2fcoatings12121922&partnerID=40&md5=6afa43d4832c57ec909851c90c036816)

[85144902261&doi=10.3390%2fcoatings12121922&partnerID=40&md5=6afa43d4832c57ec909851c90c036816](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144902261&doi=10.3390%2fcoatings12121922&partnerID=40&md5=6afa43d4832c57ec909851c90c036816)

AFFILIATIONS: Civil and Infrastructure Engineering Department, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Civil Engineering Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Civil Engineering Program, Al Ain University, P.O. Box 112612, Abu Dhabi, United Arab Emirates;

Building, Civil and Environmental Engineering Department, Concordia University, Montreal, QC H3G 1M8, Canada

ABSTRACT: Sand is one of the most abundant, naturally occurring materials in many parts of the world, which is used in local rural areas in infrastructure projects such as in the construction of low volume paved and unpaved road layers due to their availability at low cost and scarcity of other suitable construction materials. Several geotechnical solutions for sand stabilization have been undertaken to improve their properties in order to overcome erosion, failure of pavements under traffic loading, embankments, cuts and excavations caused by failures of sand structure. In this

investigation, bentonite clay-water slurry was used due to its cohesive and eco-friendly nature to improve sand strength by the means of manual injection in the laboratory and pilot scales. Sand was stabilized using variation of bentonite clay contents, 0%, 1%, 2%, 3%, and 4% (by weight of dry sand), at different curing times: 0 days, 1 day, 2 days, and 3 days. Direct shear tests were conducted to determine shear strength parameters for sand before and after stabilization process. Furthermore, a transparent polypropylene box (60 cm × 40 cm × 30 cm) was used in this study as a larger scale for sand stabilization technique by applying manual grouting of bentonite clay-water slurry to the sand mass. A mechanical shaker was used at 100, 200, 300, and 400 rpm for 10 min at each stage to test the stability of sand in addition to using a Scanning Electron Microscope (SEM) to obtain images for stabilized sand and Ground Penetrating Radar (GPR) to scan soil mass before and after stabilization. The test results showed that a slurry composed of 3% of bentonite clay additive with 10.3% added water by weight of dry sand mass are the optimum amounts for the stabilization process, which provides a substantial resistance to shear forces. © 2022 by the authors.

Batiha, I.M., Obeidat, A., Alshorm, S., Alotaibi, A., Alsubaie, H., Momani, S., Albdareen, M., Zouidi, F., Eldin, S.M., Jahanshahi, H.

A Numerical Confirmation of a Fractional-Order COVID-19 Model's Efficiency
(2022) *Symmetry*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85144857738&doi=10.3390%2fsym14122583&partnerID=40&md5=4fa90dce04c1f0ee98c878ee2d5c91ed

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St. 594, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, P.O. Box 346, Ajman, United Arab Emirates;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Department of Mechanical Engineering, College of Engineering, Taif University, Taif, 21944, Saudi Arabia;

Department of Mathematics, The University of Jordan, Amman, 11942, Jordan;

Department of Mathematics, Al Al-Bayt University, Mafraq, 25113, Jordan;

Biology Department, Faculty of Arts and Sciences of Muhayil Aseer, King Khalid University, Abha, 62529, Saudi Arabia;

Center of Research, Faculty of Engineering, Future University in Egypt, New Cairo, 11835, Egypt;

Department of Mechanical Engineering, University of Manitoba, Winnipeg, MB R3T 5V6, Canada

ABSTRACT: In the past few years, the world has suffered from an untreated infectious epidemic disease (COVID-19), caused by the so-called coronavirus, which was regarded as one of the most dangerous and viral infections. From this point of view, the major objective of this intended paper is to propose a new mathematical model for the coronavirus pandemic (COVID-19) outbreak by operating the Caputo fractional-order derivative operator instead of the traditional operator. The behavior of the positive solution of COVID-19 with the initial condition will be investigated, and some new studies on the spread of infection from one individual to another will be discussed as well. This would surely deduce some important conclusions in preventing major outbreaks of such disease. The dynamics of the fractional-order COVID-19 mathematical model will be shown graphically using the fractional Euler Method. The results will be compared with some other concluded results obtained by exploring the conventional model and then shedding light on understanding its trends. The symmetrical aspects of the proposed dynamical model are analyzed, such as the disease-free equilibrium point and the endemic equilibrium point coupled with their stabilities. Through performing some numerical comparisons, it will be proved that the results generated from using the fractional-order model are significantly closer to some real data than those of the integer-order model. This would undoubtedly clarify the role of fractional calculus in facing epidemiological hazards. © 2022 by the authors.

Khleifat, K.M., Khalil, M.M., Al-kafaween, M.A., Alqaraleh, M., Al-limoun, M.O., Al-Qaisi, T.S., Farah, H.S., Nijris, O.N., Al-Tarawneh, A., Qaralleh, H., Hajleh, M.N.A., Amonov, M., Al-Jamal, H.A.N.

Studying the relationship between women hormonal activity and the distribution of bacterial vaginosis and bacteria's antibiotics susceptibility

(2022) *Journal of Applied Pharmaceutical Science*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85144731747&doi=10.7324%2fJAPS.2022.121211&partnerID=40&md5=23b3776c44776a3a44c82ddc493b9eaf

AFFILIATIONS: Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Department of Pathological Analysis, College of Applied Sciences, University of Samarra, Samarra, Iraq;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pharmacological and Diagnostic Research Center, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Biology Department, College of Science, Mutah University, Al-Karak, Jordan;
Prince Faisal Center for Dead Sea, Environmental and Energy Research, Mutah University, Al-Karak, Jordan;

Department of Medical Laboratory Analysis, College of Science, Mutah University, Al-Karak, Jordan;
Department of Cosmetic Science, Pharmacological and Diagnostic Research Center, Faculty of Allied Medical Science, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Medicine, Universiti Sultan Zainal Abidin, Terengganu, Malaysia;

Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Sex hormones have a large influence on the structure and function of vaginal microbiota. A delicate balance between the vaginal microbiota and the host is one of the most important health reasons for women. The purpose of this study was to see if there were any links between female sex hormone levels and vaginal microbial diversity. A total of 100 vaginal swabs were obtained from female patients between the ages of 20 and 60 years who were suspected of having symptomatic and asymptomatic vaginal infections at the General Hospital and outpatient gynecological clinics, Samarra city, Iraq. The findings revealed that 70% and 25% of 100 high vaginal swabs with 95% positive cultures were from infected and healthy women, respectively. The most common organisms isolated belonged to Gram-negative bacteria and were *Escherichia coli* at 16 (16.84%) and in infected women were 9 (9.47%) and 7 (7.36%) in healthy women. The second most common isolated microorganisms from women with vaginitis were *Proteus vulgaris* at 8 (8.42%), *Acinetobacter* at 7 (7.36%), *Proteus mirabilis* at 7 (7.36%), and *Citrobacter* at 6 (6.31%). The highest percent of the isolates belonged to Gram-positive bacteria and were *Staphylococcus saprophyticus* at 5 (5.26%) and *Staphylococcus aureus* at 4 (4.21%) followed by *Enterococcus faecalis* at 4 (4.21%), *Bacillus stearothermophilus* at 3 (3.15%), *Bacillus megaterium* at 3 (3.15%), *Enterococcus faecium* at 1 (1.05%) and *Leuconostoc pseudomesenteroides* at 1 (1.05%), and *Lactobacillus* at 6 (6.31%). The greatest proportion of infection discovered in the age group 30 years was 36 (37.89%), while the least infected age group was 60 and above (2.1%). All of the bacteria that were isolated were susceptible to levofloxacin but resistant to metronidazole and amoxicillin-clavulanic acid. The relationship between isolated bacteria and sex hormone levels (estrogen and progesterone) revealed that sex hormone levels vary depending on the bacterial type. *Burkholderia cepacia* and *Lactobacillus* had the highest estrogen levels, while *Pseudomonas fluorescens* and *Aeromonas* had the highest progesterone levels. © 2022 Khaled M. Khleifat et al. This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>).

Khdaif, S.I., Al-Bdour, R., Jarrar, W., Hammad, A., Al-Jayeh, A., Masa'deh, M., Adwan, M., Farah, R. Immunogenetic Profiling of SLE and LN among Jordanian Patients

(2022) Journal of Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144713280&doi=10.3390%2Fjpm12121955&partnerID=40&md5=1abbf92c756aa42c695e89b8c1f0b632)

[85144713280&doi=10.3390%2Fjpm12121955&partnerID=40&md5=1abbf92c756aa42c695e89b8c1f0b632](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144713280&doi=10.3390%2Fjpm12121955&partnerID=40&md5=1abbf92c756aa42c695e89b8c1f0b632)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Medicine, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Systemic Lupus Erythematosus (SLE) is a prolonged inflammatory autoimmune disease, which is characterized by a high titer of serological autoantibodies. Interactions between environmental and genetic factors play a crucial role in the pathogenesis of SLE. Human Leukocyte Antigen (HLA) genes, namely HLA-class II genes, are one of the main candidate genes that increase susceptibility to SLE. The aim of this study was to investigate, for the first time, the association of HLA-DRB1 and HLA-DQB1 genes among Jordanian patients diagnosed with SLE and Lupus Nephritis (LN) using the Polymerase Chain Reaction-Sequence-Specific Primer (PCR-SSP) technique. This study showed that SLE is positively associated with DRB1*0301, DRB1*1101, DRB1*1102 and HLA-DQB1*0601. Furthermore, HLA-DRB1*0301, DRB1*1101, HLA-DRB1*1501 and HLA-DQB1*0601 were found to be linked to SLE patients with LN. In addition, haplotypes HLA-DRB1*0301/DQB1*0201 and HLA-DRB1*1501/DQB1*0601 were found to be linked to SLE and LN. Our findings may serve as possible predictive markers for early screening for LN risk in SLE patients. In light of these results, the role of HLA gene polymorphisms may help in understanding the clinical course, prognosis of the disease and developing better treatment strategies for SLE patients. In addition, it may help in early diagnosis, prevention, intervention and management of the disease. © 2022 by the authors.

Al-Sai, Z.A., Husin, M.H., Syed-Mohamad, S.M., Abdin, R.M.S., Damer, N., Abualigah, L., Gandomi, A.H. Explore Big Data Analytics Applications and Opportunities: A Review

(2022) Big Data and Cognitive Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144631139&doi=10.3390%2Fbdcc6040157&partnerID=40&md5=85a537c337445214a69fd74a267cd5a4)

[85144631139&doi=10.3390%2Fbdcc6040157&partnerID=40&md5=85a537c337445214a69fd74a267cd5a4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144631139&doi=10.3390%2Fbdcc6040157&partnerID=40&md5=85a537c337445214a69fd74a267cd5a4)

AFFILIATIONS: Department of Management Information Systems, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Computer Sciences, Universiti Sains Malaysia, Pulau Pinang11800, Malaysia;

King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, 11941, Jordan;
Prince Hussein Bin Abdullah College for Information Technology, Al Al-Bayt University, Mafraq, 25113, Jordan;
Faculty of Information Technology, Al-Ahliyya Amman University, Amman, 19328, Jordan;
Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;
Faculty of Information Technology, Applied Science Private University, Amman, 11931, Jordan;
Faculty of Engineering and Information Technology, University of Technology Sydney, Sydney, 2007, Australia;

University Research and Innovation Center (EKIK), Óbuda University, Budapest, 1034, Hungary
ABSTRACT: Big data applications and analytics are vital in proposing ultimate strategic decisions. The existing literature emphasizes that big data applications and analytics can empower those who apply Big Data Analytics during the COVID-19 pandemic. This paper reviews the existing literature specializing in big data applications pre and peri-COVID-19. A comparison between Pre and Peri of the pandemic for using Big Data applications is presented. The comparison is expanded to four highly recognized industry fields: Healthcare, Education, Transportation, and Banking. A discussion on the effectiveness of the four major types of data analytics across the mentioned industries is highlighted. Hence, this paper provides an illustrative description of the importance of big data applications in the era of COVID-19, as well as aligning the applications to their relevant big data analytics models. This review paper concludes that applying the ultimate big data applications and their associated data analytics models can harness the significant limitations faced by organizations during one of the most fateful pandemics worldwide. Future work will conduct a systematic literature review and a comparative analysis of the existing Big Data Systems and models. Moreover, future work will investigate the critical challenges of Big Data Analytics and applications during the COVID-19 pandemic. © 2022 by the authors.

Sharo, A., Al-Shorman, B., Bani Baker, M., Nusier, O., Alawneh, A.

New approach for predicting the load-displacement curve of axially loaded piles in sand

(2022) Case Studies in Construction Materials, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85142181624&doi=10.1016%2fj.cscm.2022.e01674&partnerID=40&md5=e5b7d0f7ac6a33ab669d836f63424bf

AFFILIATIONS: Department of Civil Engineering, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 2210, Jordan;

Al Ain University, Civil Engineering Program, Abu Dhabi, P.O. Box 112612, United Arab Emirates;

Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Airport Road, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: A relationship to predict the load-displacement curve for axially loaded piles in sandy soil is presented by using the tri-linear softening model to describe the shaft load-displacement relationships, as well as a bi-linear model is adopted to characterize the unit end resistance-displacement reaction in the region of the pile's tip soil. Subsequently, an analytical mathematical approach to a single pile-surrounding soil interaction relation is provided as a nonlinear analysis to obtain the load-displacement curves. The mechanical response of piles under compression loading was analysed, and thus, an analytical method is developed to establish a solution for the entire compression process of the piles. A combination of the prementioned models with the pile response under compression loading was employed to establish a fully analytical approach. Furthermore, additional analytical approaches and field-tested pile loading history cases were utilized to prove the degree of exactness of the suggested method by comparing the experimental load-displacement curves with the ones founded by the proposed theoretical method in this work. The results of this study illustrate that the proposed method could be considered as an analytical mathematical technique for utilizing both the tri-linear softening model and the bi-linear elastic-plastic model for the purpose of predicting the load-displacement curves of the axially loaded pile with a 98% degree of accuracy compared to field load tests results. © 2022 The Authors

Alkhatib, A.A.A., Maria, K.A., AlZu'bi, S., Maria, E.A.

Smart Traffic Scheduling for Crowded Cities Road Networks

(2022) Egyptian Informatics Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85142149718&doi=10.1016%2fj.eij.2022.10.002&partnerID=40&md5=a1dd60e473289b6f68c4c8b705246c66

AFFILIATIONS: Computer Information System Department, Alzaytoonah University of Jordan, Airport Street, Amman, Jordan;

Computer Science Department, Alzaytoonah University of Jordan, Airport Street, Amman, Jordan

ABSTRACT: With the fast-expanding number of vehicles in smart cities, the management of road intersections and traffic congestion has grown to be major problems. Drivers often express their opinion that putting traffic lights on while taking traffic flows into account will have a significant impact on how traffic moves. This paper presents a smart Road traffic Control management

system termed Urban Traffic Control (UTC) keeping real-time dynamic traffic flow in mind which helps in upgrading the level of road traffic network management. To provide an organized traffic arrangement, UTC presents methodologies such as vehicle counting, controlling process, and evaluation of lanes keeping status in mind, this whole procedure is implemented by taking the complete traffic network into an account instead of just considering intersections. The primary goal of our system is to lessen traffic jams by cutting down on the trip and waiting times vehicles spend at crossings and intersections. We need to assign a plan for traffic flow that has the least amount of traffic congestion and vehicle waiting time, for this purpose some indicators and models are introduced in this study. Lane weight, traffic jam indicator, and vehicle priority are among these models. As this work is an improvement on the current Road Network without much changing, we integrate our system on normal traffic lights which allow each lane a chance to move and we also considered the no-interference lane movement. To simulate our idea, we introduced a smart road traffic control system consisting of multi-agents, by using a NetLogo simulator. To compare the fixed cycle traffic light, several vehicles (150 in total) with random behaviour were generated and scattered over 25 different intersections for the time duration of 9 h. This setting was used to test our smart traffic control solution on both lane flow and no interference movement flow. According to the obtained results, there was a 25.98% reduction in total average waiting time over simulation period for all vehicles and a reduction of 34.16% for no interference movement flow. These observations clearly state that suggested method is better suited for today's complex traffic conditions where change in infrastructure is minimal. © 2022

Jeanclous, E., Schlötzer, J., Hadamek, K., Yuan-Chen, N., Alwahsh, M., Hollmann, R., Fratz, S., Yesilyurt-Gerhards, D., Frankenbach, T., Engelmann, D., Keller, A., Kaestner, A., Schmitz, W., Neuenschwander, M., Hergenröder, R., Sottriffer, C., von Kries, J.P., Schindelin, H., Gohla, A. Glycolytic flux control by drugging phosphoglycolate phosphatase

(2022) Nature Communications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141695807&doi=10.1038%2fs41467-022-34228-2&partnerID=40&md5=4a5b45ffeb61708176fb7845d393b3ac>

AFFILIATIONS: Institute of Pharmacology and Toxicology, University of Würzburg, Würzburg, Germany; Rudolf Virchow Center for Integrative and Translational Bioimaging, University of Würzburg, Würzburg, Germany;

Institute of Pharmacy and Food Chemistry, University of Würzburg, Würzburg, Germany;

Leibniz-Institut für analytische Wissenschaften-ISAS, Dortmund, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Center Mannheim, Heidelberg University, Mannheim, Germany;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biochemistry and Molecular Biology, Theodor Boveri Institute, Biocenter, University of Würzburg, Würzburg, Germany;

Leibniz-Forschungsinstitut für Molekulare Pharmakologie-FMP, Berlin, Germany

ABSTRACT: Targeting the intrinsic metabolism of immune or tumor cells is a therapeutic strategy in autoimmunity, chronic inflammation or cancer. Metabolite repair enzymes may represent an alternative target class for selective metabolic inhibition, but pharmacological tools to test this concept are needed. Here, we demonstrate that phosphoglycolate phosphatase (PGP), a prototypical metabolite repair enzyme in glycolysis, is a pharmacologically actionable target. Using a combination of small molecule screening, protein crystallography, molecular dynamics simulations and NMR metabolomics, we discover and analyze a compound (CP1) that inhibits PGP with high selectivity and submicromolar potency. CP1 locks the phosphatase in a catalytically inactive conformation, dampens glycolytic flux, and phenocopies effects of cellular PGP-deficiency. This study provides key insights into effective and precise PGP targeting, at the same time validating an allosteric approach to control glycolysis that could advance discoveries of innovative therapeutic candidates. © 2022, The Author(s).

Hawashin, B., Abusukhon, A.

AN EFFICIENT COURSE RECOMMENDER USING DEEP-ENRICHED HIDDEN STUDENT APTITUDES

(2022) ICIC Express Letters, Part B: Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141363607&doi=10.24507%2fificelb.13.12.1331&partnerID=40&md5=3201445fdd859b16f537fbf41a02a07c)

[85141363607&doi=10.24507%2fificelb.13.12.1331&partnerID=40&md5=3201445fdd859b16f537fbf41a02a07c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141363607&doi=10.24507%2fificelb.13.12.1331&partnerID=40&md5=3201445fdd859b16f537fbf41a02a07c)

AFFILIATIONS: Department of Artificial Intelligence, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Department of Computer Science, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Providing course recommendations has proven its importance, especially with the outbreak of COVID-19 and the resulting difficulties in the learning process. Although several works have proposed algorithms in this regard, to our knowledge, these algorithms did not consider the aptitudes of the student. These works used the previous grades of the student along with other features without considering the inherent student aptitudes, which would play a vital role in the final student grade, and in the long run, shaping the student future. This work proposes a novel course recommender based

on student aptitudes. In order to provide recommendations, we propose a novel method to extract the inherent student aptitudes. These aptitudes are further enriched using a pre-trained deep learning model to include semantically correlated aptitudes. We adopt the use of nearest neighbor approach in the course recommender and consider the previously extracted student aptitudes. Experimental work proves the efficiency of the proposed methods in terms of accuracy. © 2022 ICIC International.

Ahmad, A.Q., Jawad, M.A., Jaber, K.M.

E-learning issues and solutions for students with disabilities during COVID-19 pandemic: Al-Zaytoonah University of Jordan case study

(2022) International Journal of Evaluation and Research in Education, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139514611&doi=10.11591%2fijere.v11i4.22842&partnerID=40&md5=289622be1c956b7f7b6a52e7a5fae3de)

[85139514611&doi=10.11591%2fijere.v11i4.22842&partnerID=40&md5=289622be1c956b7f7b6a52e7a5fae3de](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139514611&doi=10.11591%2fijere.v11i4.22842&partnerID=40&md5=289622be1c956b7f7b6a52e7a5fae3de)

AFFILIATIONS: Department of Electrical Engineering, Faculty of Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Basic Sciences, Faculty of Arts, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Electrical Engineering, Faculty of Engineering, Al-Zaytoonah University of Jordan St 594, Al Zaytoonah University of Jordan, Airport Rd., Amman, Jordan

ABSTRACT: In this research, approaches to making e-learning accessible to students with impairments were studied based on the authors' experience at Jordan's Al-Zaytoonah University. The educational, organizational, and instructional concerns are underlined when analyzing the university's experience in giving access to online content. Furthermore, these difficulties must be addressed in order to create the necessary organizational change to effectively solve accessibility concerns. This study looked into the e-learning issues that 56 university students with disabilities had reported. Students reported issues with: accessibility to websites and learning course management systems; accessibility to digital audio and video; time management in completing online tasks; trouble handling data during lectures; and a lack of appropriate adaptive strategies in online questionnaires. Students also noted technical issues with using e-learning, instructors' communication with e-learning, and their treatment of all students equally, overlooking the necessity of considering the needs of students with impairments. In this study, we present the problems raised by students with disabilities and how the e-learning affects students' outcomes in the e-learning experience. We also make recommendations based on the students' realistic special-needs experience at Al-Zaytoonah University in Jordan during the COVID-19 pandemic to inspire decision-makers in educational institutions and those interested in this field. © 2022, Institute of Advanced Engineering and Science. All rights reserved.

Saleh, M.M., Awwad, O., Abdel Jalil, M.H., Al-Qerem, W., Saleh, M., Al Thaher, Y., Abdelghany, S. Correlation of skin cancer and actinic keratosis-related knowledge and sun protection behaviors and sunscreen use among a sample of Jordanian population

(2022) Journal of Cosmetic Dermatology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138896759&doi=10.1111%2fjocd.15377&partnerID=40&md5=d332dc49fdcb7ae67ccaf73b7dbcb6f)

[85138896759&doi=10.1111%2fjocd.15377&partnerID=40&md5=d332dc49fdcb7ae67ccaf73b7dbcb6f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138896759&doi=10.1111%2fjocd.15377&partnerID=40&md5=d332dc49fdcb7ae67ccaf73b7dbcb6f)

AFFILIATIONS: Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmacy, AlZaytoonah University of Jordan, Amman, Jordan;

School of Medicine, The Hashemite University, Zarqa, Jordan;

School of Pharmacy, Philadelphia University, Amman, Jordan

ABSTRACT: Background: The incidence of skin cancer and actinic keratosis has increased worldwide. Measuring the public awareness, attitude, and knowledge about these diseases and the skin protection behaviors are highly important to undertake preventive measures. Methods: To investigate skin cancer and actinic keratosis-related knowledge, sun protection behaviors, and sunscreen usage among Jordanians, a questionnaire was developed. The questionnaire was provided as a google form to individuals via social media and the data were analyzed using SPSS® 23. Results: A total of 1277 individuals, aged 18-65 years filled the questionnaire. The median melanoma and actinic keratosis knowledge score were 7 (4-9) and 4 (0-9), respectively. The melanoma knowledge was higher among females, those with a medical background, a high level of education, and in the central region, whereas the AK knowledge was higher among those with a medical background. Overall, 75.9% of the participants used sunscreen at least often to prevent sunburn, uneven skin tone, or tanning, 72% were using sunscreen with an SPF of 30 at least. However, 45.3% and 49.2% of sunscreen users did not comply with application, and reapplication times, respectively. Moreover, 58.4% of participants applied less than the recommended amount of sunscreen. Conclusion: Our study revealed that public awareness of actinic keratosis is low among Jordanians. Although it was found that a high proportion

of Jordanians use sunscreens there are deficits in sunscreen practice indicating an urgent need to design effective interventions to increase awareness of actinic keratosis and correct use of sunscreen via health campaigns or healthcare professions. © 2022 Wiley Periodicals LLC.

Sharifi, S., Mahmoud, N.N., Voke, E., Landry, M.P., Mahmoudi, M.
Importance of Standardizing Analytical Characterization Methodology for Improved Reliability of the Nanomedicine Literature

(2022) Nano-Micro Letters, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137033334&doi=10.1007%2fs40820-022-00922-5&partnerID=40&md5=3a038a7bd4298af3db039bfb4f956e39>

AFFILIATIONS: Department of Radiology and Precision Health Program, Michigan State University, East Lansing, MI, United States;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biomedical Sciences, College of Health Sciences, QU Health, Qatar University, Doha, 2713, Qatar;

Department of Chemical and Biomolecular Engineering, University of California, Berkeley, Berkeley, CA, United States;

Innovative Genomics Institute, Berkeley, CA, United States;

California Institute for Quantitative Biosciences, University of California, Berkeley, CA, United States;

Chan Zuckerberg Biohub, San Francisco, CA, United States

ABSTRACT: Understanding the interaction between biological structures and nanoscale technologies, dubbed the nano-bio interface, is required for successful development of safe and efficient nanomedicine products. The lack of a universal reporting system and decentralized methodologies for nanomaterial characterization have resulted in a low degree of reliability and reproducibility in the nanomedicine literature. As such, there is a strong need to establish a characterization system to support the reproducibility of nanoscience data particularly for studies seeking clinical translation. Here, we discuss the existing key standards for addressing robust characterization of nanomaterials based on their intended use in medical devices or as pharmaceuticals. We also discuss the challenges surrounding implementation of such standard protocols and their implication for translation of nanotechnology into clinical practice. We, however, emphasize that practical implementation of standard protocols in experimental laboratories requires long-term planning through integration of stakeholders including institutions and funding agencies. [Figure not available: see fulltext.] © 2022, The Author(s).

AL-Nawaiseh, F.K., Al-Jaghbir, M.T., AL-Assaf, M.S., AL-Nawaiseh, H.K., Alzoubi, M.M.

Breastfeeding initiation and duration and acute otitis media among children less than two years of age in Jordan: results from a case-control study

(2022) BMC Pediatrics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133000869&doi=10.1186%2fs12887-022-03427-7&partnerID=40&md5=67c2bc962a01d95bed5d1dfbe8fb90fe>

AFFILIATIONS: Department of Family and Community Medicine, School of Medicine, The University of Jordan, Amman, Jordan;

Department of Ears, Nose and Throat, King Hussein Medical Centre (KHMC), Amman, Jordan;

Department of Nutrition and Food Technology, School of Agriculture, The University of Jordan, Amman, 11942, Jordan;

Department of Nursing, School of Nursing, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Acute otitis media (AOM) is one of the most common infectious diseases that affects children. Breastfeeding has been linked to a lower risk of AOM in the first three years of childhood. The aim of this study was to identify the association between exclusive breastfeeding and the development of acute otitis media (AOM) and investigate the influence of breastfeeding duration on the presence of AOM. Methods: In a retrospective case-control study, a sample of 98 children (cases) who were diagnosed with AOM and 98 children (controls) who were not diagnosed with AOM and were younger than two years old were selected from the Jordan University Hospital. Medical records were used to identify children with AOM. For both the case and control groups, the children's mothers completed a self-administered questionnaire about factors linked to the incidence of AOM. The type of feeding and the duration of breastfeeding were assessed using a validated questionnaire. Results: The data indicated that among children who developed AOM, 23.5% were artificially fed, while 22.4% and 13.3% were exclusively breastfed for 3 months and 6 months, respectively. Approximately 70.7% of the children without AOM were exclusively breastfed for 6 months, compared with only 29.3% of the children without AOM who were exclusively breastfed for 3 months. Logistic regression revealed that nonexclusive breastfeeding, exclusive breastfeeding for 3 months, and exclusive breastfeeding for 6 months were protective factors against AOM (OR = 0.23, 0.18, and 0.25, respectively; $P < 0.05$). A short duration of exclusive breastfeeding was considered a risk factor for the development of AOM (OR = 1.7, $P < 0.05$). Conclusions: The escalation of AOM is tightly connected to the early introduction

of formula feeding in the first six months of life. Breastfeeding had a protective impact on the occurrence of AOM. Understanding factors that are associated with the occurrence of AOM in children may support the role of public health institutions and primary health care in the prevention and reduction of AOM episodes and the need for national health strategies to promote breastfeeding. © 2022, The Author(s).

Mughaid, A., AlZu'bi, S., Hnaif, A., Taamneh, S., Alnajjar, A., Elsoud, E.A.

An intelligent cyber security phishing detection system using deep learning techniques (2022) Cluster Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130119012&doi=10.1007%2fs10586-022-03604-4&partnerID=40&md5=26be51a809e138b7a8754aa5cd10ae18>

AFFILIATIONS: Department of Information Technology, Faculty of prince Al-Hussien bin Abdullah for IT, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;
Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Recently, phishing attacks have become one of the most prominent social engineering attacks faced by public internet users, governments, and businesses. In response to this threat, this paper proposes to give a complete vision to what Machine learning is, what phishers are using to trick gullible users with different types of phishing attacks techniques and based on our survey that phishing emails is the most effective on the targeted sectors and users which we are going to compare as well. Therefore, more effective phishing detection technology is needed to curb the threat of phishing emails that are growing at an alarming rate in recent years, thus will discuss the techniques of mitigation of phishing by Machine learning algorithms and technical solutions that have been proposed to mitigate the problem of phishing and valuable awareness knowledge users should be aware to detect and prevent from being duped by phishing scams. In this work, we proposed a detection model using machine learning techniques by splitting the dataset to train the detection model and validating the results using the test data , to capture inherent characteristics of the email text, and other features to be classified as phishing or non-phishing using three different data sets, After making a comparison between them, we obtained that the most number of features used the most accurate and efficient results achieved. the best ML algorithm accuracy were 0.88, 1.00, and 0.97 consecutively for boosted decision tree on the applied data sets. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Bajow, N., Alkhalil, S., Maghraby, N., Alesa, S., Najjar, A.A., Aloraifi, S.

Assessment of the effectiveness of a course in major chemical incidents for front line health care providers: a pilot study from Saudi Arabia (2022) BMC Medical Education, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129508203&doi=10.1186%2fs12909-022-03427-2&partnerID=40&md5=c3432ee8fb5cb271425c54e40fb987dc>

AFFILIATIONS: Security Forces Hospital Program, P O Box 89489, Riyadh, 11682, Saudi Arabia;
Faculty of Engineering and Technology, Alzaytoonah University, Amman, Jordan;

King Fahad University Hospital Collage of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia;

General Directorate of Medical Services Special Security Forces, Riyadh, Saudi Arabia;

Hail Health Cluster Ministry of Health, Hail, Saudi Arabia

ABSTRACT: Background: Mass chemical exposure emergencies are infrequent but can cause injury, illness, or loss of life for large numbers of victims. These emergencies can stretch and challenge the available resources of healthcare systems within the community. Political unrest in the Middle East, including chemical terrorist attacks against civilians in Syria and increasing chemical industry accidents, have highlighted the lack of hospital preparedness for chemical incidents in the region. This study aimed to evaluate the effectiveness of a course designed to empower frontline healthcare providers involved in mass casualty incidents with the basic knowledge and essential operational skills for mass chemical exposure incidents in Saudi Arabia. Methods: A mixed-methods approach was used to develop a blended learning, simulation enhanced, competency-based course for major chemical incidents for front line healthcare providers. The course was designed by experts from different disciplines (disaster medicine, poisoning / toxicology, and Hazard Material Threat - HAZMAT team) in four stages. The course was piloted over five days at the Officers Club of the Ministry of Interior (Riyadh, Saudi Arabia). The 41 participants were from different government health discipline sectors in the country. Pre- and post-tests were used to assess learner knowledge while debriefing sessions after the decontamination triage session and simulation-enhanced exercises were used for team performance assessment. Results: The overall knowledge scores were significantly higher in the post-test (69.47%) than the pre-test (46.3%). All four knowledge domains also had significant differences between pre- and post-test results. There were no differences in the pre and post-test scores for healthcare providers from the different health disciplines. A one-year post-event survey demonstrated that participants were satisfied with their knowledge retention. Interestingly, 38.3% had the opportunity to put this knowledge into practice in relation to mass chemical exposure

incidents. Conclusion: Delivering a foundation level competency-based blended learning course with enhanced simulation training in major chemical incidents for front line healthcare providers may improve their knowledge and skills in response to such incidents. This in turn can improve the level of national preparedness and staff availability and make a crucial difference in reducing the health impacts among victims. © 2022, The Author(s).

Zihlif, M., Otoum, S., Al Shhab, M., Almadani, Z., Momani, M., Alhawari, H., Esraa Jibrini, Jarrar, Y., Al-Ameer, H., Imraish, A.

No association between LDL receptor and CETP genetic variants and atorvastatin response in Jordanian hyperlipidemic patients

(2022) Drug Metabolism and Personalized Therapy, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129327270&doi=10.1515%2fdmpt-2021-0177&partnerID=40&md5=15a3bb180389360377271a80f0db54d5>

AFFILIATIONS: Department of Pharmacology, School of Medicine, The University of Jordan, Amman, Jordan;

Department of Internal Medicine, School of Medicine, The University of Jordan, Amman, Jordan;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biology and Biotechnology, American University of Madaba, Madaba, Jordan;

Department of Biological Sciences, School of Science, The University of Jordan, Amman, Jordan

ABSTRACT: Objectives: Atorvastatin is commonly used medication to achieve low levels of low-density lipoproteins (LDL). Cholesteryl ester transfer protein (CETP) and LDL receptor (LDLR) genetic variants can affect the cholesterol transport and hence may affect on atorvastatin response. This study aimed to investigate the influence of LDLR AvaII, CETP TaqIb, and Rs1532624 on the efficacy of 20 mg atorvastatin among Jordanian hyperlipidemic patients. Methods: One hundred and 50 blood samples were collected from hyperlipidemic patients in the University of Jordan Hospital. Polymerase chain reaction-restriction fragment length polymorphism was used for genotyping of LDLR AvaII and CETP TaqIb genetic variants. The genotyping of CETP Rs1532624 variant was done by Sanger DNA-Sequencing. Results: LDLR AvaII and CETP TaqIb and Rs1532624 variants showed a significant (p value < 0.05) association with the baseline of the LDL at the time of diagnoses. On the other hand, none of the tested genetic variants showed a significant (p value > 0.05) association with LDL reduction after atorvastatin therapy. Conclusions: Results demonstrated a significant association between the LDLR AvaII and CETP TaqIb, and Rs1532624 genetic variants with the LDL baseline level. However, the atorvastatin therapy among hyperlipidemic patients of Jordanian origin was not affected by any of the tested variants. © 2022 Walter de Gruyter GmbH, Berlin/Boston.

Abu Helal, A.-R.

Late Merger in Modal Superlatives: The Case of Levantine Arabic

(2022) Jordan Journal of Modern Languages and Literatures, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126786444&doi=10.47012%2ffjml.14.1.1&partnerID=40&md5=59c7b42710329fad34ad58e8f460cef2)

[85126786444&doi=10.47012%2ffjml.14.1.1&partnerID=40&md5=59c7b42710329fad34ad58e8f460cef2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126786444&doi=10.47012%2ffjml.14.1.1&partnerID=40&md5=59c7b42710329fad34ad58e8f460cef2)

AFFILIATIONS: Department of English language, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: We present and analyze a pattern of modal superlative constructions in Levantine Arabic (LA)¹ with an asymmetrical behavior: while the modal construct state superlative construction is ambiguous between the regular modifier and modal superlative readings, the modal attributive superlative is unambiguous and the only reading it has is the regular modifier reading. We propose an explanation for the asymmetry in terms of the (in)applicability of Late Merger of the modal adjective which is, as shown, a necessary compositional stage in deriving the modal superlative reading. © 2022 JJMLL Publishers/Yarmouk University. All Rights Reserved,.

Tarawneh, O., Abu Mahfouz, H., Hamadneh, L., Deeb, A.A., Al-Sheikh, I., Alwahsh, W., Fadhil Abed, A. Assessment of persistent antimicrobial and anti-biofilm activity of p-HEMA hydrogel loaded with rifampicin and cefixime

(2022) Scientific Reports, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126238805&doi=10.1038%2fs41598-022-07953-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126238805&doi=10.1038%2fs41598-022-07953-3&partnerID=40&md5=b7a5a9af271c03470d4b4bf10e1e31dc)

[3&partnerID=40&md5=b7a5a9af271c03470d4b4bf10e1e31dc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126238805&doi=10.1038%2fs41598-022-07953-3&partnerID=40&md5=b7a5a9af271c03470d4b4bf10e1e31dc)
AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P. O. Box 130, Amman, 11733, Jordan

ABSTRACT: Catheter-associated urinary tract infections (CAUTIs) are nosocomial infections causing more than one million hospital cases annually. The progress of CAUTIs leads to severe health complications. Infections result in blockage of the medical device due to biofilm formation, which necessitates the replacement of the device. The objective of this study is to improve urological biomaterials to minimize microbial growth and reduce the incidence of CAUTIs. Challenges from mixed biofilm are crucial and need to be addressed in the development of new coating materials. Herein, an investigation highlighted the reduction of mixed biofilm overgrowth and attachment tendency on poly-2-hydroxyethyl methacrylate (p-HEMA) surface by loading the hydrogel with rifampicin (RIF), cefixime

trihydrate (CFX), and combined ratios of RIF and CFX. Mixed biofilm-formation ability in (3:1) RIF: CFX-loading p-HEMA (F6) surface showed best tendency to resist form biofilm. Persistent antimicrobial activity increased in p-HEMA loaded with combined ratios of RIF and CFX surface compared to p-HEMA alone, antimicrobial activity lasted for 8 days. All fabricated films exhibited %cell viability higher than 75% on HEK 293 cells. The addition of RIF and CFX may improve the duration of urological device employment before replacement. © 2022, The Author(s).

Abendeh, R.M., Bani Baker, M.

Using steel slag aggregate to strengthen self-compacting concrete durability

(2022) Proceedings of the Institution of Civil Engineers: Structures and Buildings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119607425&doi=10.1680%2fjstbu.20.00067&partnerID=40&md5=f7703dd8b79a0055b3e75a7dd11aa4e)

[85119607425&doi=10.1680%2fjstbu.20.00067&partnerID=40&md5=f7703dd8b79a0055b3e75a7dd11aa4e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119607425&doi=10.1680%2fjstbu.20.00067&partnerID=40&md5=f7703dd8b79a0055b3e75a7dd11aa4e)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of this study is to produce durable self-compacting concrete (SCC) using different fractions of recycled steel slag aggregates (SSA) by replacing natural aggregate. For this purpose, a series of nine mixing proportions were designed with a constant water-to-cement ratio of 0.34 and a change of SSA ratio replacing natural coarse or fine aggregates by weight from 0 to 50% (increments of 12.5%). For freshly mixed SCC, the flowability, passing and filling abilities, segregation and viscosity were observed by slump flow, slump-flow time (T500), L-box and V-funnel empirical tests. Mechanical properties were tested for compressive and flexural strengths, while the durability characteristics were conducted for water absorption and permeability, sulfate attack and freeze-thaw action (F/T). Non-destructive measurement approaches (i.e. ultrasonic pulse velocity and resonance frequency) were involved in the F/T testing. The test results indicate that the incorporation of SSA in SCC is suitable and improves the mechanical strength and durability properties, and that enhancement is more pronounced at higher SSA increments, especially when replacing the coarse natural aggregate partially by coarse SSA. © 2020 ICE Publishing: All rights reserved.

Sunoqrot, S., Al-Bakri, A.G., Ibrahim, L.H., Aldaken, N.

Amphotericin B-Loaded Plant-Inspired Polyphenol Nanoparticles Enhance Its Antifungal Activity and Biocompatibility

(2022) ACS Applied Bio Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140331039&doi=10.1021%2facsabm.2c00537&partnerID=40&md5=02dd7bf3c83f905c5e2a171d48220701)

[85140331039&doi=10.1021%2facsabm.2c00537&partnerID=40&md5=02dd7bf3c83f905c5e2a171d48220701](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140331039&doi=10.1021%2facsabm.2c00537&partnerID=40&md5=02dd7bf3c83f905c5e2a171d48220701)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Amphotericin B (AmB) is one of the first-line treatments for systemic fungal infections, yet it suffers from dose-limiting systemic toxicity and high cost of less toxic lipid-based formulations. Here, we report on a facile approach to synthesize an AmB-loaded nanomedicine by leveraging plant-inspired oxidative self-polymerization of the ubiquitous polyphenol quercetin (QCT). Polymerized QCT nanoparticles (pQCT NPs) were formed, loaded with AmB, and functionalized with poly(ethylene glycol) (PEG) to impart steric stability in a simple procedure that relied on mixing followed by dialysis. The AmB-loaded NPs (AmB@pQCT-PEG NPs) were characterized by a drug loading efficiency of more than 90%, a particle size of around 160 nm, a polydispersity index of 0.07, and a partially negative surface charge. AmB release from the NPs was sustained over several days and followed the Korsmeyer-Peppas model with a release exponent (n) value >0.85, denoting drug release by polymer relaxation and swelling. A hemolysis assay revealed the NPs to be highly biocompatible, with negligible hemolytic activity and 30-60% hemolysis after 1 and 24 h of incubation with erythrocytes, respectively, across a wide concentration range (6.25-100.00 µg/mL). Conversely, equivalent concentrations of free AmB caused 90-100% hemolysis within the same timeframe. Importantly, AmB@pQCT-PEG NPs outperformed free AmB in microbial susceptibility assays on *Candida albicans*, achieving a minimum inhibitory concentration of 62.5 ng/mL after 48 h of incubation, which was 2-fold lower than the free drug. Our results demonstrate that pQCT NPs may serve as a viable AmB delivery platform for the treatment of fungal infections and potentially other AmB-susceptible pathogens. © 2022 American Chemical Society. All rights reserved.

Hijazi, R.

Mobile banking service quality and customer value co-creation intention: a moderated mediated model (2022) International Journal of Bank Marketing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-851133626698&doi=10.1108%2fIJBM-01-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-851133626698&doi=10.1108%2fIJBM-01-2022-0004&partnerID=40&md5=f020bbac66179cd8eff1e9fcff5c3dd9)

[0004&partnerID=40&md5=f020bbac66179cd8eff1e9fcff5c3dd9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-851133626698&doi=10.1108%2fIJBM-01-2022-0004&partnerID=40&md5=f020bbac66179cd8eff1e9fcff5c3dd9)

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The objective of this paper is to explore the possible impact of mobile banking

service quality (MBSQ) on customer value co-creation intention (CVCI). Design/methodology/approach: A questionnaire was administered to research participants from Jordan. A total of 562 valid questionnaires were analysed. Mediation and moderation evaluations were performed in order to examine the function performed by MBSQ, customer engagement (CE), and social presence as determinants of CVCI. Structural equation modeling of type covariance-SEM using AMOS software was employed for the analysis. Findings: The research results verify the proposition that MBSQ, CE, and social presence can all influence. In addition, the mediating role of customer engagement in respect of the relationship between MBSQ and CVCI is also confirmed in this research. Practical implications: This research is of use to bank managers who must allocate resources during the development of m-banking platforms, wherein value co-creation in banking can be promoted. Originality/value: This study comprises an original contribution to current scholarship in the field of m-banking through its examination of the impact of customer engagement with m-banking. Moreover, this research augments current literature pertaining to the function of MBSQ in relation to CVCI as tempered by customer engagement and social presence. © 2022, Emerald Publishing Limited.

Abaalkhail, S.J., Abul-Futouh, H., Görls, H., Weigand, W.

Electrochemical Behavior of Mono-Substituted [FeFe]-Hydrogenase H-Cluster Mimic Mediated by Stannylated Dithiolato Ligand

(2022) Zeitschrift für Anorganische und Allgemeine Chemie, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135168057&doi=10.1002%2fzaac.202200221&partnerID=40&md5=e59a4b1bfe3f1a852c72b31859243bd0)

85135168057&doi=10.1002%2fzaac.202200221&partnerID=40&md5=e59a4b1bfe3f1a852c72b31859243bd0

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Chemistry, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Department of Inorganic and Analytical Chemistry (IAAC), Friedrich Schiller University Jena, Humboldtstraße 8, Jena, 07743, Germany

ABSTRACT: In this research work we present the synthesis and characterization of asymmetrical [FeFe]-hydrogenase mimic, $[\text{Fe}_2(\text{CO})_5\text{P}(\text{OMe})_3\{\mu\text{-(SCH}_2)_2\text{SnPh}_2\}]$ (2), obtained from replacing one of the CO ligands of the parent hexacarbonyl complex $[\text{Fe}_2(\text{CO})_6\{\mu\text{-(SCH}_2)_2\text{SnPh}_2\}]$ (1) with the monodentate phosphite $\text{P}(\text{OMe})_3$. The molecular structure of complex 2 was confirmed by X-ray diffraction analysis. Moreover, the electrochemistry of complexes 1 and 2 was investigated to explore the influence of the steric bulk of the Ph-ring at the bridgehead Sn atom with the nearby $\text{P}(\text{OMe})_3$ ligand. In addition, both complexes show their potentials toward hydrogen formation in the presence of weak acid, such as acetic acid (AcOH), suggesting an ECEC (E=electron transfer, C=chemical process) mechanism for hydrogen production. © 2022 Wiley-VCH GmbH.

Zaid Alkilani, A., Hamed, R., Abdo, H., Swellmeen, L., Basheer, H.A., Wahdan, W., Abu Kwiak, A.D.

Formulation and Evaluation of Azithromycin-Loaded Niosomal Gel: Optimization, in Vitro Studies, Rheological Characterization, and Cytotoxicity Study

(2022) ACS Omega, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141417420&doi=10.1021%2facsomega.2c03762&partnerID=40&md5=fcb75ee4dbee74d62ddc7777acbd2e30)

85141417420&doi=10.1021%2facsomega.2c03762&partnerID=40&md5=fcb75ee4dbee74d62ddc7777acbd2e30

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, 13110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Chemistry, Faculty of Pharmaceutical Sciences, Hashemite University, Zarqa, 13133, Jordan

ABSTRACT: Several novel, innovative approaches for improving transdermal delivery of BCS class III drugs have been proposed. Despite their great aqueous solubility, BCS class III drugs have the drawback of limited permeability. The objective of the current work was to screen the suitability of niosomes as a nanocarrier in permeation enhancement of azithromycin (AZM) transdermal delivery. Niosomes were prepared by an ether injection method using a nonionic surfactant (Span 60) and cholesterol at different concentrations. The ζ potential (ZP), polydispersity index (PDI), and particle size (PS) of AZM-loaded niosomes were evaluated. The size of the niosomes was found to vary between 288 and 394 nm. The results revealed that the niosomes prepared in a ratio of 2:1 (Span 60: cholesterol) had larger vesicle sizes, but all of them were characterized by narrow size distributions (PDI < 0.95). Niosomal gel was successfully prepared using different polymers. The appearance, pH, viscosity, and ex vivo drug release of niosomal gel formulations were all examined. The flow curves showed that the niosomal gel displayed lower viscosity values than its corresponding conventional gels. Niosomal and conventional gels exhibited a domination of the elastic modulus (G') over the viscous modulus (G'') ($G' > G''$) in the investigated frequency range (0.1–100 rad/s), indicating stable gels with more solid-like properties. Ex vivo skin permeation studies for the niosomal gel show $90.83 \pm 3.19\%$ of drug release in 24 h as compared with the conventional gel showing significantly lower ($P < 0.001$) drug release in the same duration ($1.25 \pm 0.12\%$). Overall, these results indicate that niosomal gel could be an effective transdermal nanocarrier for enhancing the

permeability of AZM, a BCS class III drug. In conclusion, this study suggests that transdermal formulations of AZM in the niosomal gel were successfully developed and could be used as an alternative route of administration. © 2022 Authors. All rights reserved.

Dajani, D., Yaseen, S.G., El Qirem, I., Sa'd, H.

Predictors of Intention to Use a Sustainable Cloud-Based Quality Management System among Academics in Jordan

(2022) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148106147&doi=10.3390%2fsu142114253&partnerID=40&md5=c2af79857ab81ce093b888208ccf4d14)

85148106147&doi=10.3390%2fsu142114253&partnerID=40&md5=c2af79857ab81ce093b888208ccf4d14

AFFILIATIONS: Department of Digital Marketing, Faculty of Business, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This research aims to provide a predictive model of essential factors influencing the behavioral intention to use sustainable cloud-based quality management systems among academics in Jordan. A comprehensive research model was developed based on the Unified Theory of Acceptance and Use of Technology (UTAUT2) and the Theory of Planned Behavior (TPB), which was tested using cross-sectional data. The research sample covers Jordanian higher education institutions (23 governmental and private universities), and the unit of analysis includes 500 academics. The research adapts and modifies the UTAUT2 model and TPB to explain behavioral intention to use sustainable cloud-based quality management systems in developing countries. The proposed model explained 0.478 percent of behavioral intention variance and 0.127 percent of the user behavior variance. Three constructs are found to be significant predictors: perceived behavioral control, performance expectancy, and facilitating conditions. The attitude toward the behavior and subjective norm are not significant predictors. The research contributes to the literature in several ways. First, it extends previous studies by examining predictors of the behavioral intention to use SCQMS in higher education institutions. Second, it provides rigorous empirical evidence that incorporating the UTAUT2 model with the TPB produced a substantial improvement in the variance explained in behavioral intention compared to the prior research conducted in developing contexts. Third, this research provides useful insight into university management. The research provides a better understanding of the essential factors influencing the behavior intention to use sustainable cloud-based quality management systems in Jordanian Universities. Thus, the research model provides better explanatory power than previous studies in business literature and developing markets. © 2022 by the authors.

Hamdallah, M.E., Al-N'eimat, S., Srouji, A.F., Al-Okaily, M., Albitar, K.

The Effect of Apparent and Intellectual Sustainability Independence on the Credibility Gap of the Accounting Information

(2022) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148059279&doi=10.3390%2fsu142114259&partnerID=40&md5=cf2e28ac0f2eed8b7c1d1834766b5b12)

85148059279&doi=10.3390%2fsu142114259&partnerID=40&md5=cf2e28ac0f2eed8b7c1d1834766b5b12

AFFILIATIONS: Business Faculty, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, 11941, Jordan;

School of Business, Jadara University, Irbid, 21110, Jordan;

Faculty of Business and Law, University of Portsmouth, Portsmouth, PO1 2UP, United Kingdom

ABSTRACT: This study aims to recognize the sustainability independence of the Jordanian Association of Certified Public Accountants (JACPA/JCPA) and its impact on the credibility gap of the accounting information of companies operating in Jordan. This study demonstrates the effects of the apparent and intellectual sustainability independence on the credibility gap of accounting information. A total of 93 online questionnaires were analyzed using multiple regressions. The results revealed an impact of the apparent independence of the JCPA on the quality of the information credibility gap related to service fees, and no statistically significant impact for both consulting and accounting service fees was found. This study also concludes research regarding the impact of intellectual independence of the JCPA on the information credibility gap regarding the code of professional ethics and the commitment of auditing offices to their customers. © 2022 by the authors.

Al Hadid, L.A.E., Al Barmawi, M.A., Alnjadat, R., Farajat, L.A.

The impact of stress associated with caring for patients with COVID-19 on career decisions, resilience, and perceived self-efficacy in newly hired nurses in Jordan: A cross-sectional study (2022) Health Science Reports, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143146192&doi=10.1002%2fhshr.2.899&partnerID=40&md5=78f3522fc29be0842e24d9bc10ade096)

85143146192&doi=10.1002%2fhshr.2.899&partnerID=40&md5=78f3522fc29be0842e24d9bc10ade096

AFFILIATIONS: Faculty of Nursing, Al Balqa' Applied University, Salt, Jordan;

Nursing Department, Alzaytoonah University of Jordan (ZUJ), Amman, Jordan;
Irbid University College, Al Balqa' Applied University, Salt, Jordan

ABSTRACT: Background and Aims: The decision to stay in nursing has been challenged by the recent coronavirus disease 2019 (COVID-19) pandemic. New nurses joined the workforce and provided care to patients with COVID-19 although they received limited training, which could have influenced their intention to stay in nursing. We aimed in this study to examine the impact of caring for patients with COVID-19 on career decisions, resilience, and perceived self-efficacy among newly hired nurses in Jordan. It also tested the predictors of intentions to stay among new nurses. Methods: This cross-sectional quantitative study was conducted using an online electronic questionnaire form. The sample included newly hired nurses (n = 300) working in public hospitals and providing care to patients with COVID-19 in different levels of acuity units. The perceived stress scale and Connor-Davidson resilience scale 25 were used to measure stress and resilience among nurses. Results: The majority chose nursing as their career, but they were not satisfied with the current work conditions or autonomy in decision-making. Many nurses reported having moderate to high work-related stress and low to moderate resilience. Among all variables in this study, financial income predicted mild intention to stay in nursing. Conclusions: Nurses expressed the presence of work-related stress and low to moderate levels of resilience. As new nurses, exposure to these stress levels might lead to burnout. Nursing managers should take necessary measures to promote better work conditions and improve resilience to avoid nurses leaving the profession at times when there is a shortage. © 2022 The Authors. Health Science Reports published by Wiley Periodicals LLC.

Alnaeem, M.M., Hamdan-Mansour, A.M., Nashwan, A.J., Abuatallah, A., Al-Hussami, M.

Healthcare providers' intention to leave their jobs during COVID-19 pandemic: A cross-sectional study (2022) Health Science Reports, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142742946&doi=10.1002%2fhsr.2.859&partnerID=40&md5=0699d70b1a9620f13096b09d53e606e2)

[85142742946&doi=10.1002%2fhsr.2.859&partnerID=40&md5=0699d70b1a9620f13096b09d53e606e2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142742946&doi=10.1002%2fhsr.2.859&partnerID=40&md5=0699d70b1a9620f13096b09d53e606e2)

AFFILIATIONS: School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Nursing, The University of Jordan, Amman, Jordan;

Nursing for Education & Practice Development, Hamad Medical Corporation, Doha, Qatar

ABSTRACT: Background and Aims: During the coronavirus pandemic (COVID-19), healthcare providers confronted risks of disease transmission to themselves and their family members, resulting in physical and psychological burdens. This might affect their decisions to leave their jobs temporarily or permanently, fearing infection and protecting their families. This study examined the factors related to the intention to leave a job among healthcare providers during the COVID-19 pandemic in Jordan. Methods: A cross-sectional correlational design was used to collect data using a convenience sample of 557 healthcare providers working in different sectors across Jordan. Data were collected using a self-administered questionnaire about the intention to leave jobs during the pandemic. Results: The sample included 368 females (63.8%) and 209 males (36.6%) participants. The mean age of participants was 30.8 years (SD = 6.65). Differences found in intention to leave job during COVID-19 in relation to age ($t = 2.60$, $p < 0.05$), gender ($X^2 = 4.25$, $p < 0.001$), and marital status ($X^2 = 18.2$, $p < 0.001$). Participants with a high risk of exposure to COVID-19 and who experienced higher workloads had higher scores of intention to leave their job during COVID-19, while being married had lower scores. Conclusions: Policy-makers need to pay attention to young and single healthcare providers during the COVID-19 pandemic to prevent them leave their job. Crucial guidelines for managing workload during the COVID-19 pandemic are needed. Policy-makers during pandemics have to protect healthcare providers who feel they are at high risk of infection. © 2022 The Authors. Health Science Reports published by Wiley Periodicals LLC.

Almaiah, M.A., Alfaisal, R., Salloum, S.A., Hajjej, F., Thabit, S., El-Qirem, F.A., Lutfi, A., Alrawad, M., Al Mulhem, A., Alkhdour, T., Awad, A.B., Al-Marouf, R.S.

Examining the Impact of Artificial Intelligence and Social and Computer Anxiety in E-Learning Settings: Students' Perceptions at the University Level

(2022) Electronics (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142425031&doi=10.3390%2felectronics11223662&partnerID=40&md5=814b4a4bf4ab270c5cb40a742d5e4cbd)

[85142425031&doi=10.3390%2felectronics11223662&partnerID=40&md5=814b4a4bf4ab270c5cb40a742d5e4cbd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142425031&doi=10.3390%2felectronics11223662&partnerID=40&md5=814b4a4bf4ab270c5cb40a742d5e4cbd)

AFFILIATIONS: Department of Computer Networks, College of Computer Sciences and Information

Technology, King Faisal University, Al-Ahsa31982, Saudi Arabia;

Faculty of Information Technology, Applied Science Private University, Amman, 11931, Jordan;

King Abdullah the II IT School, Department of Computer Science, The University of Jordan, Amman, 11942, Jordan;

Faculty of Art, Computing and Creative Industries, Universiti Pendidikan Sultan Idris, Tanjong Malim35900, Malaysia;

School of Science, Engineering, and Environment, University of Salford, Manchester, M50 2EQ, United Kingdom;

Department of Information Systems, College of Computer and Information Sciences, Princess Nourah bint

Abdulrahman University, P.O. Box 8442, Riyadh, 11671, Saudi Arabia;
English Language and Linguistics Department, Al Buraimi University College, Al Buraimi, 512, Oman;
Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
College of Business, King Faisal University, Al-Ahsa31982, Saudi Arabia;
College of Education, King Faisal University, Al-Ahsa31982, Saudi Arabia

ABSTRACT: The learning environment usually raises various types of anxiety based on the student's abilities to use technology and their abilities to overcome the negative feelings of an individual being watched all the time and criticized. Hence, learners still feel anxious while using computers and socializing in an e-learning environment. Learners who are faced with computer and AI tools are confused and frustrated. The uneasiness stems from anxiety or uneasiness, which is highly evident in daily interaction with computers and artificial intelligence tools or devices in e-learning contexts. The uneasiness stems from anxiety or uneasiness, which is highly evident in the daily interaction with computers and artificial intelligence tools or devices in e-learning contexts. To investigate this phenomenon empirically, a questionnaire was distributed among a group of undergraduate students who are studying different majors. This study aims to investigate the role of social anxiety and computer anxiety in an e-learning environment at the university level. Universities in the Gulf area are among those implementing e-learning systems. In spite of this, recent studies have shown that most students at Gulf universities are still resistant to using online systems; hence, it is necessary to determine the type of anxiety that creates such resistance and their relationship with other external variables such as motivation, satisfaction and self-efficacy. Students would be more likely to use e-learning tools and participate more effectively in their courses using the accessible electronic channels when the degree of anxiety is low. In this study, we have proposed a theoretical framework to investigate the role of social anxiety and computer anxiety in e-learning environments in the Gulf region. We examined how different variables such as satisfaction, motivation and self-efficacy can negatively or positively affect these two types of anxiety. © 2022 by the authors.

Salas, A.H., Abu Hammad, M., Alotaibi, B.M., El-Sherif, L.S., El-Tantawy, S.A.

Closed-Form Solutions to a Forced Damped Rotational Pendulum Oscillator

(2022) Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85141852742&doi=10.3390%2fmath10214000&partnerID=40&md5=093cd21f5a7d249729c8ed93214e990d

AFFILIATIONS: FIZMAKO Research Group, Department of Mathematics and Statistics, Universidad Nacional de Colombia, Manizales, 170001, Colombia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Department of Physics, College of Arts and Science in Wadi Al-Dawaser, Prince Sattam bin Abdulaziz University, Wadi-Dawaser, 11991, Saudi Arabia;

Department of Physics, Faculty of Science, Ain Shams University, Cairo, 11566, Egypt;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Baha University, Al Bahah, 1988, Saudi Arabia

ABSTRACT: In this investigation, some analytical solutions to both conserved and non-conserved rotational pendulum systems are reported. The exact solution to the conserved oscillator (unforced, undamped rotational pendulum oscillator), is derived in the form of a Jacobi elliptical function. Moreover, an approximate solution for the conserved case is obtained in the form of a trigonometric function. A comparison between both exact and approximate solutions to the conserved oscillator is examined. Moreover, the analytical approximations to the non-conserved oscillators including the unforced, damped rotational pendulum oscillator and forced, damped rotational pendulum oscillator are obtained. Furthermore, all mentioned oscillators (conserved and non-conserved oscillators) are linearized, and their exact solutions are derived. In addition, all obtained approximations are compared with the four-order Runge-Kutta (RK4) numerical approximations and with the exact solutions to the linearized oscillators. The obtained results can help several authors for discussing and interpreting their results. © 2022 by the authors.

Bani Baker, M.I., Abende, R.M., Khasawneh, M.A.

Freeze and Thaw Effect on Asphalt Concrete Mixtures Modified with Natural Bentonite Clay

(2022) Coatings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85141789902&doi=10.3390%2fcoatings12111664&partnerID=40&md5=57470147f1b405eeb3693320d69e4156

AFFILIATIONS: Civil and Infrastructure Engineering Department, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Civil Engineering Department, Prince Mohammad Bin Fahd University, Al Azeziya, Dhahran, 34754, Saudi Arabia

ABSTRACT: This study aimed to investigate the effect of freeze and thaw (FT) cycles on the

performance of asphalt concrete (AC) mixtures modified by partial replacement of mineral filler of the aggregate with natural bentonite clay (NBC) in order to reduce damage that occurs due to rapid FT cycles within the pavement structure. After exposure to FT cycles, AC mixture stability is reduced and becomes lower than minimum requirements, which leads to earlier damage of pavement. In order to enhance the AC mixture's abilities to sustain severe FT cycles, this study used NBC amounts as a substitute for mineral filler by weight of its portion of the total aggregate: 5%, 10%, 15%, and 20%. Marshall stability, flow, and FT cycles were tested, and interior damage degree was assessed by a nondestructive test called ultrasonic pulse velocity (UPV). The results revealed the viability of combining NBC with asphalt mixtures for the purpose of improving the mixtures' properties, particularly in environments where asphalt pavement is exposed to alternating FT cycles. The results also revealed that replacement of filler with NBC by 5% in AC mixtures reduced the damage caused over 8 continuous weeks of rapid FT cycles by 13%, which, in future applications, would reduce maintenance cost and prolong the pavement's service life. © 2022 by the authors.

Salas, A.H., Abu Hammad, M., Alotaibi, B.M., El-Sherif, L.S., El-Tantawy, S.A.
Analytical and Numerical Approximations to Some Coupled Forced Damped Duffing Oscillators
(2022) *Symmetry*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141757889&doi=10.3390%2fsym14112286&partnerID=40&md5=84398105d766a9b445a65536609a7267)

[85141757889&doi=10.3390%2fsym14112286&partnerID=40&md5=84398105d766a9b445a65536609a7267](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141757889&doi=10.3390%2fsym14112286&partnerID=40&md5=84398105d766a9b445a65536609a7267)

AFFILIATIONS: FIZMAKO Research Group, Department of Mathematics and Statistics, Universidad Nacional de Colombia, Sede Manizales170001, Colombia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Physics, College of Science, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh, 11671, Saudi Arabia;

Department of Physics, College of Arts and Science in Wadi Al-Dawaser, Prince Sattam bin Addulaziz University, Wadi-Dawaser, 11991, Saudi Arabia;

Department of Physics, Faculty of Science, Ain Shams University, Cairo, 11566, Egypt;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Baha University, Al-Mikhwah, Al-Baha, 65431, Saudi Arabia

ABSTRACT: In this investigation, two different models for two coupled asymmetrical oscillators, known as, coupled forced damped Duffing oscillators (FDDOs) are reported. The first model of coupled FDDOs consists of a nonlinear forced damped Duffing oscillator (FDDO) with a linear oscillator, while the second model is composed of two nonlinear FDDOs. The Krylov-Bogoliubov-Mitropolsky (KBM) method, is carried out for analyzing the coupled FDDOs for any model. To do that, the coupled FDDOs are reduced to a decoupled system of two individual FDDOs using a suitable linear transformation. After that, the KBM method is implemented to find some approximations for both unforced and forced damped Duffing oscillators (DDOs). Furthermore, the KBM analytical approximations are compared with the fourth-order Runge-Kutta (RK4) numerical approximations to check the accuracy of all obtained approximations. Moreover, the RK4 numerical approximations to both coupling and decoupling systems of FDDOs are compared with each other. © 2022 by the authors.

Jarrar, W., Khadair, S.I., Khudeir, F.A.

MICA Polymorphism and Genetic Predisposition to T1D in Jordanian Patients: A Case-Control Study
(2022) *Life*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141682016&doi=10.3390%2flife12111813&partnerID=40&md5=b25b423fd47713da4661bde6589c1172)

[85141682016&doi=10.3390%2flife12111813&partnerID=40&md5=b25b423fd47713da4661bde6589c1172](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141682016&doi=10.3390%2flife12111813&partnerID=40&md5=b25b423fd47713da4661bde6589c1172)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Jordanian Royal Medical Services, Amman, 11855, Jordan

ABSTRACT: Type 1 diabetes (T1D) is an autoimmune disorder whose etiology includes genetic and environmental factors. The non-classical Major Histocompatibility Complex (MHC) class I chain-related gene A (MICA) gene has been associated with increased susceptibility to T1D as the interaction of MICA to the Natural Killer Group 2D (NK2GD) receptors found on the cell surface of natural killer (NK) cells and T cells is responsible for inducing immune responses. MICA polymorphisms were reported in association with T1D among different ethnic groups. However, data from different populations revealed conflicting results, so the association of MICA polymorphisms with predisposition to T1D remains uncertain. The aim of this sequencing-based study was to identify, for the first time, the possible MICA alleles and/or genotypes that could be associated with T1D susceptibility in the Jordanian population. Polymorphisms in exons 2-4 and the short tandem repeats (STR) in exon 5 of the highly polymorphic MICA gene were analyzed. No evidence for association between T1D and MICA alleles/genotypes was found in this study, except for the MICA*011 allele which was found to be negatively associated with T1D ($p = 0.023$, $OR = 0.125$). In conclusion, MICA polymorphisms seem not to be associated with increasing T1D susceptibility in Jordanian patients. © 2022 by the authors.

Wazwaz, A.-M., Abu Hammad, M., El-Tantawy, S.A.

Bright and dark optical solitons for (3 + 1)-dimensional hyperbolic nonlinear Schrödinger equation using a variety of distinct schemes

(2022) Optik, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141389972&doi=10.1016%2fj.ijleo.2022.170043&partnerID=40&md5=64a6e2a89f2f0ecdb57eadd1a708f005)

85141389972&doi=10.1016%2fj.ijleo.2022.170043&partnerID=40&md5=64a6e2a89f2f0ecdb57eadd1a708f005

AFFILIATIONS: Department of Mathematics, Saint Xavier University, Chicago, IL 60655, United States;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt;

Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah, Al-Baha University, Saudi Arabia

ABSTRACT: The current study is dedicated to furnish a class of bright soliton and dark soliton solutions for the (3 + 1)-dimensional hyperbolic nonlinear Schrödinger equation. In this direction we operate with a variety of schemes to derive a class of bright and dark optical soliton solutions. Moreover, we derive another class of solutions of distinct structures, that include periodic, complex, and exponential solutions. This analysis provides new findings with a variety of optical features. © 2022

Malak, M.Z., Mohammad AL-Faqeer, N., Bashir Yehia, D.

Knowledge, Skills, and Practices of Triage among Emergency Nurses in Jordan

(2022) International Emergency Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140872150&doi=10.1016%2fj.ienj.2022.101219&partnerID=40&md5=643bad6cdc1ac9002fcd878975586ce5)

85140872150&doi=10.1016%2fj.ienj.2022.101219&partnerID=40&md5=643bad6cdc1ac9002fcd878975586ce5

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Registered Nurse, Ministry of Health, Amman, Jordan;

Gynecology and Maternity Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The importance of knowledge, skills, and practices of nurses makes abridge for a higher quality of care provided to patients. This study purposed to assess the levels of knowledge, skills, and practices of patient triage among emergency nurses in Jordan. Methods: A cross-sectional, descriptive correlational, observational design was utilized to assess the levels of knowledge, skills, and practices of patients' triage among emergency nurses working in triage at emergency departments in Jordan. A convenience sample of 125 registered nurses were recruited from triage units of three health sectors in the middle region of Jordan; government, educational, and private. Results: The findings revealed that 88.8% of nurses had sufficient knowledge of triage, 84.8% had moderate triage skills, and 88.8% demonstrated good triage practices. There was a statistically significant positive association between triage knowledge, emergency experience, and triage training course. A significant positive association was found between triage skills, emergency experience, triage experience, and triage training course. Also, triage practices had a significant positive association with triage experience and triage training course. Conclusions: It is necessary to develop nursing policies that consider triage as a baseline training program for all emergency nurses. Also, triage training programs should be conducted and take into consideration the associated factors to enhance emergency nurses' knowledge, skills, and practices of triage in order to improve quality of care and patients' outcomes. © 2022 Elsevier Ltd

Hallaq, T., Al-Hiari, Y., Kasabri, V., Albashiti, R., Alalawi, S., Telfah, A.

In vitro Antiproliferative Properties of Lipophilic-Acid Chelating Fluoroquinolones and

TriazoloFluoroquinolones with 7-dihaloanilinosubstitution

(2022) Anti-Cancer Agents in Medicinal Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135281143&doi=10.2174%2f1871520622666220513154744&partnerID=40&md5=7c5bbec8eae77e25094b855580f50145)

85135281143&doi=10.2174%2f1871520622666220513154744&partnerID=40&md5=7c5bbec8eae77e25094b855580f50145

AFFILIATIONS: School of Pharmacy, University of Jordan, Queen Rania Street, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Leibniz Institute for Analytical Sciences, ISAS e.V. Bunsen-Kirchhoff-Str. 1144139, Dort-mund, Germany

ABSTRACT: Background: Incidence rates and prevalence of cancer are substantially high globally. New safe therapeutic drugs are endorsed to overcome the high toxicity and poor safety profile of clinical anticancer agents. Objective: As antineoplastic Vosaroxin is a commercial fluoroquinolone (FQ), we hypothesize that superlative antipro-liferation activity of lipophilic FQs/TFQs series correlates to their acidic groups and C8-C7 ethylene diamine Chelation Bridge along with bulky dual halogenations. Methods: We tested dual lipophilic-acidic chelating FQs with a genuine potential of antiproliferative propensities based on their dual DPPH-and NO-radicals scavenging biocapacities using cell based - and colorimetric assays vs. respective reference agents as their molecular action mechanism. Results: In this work, 9 lipophilic-acid chelating FQs and their cyclized TriazoloFQs (TFQs) designed to bear 7-

dihaloanilino substituents with a special focus on dichlorosubstitutions have been prepared, characterized and screened against breast T47D and MCF7, Pancreatic PANC1, colorectal HT29, cervical HELA, lung A375, skin A549, and Leukaemia K562 cancer cell lines using sulforhodamine B colorimetric bioassay. Parameters including potency, toxicity, and selectivity (potency/toxicity) have been reported along with DPPH-and NO-radicals' scavenging propensities-as their molecular action mechanism-in comparison to ascorbic acid and indomethacin, respectively. Using Griess assay in lipopolysaccharide (LPS) prompted RAW264.7 macrophages inflammation, IC50 values (μM) in the ascending order of new FQs' NO scavenging/antiinflammation capacity were 4a < 3a < 4c < indomethacin (23.8 < 33.4 < 36 vs. indomethacin's 124, respectively). Exceptionally unlike the rest, reduced FQ, 4b exhibited remarkably superior DPPH radical scavenging capacity to ascorbic acid (IC50 values (μM) 19.9 vs. 123.9, p < 0.001). In comparison to cisplatin; nitroFQs (3a, 3b and 3c), the reduced FQs (4a, 4b, and 4c) and the TFQs (5a, 5b and 5c) exerted substantial micromolar antiproliferation IC50 values < 50 μM in cervical Hela cancer cells but lacked comparable bioactivity in leukaemia K562. In both breast MCF7 and T47D cancer cell lines, FQs/TFQs 4a < 3a < 5b (respective IC50 values (μM) 0.52 < 22.7 < 24 vs. cisplatin's 41.8 and 0.03 < 4.8 < 27 vs. cisplatin's 509), and in both GI system colorectal HT29 and pancreatic PANC1 cancer cells FQs/TFQs 4a < 3a < 5b and 4a< 3a (respective IC50 values (μM) 0.12 < 3.5 < 15.9 vs. cisplatin's 148 and 1.5 < 10.4 vs. cisplatin's 25.5), exerted nanomolar-micromolar affinities of antiproliferation potencies < 50 μM . Besides in lung A375 cancer cells FQs/TFQs 4c < 4a < 3a and in skin A549 cancer cells 5c < 3c < 4a < 3a < 4c (respective IC50 values (μM) 0.07 < 3.2 < 10.3 vs. cisplatin's 390 and 0.5 < 2.3 < 3.8 < 8.8 < 17.3 vs. cisplatin's 107) exhibited nanomolar-micromolar antineoplastic capacities < 50 μM . Their spectrum of selectivity indices for safety in fibroblasts PDL-based 72h incubations was reported. Unequivocally 4b reduction of viability effectiveness linked with its DPPH radical scavenging effects (without a matching antiinflammation effect). Explicitly 4a, 3a and 4c exerted exquisite antiinflammation-selective cytotoxicity duality in vitro. Conclusion: Such a new potential chelation mechanism can explain the pronounced difference in antineoplastic activity of new FQs/TFQs. © 2022 Bentham Science Publishers.

Hamadneh, T., Abu-Falahah, I., Alqudah, M.

Numerical optimization and positivity certificates for polynomials and rationals over simplices (2022) Journal of Computational and Applied Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131461738&doi=10.1016%2fj.cam.2022.114430&partnerID=40&md5=3f575765061454b5df0b2de490f05a97)

85131461738&doi=10.1016%2fj.cam.2022.114430&partnerID=40&md5=3f575765061454b5df0b2de490f05a97

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Faculty of Science, The Hashemite University, P.O box 330127, Zarqa, 13133, Jordan;

German Jordanian University, Amman, 11180, Jordan

ABSTRACT: Multivariate rational control functions $r(x)$ of high degree d can be expressed in the Bernstein form defined over k -dimensional simplices (triangles). The range of rational functions can be optimized by the enclosure bound (minimum and maximum) of Bernstein coefficients. In this paper, linear and quadratic rate of convergence for the maximum error bound between the enclosure and range bounds are investigated. Furthermore, minimization and numerical identities for certifying the positivity of any given rational function over simplices are given. In order to provide global and local positivity certificates for r , the degree of Bernstein functions and number of simplex subdivision steps are estimated. Subsequently, we establish a bound for the maximum degree of Bernstein polynomials. © 2022 Elsevier B.V.

Alsmadi, A.A., Al-Dweik, A.F., Kasasbeh, H.

The Impact of Amman Stock Exchange Simulation Room on the Level of the Business College Students at Al-Zaytoonah University of Jordan (Predictive Approach)

(2022) Journal of Higher Education Theory and Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142875861&doi=10.33423%2fjhethp.v22i13.5522&partnerID=40&md5=1d1043b3add27cfc6bf1d971796da8ee)

85142875861&doi=10.33423%2fjhethp.v22i13.5522&partnerID=40&md5=1d1043b3add27cfc6bf1d971796da8ee

AFFILIATIONS: Alzaytoonah University of Jordan, Jordan

ABSTRACT: Since the mid-sixties of the twentieth century, interest in simulation has increased as an appropriate and effective method in the education process, especially after the advent of computers; The simulation process of concepts, activities and experiments is done through the computer, and it has an important and prominent role in the educational process. In the past, the theoretical aspects of education were the core of the education process for students, and this is certainly not enough to raise the level of students. Furthermore, understanding the handling and investing of securities is a challenging subject that requires students to understand and apply financial theories and models. Hence, this study pursued the influence of the Amman Stock Exchange simulation room on the student level of the College of Business at the Al-Zaytoonah University of Jordan through the predictive approach. The results show that the simulation education system may encourage students and increase

their intellectual abilities, attracts the attention of the students as well as gives a great opportunity for students to acquire the skills of dealing with the financial market in a practical and applied manner by using a real trading system based on high technology performance which performed by Amman Stock Market. © 2022, North American Business Press. All rights reserved.

Amro, N., Kamel, A., Khatib, S.

Preparing teacher to be a lifesaver: A preexperimental study

(2022) Nursing and Midwifery Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147263787&doi=10.4103%2fnms.nms_56_22&partnerID=40&md5=084166addefca3fcc765267fcc56f276)

[85147263787&doi=10.4103%2fnms.nms_56_22&partnerID=40&md5=084166addefca3fcc765267fcc56f276](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147263787&doi=10.4103%2fnms.nms_56_22&partnerID=40&md5=084166addefca3fcc765267fcc56f276)

AFFILIATIONS: Modern University College, West Bank, Palestine;

Department of Community Health Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Nursing, Faculty of Health Profession, Al-Quds University, Abu Dis, Jerusalem, Israel

ABSTRACT: Background: Injuries and accidents are essential issues in public health, where the school teachers are considered the first caregivers in schools. Objective: The purpose of this study was to assess the effectiveness of an educational program on first aid (FA) knowledge, cardiopulmonary resuscitation (CPR) skills, and teacher self-confidence among school teachers. Methods: One-group pretest-posttest preexperimental design was conducted. Three schools were enrolled using simple random sampling, and 40 teachers were participated. The Wilcoxon signed-ranks test was performed to compare the pre- and posttests' mean scores. Results: The mean posttest scores of FA knowledge, CPR skills, and self-confidence were significantly higher than the mean pretest scores ($P < 0.01$).

Conclusion: The educational program was effective in improving FA knowledge, CPR skills, and teachers' self-confidence. © 2022 Wolters Kluwer Medknow Publications. All rights reserved.

Alzoubi, M., Alsmadi, A.A., kasasbeh, H.

Systemically Important Bank: A Bibliometric Analysis for the Period of 2002 to 2022

(2022) SAGE Open, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144496452&doi=10.1177%2f21582440221141259&partnerID=40&md5=5cd48116001ffe919667246e35d2b800)

[85144496452&doi=10.1177%2f21582440221141259&partnerID=40&md5=5cd48116001ffe919667246e35d2b800](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144496452&doi=10.1177%2f21582440221141259&partnerID=40&md5=5cd48116001ffe919667246e35d2b800)

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper aims to analyzes the English-language literature related to Systemically Important Banks (SIBs) by applying the bibliometric methodology to present the current state of SIBs' intellectual structure and emerging trends from a large quantity of data for the period 2002 to first 2 months of 2022 from Scopus, which is which is considered the most widely used database. SIBs are large and powerful, their contribution to economic growth is significant but their failure is usually systematic and contagious. Regulators subsidize them with public money to avoid systematic financial crises. It is striking that smaller banks do not receive the same treatment, which places them under competitive disadvantage. The bibliometric methodology helps in focusing on this issue for being a rigorous way for exploring and evaluating large volumes of data, identifying gaps, deriving unique research ideas, and resulting in a significant research impact. Therefore, we apply the bibliometric analysis to describe the field's evolution and structure, including co-authorship, bibliographical coupling, and co-citation. The findings reveal that, the USA is the most relevant country, the University of Southeast is the most relevant institution, and the Journal of Banking and Finance is the most relevant journal. We contribute to the literature mainly by: (1) identifying the benchmark authors, locations of SIBs, and journals; (2) specifying the research streams and summarizing the most cited papers; and (3) identifying the research gaps and future directions. © The Author(s) 2022.

Al-Kafaween, M.A., Hilmi, A.B.M., Al-Jamal, H.A.N.

Physicochemical and Therapeutic Properties of Malaysian Stingless Bee Kelulut Honey in Comparison with Yemeni Sidr Honey

(2022) Anti-Infective Agents, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142852341&doi=10.2174%2f2211352520666220818095716&partnerID=40&md5=cb984f273910efb99a2fb395b3d3bcb1)

[85142852341&doi=10.2174%2f2211352520666220818095716&partnerID=40&md5=cb984f273910efb99a2fb395b3d3bcb1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142852341&doi=10.2174%2f2211352520666220818095716&partnerID=40&md5=cb984f273910efb99a2fb395b3d3bcb1)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biomedicine, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Kelulut and Yemeni Sidr honey has been documented to have various therapeutic properties. Investigations associated with the medicinal properties and physicochemical characteristics of Kelulut and Yemeni Sidr honey are growing broadly and receiving raised awareness. This study incorporated and analysed the findings on the biological and physico-chemical properties of Kelulut and Yemeni Sidr honey. Kelulut and Yemeni Sidr honey was found to have a wide variety of biological effects attributed to their physicochemical characteristics. Findings showed that Kelulut and Yemeni Sidr honey have anti-bacterial, anti-biofilm, anti-virulence, anti-oxidative, anti-cancer, anti-inflammatory, anti-diabetic, anti-obesity and wound-healing properties. The physicochemical

properties of Kelulut and Yemeni Sidr honey were compared and discussed and results revealed that they have high-quality contents and excellent antioxidant sources. © 2022 Bentham Science Publishers.

Al Aboushi, A., Abdelhafez, E., Hamdan, M.

Finned PV Natural Cooling Using Water-Based TiO₂ Nanofluid

(2022) Sustainability (Switzerland), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85141053455&doi=10.3390%2fsu142012987&partnerID=40&md5=37575c0b1c653e403fc5284397a9df31

AFFILIATIONS: Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Alternative Energy Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Renewable Energy Technology Department, Applied Science Private University, Amman, 11931, Jordan;

School of Engineering, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The efficiency of PV (photovoltaic) modules is highly dependent on the operating temperature. The objective of this work is to enhance the performance of PV by passive cooling using aluminum fins that have been nanocoated (like those on an automobile radiator). A rise in the cell temperature of the module PV leads to a decrease in its performance. As a result, an effective cooling mechanism is required. In this work, the performance of the PV module has been improved using natural convection, which was achieved by placing three similar PV modules next to each other in order to test them simultaneously. The first panel will be the base panel and will be used for comparison purposes. An automotive radiator (with aluminum fins) was firmly fixed onto the rear of the other two PV modules, and the fins of the third PV panel had titanium oxide (TiO₂) water-based nanofluid applied to them. The power produced by the PV modules, as well as their rear side temperatures, were recorded every 30 min over four months. A temperature reduction of 4.0 °C was attained when TiO₂ water-based nanofluid was sprayed onto the panel's finned rear side. This was followed by the scenario where the rear side was only finned, with a temperature drop of 1.0 °C. As a result of the temperature reduction, the percentage of power produced by the coated-finned PV and the finned PV increased by 5.8 and 1.5 percent, respectively. This caused an increase in PV efficiency of 1.1 percent for coated-finned panels and 0.4 percent for finned PV. © 2022 by the authors.

Ibrahim, A.I.M., Abul-Futouh, H., Bourghli, L.M.S., Abu-Sini, M., Sunoqrot, S., Ikhmais, B., Jha, V., Sarayrah, Q., Abulebdah, D.H., Ismail, W.H.

Design and Synthesis of Thionated Levofloxacin: Insights into a New Generation of Quinolones with Potential Therapeutic and Analytical Applications

(2022) Current Issues in Molecular Biology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85140649481&doi=10.3390%2fcimb44100316&partnerID=40&md5=459c3d804550de1489d97d91775d2151

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Chemistry, Faculty of Science, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Department of Chemistry and Molecular Biology, University of Gothenburg, Göteborg, 405 30, Sweden

ABSTRACT: Levofloxacin is a widely used fluoroquinolone in several infectious diseases. The structure-activity relationship of levofloxacin has been studied. However, the effect of changing the carbonyl into thiocarbonyl of levofloxacin has not been investigated up to the date of this report. In this work, levofloxacin structure was slightly modified by making a thionated form (compound 3), which was investigated for its antibacterial activity, biocompatibility, and cytotoxicity, as well as spectroscopic properties. The antibacterial susceptibility testing against five different bacteria showed promising minimum inhibitory concentrations (MICs), particularly against *B. spizizenii* and *E. coli*, with an MIC value of 1.9 µM against both bacteria, and 7.8 µM against *P. mirabilis*. The molecular docking experiment showed similar binding interactions of both levofloxacin and compound 3 with the active site residues of topoisomerase IV. The biocompatibility and cytotoxicity results revealed that compound 3 was more biocompatible with normal cells and more cytotoxic against cancer cells, compared to levofloxacin. Interestingly, compound 3 also showed an excitation profile with a distinctive absorption peak at λ_{max} 404 nm. Overall, our results suggest that the thionation of quinolones may provide a successful approach toward a new generation with enhanced pharmacokinetic and safety profiles and overall activity as potential antibacterial agents. © 2022 by the authors.

Hailat, M., Al-Ani, I., Zakareia, Z., Al-Shdefat, R., Al-Meanazel, O., Anwer, M.K., Hamad, M., Abu Rayyan, W., Awad, R., Abu Dayyih, W.

Development and Validation of HPLC-DAD Method for the Determination of Favipiravir and Studying the Impact of Vitamin C on the Pharmacokinetics of COVID-19 Antiviral Drug Favipiravir

(2022) Separations, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85140631902&doi=10.3390%2fseparations9100303&partnerID=40&md5=6627a851d0ee5311d08e8a95c4c0bb36

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;
Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;
Department of Pharmaceutical Sciences, Faculty of Pharmacy, Jadara University, Irbid, 21110, Jordan;
Faculty of Pharmacy, Aqaba University of Technology, Aqaba, 77110, Jordan;
Department of Pharmaceutics, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Alkharj, 11942, Saudi Arabia;
Department of Basic Medical Science, Faculty of Medicine, Al-Balqa Applied University, As-Salt, 11134, Jordan;
Department of Medical Laboratory Analysis, Faculty of Science, Al-Balqa Applied University, Al-Salt, 11134, Jordan;
Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;
Faculty of Pharmacy, Mutah University, Al-Karak, 61710, Jordan

ABSTRACT: A novel, sensitive, and low-cost HPLC method for the rapid determination of favipiravir (FVR) in rat plasma was developed and validated, and the effect of vitamin C on FVR pharmacokinetic parameters was investigated. FVR and oxcarbazepine (IS) were separated using a mobile phase of 50% acetonitrile and 50% water (with 0.25% trifluoroacetic acid) at 1.0 mL/min flow rate and detected at λ_{max} 289 nm. The intra- and interday values for FVR in plasma were less than 15%, with low, medium, and high QC levels for the relative recovery rate, according to ICH guidelines. C_{max} values in the control and experimental groups were 558 ± 124.42 and 979.13 ± 138.10 ng/mL, respectively; $t_{1/2}$ values were 7.15 ± 1.60 and 9.09 ± 1.14 h, AUC(0-t) values were 5697.70 ± 536.58 and 7381.62 ± 1577.58 ng.h/mL, and AUC(0- ∞) values were 5697.70 ± 536.58 and 8192.36 ± 1721.67 , respectively. According to the results, the experimental group's C_{max} of FVR was 75.17% higher than the control group's, the V_z/F was lower, and the $t_{1/2}$ was 1.86 h longer. The technique developed for determining FVR in plasma was useful for FVR pharmacokinetics and food-drug interaction investigations. © 2022 by the authors.

Sweidan, N.I., Abu Khalaf, R.A., Shatat, A.M., Hammad, W.A.
Therapeutic Potential of *Silybum marianum* and *Pergularia tomentosa* Extracts from Jordanian Origin in Diabetes Mellitus
(2022) Current Bioactive Compounds, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140086798&doi=10.2174%2f1573407218666220221090910&partnerID=40&md5=2fd8e0f690698b6be3bfbdb4b2fe59ee6>

AFFILIATIONS: Department of Chemistry, University of Petra, Amman, 961343, Jordan;
Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Chemistry, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Background: Jordan is a country well-known for its diversity in wild plants, and for many decades, folk medicines have represented part of its cultural heritage. In the present study, investigations have been focused on the therapeutic potential of *Silybum marianum* and *Pergularia tomentosa* on type 2 diabetes mellitus. In type 2 diabetes, which is considered a global health problem, the body cannot respond to or produce insulin hormone, which raises the blood glucose level, resulting in mortality, morbidity, healthcare expenses, and reduced life quality. Dipeptidyl peptidase-IV (DPP-IV) enzyme, a serine protease, is responsible for deactivating incretin hormones that promote insulin secretion. Accordingly, the DPP-IV inhibitory activity of these plant extracts that prolong the hypoglycemic effect of incretins was evaluated. Methods: The aerial parts of *S. marianum* and *P. tomentosa* were dried, ground, and extracted with ethanol. The ethanol extract was dried under reduced pressure and was partitioned by methanol, butanol, and hexane according to a systematic procedure. The inhibition of the DPP-IV enzyme by the different extracts was studied (at 10.0 mg/mL concentration). Sitagliptin was used as the positive control. Results: Fortunately, most of the plant extracts have noticeable inhibitory activity against the DPP-IV enzyme. It was found that the tested methanol extract of *S. marianum* has an inhibitory activity of 75.6% and the butanol extract of *P. tomentosa* has an inhibitory activity of 73.6%, which are analogous to DPP-IV inhibition of sitagliptin (78.5%), the used positive inhibitor. A superior inhibition of 98.1% was displayed for the butanol extract of *S. marianum* at 10.0 mg/mL concentration. Conclusion: The revealed DPP-IV inhibitory activity of tested extracts advocates that their active constituents, particularly flavonoids, are capable of binding to the enzyme's active cleft. © 2022 Bentham Science Publishers.

Jaber, A., Al-Ani, I., Hailat, M., Daoud, E., Abu-Rumman, A., Zakaraya, Z., Majeed, B.J.M., Al Meanazel, O., Dayyih, W.A.

Esomeprazole and apixaban pharmacokinetic interactions in healthy rats

(2022) Heliyon, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140050281&doi=10.1016%2fj.heliyon.2022.e11015&partnerID=40&md5=91d725ec8b5cfedd172667619e6ca7d8>

AFFILIATIONS: Faculty of Pharmacy, Al-Ahliyya Amman University, Jordan;
Pharmacological and Diagnostic Research Center (PDRC) in Al-Ahliyya Amman University, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
Prince Hussain Hospital, Ministry of Health, Jordan;
Michael Sayegh Faculty of Pharmacy, Aqaba University of Technology, Aqaba, Jordan;
Faculty of Pharmacy, Mutah University, Jordan

ABSTRACT: Esomeprazole is used in various clinical settings where a decrease in gastric acid production is desired since it is a proton pump inhibitor. Apixaban, an anticoagulant, is used to reduce the risk of stroke in patients with certain cardiovascular diseases. This research aims to examine the effects of giving esomeprazole and apixaban to rats simultaneously, as well as to measure their pharmacokinetics and look for statistical differences or interactions. A method for the simultaneous determination of esomeprazole and apixaban in rat plasma was developed using HPLC/MS and validated by ICH guidelines. Five groups of Wistar rats were created, and the drugs were administered as follows: esomeprazole (5 mg/kg) intravenously, apixaban (125 mcg/Kg) intravenously, esomeprazole (5 mg/kg) orally, apixaban (250 mcg/kg) orally, and esomeprazole (5 mg/kg) and apixaban (250 mcg/kg) both orally. Both drugs' concentrations were measured in plasma samples collected on a predetermined schedule. The pharmacokinetics of both drugs were calculated and statistically analyzed using a 90% confidence interval and non-compartmental analysis. When the two drugs were combined, apixaban's Cmax and AUC increased while esomeprazole's Cmax and AUC decreased. On the other hand, Apixaban's Tmax decreased with an increase in esomeprazole's Tmax, indicating a possible interaction between the two drugs. When both drugs were taken together, their bioavailability was reduced, implying that less esomeprazole was absorbed over time. © 2022 The Author(s)

Hussein, F., Mughaid, A., AlZu'bi, S., El-Salhi, S.M., Abuhaija, B., Abualigah, L., Gandomi, A.H. Hybrid CLAHE-CNN Deep Neural Networks for Classifying Lung Diseases from X-ray Acquisitions (2022) Electronics (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139835561&doi=10.3390%2felectronics1193075&partnerID=40&md5=83571aa42375f8b952b0dbe9b7b36ed4)

[85139835561&doi=10.3390%2felectronics1193075&partnerID=40&md5=83571aa42375f8b952b0dbe9b7b36ed4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139835561&doi=10.3390%2felectronics1193075&partnerID=40&md5=83571aa42375f8b952b0dbe9b7b36ed4)

AFFILIATIONS: Department of Computer Information System, Faculty of Prince Al-Hussien Bin Abdullah for Information Technology, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;
Information Technology, Faculty of Prince Al-Hussien Bin Abdullah for Information Technology, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;
Computer Science, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Computer Science, Wenzhou-Kean University, Wenzhou, 325015, China;
Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;
Faculty of Information Technology, Middle East University, Amman, 11831, Jordan;
Faculty of Engineering & Information Technology, University of Technology Sydney, Ultimo, NSW 2007, Australia

ABSTRACT: Chest and lung diseases are among the most serious chronic diseases in the world, and they occur as a result of factors such as smoking, air pollution, or bacterial infection, which would expose the respiratory system and chest to serious disorders. Chest diseases lead to a natural weakness in the respiratory system, which requires the patient to take care and attention to alleviate this problem. Countries are interested in encouraging medical research and monitoring the spread of communicable diseases. Therefore, they advised researchers to perform studies to curb the diseases' spread and urged researchers to devise methods for swiftly and readily detecting and distinguishing lung diseases. In this paper, we propose a hybrid architecture of contrast-limited adaptive histogram equalization (CLAHE) and deep convolutional network for the classification of lung diseases. We used X-ray images to create a convolutional neural network (CNN) for early identification and categorization of lung diseases. Initially, the proposed method implemented the support vector machine to classify the images with and without using CLAHE equalizer. The obtained results were compared with the CNN networks. Later, two different experiments were implemented with hybrid architecture of deep CNN networks and CLAHE as a preprocessing for image enhancement. The experimental results indicate that the suggested hybrid architecture outperforms traditional methods by roughly 20% in terms of accuracy. © 2022 by the authors.

Malak, M.Z., Salouk, J., Al-Shawawreh, R., Al-Kamish, H., Ayed, A.

Perceptions of patient safety culture among emergency room nurses in Jordanian accredited hospitals (2022) Journal of Nursing Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133437593&doi=10.1111%2fjonm.13729&partnerID=40&md5=435fd9ede27b9d73b168a6b3909f9975)

[85133437593&doi=10.1111%2fjonm.13729&partnerID=40&md5=435fd9ede27b9d73b168a6b3909f9975](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133437593&doi=10.1111%2fjonm.13729&partnerID=40&md5=435fd9ede27b9d73b168a6b3909f9975)

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Ministry of Health, Amman, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pediatric Health Nursing, Faculty of Nursing, Arab American University of Palestine, Jenin, Palestine

ABSTRACT: Aim: The aim of this study is to assess the perceptions of patient safety culture among emergency room nurses in Jordan. Background: Patient safety culture is considered an international

priority for health care institutions. There is a lack of studies on patient safety culture among emergency room nurses in international and Arab countries including Jordan. Methods: A cross-sectional design was used to perform among emergency room nurses (N = 424) who are working in two health sectors (government and private) in Jordan. Results: Results showed that the total perception mean of patient safety culture was 70.6% (M = 3.87, SD = 0.64), which indicates that the perceptions of patient safety culture among emergency room nurses need potential for improvement. Three areas in patient safety culture were reported as strong, including teamwork within units (77.4%; M = 3.87, SD = 0.64), feedback and communication about the error (76.6%; M = 3.83, SD = 0.65) and organisational learning-continuous improvement (75.4%; M = 3.77, SD = 0.63). The lowest scores were for areas of frequency of events reported (63.6%; M = 3.18, SD = 0.99) and handoffs and transitions (64.4%; M = 3.22, SD = 0.78). Patient safety culture was correlated with income, educational level and principal of patient safety. Conclusion: Regular assessment for emergency rooms is required to provide essential information to hospital managers on the areas that need improvement to promote patient safety culture. © 2022 John Wiley & Sons Ltd.

AlZu'bi, S., Aqel, D., Lafi, M.

An intelligent system for blood donation process optimization - smart techniques for minimizing blood wastages

(2022) Cluster Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128383146&doi=10.1007%2fs10586-022-03594-3&partnerID=40&md5=3668438bcb00ab822ad6afd504797f3e>

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Blood transfusion is a continuous demand, as it is widely required for many medical surgeries and critical operations. Therefore, there is a need to manage the whole process of supplying blood from blood donors to the hospitals and transfusion centers. Many researchers were recently interested in the operations and supply chain management of blood products, they considered the operations and supply chain management of blood products for the purpose of minimizing the blood wastage. As a result of the the inverse relationship between blood donations and blood products demand, more occasional blood shortages can be expected. This research proposes an intelligent system that entails the recruitment of donors that are available to donate blood products on a short notice. The proposed system optimizes the blood donation process by preventing blood shortages and minimizing the wastage of blood units with regards to expiration, and proves promising results. A set of optimization equations have been built for optimizing the process of blood donation to reduce the blood wastage and prevent blood shortage. It considers as well the new insights from the medical literature on the deterioration of stored blood products, as the use of older red blood cells is linked to poorer clinical outcomes. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Castillo, M.S., Liu, X., Abd-AlHamid, F., Connelly, K., Wu, Y.

Intelligent windows for electricity generation: A technologies review

(2022) Building Simulation, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127338630&doi=10.1007%2fs12273-022-0895-y&partnerID=40&md5=9e7c6806ae9a66d78761d124985e5d72>

AFFILIATIONS: Department of Architecture and Built Environment, Faculty of Engineering, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom;

Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Buildings are responsible for over 40% of total primary energy consumption in the US and EU and therefore improving building energy efficiency has significant potential for obtaining net-zero energy buildings reducing energy consumption. The concurrent demands of environmental comfort and the need to improve energy efficiency for both new and existing buildings have motivated research into finding solutions for the regulation of incoming solar radiation, as well as ensuring occupant thermal and visual comfort whilst generating energy onsite. Windows as building components offer the opportunity of addressing these issues in buildings. Building integration of photovoltaics permits building components such as semi-transparent façade, skylights and shading devices to be replaced with PV. Much progress has been made in photovoltaic material science, where smart window development has evolved in areas such as semi-transparent PV, electrochromic and thermochromic materials, luminescent solar concentrator and the integration of each of the latter technologies to buildings, specifically windows. This paper presents a review on intelligent window technologies that integrate renewable energy technologies with energy-saving strategies contributing potential solutions towards sustainable zero-energy buildings. This review is a comprehensive evaluation of intelligent windows focusing on state-of-the-art development in windows that can generate electricity and their electrical, thermal and optical characteristics. This review provides a summary of current work in intelligent window design for energy generation and gives recommendations for further research opportunities. © 2022, The Author(s).

Hmood, K.F.

CONSERVATION OF URBAN HERITAGE IN HISTORICAL CENTRES OF CONTEMPORARY CITIES

(2022) WIT Transactions on the Built Environment, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140319311&doi=10.2495%2fIHA220011&partnerID=40&md5=f6496553a48600f6d3cb262db88adaf2)

[85140319311&doi=10.2495%2fIHA220011&partnerID=40&md5=f6496553a48600f6d3cb262db88adaf2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140319311&doi=10.2495%2fIHA220011&partnerID=40&md5=f6496553a48600f6d3cb262db88adaf2)

AFFILIATIONS: Department of Architecture, Al-Zytoonah University of Jordan, Jordan

ABSTRACT: Cities with no memories certainly miss the joy of presenting the past and, as a result, struggle to dream of building their future. The aim of this research stems from the importance of urban and architectural heritage in historic districts of cities in the present and future. This importance leads to sustainable development, which satisfies the needs of the present and protects future rights. Also, it highlights the importance of studying "urban conservation". Moreover, there is an increasing population growth which causes expansion in contemporary cities; the reason behind this is the rapid expansion of modern urban, commercial and residential land use towards the historical centre of cities. The findings of this research confirm that orientation, which is accentuated in the present, is necessary to link the conservation of the old and planning for the contemporary projects in a unified architectural and constructional policy. The comparative research methodology uses an analytical approach through many successful and unsuccessful experiments and attempts to answer several questions, such as: What is urban conservation? How do cities of historical depth deal with modern planning? What should we do as we face the rapid increase in modern needs in the present? What are the reasons behind the loss of urban heritage? Why does urban heritage decrease, particularly in Arab cities? Finally, the research reaches its conclusions and possible recommendations. This paper shows that preventing the new residential expansion or any other modern function in the historical centre is a must unless done to create a balance between the old and contemporary through rehabilitating and investing in the heritage. © 2022 WIT Press.

Bataineh, M.T.A.L., Cacciatore, S., Semreen, M.H., Dash, N.R., Soares, N.C., Zhu, X., Mousa, M.K., Salam, J.S.A., Zerbini, L.F., Hajjo, R., Hamad, M.

Exploring the effect of estrogen on *Candida albicans* hyphal cell wall glycans and ergosterol synthesis

(2022) Frontiers in Cellular and Infection Microbiology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140244085&doi=10.3389%2ffcimb.2022.977157&partnerID=40&md5=e6aa7cd531319d90e49493ec8c54fa3f)

[85140244085&doi=10.3389%2ffcimb.2022.977157&partnerID=40&md5=e6aa7cd531319d90e49493ec8c54fa3f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140244085&doi=10.3389%2ffcimb.2022.977157&partnerID=40&md5=e6aa7cd531319d90e49493ec8c54fa3f)

AFFILIATIONS: College of Medicine and Health Sciences, Department of Genetics and Molecular Biology, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;

Molecular Biology and Genetics, Center for Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;

Bioinformatics Unit, International Centre for Genetic Engineering and Biotechnology, Cape Town, South Africa;

College of Pharmacy, Department of Medical Chemistry, University of Sharjah, Sharjah, United Arab Emirates;

College of Medicine, University of Sharjah, Abu Dhabi, United Arab Emirates;

Research Institute for Medical and Health Sciences at the University of Sharjah, Sharjah, United Arab Emirates;

Beijing Genomics Institute Genomics, Sharjah, United Arab Emirates;

Department of Medical Laboratory Sciences, College of Health Sciences, University of Sharjah, Sharjah, United Arab Emirates;

Cancer Genomics Group, International Centre for Genetic Engineering and Biotechnology, Cape Town, South Africa;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States;

Jordan CDC, Amman, Jordan

ABSTRACT: Increased levels of 17- β estradiol (E2) due to pregnancy in young women or to hormonal replacement therapy in postmenopausal women have long been associated with an increased risk of yeast infections. Nevertheless, the effect underlying the role of E2 in *Candida albicans* infections is not well understood. To address this issue, functional, transcriptomic, and metabolomic analyses were performed on *C. albicans* cells subjected to temperature and serum induction in the presence or absence of E2. Increased filament formation was observed in E2 treated cells. Surprisingly, cells treated with a combination of E2 and serum showed decreased filament formation. Furthermore, the transcriptomic analysis revealed that serum and E2 treatment is associated with downregulated expression of genes involved in filamentation, including HWP1, ECE1, IHD1, MEP1, SOD5, and ALS3, in comparison with cells treated with serum or estrogen alone. Moreover, glucose transporter genes HGT20 and GCV2 were downregulated in cells receiving both serum and E2. Functional pathway enrichment analysis of the differentially expressed genes (DEGs) suggested major involvement of E2 signaling in

several metabolic pathways and the biosynthesis of secondary metabolites. The metabolomic analysis determined differential secretion of 36 metabolites based on the different treatments' conditions, including structural carbohydrates and fatty acids important for hyphal cell wall formation such as arabinonic acid, organicsugar acids, oleic acid, octadecanoic acid, 2-keto-D-gluconic acid, palmitic acid, and steric acid with an intriguing negative correlation between D-turanose and ergosterol under E2 treatment. In conclusion, these findings suggest that E2 signaling impacts the expression of several genes and the secretion of several metabolites that help regulate *C. albicans* morphogenesis and virulence. Copyright © 2022 Bataineh, Cacciatore, Semreen, Dash, Soares, Zhu, Mousa, Salam, Zerbini, Hajjo and Hamad.

Sharo, A.A., Khasawneh, M.A., Bani Baker, M., Al Tarawneh, D.M.

Sonicated waves procedure effect on stabilizing expansive soil by nano-clay: Treat with cause (2022) *Frontiers in Built Environment*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139096378&doi=10.3389%2ffbuil.2022.975993&partnerID=40&md5=8a2450472f802fc9eaa77b604cd3dfa3)

[85139096378&doi=10.3389%2ffbuil.2022.975993&partnerID=40&md5=8a2450472f802fc9eaa77b604cd3dfa3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139096378&doi=10.3389%2ffbuil.2022.975993&partnerID=40&md5=8a2450472f802fc9eaa77b604cd3dfa3)

AFFILIATIONS: Department of Civil Engineering, Jordan University of Science and Technology, Irbid, Jordan;

Civil Engineering Program, Al Ain University-Abu Dhabi Campus, Abu Dhabi, United Arab Emirates;

Department of Civil Engineering, Prince Mohammad Bin Fahad University, Khobar, Saudi Arabia;

Department of Civil Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The use of hydrophilic bentonite nanoclay to improve the geotechnical properties of expansive soils was studied. Sonic waves and manual mixing for two expansive soils (taken from two different locations in Jordan) were studied; thereafter, a comparison between the results obtained from both methods was carried out. Different percentages of nanoclay were added to the two soils: 0, 0.1, 0.3, 0.5, 0.8, 1, 1.5, and 2.5% by dry weight of soil. Their impacts on compaction, unconfined compression strength (UCS), and free swell index (FSI) were investigated. For both methods of mixing, adding nanoclay to the soils resulted in a significant enhancement in strength and a reduction in swell properties of the soils. The UCS results of sonicated samples treated with 0.5% of nanoclay addition showed an increase of 27%–57% and a reduction in FSI by 41%–46.5%. Nevertheless, the UCS of non-sonicated samples treated with 1% of nanoclay showed an increase of 19.3–28.5% and a reduction in FSI by 37.3–44.3%. Copyright © 2022 Sharo, Khasawneh, Bani Baker and Al Tarawneh.

Al-Khatib, A.W., Al-Fawaeer, M.A., Alajlouni, M.I., Rifai, F.A.

Conservative culture, innovative culture, and innovative performance: a multi-group analysis of the moderating role of the job type

(2022) *International Journal of Innovation Science*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103977605&doi=10.1108%2fIJIS-10-2020-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103977605&doi=10.1108%2fIJIS-10-2020-0224&partnerID=40&md5=252991348cfa19da1b92d7ac57e932b9)

[0224&partnerID=40&md5=252991348cfa19da1b92d7ac57e932b9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103977605&doi=10.1108%2fIJIS-10-2020-0224&partnerID=40&md5=252991348cfa19da1b92d7ac57e932b9)

AFFILIATIONS: Luminus Technical University College, Amman, Jordan;

Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Business Administration, Al-Zaytoonah Private University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The purpose of this paper is to identify the effect of organisational culture by its two dimensions (innovative organisational culture and conservative organisational culture) on innovative performance and also investigate the moderating role of the job type on innovative performance in the relationship between innovative organisational culture and conservative organisational culture. Design/methodology/approach: For this study's purposes, 321 questionnaires from employees of Jordanian private universities were analysed. Convergent validity and discriminant validity tests were performed. Data reliability was confirmed. A bootstrapping technique was used to analyse the data. The multi-group analysis was performed to investigate the moderating role of job type. Findings: The results of this study indicate that the innovative organisational culture will improve innovative performance and that a conservative culture reduces innovation opportunities. Moreover, innovative organisational culture promotes innovative performance for all employees regardless of who holds administrative positions. Research limitations/implications: This cross-sectional study provides a snapshot at a given moment in time, a methodological limitation that affects the generalisation of its results. Moreover, this study adopted subjective measures and the results are limited to one country, Jordan. Practical implications: This paper contributes to drawing the attention of senior management to the importance of innovation culture in the performance of innovation at Jordanian private universities surveyed, in particular, and other organisations in general. Social implications: The social impact of this study is to respond to the challenge of building an innovation-based culture and to limit the effects of a conservative culture that limits the response to innovation. Originality/value: This study has important implications for leaders in general. It also highlights the need for organisations to develop an orientation towards innovative organisational culture instead of the classic approach based on the conservative culture of all its members (both administrative and non-administrative employees) and to invest in training that supports this trend, thus increasing their innovative performance, which contributes to raising their

capabilities to excel, compete and achieve high levels of performance. © 2020, Emerald Publishing Limited.

Alsharedeh, R.H., Alshraiedeh, N., Huwaitat, R., Alqatan, M., Taybeh, E.O., Alrosan, A.Z., Heilat, G.B.

Public perceptions of the COVID-19 Pandemic: A National Cross-sectional Study (2022) Research Journal of Pharmacy and Technology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144675665&doi=10.52711%2f0974-360X.2022.00692&partnerID=40&md5=a166749a23f50a26bbb10ce0db895fc3>

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmaceutics and Pharmaceutical Technology, Yarmouk University, Irbid, Jordan;

Department of Pharmaceutical Technology, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Al Mafraq Hospital, Mafraq, Jordan;

Faculty of Pharmacy, Department of Applied Pharmaceutical Sciences and Clinical Pharmacy, Isra University, Amman, Jordan;

Faculty of Pharmacy, Department of Clinical Pharmacy and Pharmacy Practice, Hashemite University, Irbid, Jordan;

Faculty of Medicine, Department of Clinical Medical Sciences, Yarmouk University, Irbid, Jordan

ABSTRACT: This study aims to assess and evaluate the knowledge, beliefs, behaviors, and practices about COVID-19 among different categories of Jordanian people including pregnant and breastfeeding mothers. A cross-sectional study is designed using an online survey questionnaire and a five-section questionnaire was devised to address perceptions and attitudes of the participants towards COVID-19. This study was found that more than 80% of the participants had a belief that COVID-19 can be transmitted through direct contact or spreading of air droplets from infected people to healthy ones. Around 15% of pregnant and breastfeeding women realized that the COVID-19 virus could transmit the virus to their babies. Third-fourth of the participants agreed that the elderly, pregnant, and immunocompromised people have a higher risk of being infected with COVID-19. In addition, 80% of the participants believed that using paracetamol is a good way of treating COVID-19 or reducing symptoms, while the remaining believed that they should use antibiotics as well as some vitamins to combat COVID-19. Around 70% of the participants have got their information about COVID-19 through social media while others got the information through the Jordanian Ministry of Health official website, other websites, television news, friends, relatives, and colleagues. Participants' practices to avoid transmission of COVID-19 were adequate in more than 80% of the participants who reported that they should protect themselves as well as their families as a priority. we believe that this study allow other governments worldwide to understand the views of public people in Jordan during pandemic disease outbreaks. © RJPT All right reserved.

Batiha, I.M., Chebana, Z., Oussaeif, T.-E., Ouannas, A., Jebril, I.H.

On a Weak Solution of a Fractional-order Temporal Equation

(2022) Mathematics and Statistics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139419128&doi=10.13189%2fms.2022.100522&partnerID=40&md5=9b8e2f9df87c413de7f8b05acdbfc27b)

[85139419128&doi=10.13189%2fms.2022.100522&partnerID=40&md5=9b8e2f9df87c413de7f8b05acdbfc27b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139419128&doi=10.13189%2fms.2022.100522&partnerID=40&md5=9b8e2f9df87c413de7f8b05acdbfc27b)

AFFILIATIONS: Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan

ABSTRACT: Several real-world phenomena emerging in engineering and science fields can be described successfully by developing certain models using fractional-order partial differential equations. The exact, analytical, semi-analytical or even numerical solutions for these models should be examined and investigated by distinguishing between their solvabilities and non-solvabilities. In this paper, we aim to establish some sufficient conditions for exploring the existence and uniqueness of solution for a class of initial-boundary value problems with Dirichlet condition. The gained results from this research paper are established for the class of fractional-order partial differential equations by a method based on Lax Milgram theorem, which relies in its construction on properties of the symmetric part of the bilinear form. Lax Milgram theorem is deemed as a mathematical scheme that can be used to examine the existence and uniqueness of weak solutions for fractional-order partial differential equations. These equations are formulated here in view of the Caputo fractional-order derivative operator, which its inverse operator is the Riemann-Louville fractional-order integral one. The results of this paper will be supportive for mathematical analyzers and researchers when a fractional-order partial differential equation is handled in terms of finding its exact, analytical, semi-analytical or numerical solution. © 2022 by authors, all rights reserved.

Althaher, A.R.

In vitro Assessment of Cytotoxic Potential of *Ajuga orientalis* L. Methanol Extract on MCF-7 and MRC-5 cells

(2022) Tropical Journal of Natural Product Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139395397&doi=10.26538/2ftjnpr%2fv6i9.11&partnerID=40&md5=5efe125e5f269d20161403768c216e19)

[85139395397&doi=10.26538/2ftjnpr%2fv6i9.11&partnerID=40&md5=5efe125e5f269d20161403768c216e19](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139395397&doi=10.26538/2ftjnpr%2fv6i9.11&partnerID=40&md5=5efe125e5f269d20161403768c216e19)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Cancer is a significant public health concern both globally and in Jordan. Modern cancer therapies are associated with multidrug resistance, severe side effects, and high costs. There has recently been a lot of interest in screening for plants that can be used in cancer prevention and treatment. The current study is intended to assess the cytotoxic activity of methanolic extract of aerial parts of *Ajuga orientalis* L. on a human breast cancer cell line (MCF-7). The cytotoxic activity of the extract against human breast cancer cells (MCF-7) and normal fibroblast (MRC-5) was assessed using the (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. The cells were treated with different concentrations of methanol extract of *Ajuga orientalis* (3.125-200 µg/mL) for 24, 48, and 72 hrs. The extract demonstrated inhibition in the proliferation of the MCF-7 cell line in a dose-dependent manner, without any toxic impact on normal fibroblast cells. Furthermore, the extract showed significant cytotoxic activity after 72 hrs of incubation (IC₅₀ 30.5±0.05 µg/mL). In conclusion, the methanol extract of *A. orientalis* showed a potent reduction in the proliferation of MCF-7 cells and could be considered a potential source of the anticancer compound. © 2022 the authors.

Jarab, A.S., Al-Qerem, W., Mukattash, T.L., Alqudah, S.G., Abu-Zaytoun, L., Al-Azayzih, A., Khmour, M.

Public Perception of Pharmacist's Role during COVID-19 Outbreak in Jordan

(2022) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139221323&doi=10.35516/2fjpps.v15i3.410&partnerID=40&md5=b241f0c450c204c9ebb896ac32d819ad)

[85139221323&doi=10.35516/2fjpps.v15i3.410&partnerID=40&md5=b241f0c450c204c9ebb896ac32d819ad](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139221323&doi=10.35516/2fjpps.v15i3.410&partnerID=40&md5=b241f0c450c204c9ebb896ac32d819ad)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Department of Pharmacy, Jordanian Royal Medical Services, Jordan;

Faculty of Pharmacy, Al-Quds University, Palestine

ABSTRACT: Background: The pandemic COVID-19 requires collaborative teamwork by all healthcare professionals including Pharmacists who could help in combating epidemic diseases by providing several pharmaceutical services. Nevertheless, public perception of pharmacist's role in providing health service is controversial. Methods: A cross-sectional web-based design validated survey of 25 items was used to explore patients' opinion about pharmacist's ability to provide different health services during COVID-19 pandemic. Exploratory factor analysis (EFA) was conducted to evaluate the best model for the questionnaire. The association between different demographic variables and awareness about pharmacist's role was evaluated using Pearson correlation, Mann-Whitney u test and Kruskal-Wallis one-way analysis of variance. Results: A total of 668 persons participated in the study. The mean (SD) of the respondent questionnaire scores was 97.1 (12.6) and the possible maximum score was 115 (12.9). Higher awareness score was associated with increased age, female gender, lower educational level, living out of Amman the capital, being college or university student or being employed in medical field. Conclusion: The positive public perception toward pharmacist role shown in the present study enlighten the need to expand pharmacist role to be more engaged in providing different health services during the disaster or normal conditions. © 2022 DSR Publishers/The University of Jordan. All Rights Reserved.

Sunoqrot, S., Aliyeh, S., Abusulieh, S., Sabbah, D.

Vitamin E TPGS-Poloxamer Nanoparticles Entrapping a Novel PI3K α Inhibitor Potentiate Its Activity against Breast Cancer Cell Lines

(2022) Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138645238&doi=10.3390/2fpharmaceutics14091977&partnerID=40&md5=554d828705f99ee607eb1b81ac80cd4b)

[85138645238&doi=10.3390/2fpharmaceutics14091977&partnerID=40&md5=554d828705f99ee607eb1b81ac80cd4b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138645238&doi=10.3390/2fpharmaceutics14091977&partnerID=40&md5=554d828705f99ee607eb1b81ac80cd4b)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: N-(2-fluorophenyl)-6-chloro-4-hydroxy-2-quinolone-3-carboxamide (R19) is a newly synthesized phosphatidylinositol 3-kinase alpha (PI3K α) inhibitor with promising activity against cancer cells. The purpose of this study was to develop a polymeric nanoparticle (NP) formulation for R19 to address its poor aqueous solubility and to facilitate its future administration in preclinical and clinical

settings. NPs were prepared by nanoprecipitation using two polymers: D- α -tocopheryl polyethylene glycol 1000 succinate (vitamin E TPGS) and the poloxamer Pluronic P123 in different ratios. Physicochemical characterization of the NPs revealed them to be around 100 nm in size with high monodispersity, a spherical morphology, and an almost neutral surface charge. The NPs achieved ~60% drug loading efficiency and sustained release of R19 for up to 96 h, with excellent colloidal stability in serum-containing cell culture media. NPs containing TPGS enhanced R19's potency against MCF-7 and MDA-MB-231 breast cancer cells in vitro, with half-maximal inhibitory concentrations (IC₅₀) ranging between 1.8 and 4.3 μ M compared to free R19, which had an IC₅₀ of 14.7–17.0 μ M. The NPs also demonstrated low cytotoxicity against human dermal fibroblasts and more significant induction of apoptosis compared to the free drug, which was correlated with their cellular uptake efficiency. Our findings present a biocompatible NP formulation for the delivery of a cancer-targeted PI3K α inhibitor, R19, which can further enhance its potency for the treatment of breast cancer and potentially other cancer types. © 2022 by the authors.

Hamed, R., Abu Kwiak, A.D., Al-Adhami, Y., Hammad, A.M., Obaidat, R., Abusara, O.H., Huwaij, R.A. Microemulsions as Lipid Nanosystems Loaded into Thermoresponsive In Situ Microgels for Local Ocular Delivery of Prednisolone

(2022) *Pharmaceutics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138637534&doi=10.3390%2fpharmaceutics14091975&partnerID=40&md5=633c00742235a0a835dda7bab99f529e)

[85138637534&doi=10.3390%2fpharmaceutics14091975&partnerID=40&md5=633c00742235a0a835dda7bab99f529e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138637534&doi=10.3390%2fpharmaceutics14091975&partnerID=40&md5=633c00742235a0a835dda7bab99f529e)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, 13110, Jordan;

Department of Pharmaceutical Technology, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Pharmacological and Diagnostic Research Center, Faculty of Pharmacy, Al-Ahliyya Amman University, Al-Salt, 19328, Jordan

ABSTRACT: This study aimed to develop and evaluate thermoresponsive in situ microgels for the local ocular delivery of prednisolone (PRD) (PRD microgels) to improve drug bioavailability and prolong ocular drug residence time. Lipid nanosystems of PRD microemulsions (PRD-MEs) were prepared and evaluated at a drug concentration of 0.25–0.75%. PRD microgels were prepared by incorporating PRD-MEs into 10 and 12% Pluronic® F127 (F127) or combinations of 12% F127 and 1–10% Kolliphor®P188 (F68). PRD microgels were characterized for physicochemical, rheological, and mucoadhesive properties, eye irritation, and stability. Results showed that PRD-MEs were clear, miscible, thermodynamically stable, and spherical with droplet size (16.4 ± 2.2 nm), polydispersity index (0.24 ± 0.01), and zeta potential (-21.03 ± 1.24 mV). The PRD microgels were clear with pH (5.37–5.81), surface tension (30.96–38.90 mN/m), size, and zeta potential of mixed polymeric micelles (20.1–23.9 nm and -1.34 to -10.25 mV, respectively), phase transition temperature (25.3–36 °C), and gelation time (1.44–2.47 min). The FTIR spectra revealed chemical compatibility between PRD and microgel components. PRD microgels showed pseudoplastic flow, viscoelastic and mucoadhesive properties, absence of eye irritation, and drug content (99.3 to 106.3%) with a sustained drug release for 16–24 h. Microgels were physicochemically and rheologically stable for three to six months. Therefore, PRD microgels possess potential vehicles for local ocular delivery. © 2022 by the authors.

AlZu'bi, S., Abu Zitar, R., Hawashin, B., Abu Shanab, S., Zraiqat, A., Mughaid, A., Almotairi, K.H., Abualigah, L.

A Novel Deep Learning Technique for Detecting Emotional Impact in Online Education

(2022) *Electronics* (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138619184&doi=10.3390%2felectronics11182964&partnerID=40&md5=1ee4b9d05a78cc4667bdd23f76ea0f23)

[85138619184&doi=10.3390%2felectronics11182964&partnerID=40&md5=1ee4b9d05a78cc4667bdd23f76ea0f23](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138619184&doi=10.3390%2felectronics11182964&partnerID=40&md5=1ee4b9d05a78cc4667bdd23f76ea0f23)

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, 38044, United Arab Emirates;

Department of Information Technology, Faculty of Prince Al-Hussien bin Abdullah II for IT, The Hashemite University, Zarqa, 13133, Jordan;

Computer Engineering Department, Computer and Information Systems College, Umm Al-Qura University, Makkah, 21955, Saudi Arabia;

Hourani Center for Applied Scientific Research, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Faculty of Information Technology, Middle East University, Amman, 11831, Jordan

ABSTRACT: Emotional intelligence is the automatic detection of human emotions using various intelligent methods. Several studies have been conducted on emotional intelligence, and only a few have been adopted in education. Detecting student emotions can significantly increase productivity and improve the education process. This paper proposes a new deep learning method to detect student emotions. The main aim of this paper is to map the relationship between teaching practices and student learning based on emotional impact. Facial recognition algorithms extract helpful information

from online platforms as image classification techniques are applied to detect the emotions of student and/or teacher faces. As part of this work, two deep learning models are compared according to their performance. Promising results are achieved using both techniques, as presented in the Experimental Results Section. For validation of the proposed system, an online course with students is used; the findings suggest that this technique operates well. Based on emotional analysis, several deep learning techniques are applied to train and test the emotion classification process. Transfer learning for a pre-trained deep neural network is used as well to increase the accuracy of the emotion classification stage. The obtained results show that the performance of the proposed method is promising using both techniques, as presented in the Experimental Results Section. © 2022 by the authors.

Alhawari, H., Jarrar, Y., Abulebdah, D., Abaalkhail, S.J., Alkhalili, M., Alkhalili, S., Alhawari, H., Momani, M., Obeidat, M.N., Fram, R.K., Salahat, M.A., Lee, S.-J.

Effects of Vitamin D Receptor Genotype on Lipid Profiles and Retinopathy Risk in Type 2 Diabetes Patients: A Pilot Study

(2022) Journal of Personalized Medicine, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85138610521&doi=10.3390%2fjpm12091488&partnerID=40&md5=bf16a1ea08cb3a56c7cbc7e9ba7cef69

AFFILIATIONS: Department of Internal Medicine, School of Medicine, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmaceutical Science, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of General Surgery, The University of Jordan Hospital, Amman, 11942, Jordan;

Department of Pharmacology, Pharmacogenomics Research Center, College of Medicine, Inje University, Busan, 50834, South Korea

ABSTRACT: Genetic polymorphisms affect lipid profiles and are associated with disease complications. Genetic variants in the vitamin D receptor (VDR) gene are associated with type 2 diabetes mellitus (T2DM). In this study, we investigated the effects of VDR genotypes on the lipid profile and disease complications of T2DM patients in a Jordanian population. Ninety T2DM patients were genotyped for four major functional VDR genetic variants, rs2228570 C > T (FokI), rs7975232 A > C (ApaI), rs731236 T > C (TaqI), and rs1544410 C > T (BsmI), using the polymerase chain reaction-restriction fragment length polymorphism method. Lipid profiles and diabetes complications were analyzed and correlated with VDR genotypes. We found that the VDR rs7975232 and rs1544410 alleles were significantly ($p = 0.008-0.04$) associated with high-density lipoprotein (HDL) levels and retinopathy among patients. Carriers of the rs7975232 A/A genotype exhibited higher levels (49.68 ± 15.86 mg/dL) of HDL than patients with the A/C (44.73 ± 13.38 mg/dL) and C/C (37.93 ± 9.22 mg/dL) genotypes. Moreover, carriers of the rs1544410 T/T genotype had higher levels of HDL (54.31 ± 16.45 mg/dL) than patients with the C/T (43.57 ± 13.24 mg/dL) and C/C (43.98 ± 13.17 mg/dL) genotypes. T2DM patients who carry the rs7975232 C/C genotype were at higher risk (odds ratio [OR] = 7.88) of developing retinopathy compared with carriers of the rs7975232 C/A and A/A genotypes. In addition, T2DM patients with the rs1544410 C/C genotype had a higher risk (OR = 4.21) of developing retinopathy than patients with the rs1544410 C/T and T/T genotypes. Therefore, we concluded that the VDR rs7975232 and rs1544410 alleles were associated with HDL levels and retinopathy and can be considered as potential genetic biomarkers for the lipid profile and retinopathy complication among T2DM patients in a Jordanian population of Arabic origin. Further studies with larger sample sizes are needed to confirm our findings. © 2022 by the authors.

Aboalhaija, N.H., Syaj, H., Afifi, F., Sunoqrot, S., Al-Shalabi, E., Talib, W.

Chemical Evaluation, In Vitro and In Vivo Anticancer Activity of *Lavandula angustifolia* Grown in Jordan

(2022) Molecules, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85138342269&doi=10.3390%2fmolecules27185910&partnerID=40&md5=7716e350a26eea1ce4900084cb868ca1

AFFILIATIONS: Department of Pharmaceutical Sciences, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Al-Arab Str. 21, Amman, 11931, Jordan;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Al-Arab Str. 21, Amman, 11931, Jordan

ABSTRACT: *Lavandula angustifolia* is the most widely cultivated *Lavandula* species for medicinal use.

In this study, chemical and biological evaluation of *L. angustifolia* aqueous, methanol (MeOH), ethanol (EtOH), ethyl acetate (EtOAc), and chloroform (CHCl₃) extracts were conducted.

Phytochemically, the extracts' total phenol and flavonoid contents and their antioxidant potential were evaluated. Ethanol extract was analyzed by LC-MS. All extracts were screened in vitro for their antitumor potential using human breast cancer cell lines MCF-7 and MDA-MB-23. For the first time, the

antiproliferative potential of the EtOH extract was tested in vivo using mice with induced breast cancer. Ethanol extract exhibited the best cytotoxicity and safety profile of the tested extracts, with IC50 values of 104.1 µg/mL on MCF-7 and 214.5 µg/mL on MDA-MB-231 cell lines, respectively. In vivo, this extract revealed a reduction in tumor size by 43.29% in the treated group, compared to an increase in the tumor growth by 58.9% in the control group. Moreover, undetected tumor was found in 12.5% of the sample size. In conclusion, this study provides novel insight and evidence on the antiproliferative efficacy of *L. angustifolia* ethanol extract against breast cancer with potent antioxidant potential. © 2022 by the authors.

Iqteit, N.A., Yahya, K., Makahleh, F.M., Attar, H., Amer, A., Solyman, A.A.A., Qudaimat, A., Tamizi, K.

Simple Mathematical and Simulink Model of Stepper Motor
(2022) *Energies*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137994350&doi=10.3390%2fen15176159&partnerID=40&md5=f93f12cf58279adbbf86700447938fcc)

[85137994350&doi=10.3390%2fen15176159&partnerID=40&md5=f93f12cf58279adbbf86700447938fcc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137994350&doi=10.3390%2fen15176159&partnerID=40&md5=f93f12cf58279adbbf86700447938fcc)

AFFILIATIONS: Department of Electrical Engineering, Palestine Polytechnic University, Hebron, P726, Palestine;

Department of Electrical and Electronics Engineering, Nisantasi University, Istanbul, 34398, Turkey;

Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Energy, Zarqa University, Zarqa, 13133, Jordan;

Department of Electrical and Electronics Engineering, Istanbul Gelisim University, Avcilar, Istanbul, 34310, Turkey

ABSTRACT: This paper presents a simple mathematical and Simulink model of a two-phase hybrid stepper motor, where ignoring the permeance space harmonics of the hybrid stepper motor is regarded as the main physical assumption in this article. Moreover, the dq transformation method is adopted as the main mathematical approach for the derivation of the proposed model, where simple voltages, currents, and torque equations are obtained and used to build the proposed Simulink and circuit model of the stepper motor. The validity and the effectiveness of the proposed model are examined by comparing its results with the results collected from the Simulink model in the library of Matlab. The obtained simulation results showed that the proposed model achieved a high simplicity and high accuracy when compared with conventional models. © 2022 by the authors.

Alsmadi, A.A., Shuhaiber, A., Alhawamdeh, L.N., Alghazzawi, R., Al-Okaily, M.

Twenty Years of Mobile Banking Services Development and Sustainability: A Bibliometric Analysis Overview (2000-2020)

(2022) *Sustainability* (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137933816&doi=10.3390%2fsu141710630&partnerID=40&md5=a0a175242b101baf038190366ae310c8)

[85137933816&doi=10.3390%2fsu141710630&partnerID=40&md5=a0a175242b101baf038190366ae310c8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137933816&doi=10.3390%2fsu141710630&partnerID=40&md5=a0a175242b101baf038190366ae310c8)

AFFILIATIONS: Faculty of Business, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Technological Innovation, Zayed University, Abu Dhabi, 144534, United Arab Emirates;

Faculty of Administrative and Financial Sciences, University of Petra, Amman, 11196, Jordan;

King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, 11941, Jordan;

School of Business, Jadara University, Irbid, 21110, Jordan

ABSTRACT: The current paper aims to analyze the keywords related to mobile banking (otherwise known as m-banking) issues by focusing on its development from 2000 to 2020, of which the first publication about this issue appeared in the Scopus database. This paper explored and analyzed 1206 research papers using the Scopus database. Bibliometric analysis and content analysis had been conducted through Excel and VOS viewer software to obtain the results. In addition, the findings of this paper reveal that the universal trends and increased production at a global level led to many changes, and the most rampant topic associated with m-banking in most periods is mobile telecommunication systems. By showcasing the creation of the key terms in m-banking, it was possible to identify significant changes in the development of the field's key terminologies. Therefore, it is important to follow up on the development in future decades, particularly how the recent universal occurrences have influenced the changes in m-banking use at a global level. Moreover, the present study makes a significant contribution to the literature by providing a framework for future research. The framework provides opportunities for researchers to explore the research streams in future research. Finally, the current paper is the first of its kind in its method of contribution, and according to the research databases (Scopus, Google Scholar, etc.), no work was witnessed in the published literature covering m-banking in a detailed and comprehensive multi-period manner and in such an applied method. In addition, the current paper fills this gap by conducting a bibliometric analysis and content analysis. © 2022 by the authors.

Al-Amleh, E.K., Al-Sanabra, O.M., Alqaisi, K.M., Alqaraleh, M., Al-Nahal, J., Hamadneh, L., Malki, M.I., Alhmoud, J.F.

Investigation of the Effect of Imatinib and Hydroxyurea Combination Therapy on Hematological Parameters and Gene Expression in Chronic Myeloid Leukemia (CML) Patients

(2022) Journal of Clinical Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137792776&doi=10.3390%2fjcm11174954&partnerID=40&md5=ddfec42e2bbf3549531b13c32c79fa51)

[85137792776&doi=10.3390%2fjcm11174954&partnerID=40&md5=ddfec42e2bbf3549531b13c32c79fa51](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137792776&doi=10.3390%2fjcm11174954&partnerID=40&md5=ddfec42e2bbf3549531b13c32c79fa51)

AFFILIATIONS: Department of Medical Laboratory Sciences, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Pharmacological and Diagnostic Research Center (PDRC), Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Medical Laboratory Sciences, Faculty of Science, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Medicine, QU Health, Qatar University, PO Box 2713, Doha, Qatar

ABSTRACT: (1) Background: Chronic myeloid leukemia is defined as the neoplastic development of mostly myeloid cells in the bone marrow, including chemotherapy, radiation, hormone treatment, and immunological therapy, can be used to control this condition. The therapeutic impact on leukemic individuals varies, and the response to therapy varies between patients due to disease heterogeneity. The primary goal of this study is to compare the effects of single and Imatinib (IM) and Hydroxyurea (HU) combined treatment on hematological parameters and gene expression in CML patients. (2) Methods: This study was conducted on 51 patients, with chronic myeloid leukemia, who were admitted to Al-Basher hospital in Amman, Jordan, for follow-up. Their hematological parameters were checked and gene expression was measured for (BCL2, PP2A, CIP2A, and WT1). (3) Results: The BCL2 gene was found to be less expressed in both IM and (HU + IM) treatments as compared to the HU group alone, while PP2A gene expression was raised. Such a thing indicates that the outcome of the combined therapy method is not ideal, since PP2A activation causes CML cells to move toward the blast crisis stage. Furthermore, CIP2A gene expression revealed that IM and (HU + IM) had the same therapeutic effect and were more successful in CML patients than HU alone. With regards to the treatment effect on hematological parameters, notably in CML patients in later stages, the combination therapy (HU + IM) raised lymphocyte count, indicating a greater response to the treatment. When compared to single medicines, the combination treatment reduced the proportion of neutrophils to normal reference ranges. Platelet counts, on the other hand, dramatically decreased in both IM and (HU + IM). (4) Conclusion: Because the studied genes (BCL2, PP2A, CIP2A, and WT1) are participating in cell proliferation and death, the findings show that the examined genes are significant to understand the efficacy of various therapies. Furthermore, it was found that there was a clear effect of the clinic-based strategic treatment on hematological indicators such as WBCs, lymphocytes, neutrophils, and platelet counts. © 2022 by the authors.

Khleifat, K., Magharbeh, M., Alqaraleh, M., Al-Sarayrah, M., Alfarrayeh, I., Al Qaisi, Y., Alsarayreh, A., Alkafaween, M.

Biodegradation modeling of phenol using *Curtobacterium flaccumfaciens* as plant-growth-promoting bacteria

(2022) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137626330&doi=10.1016%2fj.heliyon.2022.e10490&partnerID=40&md5=490f74065aab2912bf99b48e1a0c8962)

[85137626330&doi=10.1016%2fj.heliyon.2022.e10490&partnerID=40&md5=490f74065aab2912bf99b48e1a0c8962](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137626330&doi=10.1016%2fj.heliyon.2022.e10490&partnerID=40&md5=490f74065aab2912bf99b48e1a0c8962)

AFFILIATIONS: Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Mutah University, Al-Karak, 61710, Jordan;

Pharmacological and Diagnostic Research Center, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Department of Biological Sciences, Faculty of Science, Mutah University, Al-Karak, 61710, Jordan;

Department of Applied Biology, Faculty of Science, Tafila Technical University, 66110 Tafila, Jordan;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Phenol is a major worry pollutant resulting from industrialized manufacturing and chemical reactions. The growth kinetics and biodegradation of phenol were initially investigated using *C. flaccumfaciens*, a recently identified plant growth stimulating bacterium. Based on the Haldane inhibition model, Haldane's growth kinetics inhibition coefficient (K_i), half-saturation coefficient (K_s), and the maximum specific growth rate (μ_{max}) for phenol-dependent growth kinetics were estimated to be 329 (mg/L), 9.14 (mg/L), and 1.05 (h^{-1}), respectively. With a sum of squared error (SSR) of 1.36×10^{-3} , the Haldane equation is well adapted to empirical data. The improved Gombertz model also accurately predicts phenol biodegradation trends. The rate of phenol biodegradation and the lag time both increased as the initial phenol concentrations were increased. *C. flaccumfaciens* growth and phenol biodegradation were best achieved at a pH of 7.0 at a temperature of 28 °C incubation. A phenol biodegradation mechanism by *C. flaccumfaciens* has been proposed. In conclusion, this study

revealed the ability of *C. flaccumfaciens* to promote plant growth and biodegrade phenol simultaneously. This could aid in rhizoremediation and crop yield preservation in phenol-stressed conditions. © 2022 The Author(s)

Al-Zaqeba, M.A.A., Jarah, B.A.F., Al-Bazaiah, S.A.I., Malahim, S.S., Hamour, A.M.A., Alshehadeh, A.R., Almatarneh, Z., Al-Khawaja, H.A.

The effect of reverse factoring financial changes on supply chain

(2022) *Uncertain Supply Chain Management*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137322545&doi=10.5267%2fj.uscm.2022.7.006&partnerID=40&md5=82e3f13c1918138de59fe0a13754a2b2)

[85137322545&doi=10.5267%2fj.uscm.2022.7.006&partnerID=40&md5=82e3f13c1918138de59fe0a13754a2b2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137322545&doi=10.5267%2fj.uscm.2022.7.006&partnerID=40&md5=82e3f13c1918138de59fe0a13754a2b2)

AFFILIATIONS: Faculty of Business, Amman Arab University, Amman, Jordan;

Al-Balqa Applied University, Faculty of business, Jordan;

Al-Balqa Applied University, Amman University College for Financial and Administrative Sciences, Department of Banking and Financial Sciences, Jordan;

Al-Balqa Applied University, Amman University College for, Financial and Administrative Sciences, Accounting and Accounting Information System Department, Jordan;

Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Swiss FinTech Innovation Lab, University of Zurich, Switzerland

ABSTRACT: The consequences of reverse factoring in a supply chain are examined in this article.

Reverse factoring occurs when a buying firm offers a reduced short-term borrowing rate to a supplier company in exchange for longer payment terms. From the standpoint of a supplier, this paper investigates the impact of rating changes, interest rate fluctuations, and business cycle position on the cost-benefit trade-off in the SMEs and manufacturing companies. However, the data was collected using a questionnaire. The main result is that changes in critical financial variables like ratings, news alerts and interest rates will shift former win-win circumstances for the supplier dependent on the business cycle into win-lose situations for the supplier. Overall, the reverse factoring results reveal sophisticated trade-offs, necessitating careful consideration in managerial decisions. © 2022 Growing Science Ltd. All rights reserved.

Mari, T., Hmood, K.F., Goussous, J.

Integrated Built Environment that Meets Human Needs for Thermal Comfort

(2022) *Civil Engineering and Architecture*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136813594&doi=10.13189%2fcea.2022.100525&partnerID=40&md5=12a592ee541941c2e9b25d8136b18f6d)

[85136813594&doi=10.13189%2fcea.2022.100525&partnerID=40&md5=12a592ee541941c2e9b25d8136b18f6d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136813594&doi=10.13189%2fcea.2022.100525&partnerID=40&md5=12a592ee541941c2e9b25d8136b18f6d)

AFFILIATIONS: Department of Architecture, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Architecture Engineering, University of Jordan, Amman, 11942, Jordan

ABSTRACT: This research aims to find principles that achieve an integrated architectural environment in the desert environment that meets human needs and preserves the rights of future generations. Studying and analyzing the successful solutions and treatments provided by the traditional architectural environment in a desert environment and in a hot, dry climate help achieve this aim. Nowadays, we find a growing research interest in sustainability. This research paper concentrated on the relationship of the desert environment with the built environment to achieve an integrated environment to meet human needs, ration energy consumption and preserve the identity of the architecture. This research studies traditional architecture in a desert environment to identify appropriate solutions to the climatic environment and its ability to harmonize and respond to its climatic environment, with its high capacity to respond to human needs in these communities. The research adopted the analytical descriptive approach in its study of the relationship of the desert climatic environment with the built architectural environment. The Climate Consultant software is used for this research to recommend various design strategies suitable for each climate. The three central climates analyzed in this study are coastal desert areas, moderate desert areas, and hot, dry desert environments. In conclusion, this research found that in the past, the traditional environment has provided and continues to provide effective climatic solutions. © 2022 by Authors.

Rabaa'i, A., Al-Lozi, E., Hammouri, Q., Muhammad, N.B., Alsmadi, A.A., Al-Gasawneh, J.A.

Continuance intention to use smartwatches: An empirical study

(2022) *International Journal of Data and Network Science*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136314433&doi=10.5267%2fj.ijdns.2022.4.012&partnerID=40&md5=240fb50b79f131aac947138a367c2603)

[85136314433&doi=10.5267%2fj.ijdns.2022.4.012&partnerID=40&md5=240fb50b79f131aac947138a367c2603](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136314433&doi=10.5267%2fj.ijdns.2022.4.012&partnerID=40&md5=240fb50b79f131aac947138a367c2603)

AFFILIATIONS: New Jersey City University, United States;

Al-Zaytoonah University of Jordan, Jordan;

Applied Science Private University, Jordan;

American University of Kuwait, Kuwait

ABSTRACT: This study aims at investigating the factors that determine the continuous intention to use smart-watches, one of the most prevalent types of wearable devices. The study extends the expectation confirmation model (ECM) by incorporating other variables (i.e., construct) which capture the unique

context of smartwatches continuous usage, namely healthology, perceived aesthetics, habit, and social influence. Hypotheses were assessed using partial least square structural equation modeling (PLS-SEM) approach on data collected from 287 actual smartwatch users. The results reveal that performance expectancy, satisfaction, healthology, perceived aesthetics and habit significantly influence the continuous usage of smartwatches, while social influence is non-significant. The research model of this study explains 65.7% of the variance in the continuous usage intention of smart-watches. The insights provided by this study suggest fruitful opportunities for future research. They can also help smartwatches companies, developers and marketers with strategies and directions for further development and growth by ensuring users' continuous usage of smartwatches. © 2022 by the authors; licensee Growing Science, Canada.

Al-Lozi, E., Alfityani, A., Alsmadi, A.A., Al_Hazimeh, A.M., Al-Gasawneh, J.A.

The role of big data in financial sector: A review paper

(2022) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136276724&doi=10.5267%2fj.ijdns.2022.6.003&partnerID=40&md5=51fce15ac3959202027be11634b8f011)

[85136276724&doi=10.5267%2fj.ijdns.2022.6.003&partnerID=40&md5=51fce15ac3959202027be11634b8f011](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136276724&doi=10.5267%2fj.ijdns.2022.6.003&partnerID=40&md5=51fce15ac3959202027be11634b8f011)

AFFILIATIONS: Department of Management Information Systems, Al-Zaytoonah University of Jordan,

Jordan;

Applied science private university, Faculty of business, applied science private university, Amman,

Jordan;

Al Zaytoonah University of Jordan, Jordan;

Al_Bayt University, Jordan;

Applied Science Private University, Jordan

ABSTRACT: In the current era of information technology Big Data has gained significant importance in almost all the industries throughout the world. Big Data is now renowned for having the capability of effective decision making. Now companies around the globe are using Big Data for market analysis, customer analysis, however, the utilization of Big Data is much higher in the financial sector, yet publications on Big Data and finance are limited because of having significant challenges. Even though utilization of Big Data is highest in the financial sector and its importance cannot be ignored, the studies and analysis are inadequate. Considering the importance of Big Data in the financial sector this paper is an attempt to conduct a comprehensive literature review in the field of Big Data and finance. Thus, the study will contribute to the body of knowledge by providing horizons for empirical research in the field of Big Data and finance. © 2022 by the authors; licensee Growing Science, Canada.

Alwan, M., Alshurideh, M.

The effect of digital marketing on value creation and customer satisfaction

(2022) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136265096&doi=10.5267%2fj.ijdns.2022.4.021&partnerID=40&md5=e640684f0f7878593e35d652bb426445)

[85136265096&doi=10.5267%2fj.ijdns.2022.4.021&partnerID=40&md5=e640684f0f7878593e35d652bb426445](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136265096&doi=10.5267%2fj.ijdns.2022.4.021&partnerID=40&md5=e640684f0f7878593e35d652bb426445)

AFFILIATIONS: Department of Marketing, Faculty of Business, Al-Zaytoonah University, Amman, Jordan;

Department of Marketing, School of Business, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The current research main purpose is to examine the effect of digital marketing on both value creation and customer satisfaction. The literature was reviewed for the relevant existing studies to address the knowledge gap that has not been fulfilled before by a proposed integrative model. A quantitative research approach was used in this study to investigate the hypothesized proposed model with a survey questionnaire to collect data from the sample of customers of telecommunication firms operating in Jordan. The instrument was developed and customized to achieve the research objectives. With a total of 315 valid and complete returned questionnaires, the research has analyzed the data collected by using the PLS-SEM approach to run the essential analysis procedures and test the hypothesized statements. The results showed a significant and positive effect of digital marketing on both value creation and customer satisfaction. The research would contribute to providing more understanding of the issues related to this topic and filling research gaps and provide some new knowl-edgeable and theoretical research implications. © 2022 by the authors; licensee Growing Science, Canada.

Alsmadi, A.A., Alfityani, A., Alhwamdeh, L.N., Al_Hazimeh, A.M., Al-Gasawneh, J.A.

Intentions to use fintech in the Jordanian banking industry

(2022) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136248349&doi=10.5267%2fj.ijdns.2022.5.016&partnerID=40&md5=bf8e2d3dfb53bf81f39ad064d07a94e0)

[85136248349&doi=10.5267%2fj.ijdns.2022.5.016&partnerID=40&md5=bf8e2d3dfb53bf81f39ad064d07a94e0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136248349&doi=10.5267%2fj.ijdns.2022.5.016&partnerID=40&md5=bf8e2d3dfb53bf81f39ad064d07a94e0)

AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan;

Faculty of business, Department of Accounting, Applied Science Private University, Amman, Jordan;

Middle East University of Jordan, Jordan;

Al_bayt university, Amman, 80082, Jordan;

Department of Marketing, Faculty of Business, Applied Science Private University, Jordan

ABSTRACT: This paper aims to explore the intentions to use FinTech and its important role in the banking industry in Jordan. Accordingly, this study analyzes the nature of the relationship between intention to use financial technology and each of: Processing Unit (PU) perceived usefulness, social impact (SI), customer's trust (TRU) and perceived ease of use (PEU). Previous research related to financial technology is still under development and which is still being researched by providing an alternative approach to understanding how different business levels have stimulated the emergence of innovation-focused fintech companies, and what are the motives of success. Therefore, the main contribution of this research is to fill the gap in previous research related to financial technology that is still under development and which is still being researched by providing an alternative approach to understanding how different business levels have stimulated the emergence of innovation-focused fintech companies, and what are the motives of success. Results show a positive relation between intention to use financial technology and Processing Unit (PU), social impact (SI), customer's trust (TRU) and perceived ease of use (PEU). The main contribution of this research is to fill the gap in previous research related to financial technology that is still under development and which is still being researched by providing an alternative approach to understanding how different business levels have stimulated the emergence of innovation-focused fintech companies, and what are the motives of success. © 2022 by the authors; licensee Growing Science, Canada.

Al-Shalabi, R., Abu-Huwaij, R., Hamed, R., Abbas, M.M.

The antimicrobial and the antiproliferative effect of human triple negative breast cancer cells using the greenly synthesized iron oxide nanoparticles

(2022) Journal of Drug Delivery Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136068078&doi=10.1016%2Fj.jddst.2022.103642&partnerID=40&md5=fdc01759afed486e1b7f0039416b538f)

[85136068078&doi=10.1016%2Fj.jddst.2022.103642&partnerID=40&md5=fdc01759afed486e1b7f0039416b538f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136068078&doi=10.1016%2Fj.jddst.2022.103642&partnerID=40&md5=fdc01759afed486e1b7f0039416b538f)

AFFILIATIONS: Pharmacological and Diagnostic Research Center, Faculty of Pharmacy, Al-Ahliyya Amman University, Al-Salt, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pharmacological and Diagnostic Research Center, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Al-Salt, Jordan

ABSTRACT: Greenly synthesized iron oxide nanoparticles (IONPs) were prepared from *Spinacia oleracea* leaf extract. They were coated with 10% polyethylene glycol (PEG) and conjugated with doxorubicin (DOX). They were characterized by UV-Vis spectrophotometer, X-ray diffraction, and Fourier transforms infrared spectroscopy (FTIR). They exhibited a particle size of 29.0 ± 1.2 nm, a polydispersity index of 0.52 ± 0.05 , and zeta potential of -12.3 ± 0.1 mV. The absorption spectrum of the greenly synthesized IONPs was endorsed by a characteristic peak at 450 nm. FTIR revealed that DOX conjugated to PEGylated IONPs occurred via the interaction of the $-NH_2$ group of DOX with $-OH$ groups of PEG through hydrogen bonding. PEGylation, as well as DOX conjugation, improved the cytotoxic activity of IONPs on triple-negative breast cancer. Cytotoxic activity of DOX conjugated to PEGylated IONPs was significantly higher than free DOX. Furthermore, the IC_{50} of DOX conjugated PEGylated IONPs (0.1804 $\mu\text{g/mL}$) was lower than unloaded PEGylated IONPs (0.2119 $\mu\text{g/mL}$) and uncoated IONPs (0.3817 $\mu\text{g/mL}$), which was further verified by a lower percentage of closure area in the scratch test. Moreover, the zones of microbial inhibition of PEGylated and non-PEGylated IONPs were higher than the commonly used antimicrobial agents including ampicillin and gentamycin. In conclusion, the prepared nanoparticles offer potential passive target chemotherapy with lower dose than free DOX. © 2022 Elsevier B.V.

Nemrawi, Z., Musa, M.A., Jaradat, Y.

The Evaluation of Mathematics Textbooks from the Perspective of Mathematics Teachers in Jordan

(2022) Information Sciences Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132068136&doi=10.18576%2Fis1%2F110511&partnerID=40&md5=45e300a781ae9cf49aceb1a6748079e8)

[85132068136&doi=10.18576%2Fis1%2F110511&partnerID=40&md5=45e300a781ae9cf49aceb1a6748079e8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132068136&doi=10.18576%2Fis1%2F110511&partnerID=40&md5=45e300a781ae9cf49aceb1a6748079e8)

AFFILIATIONS: Department of Mathematics Education, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Curriculum and Instruction, Arab Open University, Amman, Jordan;

Department of Electrical Engineering, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: This paper aims at investigating mathematics teachers' satisfaction with new math textbook for grades seven and ten in Jordan. A sample of (127) Jordanian mathematics teachers who teach the new textbooks replied to a questionnaire. The questionnaire consisted of (5) domains and (37) items. The results show teachers are moderately satisfied with the new textbooks, and there is a statistically significant difference ($\alpha=0.05$) in teachers' satisfaction according to gender (Male, Female) in favor of males. Also, the results show there is a statistically significant difference ($\alpha=0.05$) in teachers' satisfaction regarding teachers' experience in favor of more and moderately experienced teachers. © 2022 NSP.

Abdalrahman, O.A., Othman, E.H., Khalifeh, A.H., Suleiman, K.H.

Fatigue among post-hematopoietic stem cell transplant patients in Jordan: prevalence and associated

factors

(2022) Supportive Care in Cancer, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131717397&doi=10.1007%2fs00520-022-07186-0&partnerID=40&md5=c8ec415ad7adfea9f2b570174a522617>

AFFILIATIONS: Nursing Department, King Hussein Cancer Center, Amman, Jordan;

Faculty of Nursing, Applied Science Private University, Amman, Jordan;

Faculty of Nursing, Zarqa University, P.O.Box 132222, Zarqa, 13132, Jordan;

Faculty of Nursing, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Background: During hematopoietic stem cell transplant (HSCT), patients underwent various serious prolonged treatments, including conditioning and immunosuppressive drugs, resulting in several symptoms and alterations in the patient's functioning. One of the most commonly reported symptoms is fatigue. Aim: To assess fatigue levels and associated factors during the first 100 days post-HSCT among Jordanian patients. Methods: A descriptive cross-sectional design assessed fatigue and associated factors during the first 100 days post-HSCT among Jordanian patients. A convenient sample was used to recruit post-HSCT patients. Data were collected using the demographic survey and the Brief Fatigue Inventory (BFI) scale. Results: The findings of this study demonstrated that 40.5% of the participants had severe total fatigue scores, while the mean BFI intensity average score was 5.01 and the mean interference of fatigue with patients' daily life was 5.06. In terms of fatigue interference with daily activities, the highest interference was with the patient's mood and normal work, while the lowest interference was with the walking ability. The analysis revealed a strong positive correlation between the fatigue intensity and its interference with the daily activities ($r = .98$, $p < .001$). Besides, a significantly strong negative correlation was found between the number of days post-HSCT and fatigue scores ($r = -.92$, $p < .001$). Conclusion: Post-transplant, patients experienced increased fatigue intensity, reduced physical activity, interference with the patient's mood, and diminished functional capacity. Patients who have HSCT require a significant nursing care immediately post-transplant. © 2022, The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature.

Al-Remawi, M., Jaber, N., Elsayed, A., Alsafadi, D., Salah, K.A.

Stabilization of insulin using low molecular weight chitosan carbonate nanocarrier

(2022) Carbohydrate Polymers, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130384971&doi=10.1016%2fj.carbpol.2022.119579&partnerID=40&md5=278473d757631fdaa439ccb976ed5ee3)

[85130384971&doi=10.1016%2fj.carbpol.2022.119579&partnerID=40&md5=278473d757631fdaa439ccb976ed5ee3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130384971&doi=10.1016%2fj.carbpol.2022.119579&partnerID=40&md5=278473d757631fdaa439ccb976ed5ee3)

AFFILIATIONS: Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Pharmacy, Taif University, Taif, 21974, Saudi Arabia;

Scientific Research Center, Royal Scientific Society, Amman, 11941, Jordan;

King Abdullah International Medical Research Center, King Saud bin Abdulaziz University for Health Sciences, Ministry of National Guard, Riyadh, Saudi Arabia

ABSTRACT: The current study aims to design a nanoparticulate system that could encapsulate insulin and improve its stability. Nanoparticles were formulated by ionic cross-linking of chitosan (CS) with carbonate divalent anions. The interaction between the two moieties was evidenced by AFM, FTIR and surface tension measurements. CS carbonate nanoparticles were prepared with different mole fractions. The mole fraction of carbonate that produced the smallest size nanoparticles and highest zeta potential (40 nm and +39 mV, respectively) was determined. Circular dichroism (CD) studies revealed that insulin conformation was not affected by CS at 20 °C. However, the studies at elevated temperatures demonstrated that CS had a role in insulin stabilization. Fluorescence spectroscopy indicated the interaction between insulin and CS carbonate. The findings from this investigation showed the potential use of CS carbonate as an insulin stabilizer and at the same time as an insulin nanocarrier system. © 2022 Elsevier Ltd

Abendeh, R.M., Salman, D., Al Louzi, R.

Experimental and numerical investigations of interfacial bond in self-compacting concrete-filled steel tubes made with waste steel slag aggregates

(2022) Developments in the Built Environment, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130338202&doi=10.1016%2fj.dibe.2022.100080&partnerID=40&md5=89aa21a9fe8904175ee9e84fa7a9f293)

[85130338202&doi=10.1016%2fj.dibe.2022.100080&partnerID=40&md5=89aa21a9fe8904175ee9e84fa7a9f293](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130338202&doi=10.1016%2fj.dibe.2022.100080&partnerID=40&md5=89aa21a9fe8904175ee9e84fa7a9f293)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Civil Engineering, The University of Jordan, Amman, Jordan

ABSTRACT: New self-compacting concrete (SCC) mixtures were designed to improve the interfacial bond strength in concrete-filled steel tubes (CFST) at 30 days and one year. The proposed SCC mixtures involved the strengthening of bond strength by using waste steel slag aggregates (SSA). A total of thirty-six circular and squared tube specimens with different ratios (0%, 25% and 50%) of SSA as a replacement by weight of coarse and fine aggregates in SCC were initially prepared. The results

revealed that the using of SSA in SCC enhanced the specimens' bond strength for both shapes of steel tubes and the bond strength was reduced with an increase of concrete's age. Additionally, the incorporating of SSA did not decrease the loss in bond strength at one year. A three-dimensional non-linear finite element (FE) analysis was further conducted to simulate the interfacial bond-slip mechanism between two surfaces of the infill concrete and inner steel tubes. © 2022 The Authors

Malak, M.Z., Abu Safieh, A.M.

Association between work-related psychological empowerment and quality of nursing care among critical care nurses

(2022) *Journal of Nursing Management*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129386273&doi=10.1111%2fjjonm.13641&partnerID=40&md5=9a2150db98d46b7a8c910b507e92f41b)

[85129386273&doi=10.1111%2fjjonm.13641&partnerID=40&md5=9a2150db98d46b7a8c910b507e92f41b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129386273&doi=10.1111%2fjjonm.13641&partnerID=40&md5=9a2150db98d46b7a8c910b507e92f41b)

AFFILIATIONS: Community Health Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah, University of Jordan, Jordan;

Ministry of Health, Amman, Jordan

ABSTRACT: Aim: This study aimed to examine the association between work-related psychological empowerment and quality of nursing care in Jordanian critical care nurses. Background: Nurses' work-related empowerment is the essential element to enhance nurses' quality of care. There are few studies about this area among critical care nurses. Methods: A cross-sectional design was used, and data were collected from critical care registered nurses (N = 480) from different health sectors. Results: The mean scores of work-related psychological empowerment and quality of nursing care were 5.22 (SD = 0.92) and 3.75 (SD = 0.62), respectively. The nurses had agreement level of psychological empowerment and very good level of quality of nursing care. There was a positive relationship between quality of nursing care and psychological empowerment. Conclusion: The need to enhance work psychological empowerment is necessary to improve quality of nursing care. Implication for Nursing Management: The results reflect the need for policy-makers and nursing managers to develop and implement strategies to promote psychological empowerment to provide high quality of nursing care among critical care nurses. © 2022 John Wiley & Sons Ltd.

Al-Akayleh, F., Khalid, R.M., Hawash, D., Al-Kaissi, E., Al-Adham, I.S.I., Al-Muhtaseb, N., Jaber, N., Al-Remawi, M., Collier, P.J.

Antimicrobial potential of natural deep eutectic solvents

(2022) *Letters in Applied Microbiology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129247403&doi=10.1111%2flam.13699&partnerID=40&md5=a0d63858e3ee0684b4562bef92f29251)

[85129247403&doi=10.1111%2flam.13699&partnerID=40&md5=a0d63858e3ee0684b4562bef92f29251](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129247403&doi=10.1111%2flam.13699&partnerID=40&md5=a0d63858e3ee0684b4562bef92f29251)

AFFILIATIONS: Faculty of Pharmacy & Medical Sciences, University of Petra, Amman, Jordan;

Department of Pharmaceutics, Baghdad College of Medical Sciences, Baghdad, Iraq;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Natural deep eutectic solvents (NADES) are a new class of green solvents, which can solubilize natural and synthetic chemicals of low water solubility. NADES are mixtures of two or three compounds of hydrogen bond acceptors and hydrogen bond donors. Many NADES' components are of natural origin and therefore, NADES are presumed to be nontoxic and often exhibit antimicrobial activity. This work aimed to investigate the potential antimicrobial effect of menthol, capric acid and Solutol™, and their associated eutectic system on two Gram-positive bacteria (*Staphylococcus aureus* ATCC 6538 and *Bacillus subtilis* ATCC 6633), two Gram-negative bacteria (*Escherichia coli* ATCC 8739 and *Pseudomonas aeruginosa* ATCC 9027) and one fungus (the yeast *Candida albicans* ATCC 10231). The results obtained showed a stronger antimicrobial effect for the NADES when compared to their individual components and that they exhibit a promising antimicrobial activity against *S. aureus* and *C. albicans* and good activity against *P. aeruginosa*. NADES exhibited no observable antimicrobial activity against spore-forming *B. subtilis*. © 2022 The Society for Applied Microbiology.

Abu-Huwaij, R., Al-Assaf, S.F., Hamed, R.

Recent exploration of nanoemulsions for drugs and cosmeceuticals delivery

(2022) *Journal of Cosmetic Dermatology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121800694&doi=10.1111%2fjocd.14704&partnerID=40&md5=6e122f1f1076eb4ecf96fec1a77ee367)

[85121800694&doi=10.1111%2fjocd.14704&partnerID=40&md5=6e122f1f1076eb4ecf96fec1a77ee367](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121800694&doi=10.1111%2fjocd.14704&partnerID=40&md5=6e122f1f1076eb4ecf96fec1a77ee367)

AFFILIATIONS: Pharmacological and Diagnostic Research Center, Faculty of Pharmacy, Al-Ahliyya Amman University, Al-Salt, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Nanoemulsions (NEs) have been explored as nanocarriers for the delivery of many drugs and cosmeceuticals. The extraordinary expansion of using NEs is due to their capability to conquer the main challenges of conventional delivery systems such as short residence time with low patient acceptance, poor stability, low aqueous solubility, permeability, and hence bioavailability. Methods: This review recapitulated the most recent pharmaceutical and cosmeceutical applications of NEs as effective delivery nanocarriers. The outputs of our research studies and the literature review

on the latest NEs applications were assessed to highlight the NEs components, preparations, applications, and the improved quality and elegance of the used product. Results: NEs are stable submicronic translucent dispersions with narrow droplet size distribution. They exhibited excellent ability to efficiently encapsulate therapeutics of diverse nature of drugs and cosmeceuticals. NE formulations showed superiority over conventional delivery approaches with overabundances of advantages through different routes of administration. This novel technology exhibited better aesthetic appeal, higher bioavailability, and a longer duration compared to the conventional delivery systems. Conclusion: This novel technology holds promise for different therapeutics fields. However, the success of NEs use advocated the development of robust formulations, proper choice of equipment, ample process characterization, and assurance of their efficacy, stability, safety and cosmetic appeal. © 2021 Wiley Periodicals LLC.

Ayasrah, S., Ahmad, M., Basheti, I., Abu-Snieneh, H.M., Al-Hamdan, Z.

Post-stroke Anxiety Among Patients in Jordan: A Multihospital Study

(2022) Journal of Geriatric Psychiatry and Neurology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121704738&doi=10.1177%2f08919887211060015&partnerID=40&md5=55d47528dbe155db72bf4b964318e22>

AFFILIATIONS: Al Balqa Applied University, Al-Salt, Jordan;

University of Jordan, Amman, Jordan;

Applied Science Private University, Amman, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: This study aimed to assess the prevalence, correlates, and significant associated factors of anxiety among patients with stroke. A cross-sectional, correlation design was utilized. The Hospital Anxiety and Depression scale was used to detect and assess the severity of anxiety and depression among mentally well patients at general hospital settings. Among the 226 patients with stroke, 45.6% had clinically significant levels of anxiety to be considered as a definite case. Having a short duration since the stroke onset, being a definite case of depression, being unable to perform self-care activities, having an insufficient monthly income, and having visual problems due to stroke were the significantly associated factors. The high prevalence of anxiety among patients with stroke highlights the need for interventions of early detection and management to enhance recovery. Patients who have any of the significant traits predicted post-stroke anxiety required special attention. © The Author(s) 2021.

Al-Adham, I.S.I., Jaber, N., Al-Remawi, M., Al-Akayleh, F., Al-Kaissi, E., Ali Agha, A.S.A., Fitzsimmons, L.B., Collier, P.J.

A review of the antimicrobial activity of thermodynamically stable microemulsions

(2022) Letters in Applied Microbiology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117223655&doi=10.1111%2flam.13570&partnerID=40&md5=d9bf0a2a89d9fad1e9e04172724adc99>

AFFILIATIONS: Faculty of Pharmacy & Medical Sciences, University of Petra, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Science & Engineering, Abertay University, Dundee, United Kingdom

ABSTRACT: Microemulsions are thermodynamically stable, transparent, isotropic mixtures of oil, water and surfactant (and sometimes a co-surfactant), which have shown potential for widespread application in disinfection and self-preservation. This is thought to be due to an innate antimicrobial effect. It is suggested that the antimicrobial nature of microemulsions is the result of a combination of their inherent kinetic energy and their containing surfactants, which are known to aid the disruption of bacterial membranes. This review examines the contemporary evidence in support of this theory. © 2021 The Society for Applied Microbiology.

Zakaria, Z.Z., Mahmoud, N.N., Benslimane, F.M., Yalcin, H.C., Al Moustafa, A.-E., Al-Asmakh, M.

Developmental Toxicity of Surface-Modified Gold Nanorods in the Zebrafish Model

(2022) ACS Omega, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136701884&doi=10.1021%2facomega.2c01313&partnerID=40&md5=752d999361ee2b3c618350702a56ad8f>

AFFILIATIONS: Department of Biomedical Sciences, College of Health Sciences, Qu Health, Qatar

University, Doha, 122104, Qatar;

Biomedical Research Center, Qatar University, PO Box 2713, Doha, 122104, Qatar;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Medicine, Qu Health, Qatar University, PO Box 2713, Doha, 122104, Qatar

ABSTRACT: Background: nanotechnology is one of the fastest-growing areas, and it is expected to have a substantial economic and social impact in the upcoming years. Gold particles (AuNPs) offer an opportunity for wide-ranging applications in diverse fields such as biomedicine, catalysis, and electronics, making them the focus of great attention and in parallel necessitating a thorough

evaluation of their risk for humans and ecosystems. Accordingly, this study aims to evaluate the acute and developmental toxicity of surface-modified gold nanorods (AuNRs), on zebrafish (*Danio rerio*) early life stages. Methods: in this study, zebrafish embryos were exposed to surface-modified AuNRs at concentrations ranging from 1 to 20 $\mu\text{g}/\text{mL}$. Lethality and developmental endpoints such as hatching, tail flicking, and developmental delays were assessed until 96 h post-fertilization (hpf). Results: we found that AuNR treatment decreases the survival rate in embryos in a dose-dependent manner. Our data showed that AuNRs caused mortality with a calculated LC50 of EC50,24hpf of AuNRs being 9.1 $\mu\text{g}/\text{mL}$, while a higher concentration of AuNRs was revealed to elicit developmental abnormalities. Moreover, exposure to high concentrations of the nanorods significantly decreased locomotion compared to untreated embryos and caused a decrease in all tested parameters for cardiac output and blood flow analyses, leading to significantly elevated expression levels of cardiac failure markers ANP/NPPA and BNP/NPPB. Conclusions: our results revealed that AuNR treatment at the EC50 induces apoptosis significantly through the P53, BAX/BCL-2, and CASPASE pathways as a suggested mechanism of action and toxicity modality. © 2022 American Chemical Society.

Sweidan, K., Elfadel, H., Sabbah, D.A., Bardaweel, S.K., Hajjo, R., Anjum, S., Sinoj, J., Nair, V.A., Abu-Gharbieh, E., El-Huneidi, W.

Novel Derivatives of 4,6-Dihydroxy-2-Quinolone-3-Carboxamides as Potential PI3K α Inhibitors (2022) ChemistrySelect, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137107585&doi=10.1002%2fslct.202202263&partnerID=40&md5=b4f70de5d8f5752da43c6ae00ffbb0)

[85137107585&doi=10.1002%2fslct.202202263&partnerID=40&md5=b4f70de5d8f5752da43c6ae00ffbb0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137107585&doi=10.1002%2fslct.202202263&partnerID=40&md5=b4f70de5d8f5752da43c6ae00ffbb0)

AFFILIATIONS: Department of Chemistry, Institution The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Institution Al-Zaytoonah University of Jordan P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, Institution The University of Jordan, Amman, 11942, Jordan;

Sharjah Institute for Medical Research, Institution University of Sharjah, Sharjah, 27272, United Arab Emirates;

College of Medicine, Institution University of Sharjah, Sharjah, 27272, United Arab Emirates

ABSTRACT: The phosphatidylinositol 3-kinase/protein kinase B (PI3K/AKT) pathway is a crucial pathway in cancer pathogenesis. Novel derivatives of 4,6-dihydroxy-2-quinolone-3-carboxamides were synthesized as potential PI3K α inhibitors. Derivatives' chemical identity was approved using ¹H-NMR, ¹³C-NMR, FTIR, and MS. Cytotoxicity was evaluated on the breast (MCF-7) and colon cancer (HCT-116) cell lines using the CCK8 assay. Apoptosis was assessed by Annexin-PI staining. Western blotting was employed to assess the expression of Bcl2, Bax, and the phosphorylation status of AKT. Data revealed that compounds exhibited a dose-response cytotoxic effect. Compounds 8 b and 8 f showed the lowest IC50 on all cell lines and highest apoptosis levels that were associated with lower Bcl2/Bax ratios. Western blot results showed a significant inhibition of pAKT in the treated cells, which could be attributed to PI3K α inhibitory effects of 8 b and 8 f. In conclusion, our findings indicate that 8 b and 8 f are drug-like chemical compounds that possess promising anticancer effects. © 2022 Wiley-VCH GmbH.

Mahmoud, L.A.M., Telford, R., Livesey, T.C., Katsikogianni, M., Kelly, A.L., Terry, L.R., Ting, V.P., Nayak, S.

Zirconium-Based MOFs and Their Biodegradable Polymer Composites for Controlled and Sustainable Delivery of Herbicides

(2022) ACS Applied Bio Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136316254&doi=10.1021%2facsabm.2c00499&partnerID=40&md5=89e013b25c75c1d5250362c85b83869a)

[85136316254&doi=10.1021%2facsabm.2c00499&partnerID=40&md5=89e013b25c75c1d5250362c85b83869a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136316254&doi=10.1021%2facsabm.2c00499&partnerID=40&md5=89e013b25c75c1d5250362c85b83869a)

AFFILIATIONS: School of Chemistry and Biosciences, University of Bradford, Bradford, BD7 1DP, United Kingdom;

School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Polymer IRC, Faculty of Engineering and Informatics, University of Bradford, Bradford, BD7 1DP, United Kingdom;

Bristol Composites Institute, Department of Mechanical Engineering, University of Bristol, Bristol, BS8 1TR, United Kingdom

ABSTRACT: Adsorption and controlled release of agrochemicals has been studied widely using different nanomaterials and a variety of formulations. However, the potential for application of high surface-area metal-organic frameworks (MOFs) for the controlled release of agrochemicals has not been thoroughly explored. Herein, we report controlled and sustainable release of a widely used herbicide (2-methyl-4-chlorophenoxyacetic acid, MCPA) via incorporation in a range of zirconium-based MOFs and their biodegradable polymer composites. Three Zr-based MOFs, viz., UiO-66, UiO-66-NH₂, and UiO-67 were loaded with MCPA either postsynthetically or in situ during synthesis of the MOFs. The MCPA-loaded MOFs were then incorporated into a biodegradable polycaprolactone (PCL) composite membrane. All three MOFs and their PCL composites were thoroughly characterized using FT-IR, TGA, SEM, PXRD,

BET, and mass spectrometry. Release of MCPA from each of these MOFs and their PCL composites was then studied in both distilled water and in ethanol for up to 72 h using HPLC. The best performance for MCPA release was observed for the postsynthetically loaded MOFs, with PS-MCPA@UiO-66-NH₂ showing the highest MCPA concentrations in ethanol and water of 0.056 and 0.037 mg/mL, respectively. Enhanced release of MCPA was observed in distilled water when the MOFs were incorporated in PCL. The concentrations of herbicides in the release studies provide us with a range of inhibitory concentrations that can be utilized depending on the crop, making this class of composite materials a promising new route for future agricultural applications. © 2022 The Authors. Published by American Chemical Society.

Batran, A., Al-Humran, S.M., Malak, M.Z., Ayed, A.

The Relationship between Nursing Informatics Competency and Clinical Decision-Making among Nurses in West Bank, Palestine

(2022) CIN - Computers Informatics Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135600328&doi=10.1097%2fcin.0000000000000890&partnerID=40&md5=8e2fa98aeef65fa291c5da676b4d378)

[85135600328&doi=10.1097%2fcin.0000000000000890&partnerID=40&md5=8e2fa98aeef65fa291c5da676b4d378](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135600328&doi=10.1097%2fcin.0000000000000890&partnerID=40&md5=8e2fa98aeef65fa291c5da676b4d378)

AFFILIATIONS: Pediatric Health Nursing, Faculty of Nursing, Faculty of Allied Medical Sciences,

Department of Nursing, Palestine Ahliya University, Palestine;

Pediatric Health Nursing, Faculty of Nursing, Palestine;

Deanship of Admission and Registration, Arab American University, Jenin, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, PO Box 130, Amman, 11733, Jordan

ABSTRACT: This study aimed to examine the relationship between nursing informatics competencies and clinical decision-making by taking into account nurses' individual characteristics and job-related characteristics. A cross-sectional design was used. The cluster random sampling method was adopted to select 14 governmental hospitals in West Bank, Palestine, in which all nurses in these hospitals were invited to participate in this study. Results found that the total mean (SD) score for the nursing informatics competency scale was 2.6 (0.88), which indicates that the nurses had lower nursing informatics competency, and the informatics skills subscale had the lowest mean score (mean [SD], 2.4 [1.00]). Concerning clinical decision-making, the total mean (SD) score was 2.59 (0.38), which indicates that the nurses had lower clinical decision-making. Regarding clinical decision-making subscales, searching for information and unbiased assimilation of new information had the highest mean score (mean [SD], 2.64 [0.39]); on the contrary, the canvassing of objectives and values subscale had the lowest mean score (mean [SD], 2.53 [0.38]). Nursing informatics competency had a positive relationship with clinical decision-making. Thus, it is necessary to enhance nurses' informatics competency, especially informatics skills and clinical decision-making, by developing training programs about this technology directed to nurses. © 2021 Lippincott Williams & Wilkins.

Dababneh, A., Djenina, N., Ouannas, A., Grassi, G., Batiha, I.M., Jebril, I.H.

A New Incommensurate Fractional-Order Discrete COVID-19 Model with Vaccinated Individuals Compartment (2022) Fractal and Fractional, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136723482&doi=10.3390%2ffractalfract6080456&partnerID=40&md5=7379208931bd826c494ff8662cdc4fa4)

[85136723482&doi=10.3390%2ffractalfract6080456&partnerID=40&md5=7379208931bd826c494ff8662cdc4fa4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136723482&doi=10.3390%2ffractalfract6080456&partnerID=40&md5=7379208931bd826c494ff8662cdc4fa4)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Laboratory of Dynamical Systems and Control, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, 04000, Algeria;

Dipartimento Ingegneria Innovazione, Universita del Salento, Lecce, 73100, Italy;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: Fractional-order systems have proved to be accurate in describing the spread of the COVID-19 pandemic by virtue of their capability to include the memory effects into the system dynamics. This manuscript presents a novel fractional discrete-time COVID-19 model that includes the number of vaccinated individuals as an additional state variable in the system equations. The paper shows that the proposed compartment model, described by difference equations, has two fixed points, i.e., a disease-free fixed point and an epidemic fixed point. A new theorem is proven which highlights that the pandemic disappears when an inequality involving the percentage of the population in quarantine is satisfied. Finally, numerical simulations are carried out to show that the proposed incommensurate fractional-order model is effective in describing the spread of the COVID-19 pandemic. © 2022 by the authors.

Abu Helal, A.-R.

A puzzle related to superlative modification in definite relative clauses in Jordanian Arabic

(2022) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136563742&doi=10.1016%2fj.heliyon.2022.e10115&partnerID=40&md5=eeaf569dc5f42cd8f3fec33bb4f1973)

[85136563742&doi=10.1016%2fj.heliyon.2022.e10115&partnerID=40&md5=eeaf569dc5f42cd8f3fec33bb4f1973](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136563742&doi=10.1016%2fj.heliyon.2022.e10115&partnerID=40&md5=eeaf569dc5f42cd8f3fec33bb4f1973)

AFFILIATIONS: College of Arts, Department of English Language and Literature, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman11733, Jordan

ABSTRACT: This paper addresses a puzzle involving two modes of superlative modification in definite relatives in Jordanian Arabic: the so-called (A)tributive and (G)enitive superlatives. We show that under the low interpretation of the definite relative clause, both modes of superlative modification exhibit an asymmetrical behavior: while the A-superlative is ambiguous between the absolute and relative readings, the relative reading is blocked in G-superlatives. To resolve the puzzle, we propose a compositional analysis based on the late merger of the definite relative which generates the absolute/relative ambiguity in A-superlatives and at the same time it blocks the relative reading in G-superlatives. © 2022 The Author(s)

Bani Khaled, M., Qandil, A., Abdallatif, N., Beithou, N., Alsaqoor, S., Alahmer, A., Aybar, H.S., Andruszkiewicz, A.

Heating and cooling device for motorhomes and caravans

(2022) International Journal of Thermofluids, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135803602&doi=10.1016%2fj.ijft.2022.100193&partnerID=40&md5=18d192302a30fe6ab2e3795ca96852c3)

[85135803602&doi=10.1016%2fj.ijft.2022.100193&partnerID=40&md5=18d192302a30fe6ab2e3795ca96852c3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135803602&doi=10.1016%2fj.ijft.2022.100193&partnerID=40&md5=18d192302a30fe6ab2e3795ca96852c3)

AFFILIATIONS: Engineering Faculty, Applied Science Private University, P.O. Box 166Amman 11931, Jordan;

Mechanical Engineering Department, Al Zaytoonah University of Jordan, Amman, Jordan;

Department of Mechanical Engineering, Tafila Technical University, P. O. Box 179, Tafila, 66110, Jordan;

Department of Industrial and Systems Engineering, Auburn University, Auburn, AL 36849, United States;

China Medical University, China;

Faculty of Electrical and Electronics Engineering, Ton Duc Thang University, Ho Chi Minh City, Viet Nam;

Department of Thermal Science, Wrocław University of Science and Technology, Wybrzeże Wyspiańskiego 27, Wrocław, 50-370, Poland

ABSTRACT: Disasters, extreme weather conditions and rural recreation makes the availability of a portable heating and cooling device as a must. There are many devices that work on the heating and power generation in the market. The air-conditioner which works on the heat pump principle is well known. Harsh weather conditions, natural disasters and recreation in rural areas (deserts and mountains) requires the availability of a heating and cooling device that works on well available fuel and has a low fuel consumption rate. Such a device will help in saving lives and encourage rural tourism. In this paper, a heating and cooling device is proposed for rural places, harsh weather conditions and natural disasters where no electricity is available. The device is working on the principle of heat pump (HP) to optimize its performance. The source of energy selected for this device is fossil fuels; fossil fuel is used for its convenience where no electricity is available. Low vibration low noise Stirling Engine (SE) is used to drive the heat pump that produces heating/cooling effects. Analysis of the proposed device is performed for each of its components. The results attained from analysis coincide with the results in literature. An electricity free, low vibration, silent and improved performance CHC device was attained. With suitable selected sub-devices an OHR of 2.429 was achieved by the proposed device compared to currently available devices. © 2022

Alsmadi, A.A., Al-Gasaymeh, A., Alrawashdeh, N.

Purchasing Power Parity: A Bibliometric approach for the period of 1935-2021

(2022) Quality - Access to Success, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135576322&doi=10.47750%2fQAS%2f23.189.30&partnerID=40&md5=73666798ea079a7d0e8f798e82f9469b)

[85135576322&doi=10.47750%2fQAS%2f23.189.30&partnerID=40&md5=73666798ea079a7d0e8f798e82f9469b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135576322&doi=10.47750%2fQAS%2f23.189.30&partnerID=40&md5=73666798ea079a7d0e8f798e82f9469b)

AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan;

Applied Science University, Jordan;

Isra University, Jordan

ABSTRACT: The aim of this study is to declare the most published articles on PPP by authors, countries, institutions and Journals in Scopus database using RStudio, VOSviewer, and advanced Excel software packages to formulate the analysis. The results show that, 1003 authors have published articles on PPP with 775 papers up to 2021. Where, Rogoff (1996) and Pedroni (2001) received the highest cited papers with 1378 and 918, respectively. While, the most countries tested the validity of PPP is the United State with 248 documents and Applied Economics Letters Journal was the most sources for PPP with 86 papers. © 2022, SRAC - Romanian Society for Quality. All rights reserved.

Silbermann, M., Calimag, M.M., Eisenberg, E., Futerman, B., Fernandez-Ortega, P., Oliver, A., Yaeger Monje, J.P., Guo, P., Charalambous, H., Nestoros, S., Pozo, X., Bhattacharyya, G., Katz, G.J., Tralongo, P., Fujisawa, D., Kunirova, G., Punjwani, R., Ayyash, H., Ghayeb, I., Manasrah, N., Bautista, M.J.S., Kotinska-Lemieszek, A., De Simone, G., Cerutti, J., Gafer, N., Can, G., Terzioglu, F., Kebudi, R., Tuncel-Oguz, G., Aydin, A., Ozalp Şenel, G., Mwaka, A.D., Youssef, A., Brant, J., Alvarez, G.P., Weru, J., Rudilla, D., Fahmi, R., Hablas, M., Rassouli, M., Mula-Hussain, L., Faraj, S., Al-Hadad, S., Al-Jadiry, M., Ghali, H., Fadhil, S.A., Abu-Sharour, L., Omran, S., Al-Qadire, M., Hassan, A., Khader, K., Alalfi, N., Ahmed, G., Galiana, L., Sansó, N., Abe, A., Vidal-Blanco, G., Rochina, A.

Evaluating Pain Management Practices for Cancer Patients among Health Professionals: A Global Survey (2022) *Journal of Palliative Medicine*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135392277&doi=10.1089%2Fjpm.2021.0596&partnerID=40&md5=b259aaa8d75d168ccd64ed66944eb5ab)

[85135392277&doi=10.1089%2Fjpm.2021.0596&partnerID=40&md5=b259aaa8d75d168ccd64ed66944eb5ab](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135392277&doi=10.1089%2Fjpm.2021.0596&partnerID=40&md5=b259aaa8d75d168ccd64ed66944eb5ab)

AFFILIATIONS: Middle East Cancer Consortium, Haifa, Israel;

Faculty of Medicine and Surgery, University of Santo Tomas, Manila, Philippines;

Bruce and Ruth Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel;

Department Salut Pública, Catalan Institute of Oncology, Barcelona, Spain;

Department of Methodology for the Behavioral Sciences, University of Valencia, Valencia, Spain;

Palliative Care Unit, Gustavo Fricke Hospital, Santiago, de Chile, Chile;

Cecily Saunders Institute of Pediatric Care, King's College, London, United Kingdom;

Department of Medical Oncology, Bank of Cyprus Oncology Center, Nicosia, Cyprus;

BOC Oncology Centre Nicosia, Nicosia, Cyprus;

Pontifical Catholic University of Ecuador, Faculty of Medicine, Quito, Ecuador;

Department of Medical Oncology, Chittaranjan National Cancer Institute, Kolkata, India;

Department of Information and Control, Sabar Health, Haifa, Israel;

Department of Medical Oncology, Umberto I Hospital - RAO, Sicily, Siracuse, Italy;

Department of Neuropsychiatry and Palliative Care, Keio University School of Medicine, Tokyo, Japan;

Kazakhstan Palliative Care Association, Almaty, Kazakhstan;

Indus Research Centre, Indus Hospital and Health Network, Karachi, Pakistan;

Department of Clinical Hemato-Oncology, European Gaza Hospital, Gaza, Khan Yunis, Palestine;

Intensive Care Unit, Makassed Islamic Charitable Hospital, East Jerusalem, Palestine;

Faculty of Nursing, Hebron University, West Bank, Palestinian Authority, Hebron, Palestine;

Department of Palliative Medicine, Poznan University of Medical Sciences, Poznan, Poland;

Department of Palliative Care, Bonorino Udaondo Public Hospital, Buenos Aires, Argentina;

Department of Pediatric Oncology, Child Cancer Institute, Porto Alegre, Brazil;

Department of Palliative Care, Radiation and Isotope Center, Khartoum, Sudan;

Florence Nightingale Faculty of Nursing, Istanbul University, Cerrahpasa, Istanbul, Turkey;

Faculty of Health Science, Kocaeli University of Health Sciences, Turkey;

Cerrahpasa Medical Faculty, Istanbul University Oncology Institute, Istanbul, Turkey;

Dr. AY Ankara Oncology Education and Research Hospital, Ankara, Turkey;

Faculty of Nursing, Koç University, Istanbul, Turkey;

College of Health Sciences, Makerere University, Kampala, Uganda;

Queens College, University of Oxford, Oxford, United Kingdom;

Billings Clinic Collaborative Science and Innovation, Billings, MT, United States;

Public Health Services in Primary Care, Montevideo Metropolitan Area, Uruguay;

Department of Palliative Medicine, Aga Khan University Hospital, Nairobi, Kenya;

Pulmonology Service, La Princesa University Hospital and Air Liquide Healthcare, Madrid, Spain;

Department of Clinical Oncology, El-Salam Oncology Center Cairo, Cairo, Egypt;

Gharbia Cancer Society, Tanta, Egypt;

Cancer Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran;

Sultan Qaboos Comprehensive Cancer Care and Research Center, Muscat, Oman;

Department of Pediatric Oncology, Children Welfare Teaching Hospital, Medical City, Baghdad, Iraq;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Adult Health, Jordan University of Science and Technology, Irbid, Jordan;

Al-Bayt University, Mafraq, Jordan;

Department of Palliative Medicine, National Center for Cancer Care and Research, Doha, Qatar;

Department of Nursing and Midwifery, Taif University, Taif, Saudi Arabia;

University of Sulaimani, Kurdistan, Sulaimani, Iraq;

Department of Psycho-Oncology, National Cancer Center, Aden, Yemen;

Department of Nursing and Physiotherapy, University of the Balearic Islands, Palma, de Mallorca, Spain;

Spain;

Department of Nursing, University of Valencia, Valencia, Spain;

Hospital Padre Jofre, Valencia, Spain;

Sultan Qaboos University, Muscat, Oman

ABSTRACT: Background: Cancer incidence in the world is predicted to increase in the next decade.

While progress has been in diagnosis and treatment, much still remains to be done to improve cancer pain therapy, mainly in underserved communities in low-income countries. Objective: To determine knowledge, beliefs, and barriers regarding pain management in both high- and low-income countries (according to the WHO classification); and to learn about ways to improve the current state of affairs. Design: Descriptive survey. Setting/Subjects: Fifty-six countries worldwide; convenience sample of 1639 consisted of 36.8% physicians; 45.1% nurses, and 4.5% pharmacists employed in varied settings. Results: Improved pain management services are key elements. Top barriers include religion factors, lack of appropriate education and training at all levels, nonadherence to guidelines, patients' reluctance to report on pains, over regulation associated with prescribing and access to opioid analgesics, fear of addiction to opioids, and lack of discussions around prognosis and treatment planning. Conclusion: The majority of patients with cancer in low-income countries are undertreated for their pain. Promoting cancer pain accredited program of training and education on pain management for physicians and nurses is crucial, as well as advocating policymakers and the public at large. © Copyright 2022, Mary Ann Liebert, Inc.

Aiyappa-Maudsley, R., Elsalem, L., Ibrahim, A.I.M., Pors, K., Martin, S.G.

In vitro radiosensitization of breast cancer with hypoxia-activated prodrugs

(2022) Journal of Cellular and Molecular Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134195502&doi=10.1111%2fjcm.17486&partnerID=40&md5=47885a61b959b3e891dbb428f95d9a37)

[85134195502&doi=10.1111%2fjcm.17486&partnerID=40&md5=47885a61b959b3e891dbb428f95d9a37](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134195502&doi=10.1111%2fjcm.17486&partnerID=40&md5=47885a61b959b3e891dbb428f95d9a37)

AFFILIATIONS: Nottingham Breast Cancer Research Centre, Biodiscovery Institute, School of Medicine, University of Nottingham, University Park, Nottingham, United Kingdom;

Institute of Cancer Therapeutics, Faculty of Life Sciences, University of Bradford, Bradford, United Kingdom;

Department of Molecular and Clinical Cancer Medicine, University of Liverpool, William Henry Duncan Building, Liverpool, United Kingdom;

Jordan University of Science and Technology, Faculty of Medicine, Department of Pharmacology, Irbid, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: KP167 is a novel hypoxia-activated prodrug (HAP), targeting cancer cells via DNA intercalating and alkylating properties. The single agent and radiosensitizing efficacy of KP167 and its parental comparator, AQ4N, were evaluated in 2D and 3D cultures of luminal and triple negative breast cancer (TNBC) cell lines and compared against DNA damage repair inhibitors. 2D normoxic treatment with the DNA repair inhibitors, Olaparib or KU-55933 caused, as expected, substantial radiosensitization (sensitizer enhancement ratio, SER_{0.01} of 1.60–3.42). KP167 induced greater radiosensitization in TNBC (SER_{0.01} 2.53 in MDAMB-231, 2.28 in MDAMB-468, 4.55 in MDAMB-436) and luminal spheroids (SER_{0.01} 1.46 in MCF-7 and 1.76 in T47D cells) compared with AQ4N. Significant radiosensitization was also obtained using KP167 and AQ4N in 2D normoxia. Although hypoxia induced radioresistance, radiosensitization by KP167 was still greater under 2D hypoxia, yielding SER_{0.01} of 1.56–2.37 compared with AQ4N SER_{0.01} of 1.13–1.94. Such data show KP167 as a promising single agent and potent radiosensitizer of both normoxic and hypoxic breast cancer cells, with greater efficacy in TNBCs. © 2022 The Authors. Journal of Cellular and Molecular Medicine published by Foundation for Cellular and Molecular Medicine and John Wiley & Sons Ltd.

Bader, A., Santoro, V., Parisi, V., Malafronte, N., Al-Sheikh, I., Cacciola, A., Germanò, M.P., D'Angelo, V.

The anti-angiogenic effect of polyphenols from the roots of *Daphne mucronata* Royle subsp.

linearifolia (Hart) Halda (Thymelaeaceae)

(2022) European Journal of Integrative Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133186126&doi=10.1016%2fj.eujim.2022.102151&partnerID=40&md5=15f01733600c867cbfa5f7a65ff506ff)

[85133186126&doi=10.1016%2fj.eujim.2022.102151&partnerID=40&md5=15f01733600c867cbfa5f7a65ff506ff](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133186126&doi=10.1016%2fj.eujim.2022.102151&partnerID=40&md5=15f01733600c867cbfa5f7a65ff506ff)

AFFILIATIONS: Department of Pharmacognosy, Faculty of Pharmacy, Umm Al-Qura University, Makkah, 21955, Saudi Arabia;

Department of Pharmacy, University of Salerno, SA, Fisciano, Italy;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

“Antonio Imbesi” Foundation, University of Messina, Italy;

Department of Chemical, Biological Pharmaceutical, Environmental Sciences University of Messina, Italy

ABSTRACT: Introduction: The genus *Daphne* is an important source of anticancer constituents. In the present study, the Middle-Eastern medicinal plant, *Daphne mucronata* subsp. *Linearifolia*, was selected to evaluate its anti-angiogenic and antioxidant activities. Methods: Root extracts (n-hexane, chloroform "CHCl₃", chloroform/methanol "CHCl₃/MeOH", and methanol "MeOH") and isolated pure compounds were used to assess the effects on angiogenesis by using an in vivo chorioallantoic membrane (CAM) model. Reversed Phase High Performance Liquid Chromatography "RP-HPLC" analyses were performed on the most active extract to isolate potential anti-angiogenic compounds. The antioxidant

activity was evaluated by 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical assay and by measuring the reducing power with a Folin-Ciocalteu reagent. Results: In the CAM model, the CHCl₃/MeOH extract (100 µg/egg) exhibited a good anti-angiogenic response (37.4% of inhibition) compared with the control group ($p < 0.01$). Chromatographic separation of the bioactive extract provided four lignans, the phenylpropanoid glycoside syringin, and two biflavonoids. Syringin and daphnodorin B showed the best anti-angiogenic response on the CAM, inducing a marked reduction of the microvasculature (55.75% and 46.77% of inhibition at 20 µM) and a decrease of haemoglobin content. Additionally, syringin, pinoresinol 4-O-β-D-glucopyranoside, daphnodorin B, lariciresinol 4,4'-bis-O-β-D-glucopyranoside, and genkwanol A revealed a strong antioxidant activity against DPPH radical (IC₅₀ 0.11-0.55 mM) and a good reducing power (2.08-5.32 GAEs). Conclusion: The bio-guided isolation of *D. mucronata* root CHCl₃/MeOH extract afforded anti-angiogenic and antioxidant compounds with a potential beneficial role against dangerous and reactive species that were involved in many oxidative stress-related diseases. © 2022

Olimat, A.N., Ismail, M., Abu Shaban, N., Al-Salaymeh, A.

The effectiveness of the heat transfer fluid pipe orientation angle inside a latent heat thermal energy storage system

(2022) Case Studies in Thermal Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132763002&doi=10.1016%2fj.csite.2022.102174&partnerID=40&md5=2432db0efe215d0f734eded1115e4229)

85132763002&doi=10.1016%2fj.csite.2022.102174&partnerID=40&md5=2432db0efe215d0f734eded1115e4229

AFFILIATIONS: Department of Mechanical Engineering, Faculty of Engineering Technology, Al-Balqa Applied University, Jordan;

Department of Renewable Energy Engineering, Amman Arab University, Amman, Jordan;

Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Jordan;

Department of Mechanical Engineering, University of Jordan, Amman, Jordan

ABSTRACT: Latent heat thermal energy storage systems exhibit a significant performance over other thermal energy storage systems. The performance of these particular systems during melting/solidification is influenced by their orientation. Therefore, a numerical investigation and experimental validation were conducted. ANSYS Fluent 18.1 is used to develop a numerical model to investigate the effects of the pipe's orientation angle. Parametric analysis of various pipe orientation angles (0°, 30°, 60°, 90°) and various oil inlet temperatures were conducted during the investigation. It was determined that the melting time and absorbed heat flux when the inlet temperature increased from 493 K to 523 K is reduced by 42% and increases by 59%, respectively. Furthermore, the solidification time decreases by 63% when the inlet temperature is reduced from 444 K to 413 K. Increasing the orientation angle of the pipe results in a reduction in the melt fraction by 16.5% as the orientation angle is increased from 0° to 90°. In addition, the orientation angle has a significant effect during the melting, which is influenced by increasing the orientation angle from 0° to 90° by 18.2%. Conversely, the orientation angle has no impact on solid fraction during solidification. © 2022 The Author(s).

Awadallah, M.A., Al-Betar, M.A., Braik, M.S., Hammouri, A.I., Doush, I.A., Zitar, R.A.

An enhanced binary Rat Swarm Optimizer based on local-best concepts of PSO and collaborative crossover operators for feature selection

(2022) Computers in Biology and Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131412925&doi=10.1016%2fj.combiomed.2022.105675&partnerID=40&md5=ae166d694cb2cb920bee9521ed5cd8f7)

85131412925&doi=10.1016%2fj.combiomed.2022.105675&partnerID=40&md5=ae166d694cb2cb920bee9521ed5cd8f7

AFFILIATIONS: Department of Computer Science, Al-Aqsa University, P.O. Box 4051, Gaza, Palestine;

Artificial Intelligence Research Center (AIRC), Ajman University, Ajman, United Arab Emirates;

Artificial Intelligence Research Center (AIRC), College of Engineering and Information Technology, Ajman University, Ajman, United Arab Emirates;

Department of Information Technology, Al-Huson University College, Al-Balqa Applied University, Al-Huson, Irbid, Jordan;

Department of Computer Science, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Jordan;

Department of Computing, College of Engineering and Applied Sciences, American University of Kuwait, Salmiya, Kuwait;

Computer Science Department, Yarmouk University, Irbid, Jordan;

Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, United Arab Emirates

ABSTRACT: In this paper, an enhanced binary version of the Rat Swarm Optimizer (RSO) is proposed to deal with Feature Selection (FS) problems. FS is an important data reduction step in data mining which finds the most representative features from the entire data. Many FS-based swarm intelligence algorithms have been used to tackle FS. However, the door is still open for further investigations since no FS method gives cutting-edge results for all cases. In this paper, a recent swarm intelligence metaheuristic method called RSO which is inspired by the social and hunting behavior of

a group of rats is enhanced and explored for FS problems. The binary enhanced RSO is built based on three successive modifications: i) an S-shape transfer function is used to develop binary RSO algorithms; ii) the local search paradigm of particle swarm optimization is used with the iterative loop of RSO to boost its local exploitation; iii) three crossover mechanisms are used and controlled by a switch probability to improve the diversity. Based on these enhancements, three versions of RSO are produced, referred to as Binary RSO (BRSO), Binary Enhanced RSO (BERSO), and Binary Enhanced RSO with Crossover operators (BERSOC). To assess the performance of these versions, a benchmark of 24 datasets from various domains is used. The proposed methods are assessed concerning the fitness value, number of selected features, classification accuracy, specificity, sensitivity, and computational time. The best performance is achieved by BERSOC followed by BERSO and then BRSO. These proposed versions are comparatively assessed against 25 well-regarded metaheuristic methods and five filter-based approaches. The obtained results underline their superiority by producing new best results for some datasets. © 2022 Elsevier Ltd

Bazlamit, S.M., Reza, F., Ahmad, H.S.

Thermal changes in concrete pavement skid resistance

(2022) Proceedings of the Institution of Civil Engineers: Transport, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119522703&doi=10.1680%2fjtran.19.00036&partnerID=40&md5=a4f8139c8c167e2d3aa27116a48d3f2b)

[85119522703&doi=10.1680%2fjtran.19.00036&partnerID=40&md5=a4f8139c8c167e2d3aa27116a48d3f2b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119522703&doi=10.1680%2fjtran.19.00036&partnerID=40&md5=a4f8139c8c167e2d3aa27116a48d3f2b)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mechanical and Civil Engineering, Minnesota State University, Mankato, MN, United States

ABSTRACT: Concrete pavements comprise a considerable portion of pavements that are currently in use. This paper presents the results from a laboratory investigation on the effect of temperature and surface texture on the skid resistance of concrete pavements. Briquettes representative of concrete pavements were created and textured in the laboratory. Readings of skid resistance on laboratory specimens were obtained using a portable British pendulum tester. Water and liquid hand soaps were used as lubricants in an attempt to separate the adhesion and hysteresis components of friction. In order to simulate the wear and ageing of concrete pavements, several cycles of polishing were applied to the briquettes. Tests were conducted at five different temperatures. The results showed that there is a correlation between the magnitude of friction components and temperature. A normalisation procedure for friction measurements based on temperature was developed, which can be used to normalise measurements to a standard temperature of 293.15 K. © 2019 ICE Publishing: All rights reserved.

Al-Ghabeesh, S.H., Mahmoud, M.M.

Mindfulness and its Positive Effect on Quality of Life among Chronic Burn Survivors: A descriptive Correlational Study

(2022) Burns, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117686794&doi=10.1016%2fj.burns.2021.09.022&partnerID=40&md5=381e2d56ecba890df5c6d369301b13d6)

[85117686794&doi=10.1016%2fj.burns.2021.09.022&partnerID=40&md5=381e2d56ecba890df5c6d369301b13d6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117686794&doi=10.1016%2fj.burns.2021.09.022&partnerID=40&md5=381e2d56ecba890df5c6d369301b13d6)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Nursing, Airport Street, Amman, Jordan; Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Burns are a global public health phenomenon accounting for 180,000 deaths yearly. Burn wounds were considered among the most devastating injuries worldwide and is the fourth most common type of injury globally. It is also negatively associated with the quality of life of those patients. Improving the quality of life and mindfulness could be helpful in those survivors after burn injury to deal with others. Based on the findings of the study, there remains limited knowledge about the unique role of mindfulness in improving the quality of life of burn survivors. Therefore, this study aims to identify the role of mindfulness in improving the QOL of Jordanian burn survivors. Methods: A descriptive correlational design was used to answer the research questions. A convenience sample of 212 participants took part in the study. Participants completed measures regarding the quality of life and mindfulness. Results: Some demographic and clinical variables were associated with quality of life. The burn-related QOL was significantly and positively correlated with mindfulness ($r = .294$, $p < 0.01$). Mindfulness explained a distinctive variance in burn-related quality of life among the study participants. Conclusion: This study identified the role of various factors in the burn-related quality of life among burn survivors. Mindfulness could have an important role in improving the burn-related quality of life among burn survivors. © 2021 Elsevier Ltd and ISBI

Al-Hussami, M., El-Hneiti, M., Salameh, A.B., Sharour, L.A., Al-Hussami, R.

Knowledge, Attitudes, and Behavior Toward COVID-19 Among Jordanian Residents During the Quarantine Period of the COVID-19 Pandemic: A National Survey

(2022) Disaster Medicine and Public Health Preparedness, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85101491648&doi=10.1017%2fdmp.2021.34&partnerID=40&md5=2bd702cd40f220efe7244f24b1d14611

AFFILIATIONS: The University of Jordan, School of Nursing, Amman, Jordan;

College of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

The University of Jordan, School of Medicine, Amman, Jordan

ABSTRACT: Objectives: Coronavirus disease 2019 (COVID-19) is a communicable disease transmitted via respiratory droplet from 1 person to another caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This study aims to investigate the knowledge, attitudes, and practice of Jordanian people toward COVID-19 during the COVID-19 pandemic. In addition, the paper explores the lack of perception and adherence to preventive measures toward COVID-19. Methods: A quantitative, cross-sectional, descriptive online survey was used to explore study variables. A convenience sample of individual who are of Jordanian nationality, were aged 18 years or older, understood the content of the questionnaire, and agreed to participate voluntarily was surveyed. Results: The average correct score of COVID-19 knowledge was 84.44% (12.66/15). In addition, knowledge scores significantly differed across demographic characteristics of participants. Moreover, 93.8% (1009) of the study sample had confidence that Jordan can win the battle against the COVID-19 virus. However, study participants acknowledged that they did not visit crowded places in recent days (91.6%), while 71.3% (767) wore masks when leaving home. Conclusions: The current study added a new knowledge that generally the Jordanian people during the quarantine period have a high knowledge and optimistic attitudes and practices toward COVID-19. © Society for Disaster Medicine and Public Health, Inc. 2021.

Abu Sharour, L., Bani Salameh, A., Suleiman, K., Subih, M., EL-Hneiti, M., AL-Hussami, M., Al Dameery, K., Al Omari, O.

Nurses' Self-Efficacy, Confidence and Interaction With Patients With COVID-19: A Cross-Sectional Study

(2022) Disaster Medicine and Public Health Preparedness, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098961425&doi=10.1017%2fdmp.2021.1&partnerID=40&md5=afcf217ca5e40bd048d89e8d360308b3)

[85098961425&doi=10.1017%2fdmp.2021.1&partnerID=40&md5=afcf217ca5e40bd048d89e8d360308b3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098961425&doi=10.1017%2fdmp.2021.1&partnerID=40&md5=afcf217ca5e40bd048d89e8d360308b3)

AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan (ZUJ), Amman, Jordan;

School of Nursing, University of Jordan, Amman, Jordan;

Faculty of Nursing, Sultan Qaboos University, Al-khod, Oman

ABSTRACT: Objective: The aim was to evaluate nurses' self-efficacy, confidence, and nurse-patient interaction during caring of patients with coronavirus disease 2019 (COVID-19). Methods: A cross-sectional design with online survey was used with a Self-efficacy scale, Self-confidence scale, and Caring nurse-patient interaction scale: 23-item Version-Nurse (CNPI-23 N). Results: A sample of 120 nurses participated in the current study. The results showed that the participants had a moderate level of self-efficacy, self-confidence and interaction ($M = 28.84$ ($SD = 7.7$), $M = 47.41$ ($SD = 9.0$), and $M = 93.59$ ($SD = 16.3$), respectively). Positive relationships were found between nurse' self-efficacy, self-confidence, and nurse-patient interaction ($r = 0.81$; $P < 0.0001$ and 0.79 ; $P < 0.0001$, respectively). Significant differences were found in self-efficacy according to years of experience, academic qualifications and position ($F = 2.10$; $P = 0.003$; $F = 3.60$; $P = 0.002$, and $F = 2.60$; $P = 0.007$, respectively). Furthermore, the results indicated that there was a significant difference in self-confidence and nurse-patient interaction also. Conclusion: Nurse educators and administrators should develop and implement further strategies, such as continuing education and training, compensatory payment, organizational support, and availability of protective measures to increase their self-efficacy, self-confidence, and interaction with COVID-19 patients. © Society for Disaster Medicine and Public Health, Inc. 2021. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Al-Shalabi, E., Abusulieh, S., Hammad, A.M., Sunoqrot, S.

Rhoifolin loaded in PLGA nanoparticles alleviates oxidative stress and inflammation in vitro and in vivo

(2022) Biomaterials Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135570673&doi=10.1039%2fd2bm00309k&partnerID=40&md5=260822b606c644b81e37475234130f5d)

[85135570673&doi=10.1039%2fd2bm00309k&partnerID=40&md5=260822b606c644b81e37475234130f5d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135570673&doi=10.1039%2fd2bm00309k&partnerID=40&md5=260822b606c644b81e37475234130f5d)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P. O. Box 130, Amman, 11733, Jordan

ABSTRACT: Rhoifolin (ROF) is a bioactive plant flavonoid with potent antioxidant and anti-inflammatory activity. However, no delivery system has yet been developed for ROF to overcome its biopharmaceutical limitations. The purpose of this study was to design a ROF-loaded polymeric nanocarrier as a potential anti-inflammatory nanomedicine. ROF was isolated from Jordanian Teucrium polium L. and entrapped into poly(lactide-co-glycolide) nanoparticles (PLGA NPs), followed by tannic acid-mediated surface modification with poly(ethylene glycol) (PEG). The optimal ROF NPs were highly

monodisperse with an average diameter of 204 nm, a zeta potential of -28 mV, an entrapment efficiency of 45%, and drug loading of 9% w/w. The NPs exhibited excellent colloidal stability during storage and in the presence of serum and achieved sustained drug release for up to 96 h at physiologic (7.4) and acidic pH (5.0). In vitro cell-free antioxidant assays confirmed the potent radical scavenging activity of free ROF and ROF NPs. Moreover, ROF NPs were superior to free ROF in relieving oxidative stress in stimulated RAW 264.7 murine macrophages, which was attributed to enhanced cellular uptake of the NPs as confirmed by confocal microscopy and fluorimetry. In vivo anti-inflammatory activity was evaluated in a formalin-induced rat paw edema model. The results showed that ROF NPs were superior to free ROF in mitigating the histopathological changes in the inflamed paw tissues. Moreover, the NPs were equally potent to free ROF and the nonsteroidal anti-inflammatory drug diclofenac in terms of inhibiting the increase in paw thickness, normalizing nitric oxide levels, and modulating the gene expression of pro-inflammatory cytokines in the inflamed paw tissues. Our findings present a promising nanocarrier platform that can enhance the solubility and control the release of ROF, which will facilitate its administration in the treatment of inflammatory diseases. © 2022 The Royal Society of Chemistry.

Al-amer, R., Darwish, M., Malak, M., Ali, A.M., Al weldat, K., Alkhamees, A., Alshammari, K.S., Abuzied, Y., Randall, S.

Nurses experience of caring for patients with COVID-19: A phenomenological study (2022) *Frontiers in Psychiatry*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135387744&doi=10.3389%2ffpsyt.2022.922410&partnerID=40&md5=b0c13b24765d1ad31c404dff9aada234)

[85135387744&doi=10.3389%2ffpsyt.2022.922410&partnerID=40&md5=b0c13b24765d1ad31c404dff9aada234](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135387744&doi=10.3389%2ffpsyt.2022.922410&partnerID=40&md5=b0c13b24765d1ad31c404dff9aada234)

AFFILIATIONS: Faculty of Nursing, Isra University, Amman, Jordan;

School of Nursing and Midwifery, Western Sydney University, Penrith, NSW, Australia;

Vascular Surgery Department, University Hospital of Wales, Cardiff, United Kingdom;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Psychiatric Nursing and Mental Health, Faculty of Nursing, Alexandria University, Alexandria, Egypt;

Department of Medicine, Unayzah College of Medicine and Medical Sciences, Qassim University, Al Qassim, Unayzah, Saudi Arabia;

Stroke Unit, Nursing Department, Rehabilitation Hospital, King Fahad Medical City, Riyadh, Saudi Arabia;

Spinal Cord Injury Unit, Nursing Department, Rehabilitation Hospital, King Fahad Medical City, Riyadh, Saudi Arabia;

Susan Wakil School of Nursing and Midwifery, Faculty of Medicine and Health, The University of Sydney, Sydney, NSW, Australia

ABSTRACT: Introduction: COVID-19 has impacted all dimensions of life and imposed serious threat on humankind. Background: In Jordan, understanding how nurses experienced providing care for patients with COVID-19 offers a framework of knowledge about similar situations within the context of Arabic culture. Aim: To explore nurses' experience with providing hands-on care to patients with active COVID-19 infection in an Arabic society. Methods: A descriptive phenomenological study interviewed 10 nurses through a purposive sampling approach until data saturation was reached. The research site was hospital designated to receive patients with active COVID-19 infection. Semi-structured interviews were used to collect the data. Findings: Three themes were generated from the data: the impact of the COVID-19 outbreak on nurses' health; unfamiliar work and social environments; and conforming to professional standards. Discussion: There are specific risks to the physical and mental wellbeing of nurses who provide hands-on care to patients with COVID-19 in an Arabic society. Implication for nursing and health policy: Health care institutions should consider establishing programs that promote nurses' wellbeing and support their productivity in a crisis. A danger pay allowance should be considered for nurses during extraordinary circumstances, such as pandemics. Copyright © 2022 Al-amer, Darwish, Malak, Ali, Al weldat, Alkhamees, Alshammari, Abuzied and Randall.

Baker, M.B., Abendeh, R.

Improving asphalt concrete resistance to rapid freeze-thaw effect using HIPS polymer (2022) *Emerging Materials Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135024054&doi=10.1680%2ffjemmr.21.00129&partnerID=40&md5=6d2183d1b51c3892ae40404b8c641762)

[85135024054&doi=10.1680%2ffjemmr.21.00129&partnerID=40&md5=6d2183d1b51c3892ae40404b8c641762](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135024054&doi=10.1680%2ffjemmr.21.00129&partnerID=40&md5=6d2183d1b51c3892ae40404b8c641762)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Two methods of high-impact polystyrene (HIPS) polymer addition to asphalt concrete (AC) mixtures were used to evaluate the effect of freeze-thaw (FT) cycles on the performance of unmodified AC and AC modified by using supplementary and additional HIPS polymer as asphalt aggregates. Various polymer contents were used to modify AC in both methods-namely, 0 (control), 5, 10, 15 and 20%. Marshall stability, flow, bulk density and indirect tensile strength (ITS) tests were performed on control and modified samples. A non-destructive test was performed by using the ultrasonic pulse

velocity method. In the first method, replacing the mineral filler in AC with 10% HIPS polymer increased the density by 1%, the stability by 113%, the retained stability by 52% and the ITS by 56% compared with those of the control specimen. The results also show a 14% reduction in the damage caused by 8 weeks of FT cycles for modified AC compared with that of unmodified AC. However, modifying AC by using the second method did not provide promising results. The velocity within the specimen dropped by 20.9% at 10% HIPS addition before the FT effect compared with that of the control. The results of the first method revealed the feasibility of improving AC by using HIPS polymer to resist effective FT cycles. © 2022 ICE Publishing: All rights reserved.

Beithou, N., Qandil, A., Khalid, M.B., Horvatinec, J., Ondrasek, G.

Review of Agricultural-Related Water Security in Water-Scarce Countries: Jordan Case Study (2022) *Agronomy*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137368059&doi=10.3390%2fagronomy12071643&partnerID=40&md5=eea8f0537169e124d76110de8706a132)

[85137368059&doi=10.3390%2fagronomy12071643&partnerID=40&md5=eea8f0537169e124d76110de8706a132](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137368059&doi=10.3390%2fagronomy12071643&partnerID=40&md5=eea8f0537169e124d76110de8706a132)

AFFILIATIONS: Department of Mechanical and Industrial Engineering, Applied Science Private University, P.O. Box 166, Amman, 11931, Jordan;

Department of Mechanical Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;

Mechanical Engineering Department, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Agriculture, University of Zagreb, Zagreb, 10000, Croatia

ABSTRACT: Food security is an essential issue for human survival and civilization. Whenever food-water security is in doubt, the community is negatively affected. Globally, Jordan is the second most water-stressed country, located in an arid, politically divided and migratory active Middle East region that lacks the access to valuable natural resources such as fertile soils. Jordan receives about 78 m³/person/year from renewable resources, which represents 1% of the world water share. Jordan's Water Minister declared that a 50 million m³ lack of drinking water is to be faced next year; this shortage is added to the lack of irrigation water, which yields food insecurity and food price fluctuations that wear out the consumer. The aim of this study is to provide a comprehensive overview of the impact of agricultural cropping patterns and water security by analyzing the most relevant national databases. The study results will contribute to the development of national policy in order to strategize the aid programs and adaptation measures for more sustainable planning in the Jordanian agri-food sector. © 2022 by the authors.

Hajjo, R., Sabbah, D.A., Al Bawab, A.Q.

Unlocking the Potential of the Human Microbiome for Identifying Disease Diagnostic Biomarkers (2022) *Diagnostics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137347858&doi=10.3390%2fdiagnostics12071742&partnerID=40&md5=698a311ced92f72018d3afcd69d2abd8)

[85137347858&doi=10.3390%2fdiagnostics12071742&partnerID=40&md5=698a311ced92f72018d3afcd69d2abd8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137347858&doi=10.3390%2fdiagnostics12071742&partnerID=40&md5=698a311ced92f72018d3afcd69d2abd8)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, United States;

National Center for Epidemics and Communicable Disease Control, Amman, 11118, Jordan

ABSTRACT: The human microbiome encodes more than three million genes, outnumbering human genes by more than 100 times, while microbial cells in the human microbiota outnumber human cells by 10 times. Thus, the human microbiota and related microbiome constitute a vast source for identifying disease biomarkers and therapeutic drug targets. Herein, we review the evidence backing the exploitation of the human microbiome for identifying diagnostic biomarkers for human disease. We describe the importance of the human microbiome in health and disease and detail the use of the human microbiome and microbiota metabolites as potential diagnostic biomarkers for multiple diseases, including cancer, as well as inflammatory, neurological, and metabolic diseases. Thus, the human microbiota has enormous potential to pave the road for a new era in biomarker research for diagnostic and therapeutic purposes. The scientific community needs to collaborate to overcome current challenges in microbiome research concerning the lack of standardization of research methods and the lack of understanding of causal relationships between microbiota and human disease. © 2022 by the authors.

Jebril, I.H., Batiha, I.M.

On the Stability of Commensurate Fractional-Order Lorenz System

(2022) *Progress in Fractional Differentiation and Applications*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136701250&doi=10.18576%2f2f080305&partnerID=40&md5=a006bcf7ba6fd0f4ee87732ab7646853)

[85136701250&doi=10.18576%2f2f080305&partnerID=40&md5=a006bcf7ba6fd0f4ee87732ab7646853](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136701250&doi=10.18576%2f2f080305&partnerID=40&md5=a006bcf7ba6fd0f4ee87732ab7646853)

AFFILIATIONS: Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600,

Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: In the presented work, with the help of using Adomian decomposition method (ADM), two particular situations connected to the equilibria's stability of the nonlinear fractional-order Lorenz system (FoLS) are examined and confirmed numerically. Such situations can be extremely valuable for discerning between several other situations that might be employed to explore the stability of Lorenz system. In this study, all numerical simulations are carried out by using MATLAB software package. © 2022 NSP

Hamadneh, I., Abu-Zurayk, R.A., Aqel, A., Al-Mobydeen, A., Hamadneh, L., Al-Dalahmeh, Y., Hannon, F., Albuqain, R., Alsotari, S., Al-Dujaili, A.H.

Impact of H3 P04-activated carbon from pine fruit shells for paracetamol adsorption from aqueous solution

(2022) Desalination and Water Treatment, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136186511&doi=10.5004%2fdwt.2022.28589&partnerID=40&md5=1906e87162fdbb47d2e2c5531a27141e)

[85136186511&doi=10.5004%2fdwt.2022.28589&partnerID=40&md5=1906e87162fdbb47d2e2c5531a27141e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136186511&doi=10.5004%2fdwt.2022.28589&partnerID=40&md5=1906e87162fdbb47d2e2c5531a27141e)

AFFILIATIONS: Department of Chemistry, Faculty of Science, University of Jordan, Amman, 11942,

Jordan;

Hamdi Mango Center for Scientific Research, University of Jordan, P.O. Box: 11942, Amman, Jordan;

Department of Chemistry, Faculty of Science, Jerash University, Jerash, 26150, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Chemistry, Faculty of Science, Isra University, Amman, 11622, Jordan;

Cell Therapy Center (CTC), The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The synthesis of activated carbon (AC) from pine fruit shells (PFS) biomass (BM) is described in this paper. AC was made from BM by gradual pyrolysis at 600°C. AC was also chemically activated with H3 P04 (BC-H3 P04) and pyrolyzed at 600°C. BM, BC, and BC-H3 P04 adsorbents were characterized by Fourier-transform infrared spectroscopy, X-ray diffraction, scanning electron microscopy, thermal gravimetric analysis, and elemental analysis. The batch system was used to apply the BM, BC, and BC-H3 P04 to the adsorption of paracetamol (PCM) from aqueous solution. Adsorption was evaluated in relation to adsorbent dosage, ionic strength, initial pH solution, con-tact time, and temperature. Based on their coefficient of determination (R2), chi-square (χ^2) and error function (Ferror%) values, equilibrium and kinetic PCM adsorption data revealed that the process obeys the Langmuir, Dubinin-Radushkevich, and pseudo-second-order kinetic equations, respectively. According to the Langmuir model, the highest adsorption capacity for PCM by BM, BC, and BC-H3 P04 was 99.010, 166.667, and 256.10 mg/g, respectively. Thermodynamic analysis revealed that PCM adsorption by the adsorbents is spontaneous and exothermic. © 2022 Desalination Publications. All rights reserved.

Hammad, A.M., Al-Qerem, W.A., Sunoqrot, S.Z., Amawi, H.A., Arabyat, R.M., Ling, J., Robertshaw, C. Pharmacy students' perceptions and attitudes towards experiential training in Jordan and United Kingdom

(2022) Tropical Journal of Pharmaceutical Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136160442&doi=10.4314%2ftjpr.v21i7.25&partnerID=40&md5=14bd9451ee9960edd666ec4c4a5f71be)

[85136160442&doi=10.4314%2ftjpr.v21i7.25&partnerID=40&md5=14bd9451ee9960edd666ec4c4a5f71be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136160442&doi=10.4314%2ftjpr.v21i7.25&partnerID=40&md5=14bd9451ee9960edd666ec4c4a5f71be)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacy Practice, Yarmouk University, PO Box 566, Irbid, 21163, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Chester Road, Sunderland, SR1 3SD, United Kingdom

ABSTRACT: Purpose: To examine the quality of pharmaceutical experiential training by developing an experiential training survey. Methods: An online survey was placed on E-learning platforms in Jordan and UK to develop a validated instrument that can assess pharmacy students' perceptions of the experiential program implemented in their curricula. Results: A total of 377 students from Jordan (250 students) and the UK (127 students) completed the survey. Principal component analysis was used to conduct exploratory factor analysis and to assess the factor structure for the data. A two-factor model was applied to the data obtained from the students. These factors included students' feelings toward experiential training (Perceiver Feelings; PF) and their ability to conduct a full Pharmaceutical Care Plan (PCP). Students from both Jordan and the UK showed a higher satisfaction PF score toward the experiential training program compared to PCP. Being female and not having prior practice experience led to significantly lower PCP scores compared to males and having a prior practice experience, respectively. Conclusion: The availability of a validated questionnaire will help in investigating the effectiveness of experiential training courses. © 2022 The authors.

El-hneiti, M., Shaheen, A., Malak, M.Z., Al-Hussami, R., Al-Hiary, S.S., Elfalah, M., Al-Hussami, M. The Willingness of the Healthcare Professionals Working in Healthcare Institutions to Accept the First Dose of COVID-19 Vaccine in Jordan: A National Survey

(2022) Vaccines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136097781&doi=10.3390%2fvaccines10071138&partnerID=40&md5=cb6f31bae682e831648cbf23243f7042)

85136097781&doi=10.3390%2fvaccines10071138&partnerID=40&md5=cb6f31bae682e831648cbf23243f7042

AFFILIATIONS: School of Nursing, The University of Jordan, P.O. Box 13807, Amman, 11942, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Faculty of Medicine, The University of Jordan, P.O. Box 13807, Amman, 11942, Jordan;

Jordan University Hospital, P.O. Box 13046, Amman, 11942, Jordan

ABSTRACT: Health workers play an important part as role models, advocates for vaccination, vaccinators and educators in a community. Furthermore, they are at high risk of being infected with COVID-19 as they are on the frontlines. Thus, this study purposed to determine the willingness of the healthcare professionals working in healthcare institutions to accept the first dose of COVID-19 vaccine in Jordan. A cross-sectional design and a convenience-sampling method were used to recruit the study population from different healthcare sectors. A web-based survey was used to collect data. Findings showed that 1594 healthcare professionals responded and 74% of them were aged less than 45 years. Almost 65% of the respondents were registered nurses and 68.4% of them were married. A total of 94.9% of the participants heard about the COVID-19 vaccine, but only 56.5% of them had had the opportunity to attend lectures/discussions about COVID-19 vaccine. Official government websites were the primary source of obtaining information about COVID-19 (36.3%). The willingness of acceptance rate of COVID-19 vaccine was 63%. There were positive correlations between vaccine acceptance and compliance toward COVID-19 infection control precautions ($r = 0.119$, $p < 0.01$), knowledge about COVID-19 ($r = 0.256$, $p < 0.01$), age ($r = 0.170$, $p < 0.01$), and years of experience ($r = 0.105$, $p < 0.01$). Furthermore, age, knowledge, and compliance were significant predictors of the acceptance of the COVID-19 vaccine. Thus, it is necessary to develop specific interventions for healthcare professionals with low acceptance rates and take into consideration the predictors of COVID-19 vaccine acceptance. Further research is needed to explore the factors influencing the refusal of the COVID-19 vaccine by healthcare professionals. © 2022 by the authors.

Hajjo, R., Sabbah, D.A., Tropsha, A.

Analyzing the Systems Biology Effects of COVID-19 mRNA Vaccines to Assess Their Safety and Putative Side Effects

(2022) Pathogens, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135751059&doi=10.3390%2fpathogens11070743&partnerID=40&md5=51c413cf7e0517d29bd70e34a96bc498)

85135751059&doi=10.3390%2fpathogens11070743&partnerID=40&md5=51c413cf7e0517d29bd70e34a96bc498

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, United States;

Jordan CDC, Zahran St 137, Amman, 11181, Jordan

ABSTRACT: COVID-19 vaccines have been instrumental tools in reducing the impact of SARS-CoV-2 infections around the world by preventing 80% to 90% of hospitalizations and deaths from reinfection, in addition to preventing 40% to 65% of symptomatic illnesses. However, the simultaneous large-scale vaccination of the global population will indubitably unveil heterogeneity in immune responses as well as in the propensity to developing post-vaccine adverse events, especially in vulnerable individuals. Herein, we applied a systems biology workflow, integrating vaccine transcriptional signatures with chemogenomics, to study the pharmacological effects of mRNA vaccines. First, we derived transcriptional signatures and predicted their biological effects using pathway enrichment and network approaches. Second, we queried the Connectivity Map (CMap) to prioritize adverse events hypotheses. Finally, we accepted higher-confidence hypotheses that have been predicted by independent approaches. Our results reveal that the mRNA-based BNT162b2 vaccine affects immune response pathways related to interferon and cytokine signaling, which should lead to vaccine success, but may also result in some adverse events. Our results emphasize the effects of BNT162b2 on calcium homeostasis, which could be contributing to some frequently encountered adverse events related to mRNA vaccines. Notably, cardiac side effects were signaled in the CMap query results. In summary, our approach has identified mechanisms underlying both the expected protective effects of vaccination as well as possible post-vaccine adverse effects. Our study illustrates the power of systems biology approaches in improving our understanding of the comprehensive biological response to vaccination against COVID-19. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Abu Sabra, M.A., Hamdan-Mansour, A.M.

Using Relapse Prevention Interventions to Maintain Remission and Minimize Relapse Rates for Individuals With Schizophrenia

(2022) Journal of Psychosocial Nursing and Mental Health Services, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134854232&doi=10.3928%2f02793695-20220112-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134854232&doi=10.3928%2f02793695-20220112-02&partnerID=40&md5=40c8d614ab43866fd6652bec380394f9)

02&partnerID=40&md5=40c8d614ab43866fd6652bec380394f9

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;
School of Nursing, The University of Jordan, Amman, Jordan

ABSTRACT: Maintaining remission and improving quality of life for individuals with schizophrenia can encourage them to return to work, participate in volunteer opportunities, and establish healthy intimate relationships. The purpose of the current review was to explore the impacts of using relapse prevention interventions on maintaining remission and minimizing relapse rate for individuals with schizophrenia. A scoping review was performed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews guidelines to screen 134 studies published between 2010 and 2020. A total of 14 articles met eligibility criteria. Included studies showed that intervention strategies tailored to meet the needs of individuals with schizophrenia must be developed and applied in different psychiatric settings to maintain remission and minimize relapse rate. © 2022 Abu Sabra, Hamdan-Mansour.

Al-Qerem, W., Jarab, A.S., Qarqaz, R., Ling, J., Al Hayek, M.

Knowledge, Attitudes, and Practices Toward Iron-Deficiency Anemia among Jordanian Women: A Cross-sectional Study

(2022) Topics in Clinical Nutrition, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134544217&doi=10.1097%2fTIN.000000000000287&partnerID=40&md5=620a6e06cb92f97a2e7a75c27088d8cd)

[85134544217&doi=10.1097%2fTIN.000000000000287&partnerID=40&md5=620a6e06cb92f97a2e7a75c27088d8cd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134544217&doi=10.1097%2fTIN.000000000000287&partnerID=40&md5=620a6e06cb92f97a2e7a75c27088d8cd)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Science and Wellbeing, University of Sunderland, England, United Kingdom

ABSTRACT: This is a cross-sectional Web-based study that aims to assess the knowledge, attitudes, and practices (KAP) of the Jordanian women toward iron-deficiency anemia. Participants were invited to complete a questionnaire via multipurpose Facebook groups. In total, 4110 women completed the questionnaire. Of these, 15.9% had never heard of iron-deficiency anemia. The KAP scores were calculated for the remaining 3457 participants and variables that influenced these scores were determined. The factors that influenced KAP scores were monthly income and education/working field ($P < .01$). There was a positive association between age and attitude score. The results indicate that there is a need to improve Jordanian women's KAP toward iron-deficiency anemia. © 2022 Lippincott Williams and Wilkins. All rights reserved.

Al-Zoubi, H., Akbay, A.K., Hamadneh, T., Al-Sabbagh, M.

Classification of Surfaces of Coordinate Finite Type in the Lorentz-Minkowski 3-Space

(2022) Axioms, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134028835&doi=10.3390%2fAxioms11070326&partnerID=40&md5=22399c55e850c294bd06d11156e709f7)

[85134028835&doi=10.3390%2fAxioms11070326&partnerID=40&md5=22399c55e850c294bd06d11156e709f7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134028835&doi=10.3390%2fAxioms11070326&partnerID=40&md5=22399c55e850c294bd06d11156e709f7)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Mathematics, Iskenderun Technical University, Hatay, 23100, Turkey;

Department of Basic Engineering, Imam Abdulrahman bin Faisal University, Dammam, 31441, Saudi Arabia

ABSTRACT: In this paper, we define surfaces of revolution without parabolic points in three-dimensional Lorentz-Minkowski space. Then, we classify this class of surfaces under the condition $\Delta I I x = Ax$, where $\Delta I I I$ is the Laplace operator regarding the third fundamental form, and A is a real square matrix of order 3. We prove that such surfaces are either catenoids or surfaces of Enneper, or pseudo spheres or hyperbolic spaces centered at the origin. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Makahleh, F.M., Badran, A.A., Attar, H., Amer, A., Al-Maaaitah, A.A.

Modeling and Simulation of a Two-Stage Air Cooled Adsorption Chiller with Heat Recovery Part I: Physical and Mathematical Performance Model

(2022) Applied Sciences (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133471951&doi=10.3390%2fapp12136542&partnerID=40&md5=db84a1f471ca716abaf12d9ba8143240)

[85133471951&doi=10.3390%2fapp12136542&partnerID=40&md5=db84a1f471ca716abaf12d9ba8143240](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133471951&doi=10.3390%2fapp12136542&partnerID=40&md5=db84a1f471ca716abaf12d9ba8143240)

AFFILIATIONS: Mechanical Engineer Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mechanical Engineering Department, Philadelphia University, Amman, 19392, Jordan;

Energy Department, Zarqa University, Zarqa, 13133, Jordan;

Wahaj Solar, P.O. Box 54115, Abu Dhabi, United Arab Emirates

ABSTRACT: In the proposed work, the MATLAB program was used to model and simulate the performance of the investigated two-stage adsorption chiller with and without heat recovery using an activated carbon/methanol pair. The simulated model results were then validated by the experimental results conducted by Millennium Industries. The model was based on 10th order differential equations; six of

them were used to predict bed, evaporator and condenser temperatures while the other four equations were used to calculate the adsorption isotherm and adsorption kinetics. The detailed validation is stated in the next paragraphs; for example, it clearly notes that the simulation model results for the two-stage air cooled chiller are well compared with the experimental data in terms of cooling capacity (6.7 kW for the model compared with 6.14 kW from the experimental results at the same conditions). The Coefficient of Performance (COP) predicted by this simulation was 0.4, which is very close to that given by the Carnot cycle working at the same operating conditions. The model optimized the switching time, adsorption/desorption time and heat recovery time to maximize both cooling capacity and COP. The model optimized the adsorption/desorption cycle time (300 to 400 s), switching cycle time (50 s) and heat recovery cycle time (30 s). The temporal history of bed, evaporator and condenser temperatures is provided by this model for both heat recovery and without heat recovery chiller operation modes. The importance of this study is that it will be used as a basis for future series production. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Das, S.C., Althobaiti, Y.S., Hammad, A.M., Alasmari, F., Sari, Y.

Role of suppressing GLT-1 and xCT in ceftriaxone-induced attenuation of relapse-like alcohol drinking in alcohol-preferring rats

(2022) *Addiction Biology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132829840&doi=10.1111%2fadb.13178&partnerID=40&md5=9a75d50e683c553c5cb44ef5367f0c11)

[85132829840&doi=10.1111%2fadb.13178&partnerID=40&md5=9a75d50e683c553c5cb44ef5367f0c11](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132829840&doi=10.1111%2fadb.13178&partnerID=40&md5=9a75d50e683c553c5cb44ef5367f0c11)

AFFILIATIONS: Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States;

Department of Psychiatry and Human Behavior, University of California, Irvine, CA, United States;

Department of Pharmacology and Toxicology, College of Pharmacy, Taif University, Taif, Saudi Arabia;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

ABSTRACT: Alcohol dependence results in long-lasting neuroadaptive changes in meso-corticolimbic system, especially in the nucleus accumbens (NAc), which drives relapse-like ethanol drinking upon abstinence or withdrawal. Within NAc, altered glutamate homeostasis is one of the neuroadaptive changes caused by alcohol dependence. Accumbal glutamate homeostasis is tightly maintained through glutamate transporter 1 (GLT-1) and cystine-glutamate antiporter (xCT). But the role of GLT-1 and xCT in relapse-like ethanol drinking is poorly understood. Here, we used alcohol-preferring (P) rats in relapse-like ethanol drinking paradigm to (a) determine the effect of relapse-like ethanol drinking on gene and protein expression of GLT-1 and xCT in NAc, measured by quantitative polymerase chain reaction (qPCR) and Western blot, respectively; (b) examine if glutamate uptake is affected by relapse-like ethanol drinking in NAc, measured by radioactive glutamate uptake assay; (c) elucidate if upregulation of either/both GLT-1 or/and xCT through ceftriaxone is/are required to attenuate relapse-like ethanol drinking. The GLT-1 or xCT protein expression was suppressed during ceftriaxone treatments through microinjection of GLT-1/xCT anti-sense vivo-morpholinos. We found that relapse-like ethanol drinking did not affect the gene and protein expression of GLT-1 and xCT in NAc. The glutamate uptake was also unaltered. Ceftriaxone (200 mg/kg body weight, i.p.) treatments during the last 5 days of abstinence attenuated relapse-like ethanol drinking. The suppression of GLT-1 or xCT expression prevented the ceftriaxone-induced attenuation of relapse-like ethanol drinking. These findings confirm that upregulation of both GLT-1 and xCT within NAc is crucial for ceftriaxone-mediated attenuation of relapse-like ethanol drinking. © 2022 Society for the Study of Addiction.

Alrawashdeh, T.A., Mahmoud, L., Tamimi, A., Hnaif, A.A.

QUALITY MODEL OF CLOUD HEALTHCARE SERVICES: A PAIRWISE COMPARISON APPROACH

(2022) *ICIC Express Letters*, Part B: Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131081731&doi=10.24507%2fificelb.13.07.663&partnerID=40&md5=f15636f52fa0bfc0a66354c5cd9c725)

[85131081731&doi=10.24507%2fificelb.13.07.663&partnerID=40&md5=f15636f52fa0bfc0a66354c5cd9c725](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131081731&doi=10.24507%2fificelb.13.07.663&partnerID=40&md5=f15636f52fa0bfc0a66354c5cd9c725)

AFFILIATIONS: School of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Measuring software quality is one of the success keys in healthcare organizations, so this research work is conducted to study the quality functional and technical factors in cloud healthcare systems. For a successful implementation of cloud healthcare systems, the providers should offer superior services that meet customers' expectations. The quality models can be employed to present and evaluate the quality of the services or products provided by such providers, in which the cloud healthcare systems' stakeholders can establish concreted understanding. In this research work, a novel quality model is proposed to help the providers of cloud healthcare services and healthcare organizations provide and implement systems that meet stakeholders' expectations. The proposed quality model includes seven quality characteristics, namely, functionality, reliability, efficiency, usability, maintainability, portability, and marketability. After conducting a survey on 50 cloud healthcare system stakeholders, the Analytic Hierarchy Process has been applied to evaluating the

validity of the proposed model. The results of this research work arrange the quality characteristics of the proposed model according to its importance (weights) as follows: functionality, reliability, efficiency, usability, maintainability, marketability, and portability. © 2022 ISSN 2185-2766.

Hammad, A.M., Meknas, S.J., Hall, F.S., Hikmat, S., Sari, Y., Al-Qirim, T.M., Alfaraj, M., Amawi, H. Effects of waterpipe tobacco smoke and ceftriaxone treatment on the expression of endocannabinoid receptors in mesocorticolimbic brain regions

(2022) Brain Research Bulletin, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129288750&doi=10.1016%2fj.brainresbull.2022.04.014&partnerID=40&md5=28b0623671904dff32a2fffe49153da8)

[85129288750&doi=10.1016%2fj.brainresbull.2022.04.014&partnerID=40&md5=28b0623671904dff32a2fffe49153da8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129288750&doi=10.1016%2fj.brainresbull.2022.04.014&partnerID=40&md5=28b0623671904dff32a2fffe49153da8)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States;

Department of Clinical Pharmacy and Pharmacy Practice, College of Pharmacy, Yarmouk University, Irbid, 21163, Jordan

ABSTRACT: Chronic tobacco exposure can alter the endocannabinoid (eCB) system, consequently leading to an anxiety state. In this study, we investigated the effects of waterpipe tobacco smoke (WTS) on cannabinoid receptor 1 and 2 (CBR1 and CBR2) gene and protein expression in mesocorticolimbic brain regions. Using elevated plus maze (EPM) and open field (OF) tests, the effects of WTS exposure on withdrawal-induced anxiety-like behavior were examined. The effect of ceftriaxone (CEF), a β -lactam known to upregulate glutamate transporter 1 (GLT-1), on anxiety and the expression of cannabinoid receptors was also determined. Male Sprague-Dawley rats were randomly assigned to four groups: 1) the Control group was exposed only to standard room air; 2) the WTS group was exposed to tobacco smoke and treated with saline vehicle; 3) the WTS-CEF group was exposed to WTS and treated with ceftriaxone; and 4) the CEF group was exposed only to standard room air and treated with ceftriaxone. Rats were exposed to WTS (or room air) for two hours per day, five days per week for a period of four weeks. Behavioral tests (EPM and OF) were conducted weekly during acute withdrawal, 24 h following WTS exposure. Rats were given either saline or ceftriaxone (200 mg/kg i.p.) for five days during Week 4, 30 min prior to WTS exposure. Withdrawal-induced anxiety was induced by WTS exposure but was reduced by ceftriaxone treatment. WTS exposure decreased CBR1 mRNA and protein expression in the NAC and VTA, but not PFC, and ceftriaxone treatment attenuated these effects. WTS exposure did not change CBR2 mRNA expression in the NAC, VTA, or PFC. These findings demonstrate that WTS exposure dysregulated the endocannabinoid system and increased anxiety-like behavior, and these effects were reversed by ceftriaxone treatment, which suggest the involvement of glutamate transporter 1 in these effects. © 2022 Elsevier Inc.

Eltai, N.O., Mahmoud, N.N., Zakaria, Z.Z., Abdelrahman, H., Moustafa, A.-E.A., Al-Asmakh, M. Antibacterial and Antibiofilm Activity of Mercaptophenol Functionalized-Gold Nanorods Against a Clinical Isolate of Methicillin-Resistant Staphylococcus aureus

(2022) Journal of Inorganic and Organometallic Polymers and Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127691866&doi=10.1007%2fs10904-022-02294-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127691866&doi=10.1007%2fs10904-022-02294-0&partnerID=40&md5=eb9a60fb475a63e9ff835ece06cdd41)

[0&partnerID=40&md5=eb9a60fb475a63e9ff835ece06cdd41](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127691866&doi=10.1007%2fs10904-022-02294-0&partnerID=40&md5=eb9a60fb475a63e9ff835ece06cdd41)

AFFILIATIONS: Biomedical Research Center, Qatar University, Doha, 2713, Qatar;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Medicine, QU Health, Qatar University, Doha, 2713, Qatar;

Department of Biomedical Sciences, College of Health Sciences, QU Health, Qatar University, Doha, 2713, Qatar

ABSTRACT: Gold nanorods (AuNRs) were synthesized by the seed-mediated wet chemical method using a binary surfactant system. AuNRs were stabilized with polyethylene glycol, then functionalized with 4-mercaptophenol (4-MPH) ligand by surface ligand exchange. The surface-functionalized AuNRs (4-MPH-AuNRs) exhibited a typical UV-vis spectrum of AuNRs with a slightly shifted longitudinal peak. Furthermore, 4-MPH-AuNRs demonstrated a similar Fourier-Transformed Infrared spectrum to 4-MPH and a fading of the thiol band, which suggests a successful functionalization through thiol-gold binding. The antibacterial and antibiofilm activities of 4-MPH-AuNRs were evaluated against a clinical isolate of Methicillin-Resistant Staphylococcus aureus (MRSA). The results indicate that 4-MPH-AuNRs exhibit a bactericidal activity with a minimum inhibitory concentration (MIC) of $\sim 6.25 \mu\text{g/mL}$ against a planktonic suspension of MRSA. Furthermore, 4-MPH-AuNRs resulted in a 1.8–2.9 log-cycle reduction of MRSA biofilm viable count over a concentration range of $100\text{--}6.0 \mu\text{g/mL}$. The bacterial uptake of the surface-modified nanorods was investigated by inductively coupled plasma-optical emission spectroscopy (ICP-OES) and scanning electron microscopy (SEM) imaging; the results reveal that the nanorods were internalized into the bacterial cells after 6 h (h) of exposure. SEM imaging revealed a significant accumulation of the nanorods at the bacterial cell wall and a possible cellular internalization. Thus, 4-MPH-AuNRs can be considered a potential antibacterial agent, particularly

against MRSA strain biofilms. © 2022, The Author(s).

Najm, N.A., Alnidawy, A.A.B., Yousif, A.S.H.

Corporate governance and organizational commitment: the mediating role of organizational culture. (2022) European Journal of Government and Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133484000&doi=10.17979%2fejge.2022.11.1.7564&partnerID=40&md5=96350713c0f2e4474c8215eb5de5dbab)

[85133484000&doi=10.17979%2fejge.2022.11.1.7564&partnerID=40&md5=96350713c0f2e4474c8215eb5de5dbab](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133484000&doi=10.17979%2fejge.2022.11.1.7564&partnerID=40&md5=96350713c0f2e4474c8215eb5de5dbab)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study seeks to determine the impact of corporate governance dimensions (compliance with the corporate governance code, top management, control environment, transparency and disclosure, rights of shareholders and stakeholders) on the three main types of organizational commitment, (affective, continuance and normative). It also aims at examining the impact of organizational culture, as an intermediate variable, on the relationship between the two above mentioned variables. The sample of this study comprised 152 respondents working at five types of Jordanian companies. The results of the study have confirmed the positive effect of the three corporate governance dimensions (compliance with the corporate governance code, top management, and control environment) on three types of organizational commitment (affective, continuance, and normative). The results also confirmed that there is no significant effect of transparency and disclosure and the rights of shareholders and stakeholders on affective and normative commitment. Key terms: Corporate governance, top management, Board of directors, management committee, control environment, transparency, disclosure, shareholders, and stakeholders. © 2022.

Sharifi, S., Saei, A.A., Gharibi, H., Mahmoud, N.N., Harkins, S., Dararatana, N., Lisabeth, E.M., Serpooshan, V., Végvári, Á., Moore, A., Mahmoudi, M.

Mass Spectrometry, Structural Analysis, and Anti-Inflammatory Properties of Photo-Cross-Linked Human Albumin Hydrogels

(2022) ACS Applied Bio Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130802160&doi=10.1021%2facsabm.2c00109&partnerID=40&md5=2bea8d3312e7deffe60d705a912e8e97)

[85130802160&doi=10.1021%2facsabm.2c00109&partnerID=40&md5=2bea8d3312e7deffe60d705a912e8e97](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130802160&doi=10.1021%2facsabm.2c00109&partnerID=40&md5=2bea8d3312e7deffe60d705a912e8e97)

AFFILIATIONS: Department of Radiology and Precision Health Program, Michigan State University, East Lansing, MI 48824, United States;

Division of Physiological Chemistry, Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, SE-17 177, Sweden;

Department of Cell Biology, Harvard Medical School, Boston, MA 02115, United States;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI 48824, United States;

Department of Biomedical Engineering, Emory University School of Medicine and Georgia Institute of Technology, Atlanta, GA 30322, United States;

Department of Pediatrics, Emory University School of Medicine, Atlanta, GA 30322, United States;

Children's Healthcare of Atlanta, Atlanta, GA 30322, United States;

Proteomics Biomedicum, Division of Physiological Chemistry, Department of Medical Biochemistry, Karolinska Institutet, Stockholm, SE-17 177, Sweden;

Department of Biomedical Sciences, College of Health Sciences, Qu Health, Qatar University, Doha, 2713, Qatar

ABSTRACT: Albumin-based hydrogels offer unique benefits such as biodegradability and high binding affinity to various biomolecules, which make them suitable candidates for biomedical applications. Here, we report a non-immunogenic photocurable human serum-based (HSA) hydrogel synthesized by methacryloylation of human serum albumin by methacrylic anhydride (MAA). We used matrix-assisted laser desorption ionization-time-of-flight mass spectrometry, liquid chromatography-tandem mass spectrometry, as well as size exclusion chromatography to evaluate the extent of modification, hydrolytic and enzymatic degradation of methacrylated albumin macromer and its cross-linked hydrogels. The impacts of methacryloylation and cross-linking on alteration of inflammatory response and toxicity were evaluated in vitro using brain-derived HMC3 macrophages and Ex-Ovo chick chorioallantoic membrane assay. Results revealed that the lysines in HSA were the primary targets reacting with MAA, though modification of cysteine, threonine, serine, and tyrosine, with MAA was also confirmed. Both methacrylated HSA and its derived hydrogels were nontoxic and did not induce inflammatory pathways, while significantly reducing macrophage adhesion to the hydrogels; one of the key steps in the process of foreign body reaction to biomaterials. Cytokine and growth factor analysis showed that albumin-based hydrogels demonstrated anti-inflammatory response modulating cellular events in HMC3 macrophages. Ex-Ovo results also confirmed the biocompatibility of HSA macromer and hydrogels along with slight angiogenesis-modulating effects. Photocurable albumin hydrogels may be used as a non-immunogenic platform for various biomedical applications including passivation coatings. © 2022 American Chemical Society. All rights reserved.

Hamadne, T., Merker, J., Schimmel, W., Schuldt, G.

Simplicial Bernstein form and positivity certificates for solutions obtained in a stationary digital twin by Bernstein Bubnov-Galerkin method

(2022) ACM International Conference Proceeding Series, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138375938&doi=10.1145%2f3545839.3545846&partnerID=40&md5=5e472a1bb26835b6c1659f6567bc7408)

[85138375938&doi=10.1145%2f3545839.3545846&partnerID=40&md5=5e472a1bb26835b6c1659f6567bc7408](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138375938&doi=10.1145%2f3545839.3545846&partnerID=40&md5=5e472a1bb26835b6c1659f6567bc7408)

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Leipzig University of Applied Sciences, Leipzig, Germany;

University of Leipzig, Leipzig, Germany

ABSTRACT: In this article, using the simplicial Bernstein form of polynomials on a simplex, we provide positivity certificates for the approximate solution of a linear elliptic PDE obtained by simplicial Bernstein Bubnov-Galerkin method. Particularly, we show how to obtain a simplicial Bernstein certificate of positivity for the approximate solution, although the discretized system does not satisfy a discrete weak maximum principle. © 2022 ACM.

Ahmad, R., Hailat, M., Zakaraya, Z., Al Meanazel, O., Abu Dayyih, W.

Development and Validation of an HPLC Method for the Determination of Meloxicam and Pantoprazole in a Combined Formulation

(2022) Analytica, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160449263&doi=10.3390%2fanalytica3020012&partnerID=40&md5=17c698e5b7c4cae31ead70db6da8d6b8)

[85160449263&doi=10.3390%2fanalytica3020012&partnerID=40&md5=17c698e5b7c4cae31ead70db6da8d6b8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160449263&doi=10.3390%2fanalytica3020012&partnerID=40&md5=17c698e5b7c4cae31ead70db6da8d6b8)

AFFILIATIONS: Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Michael Sayegh Faculty of Pharmacy, Aqaba University of Technology, Aqaba, 77110, Jordan;

Faculty of Pharmacy, Mutah University, Al-Karak, 61710, Jordan

ABSTRACT: Nonsteroidal anti-inflammatory drugs are the most commonly prescribed anti-inflammatory drugs worldwide. The most common side effects are gastrointestinal. Pantoprazole, a proton pump inhibitor (PPI), can be used to prevent these events from occurring. In this study, we attempt to develop and validate a novel method for determining and validating the fixed-dose combination of meloxicam and pantoprazole. A new method has been developed and validated to estimate pantoprazole and meloxicam in a fixed-dose combination using RP-HPLC. In order to separate the drugs, a mobile phase phosphate buffer/acetate was used (30:70, v/v), with a pH of 3.4 and a flow rate of 1.0 mL/min at 25 °C. The detection wavelength for the drugs was at a wavelength of 310 nm. The retention times for meloxicam and pantoprazole were 6 and 9 min, respectively. In concentrations ranging from 0.1 to 200 mg/L, the linearity of the detector was established. The r was 0.9998 for both drugs. Recovery rates ranged from 98 to 102% on average. According to the guidelines of the International Council on Harmonization, the results were satisfactory. Using the method presented herein, the pharmaceutical formulation of the combined meloxicam and pantoprazole can be routinely tested. © 2022 by the authors.

Al-Nuimat, W.M.S.

The Portrayal of the Inner Self in Alex Michaelides's The Silent Patient, AJ Finn's The Woman in the Window, and Paula Hawkins's The Girl on the Train

(2022) Res Militaris, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142199642&partnerID=40&md5=fea6102950f0c261209f89b2735cddf7)

[85142199642&partnerID=40&md5=fea6102950f0c261209f89b2735cddf7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142199642&partnerID=40&md5=fea6102950f0c261209f89b2735cddf7)

AFFILIATIONS: Faculty of Arts, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Psychological realism emphasizes characters' inner thoughts and motivation. This paper discusses the inner self in the Silent Patient, by Michaelides. The Woman in the Window, by AJ Finns, and the Girl on the Train by Paula Hawkins. This research will also examine the characters' inner selves and moral and ethical dilemmas. Identifying the features of psychological realism, such as characters' thoughts and motivations, minds and personalities, psyche and its relationship to a novel, and flashbacks of various types. These are psychological thrillers. These works compare the depression and abandonment. Inner conflicts, family issues, heartbreak, and tragedy as a common cause. Characters become murderers, cheaters, and depressed. These three works have many similarities. This paper concludes that the three books have different psychological elements. The conclusion of this paper shows psychological realism is seen in The Silent Patient, The Woman in the Window, and The Girl on the Train. Psychological realism is a writing style was shown in late 19th-and early 20th-century. Henry James' fiction expressed romantic desires and family relationships. It focuses on the character, say Manikandan et al (2021). A novelist focuses on characters' inner thoughts, motivations, and actions. © 2022, Association Res Militaris. All rights reserved.

Dahmani, Z., Anber, A., Jebril, I.

SOLVING CONFORMABLE EVOLUTION EQUATIONS BY AN EXTENDED NUMERICAL METHOD

(2022) Jordan Journal of Mathematics and Statistics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136174047&doi=10.47013%2f15.2.14&partnerID=40&md5=dfb135db7abd39646b09025e9ef578d5>

AFFILIATIONS: Laboratory of Pure and Applied Mathematics, University of Mostaganem27000, Algeria;
Department of Mathematics, University of USTO, Oran, 31000, Algeria;
Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In this paper, an extension for the tanh-function method is proposed by using an $(\alpha_1, \alpha_2, \dots, \alpha_n, \beta)$ - rational transformation method, n is an arbitrary integer. As applications and to illustrate the validity of this method, the (1+3)-dimensional conformable time and space fractional Burgers equation, and two other (1+3)-dimensional conformable fractional evolution examples, that are useful for academic purposes, are solved. More kink and generalized traveling wave solutions are obtained and some three-dimensional solution graphs are presented at the end of this paper. Copyright © Deanship of Research and Graduate Studies, Yarmouk University, Irbid, Jordan.

Al-Gahlith, A., Shalabi, A.

"Elegy Written in a Country Churchyard": A Critique of the British Political Agenda

(2022) International Journal of Arabic-English Studies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133771131&doi=10.33806%2fijaes2000.22.2.14&partnerID=40&md5=950d7391be20eae7b5d02916b870896>

AFFILIATIONS: Department of English Language and Literature, Al-zytoonah University of Jordan, Jordan;

Department of English Language and Literature, Al-Ahliyya Amman University, Jordan

ABSTRACT: The Restoration and the eighteenth century brought great changes to the islands of Great Britain. It was a time that witnessed the Act of Union which joined Scotland and Wales to Britain in 1707. Britain achieved political stability and commercial prosperity. New standards of politeness and social behavior prevailed to distinguish between civilized and vulgar citizens. The standards of hierarchy and order helped people participate in and contribute to the emergence of the British Empire and culture. For the sake of expansion, Britain started to drive many of its population and soldiers to settle in its newly occupied territories to encourage the British hegemony in those colonies. For that reason, several English writers, critics, and poets approached the theme of political and social transformation in their literary works. Although Thomas Gray's poem "Elegy Written in a Country Churchyard" has been predominantly analyzed as a poem that mourns the death of marginalized poor people, this paper aims to put the poem in its socio-political context. Within a historical framework, this study argues that the poem does not only lament the death of England's underprivileged individuals but that it also contains a prophecy that started to be fulfilled decades later. © 2022 Librairie du Liban Publishers. All rights reserved.

Alrawashdeh, N., Alsmadi, A.A., Al-Gasaymeh, A.

FinTech: A Bibliometric Analysis for the Period of 2014-2021

(2022) Quality - Access to Success, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133545308&doi=10.47750%2fQAS%2f23.188.24&partnerID=40&md5=03ac69622a0716e2e454f3e462878c3a>

AFFILIATIONS: Isra University, Jordan;
Al Zaytoonah University of Jordan, Jordan;
Applied Science University, Jordan

ABSTRACT: Purpose: This study aims to examine the key intellectual and influential aspects of financial technology literature? and to evaluate the future research direction of financial technology literature? Design/methodology/approach: This paper adopts multiple software packages were employed, including Excel, VOSviewer and RStudio. VOSviewer is used to build networks of scientific articles, journals, researchers, organizations, countries, and terms. Findings: the analysis of the Bibliographical focusing on sources, depends on five clusters, the Sustainability (Switzerland), Financial Innovations, Investment Management, Europe journal of finance and Electronic Commerce Research and Applications the lead journals in the clusters. Originality: This paper contributes to the literature based on 4 classes of research streams in Fintech namely Fintech, blockchain, Artificial intelligence and Innovation which are represent the most future upcoming trends. © 2022, SRAC - Romanian Society for Quality. All rights reserved.

Al-Qerem, W., Carter, N., Ling, J.

Attitudes to Organ Donation and Transplantation: An Insight From Jordan

(2022) Experimental and Clinical Transplantation, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133543706&doi=10.6002%2flect.2021.0419&partnerID=40&md5=32ddfde78ada1a9a279743c51435e06e>

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Faculty of Health Sciences and Wellbeing, University of Sunderland, Sunderland, United Kingdom

ABSTRACT: Objectives: Organ donation rates in the Arabic-speaking world remain low; however, little is known about why. This study adapted an existing questionnaire into Arabic to improve understanding of perceived barriers to donation as a step toward increasing donation rates. **Materials and Methods:** We developed and validated an Arabic version of a published questionnaire, and we used this to collect data on knowledge and attitudes toward organ and tissue donation and trans-plantation, as well as reasons for the beliefs among adults in Jordan. The questionnaire was circulated through various Facebook groups. **Results:** The questionnaire was completed by 404 Jordanian adults. Factor analysis indicated that a 3-factor model was suitable for the present study. These factors were Organ Donation Attitude, Organ Transplantation Attitude, and Fear of Health Outcomes. Generally, knowledge of organ donation was good, although only some respondents were aware of the opt-out system. Attitudes toward donation were favorable, with very few respondents reporting that religious or cultural beliefs would prevent them from donating organs. One surprising finding was that one-third of respondents expressed some degree of distrust of health services. **Conclusions:** Efforts to improve organ donation in the Arab world remain in development. We found a substantial awareness of organ donation and largely favorable views of it among selected adults in Jordan. This indicates a need to shift focus away from education and perceived religious and cultural barriers and refocus instead on the concerns regarding distrust of health services by the general population. © Başkent University 2022 Printed in Turkey. All Rights Reserved.

Al-Amer, R., Malak, M.Z., Burqan, H.M.R., Stănculescu, E., Nalubega, S., Alkhamees, A.A., Hendawy, A.O., Ali, A.M.

Emotional Reaction to the First Dose of COVID-19 Vaccine: Postvaccination Decline in Anxiety and Stress among Anxious Individuals and Increase among Individuals with Normal Prevacination Anxiety Levels

(2022) Journal of Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132279091&doi=10.3390%2fjpm12060912&partnerID=40&md5=9f0bc15908077be4ccd25bd95f85df2a)

[85132279091&doi=10.3390%2fjpm12060912&partnerID=40&md5=9f0bc15908077be4ccd25bd95f85df2a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132279091&doi=10.3390%2fjpm12060912&partnerID=40&md5=9f0bc15908077be4ccd25bd95f85df2a)

AFFILIATIONS: Faculty of Nursing, Isra University, Amman, 11953, Jordan;

School of Nursing and Midwifery, Western Sydney University, Penrith, NSW 2751, Australia;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Nursing, Alghad International Colleges for Applied Medical Sciences, Riyadh Branch, Riyadh, 13315, Saudi Arabia;

Faculty of Psychology and Educational Sciences, University of Bucharest, Bucharest, 050663, Romania;

Department of Nursing, School of Health Sciences, Soroti University, Soroti City, 211, Uganda;

Department of Medicine, Unayzah College of Medicine and Medical Sciences, Qassim University, Unayzah, 52571, Saudi Arabia;

Department of Animal and Poultry Production, Faculty of Agriculture, Damanhour University, Damanhour, 22516, Egypt;

Department of Psychiatric Nursing and Mental Health, Faculty of Nursing, Alexandria University, Smouha, Alexandria, 21527, Egypt

ABSTRACT: Although vaccination has been adopted by the WHO to limit worldwide transmission of COVID-19, people's worries about COVID-19 vaccines may suppress their desire for vaccination despite vaccine availability. This study aimed to investigate anxiety and stress symptoms among 250

Jordanians (mean age = 43.18 ± 6.34 years, 72% females) who received their first vaccine dose. The respondents completed the anxiety and stress subscales of the Depression Anxiety and Stress scale 21 (DASS-21) before and after vaccination. The respondents expressed more moderate-severe levels of stress before than after vaccination (20.8% and 13.2%, respectively). Meanwhile, 37.2% and 45.2% of the respondents expressed moderate-severe anxiety before and after vaccination, respectively.

Wilcoxon signed-rank test revealed that the drop in the level of stress from before-(median (IQR) = 5 (1-8)) to after vaccination (median (IQR) = 3 (1-7)) was statistically significant ($z = -3.81$, $p = 0.001$, $r = 0.17$) while the increase in anxiety was not. Anxiety significantly dropped postvaccination among individuals experiencing mild to severe anxiety before vaccination. Similarly, stress and anxiety significantly increased among individuals expressing normal anxiety before vaccination ($z = -3.57$ and -8.24 , p values = 0.001 , $r = 0.16$ and 0.37 , respectively). Age positively correlated with postvaccination anxiety among respondents with mild prevaccination anxiety, and it negatively correlated with the prevaccination level of stress in the normal-anxiety group. Gender, marital status, respondents' level of education, and history of COVID-19 infection had no significant correlation with anxiety or stress at either point of measurement. Overcoming their hesitancy to receive COVID-19 vaccines, individuals with normal levels of anxiety experienced a rise in their distress symptoms following immunization. On the contrary, vaccination seemed to desensitize anxious individuals. Policymakers need to formulate a population-specific plan to increase vaccine preparedness and promote psychological well-being over all during the pandemic. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Although vaccination has been adopted by the WHO to limit worldwide transmission of COVID-19, people's worries about COVID-19 vaccines may suppress their desire for vaccination despite vaccine availability. This study aimed to investigate anxiety and stress symptoms among 250

Jordanians (mean age = 43.18 ± 6.34 years, 72% females) who received their first vaccine dose. The respondents completed the anxiety and stress subscales of the Depression Anxiety and Stress scale 21 (DASS-21) before and after vaccination. The respondents expressed more moderate-severe levels of stress before than after vaccination (20.8% and 13.2%, respectively). Meanwhile, 37.2% and 45.2% of the respondents expressed moderate-severe anxiety before and after vaccination, respectively.

Wilcoxon signed-rank test revealed that the drop in the level of stress from before-(median (IQR) = 5 (1-8)) to after vaccination (median (IQR) = 3 (1-7)) was statistically significant ($z = -3.81$, $p = 0.001$, $r = 0.17$) while the increase in anxiety was not. Anxiety significantly dropped postvaccination among individuals experiencing mild to severe anxiety before vaccination. Similarly, stress and anxiety significantly increased among individuals expressing normal anxiety before vaccination ($z = -3.57$ and -8.24 , p values = 0.001 , $r = 0.16$ and 0.37 , respectively). Age positively correlated with postvaccination anxiety among respondents with mild prevaccination anxiety, and it negatively correlated with the prevaccination level of stress in the normal-anxiety group. Gender, marital status, respondents' level of education, and history of COVID-19 infection had no significant correlation with anxiety or stress at either point of measurement. Overcoming their hesitancy to receive COVID-19 vaccines, individuals with normal levels of anxiety experienced a rise in their distress symptoms following immunization. On the contrary, vaccination seemed to desensitize anxious individuals. Policymakers need to formulate a population-specific plan to increase vaccine preparedness and promote psychological well-being over all during the pandemic. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Similarly, stress and anxiety significantly increased among individuals expressing normal anxiety before vaccination ($z = -3.57$ and -8.24 , p values = 0.001 , $r = 0.16$ and 0.37 , respectively). Age positively correlated with postvaccination anxiety among respondents with mild prevaccination anxiety, and it negatively correlated with the prevaccination level of stress in the normal-anxiety group. Gender, marital status, respondents' level of education, and history of COVID-19 infection had no significant correlation with anxiety or stress at either point of measurement. Overcoming their hesitancy to receive COVID-19 vaccines, individuals with normal levels of anxiety experienced a rise in their distress symptoms following immunization. On the contrary, vaccination seemed to desensitize anxious individuals. Policymakers need to formulate a population-specific plan to increase vaccine preparedness and promote psychological well-being over all during the pandemic. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Age positively correlated with postvaccination anxiety among respondents with mild prevaccination anxiety, and it negatively correlated with the prevaccination level of stress in the normal-anxiety group. Gender, marital status, respondents' level of education, and history of COVID-19 infection had no significant correlation with anxiety or stress at either point of measurement. Overcoming their hesitancy to receive COVID-19 vaccines, individuals with normal levels of anxiety experienced a rise in their distress symptoms following immunization. On the contrary, vaccination seemed to desensitize anxious individuals. Policymakers need to formulate a population-specific plan to increase vaccine preparedness and promote psychological well-being over all during the pandemic. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Overcoming their hesitancy to receive COVID-19 vaccines, individuals with normal levels of anxiety experienced a rise in their distress symptoms following immunization. On the contrary, vaccination seemed to desensitize anxious individuals. Policymakers need to formulate a population-specific plan to increase vaccine preparedness and promote psychological well-being over all during the pandemic. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

On the contrary, vaccination seemed to desensitize anxious individuals. Policymakers need to formulate a population-specific plan to increase vaccine preparedness and promote psychological well-being over all during the pandemic. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Policymakers need to formulate a population-specific plan to increase vaccine preparedness and promote psychological well-being over all during the pandemic. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

© 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Khirfan, F., Jarrar, Y., Al-Qirim, T., Goh, K.W., Jarrar, Q., Ardianto, C., Awad, M., Al-Ameer, H.J., Al-Awaida, W., Moshawih, S., Ming, L.C.

Analgesics Induce Alterations in the Expression of SARS-CoV-2 Entry and Arachidonic-Acid-Metabolizing Genes in the Mouse Lungs

(2022) Pharmaceuticals, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132264155&doi=10.3390%2fph15060696&partnerID=40&md5=0a387d2b04d4ffae98ca7271cdf4105a)

[85132264155&doi=10.3390%2fph15060696&partnerID=40&md5=0a387d2b04d4ffae98ca7271cdf4105a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132264155&doi=10.3390%2fph15060696&partnerID=40&md5=0a387d2b04d4ffae98ca7271cdf4105a)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11731, Jordan;

Faculty of Data Science and Information Technology, INTI International University, Nilai, 71800, Malaysia;

Department of Applied Pharmaceutical Sciences, Faculty of Pharmacy, Al-Isra University, Amman, 11622, Jordan;

Department of Pharmacy Practice, Faculty of Pharmacy, Universitas Airlangga, Surabaya, 60115, Indonesia;

Department of Biology and Biotechnology, American University of Madaba, Madaba, 17110, Jordan;

PAP Rashidah Sa'adatul Bolkliah Institute of Health Sciences, Universiti Brunei Darussalam, Gadong, BE1410, Brunei Darussalam

ABSTRACT: Paracetamol and nonsteroidal anti-inflammatory drugs are widely used in the management of respiratory viral infections. This study aimed to determine the effects of the most commonly used analgesics (paracetamol, ibuprofen, and diclofenac) on the mRNA expression of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) entry and arachidonic-acid-metabolizing genes in mouse lungs. A total of twenty eight Balb/c mice were divided into four groups and treated separately with vehicle, paracetamol, ibuprofen, and diclofenac in clinically equivalent doses for 14 days. Then, the expressions of SARS-CoV-2 entry, ACE2, TMPRSS2, and Cts1 genes, in addition to the arachidonic-acid-metabolizing cyp450, cox, and alox genes, were analyzed using real-time PCR. Paracetamol increased the expressions of TMPRSS2 and Cts1 genes by 8.5 and 5.6 folds, respectively, while ibuprofen and diclofenac significantly decreased the expression of the ACE2 gene by more than 2.5 folds. In addition, all tested drugs downregulated ($p < 0.05$) cox2 gene expression, and paracetamol reduced the mRNA levels of cyp4a12 and 2j5. These molecular alterations in diclofenac and ibuprofen were associated with pathohistological alterations, where both analgesics induced the infiltration of inflammatory cells and airway wall thickening. It is concluded that analgesics such as paracetamol, ibuprofen, and diclofenac alter the expression of SARS-CoV-2 entry and arachidonicacid-metabolizing genes in mouse lungs. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Hammad, A.M., Al-Qerem, W., Alasmari, F., Ling, J., Qarqaz, R., Alaqabani, H.

Identifying Drug-Therapy Problems among Syrian Refugees in Zaatari Refugee Camp

(2022) International Journal of Environmental Research and Public Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131661347&doi=10.3390%2fijerph19127199&partnerID=40&md5=c02cc06e52ab1530475c92f26e4b1ea3)

[85131661347&doi=10.3390%2fijerph19127199&partnerID=40&md5=c02cc06e52ab1530475c92f26e4b1ea3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131661347&doi=10.3390%2fijerph19127199&partnerID=40&md5=c02cc06e52ab1530475c92f26e4b1ea3)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 12372, Saudi Arabia;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Chester Road, Sunderland, SR1 3SD, United Kingdom

ABSTRACT: Background: Due to a lack of proper pharmaceutical care, Syrian refugees in the Zaatari refugee camp are more likely to have drug-related issues, such as prescription errors and adverse drug occurrences. Aim: The current study aims to identify drug-therapy problems among Syrian refugees in the Zaatari refugee camp. Method: This is a retrospective cross-sectional study. Patients' files were collected from the Zaatari camp database. Patients who were 18 years or older and were previously diagnosed with a chronic disease were included. A classification of drug therapy problems (DTPs) was adapted. Results: The data of 1530 adult patients (896 females) were collected. The mean age of the sample was 53.7 years and the mean Body mass Index (BMI) was 27.20. The mean of all taken medications was 4.01 (± 2.33) medications, with a maximum number of 13. A total of 3572 DTPs was identified, with a mean of 2.33 (± 1.26) DTPs per patient. Based on the above-mentioned classification, 70.32% of the DTPs were related to indication, 26.65% were related to effectiveness, and 3.03% were related to safety. Conclusion: This study found that refugees in the Zaatari refugee camp have numerous DTPs among their medications. Greater focus should be placed on their medical care, in order to prevent any future complications due to DTPs. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Alkilani, A.Z., Nasereddin, J., Hamed, R., Nimrawi, S., Hussein, G., Abo-Zour, H., Donnelly, R.F.

Beneath the Skin: A Review of Current Trends and Future Prospects of Transdermal Drug Delivery Systems

(2022) *Pharmaceutics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131424334&doi=10.3390%2fpharmaceutics14061152&partnerID=40&md5=184c68f55b53732a69f393fc1d0b3ad2)

85131424334&doi=10.3390%2fpharmaceutics14061152&partnerID=40&md5=184c68f55b53732a69f393fc1d0b3ad2

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, 13110, Jordan; Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; Medical Biology Centre, School of Pharmacy, Queen's University Belfast, Belfast, BT7 1NN, United Kingdom

ABSTRACT: The ideal drug delivery system has a bioavailability comparable to parenteral dosage forms but is as convenient and easy to use for the patient as oral solid dosage forms. In recent years, there has been increased interest in transdermal drug delivery (TDD) as a non-invasive delivery approach that is generally regarded as being easy to administer to more vulnerable age groups, such as paediatric and geriatric patients, while avoiding certain bioavailability concerns that arise from oral drug delivery due to poor absorbability and metabolism concerns. However, despite its many merits, TDD remains restricted to a select few drugs. The physiology of the skin poses a barrier against the feasible delivery of many drugs, limiting its applicability to only those drugs that possess physicochemical properties allowing them to be successfully delivered transdermally. Several techniques have been developed to enhance the transdermal permeability of drugs. Both chemical (e.g., thermal and mechanical) and passive (vesicle, nanoparticle, nanoemulsion, solid dispersion, and nanocrystal) techniques have been investigated to enhance the permeability of drug substances across the skin. Furthermore, hybrid approaches combining chemical penetration enhancement technologies with physical technologies are being intensively researched to improve the skin permeation of drug substances. This review aims to summarize recent trends in TDD approaches and discuss the merits and drawbacks of the various chemical, physical, and hybrid approaches currently being investigated for improving drug permeability across the skin. © 2022 by the author Licensee MDPI, Basel, Switzerland.

Bouacha, M., Boudiar, I., Abdi, A., Al-Kafaween, M.A., Khallef, M.

THE ANTIMUTAGENIC EFFECT OF MULTIFLORAL HONEY IN SALMONELLA/ MICROSOMAL ASSAY AND ITS CORRELATION WITH THE TOTAL POLYPHENOLIC CONTENT

(2022) *Journal of Microbiology, Biotechnology and Food Sciences*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131418730&doi=10.55251%2fjmbfs.5557&partnerID=40&md5=0bca5525636d856cb052fc2a23bdb3a4)

85131418730&doi=10.55251%2fjmbfs.5557&partnerID=40&md5=0bca5525636d856cb052fc2a23bdb3a4

AFFILIATIONS: Laboratory of Biochemistry and Environmental Toxicology, Department of Biochemistry, Faculty of Sciences, University of Badji Mokhtar, Annaba, Algeria;

Laboratory of Biochemistry and Microbiology, Department of Biochemistry, Faculty of Sciences, University of Badji Mokhtar, Annaba, Algeria;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biology, Faculty of Natural Sciences, Life Sciences, Earth and the Universe, University of 8 Mai 1945, Guelma, Algeria

ABSTRACT: The objective of this study is to determine the antimutagenic effect of honey and its correlation with the concentration of the total polyphenolic content. Seven honey samples were collected from different regions of Algeria. The total polyphenolic content was determined by Folin-Ciocalteu colorimetric assay. The antimutagenic effect was carried out by the AMES Salmonella/microsome mutagenicity assay against three known mutagenic substances (4-nitro-o-phenylenediamine, sodium azide, and mitomycin C), using *Salmonella typhimurium* TA98, TA100, and TA102 strains. The results obtained revealed that Algerian honey contains high polyphenol content, which varied significantly between 38.04 and 286.28 µg of GAE/100 mg of honey. This variation is due to their different botanical and regional origins. In addition, all tested honey exhibited an antimutagenic effect against mutagenic substances; honey is effective to inhibit between 29.18±11.11 % and 73.14±11.14 % of mutagenic activity of chemical substances. There is a strong positive correlation between the total polyphenolic content and the antimutagenic proprieties of honey against the mutagenic substances. The results obtained suggest that honey is effective as an antimutagenic agent; it can play an important role in the protection of the mutagenic effect of DNA caused by chemical substances. © 2022. *Journal of Microbiology, Biotechnology and Food Sciences*. All Rights Reserved.

Al-Samydai, A., Hajleh, M.N.A., Al-Samydai, M., Al-Halaseh, L.K., Habash, S., Alkhayyat, D., Saef, S.A., Haitham, L., Bahloul, H.S., Askender, M.W.

The quandary of incorrect practice toward unused and expired pharmaceutical products in households

(2022) *Journal of Applied Pharmaceutical Science*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131395658&doi=10.7324%2fJAPS.2022.120620&partnerID=40&md5=a585bda695c35a3907e6a72aac267485)

85131395658&doi=10.7324%2fJAPS.2022.120620&partnerID=40&md5=a585bda695c35a3907e6a72aac267485

AFFILIATIONS: Pharmacological and Diagnostic Research Centre, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, (19328), Jordan;

Department of Cosmetic Science, Pharmacological and Diagnostic Research Centre, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, (19328), Jordan;

Department of Marketing, The Faculty of Business, Al-Zaytoonah University, Jordan;

Department of Pharmaceutical Chemistry, Faculty of pharmacy, Mutah University, Al-Karak, 61710, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, Jordan
ABSTRACT: Background: The latest revolution in pharmaceutical industries has led to an enormous production of medications, and therefore massive prescriptions. Sadly, the innocence of the correct disposal methods correlates with the hazardous accumulation of unused and even expired medicines. This is a worldwide issue and needs to be monitored. The current study aims to assess patients and customers' knowledge, attitude, and awareness of the correct storage conditions of the prescribed medications, in addition to their disposal methods. Methods: Online Google forms were randomly distributed among 450 participants. The achieved response rate was 97%. The questionnaire was titled "Regarding the Factors Influencing Consumers' Knowledge about Unused and Expired Medications". Results and conclusion: The output of this study highlights the risk of mishandling expired and unused medications due to people's knowledge backwardness. The obtained data confirmed the effect of reference groups on patient behavior regarding storage conditions, the disposal of medicines, and the environmental and health hazards related to medications abuse. In essence, establishing a disposal program for unused and expired medicines under the supervision of trained pharmacists is necessary to increase social awareness, therefore alleviating misuse hazards. © 2022. Ali AL-Samydai et al. This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>).

Alkhatib, A.A.A., Abu Maria, K., Alzu'bi, S., Abu Maria, E.
Novel system for road traffic optimisation in large cities
(2022) IET Smart Cities, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85131259380&doi=10.1049%2fsmc.1.2032&partnerID=40&md5=e3175bb1658a1a29f4634144b02e76a2

AFFILIATIONS: Faculty of Science and Information Technology, Alzytoonah University of Jordan, Amman, Jordan

ABSTRACT: Traffic congestion and road intersection management have become a significant issue, mainly with the highly increasing number of vehicles in cities. There is a common belief from vehicle drivers that installing traffic lights with some consideration of traffic flows will be dominant in traffic movements. This article proposes a novel system for Urban Traffic Control (UTC) with a continuous dynamic environment adaptation to improve traffic flow on large cities' network roads. The proposed system introduces vehicle counting method, lane evaluation of the current status and controlling method considering the effect on the whole traffic network—not just the intersection itself—to provide an efficient traffic scheduling. The main objective of the authors' system is to reduce traffic jam, by reducing waiting time and trip time for vehicles at intersections. Some indicators and models are introduced in this work to assign traffic flow schedules with minimum traffic congestion and vehicle waiting time. These indicators and models include a traffic jam indicator, vehicle priority and lane weight. A multi-agent urban traffic control system is proposed as the simulation environment using NetLogo simulator. (A total of 150) Vehicles are generated with random behaviour distributed over 25 intersections for 9 h duration to compare the normal fixed cycle traffic light and the authors' smart traffic control. Results show a reduction in the total average waiting time of all vehicles for the simulation period by more than (29.98%). Hence, it is more suitable for the complexity of the current traffic condition with minimum changing infrastructure. © 2022 The Authors. IET Smart Cities published by John Wiley & Sons Ltd on behalf of The Institution of Engineering and Technology.

Almasaeid, H.H., Suleiman, A., Alawneh, R.

Assessment of high-temperature damaged concrete using non-destructive tests and artificial neural network modelling

(2022) Case Studies in Construction Materials, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85129461810&doi=10.1016%2fj.cscm.2022.e01080&partnerID=40&md5=1cfbf2fbbf207930805d335f49536921

AFFILIATIONS: Civil Engineering Department, Faculty of Engineering, Al Albayt University, Mafraq, Jordan;

Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Evaluation of high-temperature damaged concrete is crucial to ensure the safety of any structure after a fire event. However, using destructive tests, such as taking cores from the concrete, can be costly and dangerous; specifically for damaged structures. Therefore, it is preferred to use in-situ non-destructive testing (NDT) in the assessment of damaged concrete. The objective of this study is to develop an artificial neural network model, based on destructive and non-destructive testing results, to assess the concrete strength after being subjected to high-temperature levels; without the need for further in-situ destructive testing. The effect of high-temperature levels (200–800 °C) on concrete compressive strength was investigated in this study using

destructive compression and non-destructive tests on concrete cubes; including ultrasonic pulse velocity and Schmidt rebound hammer testing methods. The results of destructive and non-destructive tests of damaged and undamaged concrete were found to be highly correlated. Therefore, the data of this study and data obtained from the cited literature were augmented together and used to optimise and train the artificial neural network model. The artificial neural network analysis indicated that concrete compressive strength (CS), the magnitude of high-temperature damage, and the level of exposure temperature can be predicted with reasonable accuracy using only a combination of non-destructive tests results. The model had a coefficient of determination equals to 0.944. © 2022 The Authors

Mughaid, A., Al-Zu'bi, S., AL Arjan, A., AL-Amrat, R., Alajmi, R., Zitar, R.A., Abualigah, L. An intelligent cybersecurity system for detecting fake news in social media websites (2022) Soft Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129287289&doi=10.1007%2fs00500-022-07080-1&partnerID=40&md5=ebbe99af95b254caa2375062c8d8c5cb>

AFFILIATIONS: Department of Information Technology, Faculty of prince Al-Hussien bin Abdullah for IT, The Hashemite University, PO Box 330127, Zarqa, 13133, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Sorbonne Center of Artificial Intelligence, Sorbonne University-Abu Dhabi, Abu Dhabi, 38044, United Arab Emirates;

Faculty of Computer Sciences and Informatics, Amman Arab University, Amman, 11953, Jordan;

School of Computer Sciences, Universiti Sains Malaysia, Pulau Pinang, 11800, Malaysia

ABSTRACT: People worldwide suffer from fake news in many life aspects, healthcare, transportation, education, economics, and many others. Therefore, many researchers have considered seeking techniques for automatically detecting fake news in the last decade. The most popular news agencies use e-publishing on their websites; even websites can publish any news they want. However, thus before quotation any news from a website, there should be a close look at news resource ranking by using a trusted websites classifier, such as the website world rank, which reflects the reputé of these websites. This paper uses the world rank of news websites as the main factor of news accuracy by using two widespread and trusted websites ranking. Moreover, a secondary factor is proposed to compute the news accuracy similarity by comparing the current news with fakes news and getting the possible news accuracy. Experiments results are conducted on several benchmark datasets. The results showed that the proposed method got promising results compared to other comparative methods in defining the news accuracy. © 2022, The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature.

Alwan, M., Alshurideh, M.T.

The effect of digital marketing on purchase intention: Moderating effect of brand equity (2022) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129090696&doi=10.5267%2fj.ijdns.2022.2.012&partnerID=40&md5=8038affa4c9ffa32bb2454146a3c46ba)

[85129090696&doi=10.5267%2fj.ijdns.2022.2.012&partnerID=40&md5=8038affa4c9ffa32bb2454146a3c46ba](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129090696&doi=10.5267%2fj.ijdns.2022.2.012&partnerID=40&md5=8038affa4c9ffa32bb2454146a3c46ba)

AFFILIATIONS: Marketing Department, Faculty of Business, Al-Zaytoonah University, Jordan;

Department of Marketing, School of Business, The University of Jordan, Amman, 11942, Jordan;

Department of Management, College of Business, University of Sharjah, Sharjah, 27272, United Arab Emirates

ABSTRACT: This study aims to investigate the effect of digital marketing, social media marketing and electronic word-of-mouth EWOM, on the purchase intention with moderating effect of brand equity. A quantitative research approach was used to achieve the research objectives. The data was collected from a sample consisting of 254 online shoppers of IKEA Jordan. By using a random sampling technique, the data was collected through an electronic questionnaire. Statistical analyses were conducted such as data normality and scale reliability by using IBM SPSS 21 software, followed by measurement model and hypothesis testing by using Smart PLS3 software. The results assessed the validity of the measurement model, structural model as well moderation analysis that was conducted based on the study objectives. The findings confirmed the assumptions which stated the digital marketing had a positive significant effect on purchase intention, and the moderating effect of brand equity revealed a significant effect. The study has contributed to the existing literature by providing future research suggestions and directions linked to this topic in the context of Jordan social media marketing and shopping. © 2022, Growing Science. All rights reserved.

Alsmadi, A.A., Alrawashdeh, N., Al-Dweik, A.F., Al-Assaf, M.

Cryptocurrencies: A bibliometric analysis

(2022) International Journal of Data and Network Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129022578&doi=10.5267%2fj.ijdns.2022.4.011&partnerID=40&md5=21bc54b984079d0f9385f050d00c93f1)

[85129022578&doi=10.5267%2fj.ijdns.2022.4.011&partnerID=40&md5=21bc54b984079d0f9385f050d00c93f1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129022578&doi=10.5267%2fj.ijdns.2022.4.011&partnerID=40&md5=21bc54b984079d0f9385f050d00c93f1)

AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan;

Isra University, Jordan;

Swansea University, United Kingdom

ABSTRACT: The purpose of the current paper is to identify influential aspects of published literature and future research questions to set forth future research agenda based on comprehensive literature review using bibliometric and content analysis. The study analyzed 1225 documents from the international Scopus database using bibliometric analysis and content analysis. VOSviewer software is used for bibliometric analysis. The analysis revealed that most of the information was derived from the Finance Research Letters. Moreover, the United Kingdom is the most cited country, while Tianjin University in China has the highest publications affiliations. Furthermore, the analysis shows that the keyword analysis of cryptocurrency literature had four classes of research streams in cryptocurrency, namely, cryptocurrency, Blockchain, Fintech, and currency, representing the most upcoming trends. The present study makes a significant contribution to the literature by providing a framework for future research. The framework provides opportunities to future researchers to explore the web of relations among some identified research streams as future research agenda. © 2022, Growing Science. All rights reserved.

Jarab, A.S., Al-Qerem, W., Mukattash, T.L., Abuhishmah, S.R., Alkhdour, S.

Pharmacists' knowledge and attitudes toward medication therapy management service and the associated challenges and barriers for its implementation

(2022) Saudi Pharmaceutical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127343317&doi=10.1016%2fj.jsps.2022.03.008&partnerID=40&md5=c7383e0ea269cc43c5815d98d7053d01)

[85127343317&doi=10.1016%2fj.jsps.2022.03.008&partnerID=40&md5=c7383e0ea269cc43c5815d98d7053d01](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127343317&doi=10.1016%2fj.jsps.2022.03.008&partnerID=40&md5=c7383e0ea269cc43c5815d98d7053d01)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Background: The literature demonstrated a positive impact of medication therapy management (MTM) services provided by the pharmacists to improve the overall health outcomes. Nevertheless, limited data is available with regard to MTM service implementation by community pharmacists and its associated factors in Jordan. Objective: To evaluate community pharmacists' knowledge, attitude and practice of MTM service and to explore the challenges and barriers for its implementation. Methods: The present cross-sectional study utilized a validated online survey which was filled by community pharmacists in different areas across Jordan. In addition to the socio-demographic variables, the study questionnaire evaluated pharmacists' knowledge and attitudes towards MTM service, extent of MTM implementation and its associated challenges and barriers. Results: A total of 250 pharmacists completed the survey. The study pharmacists showed moderate knowledge level (median of the total knowledge score = 6 (4-7) out of 10) and positive attitude (median of the attitude score was 23 (19-26) out of 30) towards MTM services. The participating pharmacists recognized performing or obtaining necessary assessments of patient's health status as the most frequently provided MTM service (84.8%), while the least one was documenting the care delivered and communicating essential information to other healthcare providers (62%). Furthermore, collecting patient-related information was the most commonly recognized challenge to MTM service provision (36.8%), followed by referring the patient to a physician or consultant (36%) and collaboration with them (35.6%). The most reported barrier was negative physician attitudes (40.4%), followed by the lack of training on MTM provision (38.4%), and lack of adequate support staff (37.2%). Conclusion: Efforts are needed to enhance collaboration between pharmacists and other health care professional, to develop documentation systems that would preserve and facilitate access to patient information, and to implement appropriate training programs which aim to overcome the challenges and barriers for MTM implementation. © 2022 The Author(s)

Shatarat, N., Salman, D.

Investigation of punching shear behavior of flat slabs with different types and arrangements of shear reinforcement

(2022) Case Studies in Construction Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127006049&doi=10.1016%2fj.cscm.2022.e01028&partnerID=40&md5=96a2d5a6fa735a2fdbf0a2074ceadf9d)

[85127006049&doi=10.1016%2fj.cscm.2022.e01028&partnerID=40&md5=96a2d5a6fa735a2fdbf0a2074ceadf9d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127006049&doi=10.1016%2fj.cscm.2022.e01028&partnerID=40&md5=96a2d5a6fa735a2fdbf0a2074ceadf9d)

AFFILIATIONS: Department of Civil Engineering at The University of Jordan, Amman, 11942, Jordan;

Department of Civil Engineering at Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Punching shear behavior is experimentally investigated through testing a total of thirteen reinforced concrete flat slabs. Four different types of punching shear reinforcement configurations are examined, namely, ordinary closed rectangular stirrups (ST group), rectangular spiral stirrups (RSP group), advanced rectangular spiral stirrups (ARSP group), and circular spiral stirrups (SP group). Each configuration included three different spacings of 100, 150 and 200 mm. In addition, a reference slab specimen is cast without any punching shear reinforcement. The test results indicated that the circular spiral reinforcement scheme has the highest enhancement with regard to the punching shear capacity compared to the other reinforcement schemes. The percentage of enhancement of the SP group compared to the reference specimen ranges between 23% and 30%. For the other three different

rectangular schemes, the enhancement of the punching shear strength for the RSP group and the ARSP group is in the range of 15–23% and 16–25%, respectively. Finally, the punching shear capacity of the ST group increased by 9–13% compared to the reference specimen. The shear carrying capacity of the specimens is also calculated using the ACI 318-19 code and Eurocode 2 equations. The results showed that both codes are capable of predicting the shear carrying capacity for all the schemes. Also, although both codes are conservative, the Eurocode 2 gives a better estimate of the shear carrying capacity than the ACI 318-19 code. © 2022 The Authors

Abed, E., Jarrar, Y., Alhawari, H., Abdullah, S., Zihlif, M.

The association of cytochrome 7A1 and ATP-binding cassette G8 genotypes with type 2 diabetes among Jordanian patients

(2022) Drug Metabolism and Personalized Therapy, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120736866&doi=10.1515%2fdmpt-2021-0164&partnerID=40&md5=fbd813f5fb4c2418b649176a2ad9eb37>

AFFILIATIONS: Department of Pharmacology, Faculty of Medicine, University of Jordan, Amman, Jordan; Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Internal Medicine, Faculty of Medicine, University of Jordan, Amman, Jordan

ABSTRACT: Objectives: Increased cholesterol levels were found to be associated with diabetes mellitus type II (DM2). The cholesterol is metabolized by cytochrome 7A1 (CYP7A1) and transported in the intestine by ATP-binding cassette G8 (ABCG8). Genetic variants in CYP7A1 and ABCG8 genes can affect the cholesterol levels. The aim of this study is to compare the frequency of CYP7A1 rs3808607 and ABCG8 rs11887534 and rs4148217 genotypes between healthy and DM2 subjects from Jordanian population. Methods: A total of 117 DM2 patients and 100 healthy controls, of Jordanian Arabic origin, were genotyped for CYP7A1 rs3808607 and ABCG8 rs11887534 and rs4148217 genetic variants using polymerase chain reaction (PCR) followed by restriction fragment length polymorphism technique. Results: The study showed that homozygosity of rs3808607 (A-204C) genotype in CYP7A1 was significantly higher in DM2 patients (ANOVA, $p < 0.05$) with an odd ratio of 2.66, but rs11887534 (G55C) and rs4148217 (C1199A) genetic polymorphisms in ABCG8 were found in comparable frequencies in both healthy and DM2 subjects. Conclusions: The results of this study indicate that CYP7A1 rs3808607 genetic polymorphism is associated with DM2. Further clinical studies are required to confirm this finding among DM2 patients of Jordanian origin. © 2021 Walter de Gruyter GmbH, Berlin/Boston.

Aqel, D., Al-Zubi, S., Mughaid, A., Jararweh, Y.

Correction to: Extreme learning machine for plant diseases classification: a sustainable approach for smart agriculture (Cluster Computing, (2022), 25, 3, (2007-2020), 10.1007/s10586-021-03397-y)

(2022) Cluster Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119965058&doi=10.1007%2fs10586-021-03485-z&partnerID=40&md5=dce5e5c1569f7e2b9d5c01f4dfe99149>

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science and Application, Faculty of prince Al-Hussien bin Abdullah II for IT, The Hashemite University, Zarqa, Jordan;

Computer Science Department, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: The original version of this article unfortunately contained a mistake. The affiliation details for Author Ala Mughaid were incorrectly given as 'Computer Science Department, The Hashemite University, Zarqa, Jordan' but should have been 'Department of Computer science and application, Faculty of prince Al-Hussien bin Abdullah II for IT, The Hashemite University, Zarqa, Jordan'. The original article has been corrected. © 2021, Springer Science+Business Media, LLC, part of Springer Nature.

Aqel, D., Al-Zubi, S., Mughaid, A., Jararweh, Y.

Extreme learning machine for plant diseases classification: a sustainable approach for smart agriculture

(2022) Cluster Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118421587&doi=10.1007%2fs10586-021-03397-y&partnerID=40&md5=290379c63950e3c0c61ed77d954c76cd>

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer science and application, Faculty of prince Al-Hussien bin Abdullah II for IT, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Computer Science Department, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Nowadays, the economy of countries highly depends on the agriculture productivity which has a great effect on the development of human civilization. Sometimes, plant diseases cause a major reduction in agricultural products. This paper proposes a new approach for the automatic detection and classification of plant leaf diseases based on using the ELM deep learning algorithm on a real dataset of plant leaf images. The proposed approach uses the k-means clustering algorithm for image

segmentation and applies the GLCM for feature extraction. The BDA optimization algorithm is employed for feature selection, and lastly the ELM algorithm is used for plant leaf diseases classification. The presented approach optimizes the input weights and hidden biases for ELM. The dataset used in this study includes 73 plant leaf images, such that we tested our approach on four diseases that usually affect plants, including: *Alternaria alternata*, Anthracnose, Bacterial blight, and *Cercospora* leaf spot. The experimental results show that the proposed approach has achieved encouraging results in terms of these classification measures: accuracy, error rate, recall, F score, and AUC which are 94%, 6%, 92%, 95%, and 96% respectively. Babu © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Allswey, A., Al-Samarraie, H., Yousef, R.

Hofstede's dimensions of culture and gender differences in UI satisfaction

(2022) *Journal of Reliable Intelligent Environments*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107777354&doi=10.1007%2fs40860-021-00143-4&partnerID=40&md5=2f8dd75695390f77657d1c44bf9e20d8>

AFFILIATIONS: Department of Multimedia Technology, AL-Zaytoonah University of Jordan, Amman, Jordan; School of Media and Performing Arts, Coventry University, Coventry, United Kingdom;

General Education Department, Al Falah University, Dubai, United Arab Emirates

ABSTRACT: The integration of certain cultural elements into the design of user interface (UI) can help promote specific user behaviors. Tailoring the design of UI to meet users' design needs can help increase the usability of a system. This study explored the potential of integrating Hofstede's dimensions of Arabic culture into the design of mobile UI. We used a think-aloud method and Hofstede's cultural dimensions to propose the relevant design guidelines for designing mobile health interfaces. We invited 78 participants to participate in this study. The usability of the design was tested among male and female users. The results showed significant differences in male and female users' satisfaction with the design of UI. The findings from this study can guide the development of mobile health applications that can cater to the needs/preferences of a group-specific culture. © 2021, The Author(s), under exclusive licence to Springer Nature Switzerland AG.

Ikhmais, B., Hammad, A.M., Al-Qerem, W., Abusara, O.H., Ling, J.

Conducting COVID-19-Related Research in Jordan: Are We Ready?

(2022) *Disaster Medicine and Public Health Preparedness*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095745320&doi=10.1017%2fdmp.2020.437&partnerID=40&md5=04beeb5f9dc4848e6e9947f05bc81966>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Chester Road, Sunderland, United Kingdom

ABSTRACT: The coronavirus disease-2019 (COVID-19) pandemic is a public health emergency of international concern. This pandemic poses a challenge to research and scientific community. In this study, we developed and tested content reliability and content validity of a questionnaire designed for evaluating the readiness and willingness of researchers to participate in virology research in Jordan. The survey was hosted on an online platform, and the link was emailed. A total of 332 participants from universities across Jordan completed the survey. For factor analysis, Kaiser-Meyer-Olkin value (KMO) and Bartlett's Test of Sphericity were conducted. Furthermore, exploratory factor analysis (EFA) with parallel analysis and scree plots were conducted to evaluate the most suitable model for the data. The result of the EFA suggested a 5-factor model would fit the survey. Data showed that the lowest means were for researchers' readiness to conduct virology research and readiness for virology research with means of 2.07 and 2.95, respectively. Moreover, years of experience and speciality had a significant effect on the readiness and willingness of virology research in Jordan. In conclusion, readiness for research and researchers should be addressed and authorities should pay attention to these shortcomings in virology research. © 2022 The Author(s). Published by Cambridge University Press.

Sabbah, D.A., Samarat, H.H., Al-Shalabi, E., Bardaweel, S.K., Hajjo, R., Sweidan, K., Khalaf, R.A., Al-Zuheiri, A.M., Abushaikha, G.

Design, Synthesis, and Biological Examination of N-Phenyl-6-fluoro-4-hydroxy-2-quinolone-3-carboxamides as Anticancer Agents

(2022) *ChemistrySelect*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130262711&doi=10.1002%2fslct.202200662&partnerID=40&md5=874d7c301cf5e174b7f5775fbb37f847>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Institution Al-Zaytoonah University of Jordan, Address P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, Institution The University of Jordan, Address, Amman, 11942, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman, School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27515, United States;

Department of Chemistry, Institution The University of Jordan, Address, Amman, 11942, Jordan;
Department of Medicinal and Biological Chemistry, College of Pharmacy and Pharmaceutical Sciences, Institution The University of Toledo, Address, Toledo, OH 43606-3390, United States

ABSTRACT: Cancer is one of the leading causes of death worldwide, and it has a major impact on public health. Phosphatidylinositol 3-kinase (PI3K α) has been recognized as a promising drug target for developing anticancer agents. Herein, a series of N-phenyl-6-fluoro-4-hydroxy-2-quinolone-3-carboxamides was developed to target PI3K α . All synthesized compounds were characterized using FT-IR, NMR (1H and 13C) and elemental analysis. All synthesized chemical analogues exerted distinctive anticancer activity. They inhibited the growth of human epithelial colorectal adenocarcinoma (Caco-2) with IC₅₀ values between 48.63–378 μ M, and human colon cancer (HCT-116) cell lines with IC₅₀ values between 44–664 μ M. Computational modelling studies provided important biological insight. Induced-fit docking (IFD) studies showed that the synthesized chemical analogues fit the kinase catalytic domains and form a significant H-bond interaction network with key amino acids at the binding site. Furthermore, cheminformatics analyses indicated that all synthesized compounds were drug-like permitting further animal testing or clinical development. © 2022 Wiley-VCH GmbH.

Suleiman, A.

Causes and effects of poor communication in the construction industry in the mena region (2022) Journal of Civil Engineering and Management, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85129703419&doi=10.3846%2fjcem.2022.16728&partnerID=40&md5=ee1f5ecf976e7bfee7cf27abb05fc68e

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The construction industry in the Middle East and North Africa (MENA) faces many challenges throughout the project's lifecycle; on top of these challenges is poor communication which occasionally results in project failure or at least time and cost overruns. A range of steps and methods must be taken to minimize the causes and effects of poor communication to enhance communication. The main aim of the study is to exploring poor communication in MENA construction industry and defining the causes and effects of poor communication from the perspective of consultants, clients, and contractors in small and medium enterprises in a developed region like MENA. Construction professionals from different project parties were asked to complete a questionnaire listing 32 causes and 21 effects of poor communication identified from the literature. The model was validated by Structural Equation Modelling SEM in terms of convergent and discriminant validities. The results revealed, that out of 54 cause and effect factors of poor communication, only 18 factors were retained. These causes and effects were ranked using the relative importance index RII. Results showed that all causes and effects are highly important, with RII above 0.6. The most important causes of poor communication are lack of communication procedure and training, followed by lack of adequate representation for project stakeholders. However, the least important cause of poor communication is a lack of understanding among the construction parties. Conversely, the most acute effects of poor communication are misinterpretation, followed by conflict among construction parties. However, the least important effect of poor communication is a late response to the disaster. Results and recommendations derived from this study represent the vital need of the MENA construction industry to focus on enhancing the current status of communication. The commitment of all project stakeholders to the drawn recommendations regarding the causes of poor communication will undoubtedly limit or reduce the effects of poor communication. Construction firms looking to improve their performance may benefit from the developed model. © 2022 The Author(s). Published by Vilnius Gediminas Technical University.

Qashou, E., Al-Hiari, Y., Kasabri, V., AlBashiti, R., AlAlawi, S., Telfah, A., AlHadid, A.

Antiproliferative Activities of Lipophilic Fluoroquinolones-Based Scaffold Against a Panel of Solid and Liquid Cancer Cell Lines

(2022) Asian Pacific Journal of Cancer Prevention, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85131108037&doi=10.31557%2fAPJCP.2022.23.5.1529&partnerID=40&md5=d21236984eb4013170413c8c700857e3

AFFILIATIONS: School of Pharmacy, University of Jordan, Queen Rania Street, Amman, 11942, Jordan;

School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Leibniz Institut für analytische Wissenschaften, SAS e.V. Bunsen-Kirchhoff-Str.1144139, Dortmund, Germany;

Hamdi Mango Center for Academic Research, University of Jordan, Queen Rania Street, Amman, 11942, Jordan

ABSTRACT: Objectives: In this work, 9 lipophilic-acid chelating FQs (fluoroquinolones) comprising chelating groups have been prepared, characterized and screened for in vitro cytotoxicity, radical

scavenging and antiinflammation propensities. Methods: Using sulforhodamine B colorimetric bioassay vs. cisplatin; FQs-inflicted reductions' of viability against breast T47D and MCF7, Pancreatic PANC-1, colorectal HT29, HCT116, SW620, CACO2, SW480 and Leukaemia K562 cancer cell lines were examined in quadruplicates/dose/cell line. Parameters including potency, toxicity, and selectivity (potency/toxicity) have been reported along with DPPH and NO-radicals' scavenging capacities -as their molecular action mechanism-in comparison to ascorbic acid and indomethacin respectively. Using Griess assay in Lipopolysaccharide (LPS) prompted RAW264.7 macrophages; mitigation of inflammation was investigated. Results: nitroFQ 3b, unlike the rest of FQs in PANC1 and MCF7 cells, exhibited remarkably superior NO-radical scavenging/ antiinflammation capacity to indomethacin with respective antiproliferative IC50 values ($50\mu\text{M}$) 49 vs. cisplatin's 122 and 6 vs. cisplatin's 28 ($p<0.01-0.001$; $n=4$). Reduced FQ 4b of significantly dual DPPH-NO scavenging propensities exerted exceptionally substantial micromolar antiproliferation in colorectal cancer cells with respective antiproliferative IC50 values ($50\mu\text{M}$) of HCT116 0.84\pm HT29 1.6\pmPANC1 5.7\pmSW620 9.2 vs. cisplatin's, ($p<0.01-0.001$; $n=4$). FQ 5a of superb NO radical reduction effect had antiproliferative IC50 value ($50\mu\text{M}$) of 37.6 in PANC1 cells. In breast cancer T47D the ascending order of pronounced nano-micromolar antiproliferative IC50 values ($50\mu\text{M}$) was 4d\pm3d\pm4a\pm4b\pm3b (0.009\pm0.59\pm10\pm15\pm41 vs. cisplatin's, $p<0.01-0.001$; $n=4$). Both 4d and 4b displayed both DPPHNO radicals reduction -related cytotoxicities. NO radical scavengers 3d and 3b as well as DPPH radical scavenger 4a exerted highly appreciably relevant antineoplastic affinities. Conclusion: Acidic groups and C8-C7 ethylene diamine Chelation Bridge along with bulky dual halogenations can be substantially associated with molecular action mechanisms of FQs cytotoxicities, antioxidative and antiinflammation effects, collectively. © This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License.

Al-Qerem, W., Jarab, A., Hammad, A., Alasmari, F., Ling, J., Alsajri, A.H., Al-Hishma, S.W., Abu Heshmeh, S.R.

Iraqi Parents' Knowledge, Attitudes, and Practices towards Vaccinating Their Children: A Cross-Sectional Study (2022) Vaccines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131082176&doi=10.3390%2fvaccines10050820&partnerID=40&md5=8c512824705b3421a78f06d0f47fdc6d)

85131082176&doi=10.3390%2fvaccines10050820&partnerID=40&md5=8c512824705b3421a78f06d0f47fdc6d

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 3030, Jordan;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 11451, Saudi Arabia;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Chester Road, Sunderland, SR1 3SD, United Kingdom;

Specialized Bone Marrow Transplant Center, Medical City Complex, Baghdad, 61031, Iraq;

School of Pharmaceutical Sciences, University of Sains Malaysia, Gelugor, 11800, Malaysia

ABSTRACT: The focus of coronavirus disease 2019 (COVID-19) vaccination campaigns has been the adult population, particularly the elderly and those with chronic diseases. However, COVID-19 can also affect children and adolescents. Furthermore, targeting this population can accelerate the attainment of herd immunity. The aim of the current study was to evaluate parental intentions to vaccinate their children and the variables associated with them. An online questionnaire was circulated via generic Iraqi Facebook groups to explore parental intentions regarding the vaccination of their children. Multinomial regression analysis was conducted to evaluate variables associated with parental vaccination acceptance. A total of 491 participants completed the study questionnaire. Only 38.3% of the participants were willing to vaccinate their children against COVID-19, while the rest either refused to vaccinate their children (35.6%) or were unsure whether they would (26.1%). Participants' perceptions about the effectiveness (OR = 0.726, 95% CI = 0.541-0.975, $p = 0.033$) and safety (OR = 0.435, 95% CI = 0.330-0.574, $p < 0.0001$) of COVID-19 vaccines were significantly associated with parental acceptance of having children vaccinated. Participants who had received or who were planning to receive the COVID-19 vaccine were significantly less likely to reject vaccinating their children (OR = 0.156, 95% CI = 0.063-0.387, $p < 0.0001$). There is high refusal/hesitancy among Iraqi parents to vaccinate their children, which is associated with concerns related to the safety and efficacy of COVID-19 vaccines. More efforts, including educational and awareness campaigns to promote the safety and efficacy of COVID-19 vaccines, should be made to increase parental acceptance of childhood COVID-19 vaccinations in Iraq. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Makahleh, F.M., Badran, A.A., Attar, H., Amer, A., Al-Maaitah, A.A.

Modeling and Simulation of a Two-Stage Air-Cooled Adsorption Chiller with Heat Recovery Part II: Parametric Study

(2022) Applied Sciences (Switzerland), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85130940528&doi=10.3390%2fapp12105156&partnerID=40&md5=2139a5091e7b75e22978d49e8d8b6925

AFFILIATIONS: Mechanical Engineer Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mechanical Engineering Department, Philadelphia University, Amman, 19392, Jordan;

Energy Department, Zarqa University, Zarqa, 13133, Jordan;

Wahaj, P.O. Box 54115, Abu Dhabi, United Arab Emirates

ABSTRACT: This study is the second part of the theoretical study of "Modeling and Simulation of a Two-Stage Air-Cooled Adsorption Chiller with Heat Recovery", which is based on developing a theoretical model for a two-stage adsorption chiller with an activated carbon/methanol pair. The following models were conducted numerically using MATLAB. The model was based on 10th order differential equations; six of them were used to predict bed, evaporator and condenser temperatures, while the other four equations were used to calculate adsorption isotherm and adsorption kinetics. In this second part, bed heat exchangers and evaporator and condenser heat exchangers are studied by varying the parametric design of a chiller. This includes but is not limited to activated carbon mass inside a single bed, overall heat transfer coefficient for the bed and evaporator and the mass flow rates of all components comprising the chiller. The optimum values increased the COP from 0.35 to 0.4, while the cooling capacity was slightly changed. The COP is 95% of a Carnot cycle working at hot water temperatures as low as 60°C, and 90% at hot water temperatures as high as 90°C. It was found that the simulation model results for the two-stage air-cooled chiller agreed well with the experimental data in terms of cooling capacity (6.7 kW for the model against 6.14 kW for the experimental result at 30°C cooling water temperature). The model optimized the adsorption/desorption time, switching time and heat recovery time to maximize both cooling capacity and COP. Moreover, the model is used to study the effect of activated carbon mass, size of beds and mass flow rates of cooling, heating, chiller and condenser on both cooling capacity and COP. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Amawi, H., Al-Azzam, S., Alzanati, T., Altamimi, N., Hammad, A., Alzoubi, K.H., Ashby, C.R., Tiwari, A.K.

The Validity of Mobile Applications to Facilitate Patient Care Provided to Cancer Patients: Opportunities and Limitations

(2022) Recent Patents on Anti-Cancer Drug Discovery, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85130637284&doi=10.2174%2f1574892816666210728122304&partnerID=40&md5=591e6371720aba8b25bc657afdcfccc

AFFILIATIONS: Department of Pharmacy Practice, Faculty of Pharmacy, Yarmouk University, Irbid, 22110, Jordan;

Department of Clinical Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Health Informatics, International Medical Corps, Amman, Jordan;

Faculty of Medicine, Yarmouk University, Irbid, 22110, Jordan;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, University of Sharjah, Sharjah, United Arab Emirates;

Department of Pharmaceutical Sciences and Health Sciences, St. John's University, Jamaica, Queens, NY 11439, United States;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of ToledoOH, United States

ABSTRACT: Background: The use of health-related applications (apps) on smartphones has become widespread. This is especially of value during the ongoing SAR-COV-2 pandemic, where accessibility to health care services has been greatly limited. Patients with free access to apps can obtain information to improve their understanding and management of health issues. Currently, there are cancer-related apps available on iPhones and androids. However, there are no guidelines to control these apps and ensure their quality. Furthermore, these apps may significantly modify the patients' perception and knowledge about drug-related health services. Objectives: The aim of this study was to assess the convenience, quality, safety and efficacy of apps for cancer patient care. Methods: The study was conducted by searching all apps related to cancer care on both Google Play Store and Apple iTunes Store. A detailed assessment was then performed using the mobile application rating scale (MARS) and risk assessment tools. Results: The results indicated that on a scale from 1-5, 47% of the apps were rated ≥ 4 . The MARS assessment of the apps yielded an overall quality rating of 3.38 ± 0.9 (mean \pm SD). The visual appeal of the app was found to have a significant effect on app functionality and user engagement. The potential benefits of these apps come with challenges and limitations. Patents related to smartphone applications targeting patients were also discussed. Conclusion: We recommend a greater emphasis toward producing evidence-based apps. These apps should be rigorously tested, evaluated and updated by experts, particularly clinical pharmacists. Also, these apps may alter patient attitudes toward services provided by physicians and pharmacists. Finally, these apps should not replace in-person interactive health services. © 2022 Bentham Science Publishers.

Abdallah, M., Alrifaae, M.

A Heuristic Tool for Measuring Software Quality Using Program Language Standards

(2022) International Arab Journal of Information Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130294235&doi=10.34028%2fiajit%2f19%2f3%2f4&partnerID=40&md5=97bd973098854c00b9ed80bf3089d3df)

85130294235&doi=10.34028%2fiajit%2f19%2f3%2f4&partnerID=40&md5=97bd973098854c00b9ed80bf3089d3df

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Quality is a critical aspect of any software system. Indeed, it is a key factor for the competitiveness, longevity, and effectiveness of software products. Code review facilitates the discovery of programming errors and defects, and using programming language standards is such a technique. In this study, we developed a code review technique for achieving maximum software quality by using programming language standards. A Java Code Quality Reviewer tool (JCQR) was proposed as a practical technique. It is an automated Java code reviewer that uses SUN and other customized Java standards. The JCQR tool produces new quality-measurement information that indicates applied, satisfied, and violated rules in a piece of code. It also suggests whether code quality should be improved. Accordingly, it can aid junior developers and students in establishing a successful programming attitude. JCQR uses customized SUN-based Java programming language standards. Therefore, it fails to cover certain features of Java. © 2022, Zarka Private University. All rights reserved.

Bardaweel, S., Aljanabi, R., Sabbah, D., Sweidan, K.

Design, Synthesis, and Biological Evaluation of Novel MAO-A Inhibitors Targeting Lung Cancer

(2022) Molecules, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130044008&doi=10.3390%2fmolecules27092887&partnerID=40&md5=1ee8bdee5d2c37444482f29e5eada115)

85130044008&doi=10.3390%2fmolecules27092887&partnerID=40&md5=1ee8bdee5d2c37444482f29e5eada115

AFFILIATIONS: Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Lung cancer is one of the most common causes of cancer-related deaths worldwide. Monoamine Oxidase-A (MAO-A) enzyme mediates the production of reactive oxygen species (ROS) that trigger DNA damage and oxidative injury of cells resulting in tumor initiation and progression. Available MAO-A inhibitors are used as antidepressants, however, their role as anticancer agents is still under investigation. Ligand- and structure-based drug design approaches guided the discovery and development of novel MAO-A inhibitors. A series of 1H indole-2-carboxamide derivatives was prepared and characterized using 1H-NMR, 13C-NMR, and IR. The antiproliferative effects of MAO-A inhibitors were evaluated using the cell viability assay (MTT), and MAO-A activity was evaluated using MAO-A activity assay. The presumed inhibitors significantly inhibited the growth of lung cell lines in a dose- and time dependent manner. The half maximal inhibitory concentration (IC50) values of MAO-A inhibitors (S1, S2, S4, S7, and S10) were 33.37, 146.1, 208.99, 307.7, and 147.2 µM, respectively, in A549. Glide docking against MAO-A showed that the derivatives accommodate MAO-A binding cleft and engage with key binding residues. MAO-A inhibitors provide significant and consistent evidence on MAO-A activity in lung cancer and present a potential target for the development of new chemotherapeutic agents. © 2022 by the author. Licensee MDPI, Basel, Switzerland.

Farhat, J., Alzyoud, L., Alwahsh, M., Al-Omari, B.

Structure-Activity Relationship of Benzofuran Derivatives with Potential Anticancer Activity

(2022) Cancers, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129031182&doi=10.3390%2fcancers14092196&partnerID=40&md5=9bc88454e16cf95e0ab5645ecdff702bf)

85129031182&doi=10.3390%2fcancers14092196&partnerID=40&md5=9bc88454e16cf95e0ab5645ecdff702bf

AFFILIATIONS: Department of Epidemiology and Population Health, College of Medicine and Health Sciences, Khalifa University, P.O. Box 127788, Abu Dhabi, United Arab Emirates;

College of Pharmacy, Al Ain University, P.O. Box 64141, Abu Dhabi, United Arab Emirates;

Health and Biomedical Research Center, Al Ain University, P.O. Box 64141, Abu Dhabi, United Arab Emirates;

Leibniz-Institut Für Analytische Wissenschaften-ISAS e.V, Dortmund, 44139, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Center Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Department of Pharmacy, Faculty of Pharmacy, AlZaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

KU Research and Data Intelligence Support Center (RDISC) AW 8474000331, Khalifa University of Science and Technology, P.O. Box 127788, Abu Dhabi, United Arab Emirates

ABSTRACT: Benzofuran is a heterocyclic compound found naturally in plants and it can also be obtained through synthetic reactions. Multiple physicochemical characteristics and versatile features distinguish benzofuran, and its chemical structure is composed of fused benzene and furan rings.

Benzofuran derivatives are essential compounds that hold vital biological activities to design novel therapies with enhanced efficacy compared to conventional treatments. Therefore, medicinal chemists used its core to synthesize new derivatives that can be applied to a variety of disorders. Benzofuran exhibited potential effectiveness in chronic diseases such as hypertension, neurodegenerative and oxidative conditions, and dyslipidemia. In acute infections, benzofuran revealed anti-infective properties against microorganisms like viruses, bacteria, and parasites. In recent years, the complex nature and the number of acquired or resistant cancer cases have been largely increasing. Benzofuran derivatives revealed potential anticancer activity with lower incidence or severity of adverse events normally encountered during chemotherapeutic treatments. This review discusses the structure-activity relationship (SAR) of several benzofuran derivatives in order to elucidate the possible substitution alternatives and structural requirements for a highly potent and selective anticancer activity. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Obaidat, R., Abu Kwiak, A.D., Hamed, R.

Development of combined therapy of metronidazole and ibuprofen using in situ microgels for the treatment of periodontitis

(2022) Journal of Drug Delivery Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129001668&doi=10.1016%2fj.jddst.2022.103314&partnerID=40&md5=9b7e58a195f07ae0ad94433f70bf938c)

[85129001668&doi=10.1016%2fj.jddst.2022.103314&partnerID=40&md5=9b7e58a195f07ae0ad94433f70bf938c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129001668&doi=10.1016%2fj.jddst.2022.103314&partnerID=40&md5=9b7e58a195f07ae0ad94433f70bf938c)

AFFILIATIONS: Department of Pharmaceutical Technology, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: This study aimed to develop thermosensitive in-situ microgels loaded with the antimicrobial agent metronidazole (MTN) and the nonsteroidal anti-inflammatory drug ibuprofen (IBU) as adjunctive therapy for periodontitis. The MTN-IBU microgels were prepared by combining IBU-Microemulsions with MTN solution prepared with Pluronic® F127 (F127) hydrogel. The effect of various cosolvents and Pluronic F68 (F68) on the thermo-rheological properties (sol-gel transition temperature ($T_{sol \rightarrow gel}$), viscosity, and viscoelastic properties) of MTN-IBU microgels was studied. The physicochemical properties of microgels were characterized by Fourier transform infrared (FTIR) and differential scanning calorimetry (DSC). The in vitro release and stability studies of microgels were investigated. An HPLC method was developed for the simultaneous quantification of MTN and IBU. Results showed that microgels were thermosensitive exhibiting $T_{sol \rightarrow gel}$ of 25-37 °C, pseudoplastic flow, and viscoelastic properties. The thermo-rheological properties of microgels were dependent on the concentration of F127, IBU-Microemulsion, cosolvents, and F68. Stability studies demonstrated that the thermo-rheological properties of microgels decreased after six months, except microgels containing F68 that were able to maintain their strength and undergo the phase transition. Microgels provided a complete MTN release after 8 h and a sustained IBU release for 24-48 h. This study highlighted the significance of in-situ microgels for delivering a combined therapy of MTN and IBU using two drug delivery systems (IBU-microemulsion and F127 sol) and the ability to modulate the thermo-rheological properties of microgels via the addition of various cosolvents and F68 to F127-based microgels as potential platforms for periodontitis. © 2022

Oran, S.A., Althaher, A.R., Al Shhab, M.A.

Chemical composition, in vitro assessment of antioxidant properties and cytotoxicity activity of ethanolic and aqueous extracts of *Ajuga orientalis* L. (Lamiaceae) [Composición química, evaluación in vitro de propiedades antioxidantes y actividad citotóxica de extractos etanólicos y acuosos de *Ajuga orientalis* L. (Lamiaceae)]

(2022) Journal of Pharmacy and Pharmacognosy Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128296674&partnerID=40&md5=44050b8ec966d6a78adf65a2a38f6ae5)

[85128296674&partnerID=40&md5=44050b8ec966d6a78adf65a2a38f6ae5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128296674&partnerID=40&md5=44050b8ec966d6a78adf65a2a38f6ae5)

AFFILIATIONS: Department of Biological Sciences, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacology, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Context: *Ajuga orientalis* L. (Lamiaceae) is an aromatic herb used in traditional medicine in Jordan and neighboring countries. Aims: To evaluate the cytotoxic potential of ethanolic and aqueous extracts from the aerial parts of *A. orientalis* against three cell lines MCF-7, Caco-2, and HDFa. In addition to assessing the total phenolic and flavonoid contents, antioxidant activity. Further to analyze the phytochemical constituents. Methods: The phytochemical analysis was performed using gas chromatography/mass spectrometry. The total phenolic (TPC) and flavonoid (TFC) contents were assessed using colorimetric methods. The antioxidant properties of both extracts were assessed using 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity and reducing power ability. Cytotoxicity was investigated using methyl thiazol tetrazolium (MTT) assay. Results: The most abundant compounds in the extract were 9-octadecenoic acid, methyl ester, (E)- (27.2%), hexadecanoic acid, methyl ester (12.8%), and methyl stearate (9.6%). The ethanolic extract demonstrated higher TPC

and TFC than the aqueous extract. Also, the ethanolic extract showed higher antioxidant activity than aqueous extract using DPPH and the reducing power ability. Furthermore, the aqueous extract of *A. orientalis* has a potent cytotoxic effect against the Caco-2 cell line ($IC_{50} = 2.059 \pm 0.10 \mu\text{g/mL}$). In contrast, the ethanolic extract demonstrated a cytotoxic effect against the MCF-7 cell line ($IC_{50} = 59.32 \pm 0.04 \mu\text{g/mL}$). Both extracts did not exhibit a toxic effect against normal dermal fibroblast cell line (HDFa). Compared to non-cancerous cells, the ethanolic extract of *A. orientalis* demonstrated high selectivity against MCF-7 cells and limited selectivity against Caco-2 cells. In comparison, the aqueous extract was highly selective against both cancerous cells. Conclusions: *A. orientalis* demonstrated antioxidant properties and significant antiproliferative potential against breast and colon cancer. Therefore, additional investigations are needed to study the mechanism of the cytotoxicity for this plant. © 2022 Journal of Pharmacy & Pharmacognosy Research,

Aljawrneh, B., Alsaad, A., Albiss, B., Alrousan, S., Alshanableh, A., Mutlaq, S. Cellulose acetate membranes treated with titanium dioxide and cerium dioxide nanoparticles and their nanocomposites for enhanced photocatalytic degradation activity of methylene blue (2022) Journal of Materials Science: Materials in Electronics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127456012&doi=10.1007%2fs10854-022-08115-x&partnerID=40&md5=834934f18fcc6173d70c27cb5997fde8>

AFFILIATIONS: Department of Physics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Physics, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Nanotechnology Institute, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Nutrition and Food Technology, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan

ABSTRACT: We report on the photocatalytic degradation activity of methylene blue (MB) using Cellulose acetate (CA) membranes embedded by metal oxide nanoparticles (NPs). Titanium dioxide and Cerium dioxide (TiO_2 and CeO_2) and their nanocomposites are used as nanofillers in CA membranes to enhance photocatalytic activity. The casted nanocomposite membranes are synthesized using the phase inversion method and characterized using X-ray diffraction, X-ray fluorescence, scanning electron microscopy, Fourier-transform infrared spectroscopy, and UV-Vis to investigate structural, surface morphological, elemental content, and the optical properties. In particular, surface morphological and optical results are analyzed to elucidate a deeper understanding of porosity and photocatalytic activity via the degradation of the MB dye. The as-prepared CA-NP membranes are tested for photocatalytic degradation of MB by exposing the membrane/MB dye combination to UV illumination for different exposure times. Results reveal that CA- TiO_2 membrane exhibits the smallest nanopore size, the most efficient exciton separation, and the largest surface area as compared with CA- CeO_2 and CA- TiO_2 - CeO_2 -casted membranes. Consequently, CA- TiO_2 membrane shows a good cyclic photocatalytic degradation activity (about 64%). Furthermore, the obtained MB degradation activity follows the increasing trend: CA- TiO_2 membrane (Energy gap $E_g=3.26\text{eV}$, Absorption activity $A\%= 64\%$) > CA- TiO_2 - CeO_2 membrane ($E_g=3.33\text{eV}$, $A\%=15\%$) > CA- CeO_2 ($E_g=3.4\text{eV}$, $A\%=7\%$) that is directly correlated with the values of the E_g of the NP component of the membranes, the high porosity, and large surface area of the membrane. This suggests the synergetic use of the two metal oxides in potential applications of the photocatalytic degradation of MB and other organic pollutants for water treatment. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Khalaf, R.A., Awad, M., Al-Qirim, T., Sabbah, D.

Synthesis and Molecular Modeling of Novel 3,5-Bis(trifluoromethyl) benzylamino Benzamides as Potential CETP Inhibitors

(2022) Medicinal Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125733830&doi=10.2174%2f1573406417666210830125431&partnerID=40&md5=4bd3943bafa251adeeb5f940eb343d21)

[85125733830&doi=10.2174%2f1573406417666210830125431&partnerID=40&md5=4bd3943bafa251adeeb5f940eb343d21](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125733830&doi=10.2174%2f1573406417666210830125431&partnerID=40&md5=4bd3943bafa251adeeb5f940eb343d21)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: There is an alarming spread of cases of lipid disorders in the world that occur due to harmful lifestyle habits, hereditary risk influences, or as a result of other illnesses or medicines. Cholesteryl Ester Transfer Protein (CETP) is a 476-residue lipophilic glycoprotein that helps in the transport of cholesteryl ester and phospholipids from the atheroprotective HDL to the proatherogenic LDL and VLDL. Inhibition of CETP leads to elevation of HDL cholesterol and reduction of LDL cholesterol and triglycerides; therefore, it is considered a good target for the treatment of hyperlipidemia and its comorbidities. Objective: In this research, synthesis, characterization, molecular modeling, and biological evaluation of eight 3,5-bis(trifluoromethyl)benzylamino benzamides 9a-d and 10a-d were carried out. Methods: The synthesized molecules were characterized using 1H -NMR, ^{13}C -NMR, IR, and HR-MS. They were biologically tested in vitro to estimate their CETP inhibitory

activity. Results: These compounds offered inhibitory effectiveness ranging from 42.2% to 100% at a concentration of 10 μ M. Compounds bearing unsubstituted three aromatic rings (9a) or ortho-CF₃ substituted (9b) were the most effective compounds among their analogs and showed IC₅₀ values of 1.36 and 0.69 μ M, respectively. The high docking scores of 9a-d and 10a-d against 4EWS imply that they might be possible CETP inhibitors. Pharmacophore mapping results demonstrate that the series approves the fingerprint of CETP active inhibitors and therefore explains their high binding affinity against CETP binding site. Conclusion: This work concludes that 3,5-bis(trifluoromethyl)benzylamino benzamides can serve as a promising CETP inhibitor lead compound. © 2022 Bentham Science Publishers.

Al-Omoush, K.S., Palacios-Marqués, D., Ulrich, K.

The impact of intellectual capital on supply chain agility and collaborative knowledge creation in responding to unprecedented pandemic crises

(2022) Technological Forecasting and Social Change, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125623707&doi=10.1016%2fj.techfore.2022.121603&partnerID=40&md5=6f1e94fda9a5a4e85fa6e23c8913a10a)

[85125623707&doi=10.1016%2fj.techfore.2022.121603&partnerID=40&md5=6f1e94fda9a5a4e85fa6e23c8913a10a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125623707&doi=10.1016%2fj.techfore.2022.121603&partnerID=40&md5=6f1e94fda9a5a4e85fa6e23c8913a10a)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Universitat Politècnica de València, Spain;

ESIC Business & Marketing School, Spain

ABSTRACT: This study explores the relationships between intellectual capital, supply chain agility, collaborative knowledge creation, and corporate sustainability during unprecedented crises such as the COVID-19 epidemic. Data were collected from food and beverages firms and analyzed using Smart-Partial Least Squares (Smart-PLS) structural equation modeling software. The sample consisted of 289 managers, directors, and heads of department. The results reveal that intellectual capital significantly impacts supply chain agility, collaborative knowledge creation, and corporate sustainability. Furthermore, the findings confirm that collaborative knowledge creation and supply chain agility significantly impact corporate sustainability during the COVID-19 crises. This study contributes to the literature on intellectual capital, dynamic capabilities, supply chain management, and knowledge management, and the role of these capabilities in preserving corporate sustainability during unprecedented crises. © 2022 Elsevier Inc.

Al-Qerem, W., Jarab, A.S., Qarqaz, R., Hayek, M.A.

Attitudes of a sample of Jordanian young adults toward different available COVID-19 vaccines

[Actitudes de una muestra de adultos jóvenes jordanos hacia las diferentes vacunas COVID-19 disponibles]

(2022) Vacunas, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118793439&doi=10.1016%2fj.vacun.2021.07.008&partnerID=40&md5=11614989531a712608e3ce7c503022fa)

[85118793439&doi=10.1016%2fj.vacun.2021.07.008&partnerID=40&md5=11614989531a712608e3ce7c503022fa](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118793439&doi=10.1016%2fj.vacun.2021.07.008&partnerID=40&md5=11614989531a712608e3ce7c503022fa)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Objective: Vaccination is one of the most important measures that the world is relying on to end the COVID-19 pandemic. A number of vaccines have been authorized; however, there are several differences in the available vaccines which may lead to differences in public hesitancy levels toward each vaccine. Therefore, the aim of this study was to assess the young Jordanian population's acceptance of the COVID-19 vaccine, their knowledge, and attitudes toward different vaccine types, and to explore the variables that could influence their preferences. Material and methods: An online questionnaire was distributed via Jordanian multipurpose Facebook groups. COVID-19 knowledge, and practice scores were calculated, in addition to general and specific COVID-19 vaccine knowledge scores. Repeated measures analysis was conducted to investigate the association between the participants' knowledge about each vaccine and their willingness to take it. Quantile regressions were conducted to determine the predictors of the participants' willingness to take each vaccine. Results: A total of 1897 participants completed the survey. One fifth of the participants (19.9%) were willing to take the COVID-19 vaccine. The acceptance of Pfizer/BioNTech vaccine and the knowledge about it were significantly different from all the other vaccines. Predictors of acceptance of the different vaccines were sex, estimation of the severity of the disease, COVID-19 knowledge score, practice score, and specific vaccine knowledge score. Conclusion: The young Jordanian adults had limited acceptance of the COVID-19 vaccine. Differences in the participants' acceptance of different vaccines were observed and specific vaccine knowledge was a significant predictor of acceptance of the vaccine. © 2021 Elsevier España, S.L.U.

Yousef, S., Yousef, K.

The impact of Facebook usage in education on students' academic performance at the University of Jordan

(2022) Journal of E-Learning and Knowledge Society, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129860694&doi=10.20368%2f1971->

8829%2f1135393&partnerID=40&md5=30471bf072a50b82d1a8fe3b306f592c

AFFILIATIONS: Management Information Systems Department, Al-Zaytoonah University of Jordan, Jordan; School of Oriental and African Studies, University of London, United Kingdom

ABSTRACT: Facebook, as a social networking site, is one of the most important means of communication technologies that have been widely adopted by college students and their professors worldwide. The purpose of this study is to shed light on the impact of Facebook on higher education generally and specifically on the academic performance of the students of the University of Jordan. For the completion of this study, the researchers selected a random sample of students from the University of Jordan and gave them a questionnaire on how Facebook affected their academic performance. The collected data was analyzed and tested by using correlation tests through SPSS, a data analysis program. The independent variable measured: 1-communication among students and communication between them and the faculty members; 2-sharing of resources and materials; 3-and collaboration among students. The academic achievement of students was measured by examinations and/or by continuous assessment such as (their GPAs, overuse or multitasking, and the time they spend on studying). Three pre-determined hypotheses tested are: (H1) Communication through Facebook has no significant impact on students' academic performance. (H2) The sharing of educational resources and materials through Facebook does not significantly influence students' academic performance. (H3) Collaboration among students through Facebook has no significant influence on their academic performance. © Italian e-Learning Association.

Toqan, D., Ayed, A., Joudallah, H., Amoudi, M., Malak, M.Z., Thultheen, I., Batran, A.
Effect of Progressive Muscle Relaxation Exercise on Anxiety Reduction Among Nursing Students During Their Initial Clinical Training: A Quasi-Experimental Study
(2022) Inquiry (United States), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128801600&doi=10.1177%2f00469580221097425&partnerID=40&md5=cbfc41f7ef5afec8dafb3eb26e85fb8b)

[85128801600&doi=10.1177%2f00469580221097425&partnerID=40&md5=cbfc41f7ef5afec8dafb3eb26e85fb8b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128801600&doi=10.1177%2f00469580221097425&partnerID=40&md5=cbfc41f7ef5afec8dafb3eb26e85fb8b)

AFFILIATIONS: Faculty of Nursing, Arab American University, Jenin, Palestine;

Sport Science and Health, Physical Education and Sport, AN-Najah National University, Nablus, Palestine;

Faculty of Allied Medical Sciences, Arab American University, Jenin, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Nursing Department, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Faculty of Allied Medical Sciences, Department of Nursing, Palestine Ahliya University, Bethlehem, Palestine

ABSTRACT: The study is to examine the effect of progressive muscle relaxation exercise on anxiety of nursing students during their initial clinical experience. A quasi-experimental, pre-post study was carried out in the Arab American University. A convenience sample consists of 90 first-year nursing students were chosen. A progressive muscle relaxation exercise for five days per week was conducted on one group of nursing students. Students' anxiety was measured by S-anxiety scale (STAI Form Y-1) at pre and post the intervention. The severity of anxiety reduction was greater post the exercise ($t(89) = 30.783, P = .001$). © The Author(s) 2022.

Al-Khatib, A.W., Al-ghanem, E.M.

Radical innovation, incremental innovation, and competitive advantage, the moderating role of technological intensity: evidence from the manufacturing sector in Jordan

(2022) European Business Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119687316&doi=10.1108%2fEBR-02-2021-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119687316&doi=10.1108%2fEBR-02-2021-0041&partnerID=40&md5=bb9974e08decc7d24ecff1d15e3a807b)

[0041&partnerID=40&md5=bb9974e08decc7d24ecff1d15e3a807b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119687316&doi=10.1108%2fEBR-02-2021-0041&partnerID=40&md5=bb9974e08decc7d24ecff1d15e3a807b)

AFFILIATIONS: Department of Business Administration, Luminus Technical University College, Al-Zaytoonah Private University of Jordan, Amman, Jordan;

Department of Marketing, Abbott laboratories-Jordan, Al-Zaytoonah Private University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The purpose of this paper is to identify the effect of radical innovation and incremental innovation on the competitive advantage of Jordanian industrial companies and identify the moderating role of technological intensity. Design/methodology/approach: For this study's purposes, 303 questionnaires from employees of 30 manufacturing firms were analysed. Convergent validity and discriminant validity tests were performed through structural equation modelling in the Smart-PLS programme. Data reliability was confirmed. A bootstrapping technique was used to analyse the data. Multi-group analysis was performed to investigate the moderating role of technological intensity. Findings: Empirical results showed that both radical innovation and incremental innovation explain 60.2% of the variance in competitive advantage and that both constructs have a statistically significant effect on competitive advantage. The results also revealed that the relationship between radical innovation and competitive advantage is modified through the high-tech industries. Meanwhile, the relationship between incremental innovation and competitive advantage is modified through the

low-tech industries. Research limitations/implications: This cross-sectional study provides a snapshot at a given moment in time, a methodological limitation that affects the generalization of its results and the results are limited to one country, Jordan. Practical implications: This study promotes the idea of focusing on radical and incremental innovation to enhance competitive advantage in the Jordanian manufacturing sector and knowing the effect of technological intensity in this relationship. Originality/value: This study has important implications for leaders in the Jordanian manufacturing sector in general, as the study highlights the importance of radical innovation and incremental innovation to enhance the competitive advantage, especially in light of the technological intensity in this sector, and thus, increase the innovative capabilities of this firms, which leads to an increase in the level of competitive advantage. © 2021, Emerald Publishing Limited.

Allouzi, R.A., Almasaeid, H.H., Salman, D.G., Abendeh, R.M., Rabayah, H.S.
Prediction of Bond-Slip Behavior of Circular/Squared Concrete-Filled Steel Tubes
(2022) Buildings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130343983&doi=10.3390%2fbuildings12040456&partnerID=40&md5=074b64390efa52e681657695184c9937)

[85130343983&doi=10.3390%2fbuildings12040456&partnerID=40&md5=074b64390efa52e681657695184c9937](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130343983&doi=10.3390%2fbuildings12040456&partnerID=40&md5=074b64390efa52e681657695184c9937)

AFFILIATIONS: Department of Civil Engineering, The University of Jordan, Amman, 11942, Jordan;

Department of Civil Engineering, Al Albayt University, Al-Mafraq, 25113, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Numerous existing formulas predicted the ultimate interfacial bond strength in concrete-filled steel tubes (CFST) between steel tubes and concrete core without investigating the whole response under push-out load. In this research, four models are proposed to predict the interfacial behavior in CFST including the post-peak branch under the push-out loading test based on 157 circular specimens and 105 squared specimens from the literature. Two models (one for circular and one for squared CFST) are developed and calibrated using artificial neural network (ANN) and two models (one for circular and one for squared CFST) are developed based on multivariable regression analysis, analysis of variance (ANOVA). The shape of the specimen (circular or squared), diameter of the tube, thickness of the tube, concrete compressive strength, age at the time of testing, and length of the specimen are the main factors considered. These models are then compared to other existing formulas to verify their capability to better predict the ultimate interfacial bond strength. It is found that the ANN model gives better results for most of the considered data. It is also found that ANN models can predict the overall bond-slip response for the considered dataset. In order to simulate the response of any CFST column using finite element (FE) method, it is vital to have sufficient input data on the overall bond-slip behavior between the interior face of the steel tube and the exterior surface of the concrete core including the post-peak branch. Accordingly, the suggested ANN model is used to generate the required input data related to the cohesive behavior and damage along the interface in ABAQUS model to simulate the response of two circular and two squared CFST columns under concentric compressive load. The results are in good agreement with experimental outcomes. The cohesive criterion and damage interface that are used based on ANN models in FE are found to be sufficient and can be adopted to model CFST columns. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Hammad, M.A., Jebril, I.H., Batiha, I.M., Dababneh, A.M.
Fractional Frobenius Series Solutions of Confluent α -Hypergeometric Differential Equation
(2022) Progress in Fractional Differentiation and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129693930&doi=10.18576%2fpfda%2f080209&partnerID=40&md5=8f1bf75a639696b9ebe6e80ef1c0e863)

[85129693930&doi=10.18576%2fpfda%2f080209&partnerID=40&md5=8f1bf75a639696b9ebe6e80ef1c0e863](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129693930&doi=10.18576%2fpfda%2f080209&partnerID=40&md5=8f1bf75a639696b9ebe6e80ef1c0e863)

AFFILIATIONS: Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Department of Mathematics, Faculty of Science and Technology, Irbid National University, Irbid, 2600, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: In this work, the so-called conformable fractional derivative definition is employed to obtain the fractional Frobenius series solutions around the regular α -singular point $x = 0$ for the confluent α -hypergeometric differential equation. Of course, such solutions for this equation in its classical case are just confluent hypergeometric functions. The proposed method is straightforward to be applied as an algorithm. © 2022. NSP Natural Sciences Publishing Cor.

Rayan, A., Hussni Al-Ghabeesh, S., Qarallah, I.
Critical Care Nurses' Attitudes, Roles, and Barriers Regarding Breaking Bad News
(2022) SAGE Open Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128364887&doi=10.1177%2f23779608221089999&partnerID=40&md5=05f385af272c946870f3cf8e3157a1c9)

[85128364887&doi=10.1177%2f23779608221089999&partnerID=40&md5=05f385af272c946870f3cf8e3157a1c9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128364887&doi=10.1177%2f23779608221089999&partnerID=40&md5=05f385af272c946870f3cf8e3157a1c9)

AFFILIATIONS: Zarqa University, Faculty of Nursing., Zarqa, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Nursing., Airport Street, Amman, Jordan;
Master program in Faculty of Nursing, Al-Zaytoonah University of Jordan and work as critical care nurse in Royal medical services., Amman, Jordan

ABSTRACT: This study examines critical care nurses' attitudes, roles, experience, education, and barriers regarding breaking the bad news. A descriptive, cross-sectional design was used in this study. A convenience sample of 210 critical care nurses completed the study. Most of the critical care nurses contributed to breaking bad news and they were involved in different roles in this process and they had a positive attitude regarding breaking bad news. In this study, (75.2%) of the participants reported that they did not receive any specific training regarding breaking bad news. In addition, nurses face various barriers when breaking bad news. Critical care nurses' involvement in breaking bad news should be encouraged. Most barriers to BBN were negatively associated with nurses' roles, attitudes, and experiences during BBN. Administrators should promote the involvement of critical care nurses in breaking bad news and strengthen them through addressing the challenges they face in the process of BBN. © The Author(s) 2022.

Sunjuk, M., Al-Najjar, L., Shtaiwi, M., El-Eswed, B., Al-Noaimi, M., Al-Essa, L., Sweidan, K.
Transition Metal Complexes of Schiff Base Ligands Prepared from Reaction of Aminobenzothiazole with Benzaldehydes

(2022) Inorganics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128332108&doi=10.3390%2finorganics10040043&partnerID=40&md5=d32322061882ee0a5397950dc6ee2de6)

[85128332108&doi=10.3390%2finorganics10040043&partnerID=40&md5=d32322061882ee0a5397950dc6ee2de6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128332108&doi=10.3390%2finorganics10040043&partnerID=40&md5=d32322061882ee0a5397950dc6ee2de6)

AFFILIATIONS: Department of Chemistry, Faculty of Science, The Hashemite University, Zarqa, 13133, Jordan;

Department of Basic Sciences, Zarqa College, Al-Balqa Applied University, Al Salt, 19117, Jordan;

Chemistry Department, Faculty of Science, Kuwait University, Safat13060, Kuwait;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Schiff bases have played significant roles in the development of inorganic or coordination chemistry. Three Schiff base (NB, CB and HB) ligands, prepared for the reaction of 2-amino-6-methoxybenzothiazole with 2-Nitrobenzaldehyde, 2-chlorobenzaldehyde and 2,4-Dihydroxybenzaldehyde, respectively, were investigated for their transition metal complexes, which were prepared by reacting the ligand (2:1 molar ratio) with Co(II), Ni(II), Cu(II), Cd(II), Cr(III) and Fe(III) chlorides. The nature of the interaction between the metal ions and ligands (L) was studied with the aid of magnetic susceptibility, elemental analysis, FTIR and ¹H-NMR spectroscopy. Based on the magnetic superstability and elemental analysis results, octahedral structures of the complexes, such as [ML₂Cl₂] or [ML₂Cl(OH)], were proposed for Cu(II), Cd(II), Co(II) and Ni(II) in which the ligand (L:NB, CB or HB) is bidentate through the azomethine and benzothiazole nitrogen. For Cr(III) and Fe(III) complexes, octahedral ML₂Cl(OH)₂ or ML₂(OH)₃ structures were proposed, where one ligand is monodentate and the other is bidentate. The azomethine ν(-HC=N-) and ¹H-NMR peaks of NB and CB were shifted to a higher frequency and downfield, respectively, upon complexation with metal ions. The bonding of OH groups of HB to Co(II), Cu(II) and Ni(II) enables π-backdonation from these metals to the azomethine of Schiff bases and the consequent shift of ν(-HC=N-) to a lower frequency and changes in the intensity of the ¹H-NMR peak of OH. On the other hand, this backdonation was not evidenced in the FTIR of HB complexes with high-charge Cr(III) and Fe(III) ions. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Al-Qerem, W., Al Bawab, A.Q., Abusara, O., Alkhatib, N., Horne, R.

Validation of the Arabic version of medication adherence report scale questionnaire and beliefs about medication -specific questionnaire: A factor analysis study

(2022) PLoS ONE, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128155180&doi=10.1371%2fjournal.pone.0266606&partnerID=40&md5=303df2583fd8d5567b8c9db5e92a1748)

[85128155180&doi=10.1371%2fjournal.pone.0266606&partnerID=40&md5=303df2583fd8d5567b8c9db5e92a1748](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128155180&doi=10.1371%2fjournal.pone.0266606&partnerID=40&md5=303df2583fd8d5567b8c9db5e92a1748)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Al-Zaytoonah Health Technology and Innovation Office, Al-Zaytoonah University of Jordan, Amman, Jordan;

Centre for Behavioral Medicine, UCL School of Pharmacy, University College London, London, United Kingdom

ABSTRACT: Medication Adherence Report Scale questionnaire (MARS-5) and the Beliefs about Medication Questionnaire-specific (BMQ-specific) are well known tools to assess adherence to medication and beliefs of chronic patients. However, validated Arabic versions of such questionnaires are lacking. We aim to validate the Arabic versions of BMQ-specific and MARS-5. In this study, a cross-sectional study was performed between November 2019 and March 2020. Participants were reached from secondary and tertiary care clinics in Jordan. Exploratory factor analysis (EFA) and Confirmatory Factor analysis (CFA) were conducted to validate the employed questionnaires on the tested sample. The

internal consistency of the questionnaires was assessed by calculating Cronbach's alpha, and Cronbach's alpha if item is deleted. A total of 485 patients who met the inclusion criteria were recruited. The mean age of the participants was 57.14 years (22-82 years); and 39% of the participants were older than 65 years. The most common chronic diseases reported by participants were hypertension and diabetes mellitus, 35.7 and 32.2% respectively. EFA suggested twofactor model for BMQ-specific and one-factor model for MARS-5 which was confirmed by CFA analyses. The resulted Cronbach's alphas of the questionnaires ranged from 0.89- 0.93. Both analyses showed that the Arabic versions of both MARS-5 and BMQ-specific are valid and can be used for the suggested study population. Further validation-based research may enhance the transcultural adaptation of such questionnaires. © 2022 Al-Qerem et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Hamdan, M., Dabbour, L., Abdelhafez, E.

Study of climatology parameters on COVID-19 outbreak in Jordan

(2022) Environmental Earth Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127585003&doi=10.1007%2fs12665-022-10348-2&partnerID=40&md5=00cdec1133ff47764c75280600ab8ed9>

AFFILIATIONS: Department of Mechanical Engineering, School of Engineering, The University of Jordan, Amman, 11942, Jordan;

Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: To control the spread of COVID-19 disease and reduce its mortality, an early and precise diagnose of this disease is of significant importance. Emerging research data show that the current COVID-19 pandemic may be affected by environmental conditions. Therefore, the impact of weather parameters on COVID-19 distribution should be explored to predict its development in the next few months. This research aims to study the association between the daily confirmed COVID-19 cases in the three major cities of Jordan; Amman, Zarqa, and Irbid and climate indicators to include the average daily temperature (°C), wind speed (m/s), relative humidity (%), pressure (kPa), and the concentration of four pollutants (CO, NO₂, PM₁₀, and SO₂). The data were obtained from the World Air Quality Project website and the Jordanian Ministry of Environment. A total of 305 samples for each city was used to conduct the data analysis using multiple linear regression and a feedforward artificial neural network. It was concluded that the multiple linear regression and feedforward artificial neural network could forecast the COVID-19 confirmed cases in the case studies; Amman, Irbid, and Zarqa. Finally, global sensitivity analysis using Sobol analysis indicated that pressure in Amman and Zarqa and the concentration of NO₂ in Irbid has a high rate of positive cases that supports the virus's spread. © 2022, The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature.

Al-Omoush, K.S., Ribeiro-Navarrete, S., Lassala, C., Skare, M.

Networking and knowledge creation: Social capital and collaborative innovation in responding to the COVID-19 crisis

(2022) Journal of Innovation and Knowledge, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126940598&doi=10.1016%2fj.jik.2022.100181&partnerID=40&md5=6de863ee0f0150d47b8af773c66117d3)

[85126940598&doi=10.1016%2fj.jik.2022.100181&partnerID=40&md5=6de863ee0f0150d47b8af773c66117d3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126940598&doi=10.1016%2fj.jik.2022.100181&partnerID=40&md5=6de863ee0f0150d47b8af773c66117d3)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

ESIC Business & Marketing School, Spain;

Universitat de Valencia, Spain;

The 'Dr. Mijo Mirkovic' Faculty of Economics and Tourism, The Juraj Dobrila University of Pula, Pula, Croatia

ABSTRACT: This study empirically explores the role of social capital in creating collaborative innovation and collective intelligence and maintaining organizational sustainability in the unprecedented COVID-19 crisis. Data were collected from a sample of 289 managers, directors and heads of departments of top 50 manufacturing firms in Jordan and analyzed using Smart-PLS-SEM. The results indicate that social capital significantly impacts collaborative innovation, collective intelligence and organization sustainability during the COVID-19 crisis. They also reveal that collective intelligence significantly impacts collaborative innovation and organization sustainability. This study enriches the literature on social capital, collaborative innovation and collective intelligence. It elucidates the role of such dynamic capabilities in maintaining both organizational sustainability and the chance of recovery from unprecedented crises. © 2022 The Author(s)

Alkhatib, N.S., Almutairi, A.R., Alkhezi, O.S., Alfayez, O.M., Al Yami, M.S., Almohammed, O.A.

Economic analysis of glucagon like peptide-1 receptor agonists from the Saudi Arabia payer

perspective

(2022) Saudi Pharmaceutical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124396477&doi=10.1016%2fj.jsps.2022.01.018&partnerID=40&md5=69d201ca305822503f8ed2784e796fe8)

85124396477&doi=10.1016%2fj.jsps.2022.01.018&partnerID=40&md5=69d201ca305822503f8ed2784e796fe8

AFFILIATIONS: Al-Zaytoonah Health Technology Assessment Center (Z-HTA), College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Midcapital Healthcare, Amman, Jordan;

Drug Sector, Saudi Food and Drug Authority, Riyadh, Saudi Arabia;

Department of Pharmacy Practice, Unaizah College of Pharmacy, Qassim University, Qassim, Saudi Arabia;

Department of Pharmacy Practice, College of Pharmacy, Qassim University, Qassim, Saudi Arabia;

Department of Pharmacy Practice, College of Pharmacy, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia;

Department of Clinical Pharmacy, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

ABSTRACT: Objectives: To perform a cost of control analysis of glucagon like peptide-1 receptor agonists (GLP1RA) in Saudi Arabia (SA) and determine the economic impact of adopting GLP1RAs.

Methods: A budget impact model that captures the cost of control model was constructed to simulate hypothetical patient on six treatment options: a current mix of 60% liraglutide and 40% dulaglutide, semaglutide, liraglutide, dulaglutide, exenatide, and lixisenatide. We estimated the relative amounts of SAR spend to achieve HbA1c targets ($\leq 6.5\%$ or $< 7.0\%$). For each treatment option, annual treatment cost, proportion of patients achieving HbA1c targets, and cost to treat major adverse cardiovascular events (MACE) were aggregated to estimate the cost of control per patient per year (CCPPPY) over 5-year horizon (2021-2025). Probabilistic sensitivity analysis (PSA) was performed as a confirmatory analysis. Results: The CCPPPY to achieve HbA1c $\leq 6.5\%/<7.0\%$ using current mix, semaglutide, liraglutide, dulaglutide, exenatide, and lixisenatide were SAR 17,097/SAR 14,113, SAR 12,889/SAR 11,123, SAR 15,594/SAR 12,892, SAR 19,184/SAR 15,940, SAR 580,211/SAR 380,936, and SAR 246,570/SAR 143,759, respectively. The relative amounts of SAR spend to achieve HbA1c $\leq 6.5\%/<7.0\%$ relative to 1 SAR on semaglutide in case of adopting current mix, liraglutide, dulaglutide, exenatide, and lixisenatide were SAR 1.42/SAR 1.18, SAR 1.30/SAR 1.07, SAR 1.60/SAR 1.33, SAR 48.33/SAR 31.73, and SAR 20.54/SAR 11.97, respectively. These results were confirmed in the PSA. Conclusions: Semaglutide 1 mg once weekly was the most economically favorable GLP1RA; associated with the least CCPPPY, and amount of SAR spent to achieve HbA1c of $\leq 6.50\%/<7.00\%$ versus all other GLP1RAs. © 2022 The Author(s)

Al-Amayreh, M.I., Alahmer, A.

On improving the efficiency of hybrid solar lighting and thermal system using dual-axis solar tracking system

(2022) Energy Reports, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120618199&doi=10.1016%2fj.egyr.2021.11.080&partnerID=40&md5=217cd0923f7ad1457f03b1b036ea4d7d)

85120618199&doi=10.1016%2fj.egyr.2021.11.080&partnerID=40&md5=217cd0923f7ad1457f03b1b036ea4d7d

AFFILIATIONS: Department of the Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Department of Mechanical Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan

ABSTRACT: A hybrid solar lighting/ thermal system utilized a parabolic solar dish as a solar collector illustrated in this paper. A two-axis tracking system was developed and employed to improve the energy output of a concentrating solar system (CSP) that produces hot water and light. During the daytime, sunlight is transmitted by fiber optics to an indoor photovoltaic PV device to generate electricity, or it can be used directly as daylighting. The heat generated is used to heat water. The findings show that the proposed system is a low-cost, high-performance approach for solar energy use in building energy efficiency, and readily available tracking components and tools. The experimental work shows that the maximum efficiency of the hybrid solar lighting/ thermal system controlled with a dual-axis solar tracking system was 32.2%. © 2021 The Author(s)

Hamdan, M., Abdelhafez, E.

The impact of optical liquid filters on PV panel performance

(2022) Environmental Science and Pollution Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120608234&doi=10.1007%2fs11356-021-17728-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120608234&doi=10.1007%2fs11356-021-17728-4&partnerID=40&md5=69b4f93a323cab2816dd587dbd87f8b1)

4&partnerID=40&md5=69b4f93a323cab2816dd587dbd87f8b1

AFFILIATIONS: Department of Mechanical Engineering, School of Engineering, The University of Jordan, Amman, 11942, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: The goal of this research is to investigate the effect of utilizing selective liquids as absorption filters to prevent PV module overheating by blocking the undesirable part of the spectrum (long wavelength) while allowing the beneficial part of the spectrum (visible light and near infrared) to pass through. The fluids were evaluated on two different panels, and their results were compared to those of a control panel. In this work, two liquids were used and tested: copper sulfate solution (CuSO₄·5H₂O) and distilled water as absorption filter; each was arranged in such a way that it flows evenly over the surface of a PV module through a cavity mounted on the top side of the PV module. In addition, a standard PV panel was employed as a comparison. The average power produced by the PV when pure was used as an optical filter is 31.3%, while it was 11.3% when copper sulfate solution was used compared with base unit. Furthermore, the cooling effect of pure water on the PV was more efficient than that of copper sulfate solution, with an average PV temperature drop of 15% compared with 7.5% when copper sulfate is used compared with the base unit panel's performance improved by an average of 31.3% when distilled water was used as the absorption filter, compared to the reference panel's performance, while the copper sulfate solution improved the panel's performance by an average of 11.3% compared to the reference panel's performance. © 2021, The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature.

Abu Khalaf, R., Awad, M., Al-Essa, L., Mefleh, S., Sabbah, D., Al-Shalabi, E., Shabeeb, I.
Discovery, synthesis and in combo studies of Schiff's bases as promising dipeptidyl peptidase-IV inhibitors

(2022) Molecular Diversity, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115344378&doi=10.1007%2fs11030-021-10253-z&partnerID=40&md5=6f195a65d9703b1a8af7c2881aac9879>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Abstract: Diabetes mellitus is a main global health apprehension. Macrovascular illnesses, neuropathy, retinopathy, and nephropathy are considered some of its severe hitches. Gliptins are a group of hypoglycemic agents that inhibit dipeptidyl peptidase-IV (DPP-IV) enzyme and support blood glucose-lowering effect of incretins. In the current research, synthesis, characterization, docking, and biological evaluation of fourteen Schiff's bases 5a-f and 9a-h were carried out. Compound 9f revealed the best in vitro anti-DPP-IV activity of 35.7% inhibition at a concentration of 100 µM. Compounds 9c and 9f with the highest in vitro DPP-IV inhibition were subjected to the in vivo glucose-lowering test using vildagliptin as a positive inhibitor. Vildagliptin, 9c, and 9f showed significant reduction in the blood glucose levels of the treated mice after 30 min of glucose administration. Moreover, induced fit docking showed that these derivatives accommodated the enzyme binding site with comparable docking scores. Schiff's bases can serve as promising lead for the development of new DPP-IV inhibitors. Graphical Abstract: [Figure not available: see fulltext.] © 2021, The Author(s), under exclusive licence to Springer Nature Switzerland AG.

Al-Omoush, K.S.

Understanding the Impact of Intellectual Capital on E-Business Entrepreneurial Orientation and Competitive Agility: An Empirical Study

(2022) Information Systems Frontiers, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099088035&doi=10.1007%2fs10796-020-10092-7&partnerID=40&md5=d5cb909b92e276679440e04609da8309>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study empirically examines the impact of intellectual capital on the frontiers of e-business entrepreneurial orientation and how intellectual capital and e-business entrepreneurial orientation contribute to competitive agility. A questionnaire was used for data collection from telecommunication companies and obtained from a sample of 212 participants. Data analysis was conducted using a structural equation modeling approach using smart PLS. The results show the positive impact of human capital, structural capital, and relational capital on e-business entrepreneurial orientation. The findings also indicate a direct positive impact of intellectual capital and e-business entrepreneurial orientation on competitive agility. An understanding of the impact of intellectual capital, e-business entrepreneurial orientation dimensions, and their relationship with competitive agility will provide organizations with a better background and knowledge on how to foster and manage these capabilities. © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC part of Springer Nature.

Alsmadi, A.A., Alzoubi, M.

Green Economy: Bibliometric Analysis Approach

(2022) International Journal of Energy Economics and Policy, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127560329&doi=10.32479%2fijeep.12758&partnerID=40&md5=731ebb74825eb5fa2d774d56861eaf20>

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: With the increased efforts and focus on sustainable development and changes in the climate, literature has given more attention to the green economy. However, researchers have not yet been totally able to consensus on the definition of this phenomenon. The study presented in the paper provides an overview of the advancements present in research on the green economy for the period from 1990 to 2020. Using a bibliometric analysis approach, the paper summarizes the trends of development and the status quo of the green economy. The aim is to provide the reader with guidance and a solid conceptual framework for future research. © 2022, Econjournals. All rights reserved.

Christy, M.E., Gautam, T., Ou, L., Schmookler, B., Wang, Y., Adikaram, D., Ahmed, Z., Albataineh, H., Ali, S.F., Aljawrneh, B., Allada, K., Allison, S.L., Alsalmi, S., Androic, D., Aniol, K., Annand, J., Arrington, J., Atac, H., Averett, T., Ayerbe Gayoso, C., Bai, X., Bane, J., Barcus, S., Bartlett, K., Bellini, V., Beminiwattha, R., Bericic, J., Bhatt, H., Bhetuwal, D., Biswas, D., Brash, E., Bulumulla, D., Camacho, C.M., Campbell, J., Camsonne, A., Carmignotto, M., Castellanos, J., Chen, C., Chen, J.-P., Chetry, T., Cisbani, E., Clary, B., Cohen, E., Compton, N., Cornejo, J.C., Covrig Dusa, S., Crowe, B., Danagoulian, S., Danley, T., Deconinck, W., Defurne, M., Desnault, C., Di, D., Dlamini, M., Duer, M., Duran, B., Ent, R., Fanelli, C., Fuchey, E., Gal, C., Gaskell, D., Georges, F., Gilad, S., Glamazdin, O., Gnanvo, K., Gramolin, A.V., Gray, V.M., Gu, C., Habarakada, A., Hague, T., Hamad, G., Hamilton, D., Hamilton, K., Hansen, O., Hauenstein, F., Hernandez, A.V., Henry, W., Higinbotham, D.W., Holmstrom, T., Horn, T., Huang, Y., Huber, G.M., Hyde, C., Ibrahim, H., Israel, N., Jen, C.-M., Jin, K., Jones, M., Kabir, A., Karki, B., Keppel, C., Khachatryan, V., King, P.M., Li, S., Li, W., Liu, H., Liu, J., Liyanage, A.H., Mack, D., Magee, J., Malace, S., Mammei, J., Markowitz, P., Mayilyan, S., McClellan, E., Meddi, F., Meekins, D., Mesick, K., Michaels, R., Mkrtchyan, A., Moffit, B., Montgomery, R., Myers, L.S., Nadel-Turonski, P., Nazeer, S.J., Nelyubin, V., Nguyen, D., Nuruzzaman, N., Nycz, M., Obrecht, R.F., Ohanyan, K., Palatchi, C., Pandey, B., Park, K., Park, S., Peng, C., Persio, F.D., Pomatsalyuk, R., Pooser, E., Puckett, A.J.R., Punjabi, V., Quinn, B., Rahman, S., Rashad, M.N.H., Reimer, P.E., Riordan, S., Roche, J., Sapkota, I., Sarty, A., Sawatzky, B., Saylor, N.H., Shabestari, M.H., Shahinyan, A., Širca, S., Smith, G.R., Sooriyaarachchilage, S., Sparveris, N., Spies, R., Stefanko, A., Su, T., Subedi, A., Sulkosky, V., Sun, A., Tan, Y., Thorne, L., Ton, N., Tortorici, F., Trotta, R., Uniyal, R., Urciuoli, G.M., Voutier, E., Waidyawansa, B., Wojtsekhowski, B., Wood, S., Yan, X., Ye, L., Ye, Z.H., Yero, C., Zhang, J., Zhao, Y.X., Zhu, P.

Form Factors and Two-Photon Exchange in High-Energy Elastic Electron-Proton Scattering (2022) Physical Review Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126646246&doi=10.1103/2fPhysRevLett.128.102002&partnerID=40&md5=48b4e8f5f8eeec60c0c996b65ac603a0)

[85126646246&doi=10.1103/2fPhysRevLett.128.102002&partnerID=40&md5=48b4e8f5f8eeec60c0c996b65ac603a0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126646246&doi=10.1103/2fPhysRevLett.128.102002&partnerID=40&md5=48b4e8f5f8eeec60c0c996b65ac603a0)

AFFILIATIONS: Hampton University, Hampton, VA 23669, United States;

Massachusetts Institute of Technology, Cambridge, MA 02139, United States;

William and Mary, Williamsburg, VA 23185, United States;

Thomas Jefferson National Accelerator Facility, Newport News, VA 23606, United States;

University of Regina, Regina, SK S4S 0A2, Canada;

Texas A and M University, Kingsville, TX 77843, United States;

Catholic University of America, Washington, DC 20064, United States;

North Carolina AandT State University, Greensboro, NC 27411, United States;

Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Old Dominion University, Norfolk, VA 23529, United States;

Kent State University, Kent, OH 44240, United States;

University of Zagreb, Trg Republike Hrvatske 14, Zagreb, 10000, Croatia;

California State University, Los Angeles, Los Angeles, CA 90032, United States;

SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, G12 8QQ, United Kingdom;

Lawrence Berkeley National Laboratory, Berkeley, CA 94720, United States;

Argonne National Laboratory, Lemont, IL 60439, United States;

Temple University, Philadelphia, PA 19122, United States;

University of Virginia, Charlottesville, VA 232904, United States;

University of Tennessee, Knoxville, TN 37996, United States;

Istituto Nazionale di Fisica Nucleare, Department of Physics and Astronomy, Catania, I-95123, Italy;

Syracuse University, Syracuse, NY 13244, United States;

Mississippi State UniversityMS 39762, United States;

Christopher Newport University, Newport News, VA 23606, United States;

Institut de Physique Nucleaire, 15 Rue Georges Clemenceau, Orsay, 91400, France;

Dalhousie UniversityNS B3H 4R2, Canada;

Catholic University of America, Washington, DC 20064, United States;

Florida International University, Miami, FL 33199, United States;

Ohio University, Athens, OH 45701, United States;

Istituto Nazionale di Fisica Nucleare, Sezione di Roma, P.le Aldo Moro, 2, Roma, 00185, Italy;

University of Connecticut, Storrs, CT 06269, United States;

Tel Aviv University, Tel Aviv-Yafo, 69978, Israel;
Carnegie Mellon University, Pittsburgh, PA 15213, United States;
North Carolina Central University, Durham, NC 27707, United States;
CEA Saclay, Gif-sur-Yvette, 91191, France;
Ecole Centrale Paris, 3 Rue Joliot Curie, Gif-sur-Yvette, 91190, France;
Kharkov Institute of Physics and Technology, Kharkov, 61108, Ukraine;
Boston University, Boston, MA 02215, United States;
Randolph Macon College, Ashland, VA 23005, United States;
Cairo University, Cairo, 12613, Egypt;
Virginia Polytechnic Institute and State University, Blacksburg, VA 234061, United States;
Stony Brook, State University of New York, New York, 11794, United States;
Cornell University, Ithaca, NY 14853, United States;
University of New Hampshire, Durham, NH 03824, United States;
Columbia University, New York, NY 10027, United States;
University of Manitoba, Winnipeg, MB R3T 2N2, Canada;
AANL, 2 Alikhanian Brothers Street, Yerevan, 0036, Armenia;
Rutgers University, New Brunswick, NJ 08854, United States;
Duke University, Durham, NC 27708, United States;
Norfolk State University, Norfolk, VA 23504, United States;
Saint Mary's University, Halifax, NS B3H 3C3, Canada;
Rensselaer Polytechnic Institute, Troy, NY 12180, United States;
Faculty of Mathematics and Physics, University of Ljubljana, Ljubljana, 1000, Slovenia;
Shandong University, Jinan, Shandong, 250100, China;
Duquesne University, Pittsburgh, PA 15282, United States;
Huangshan University, 44 Daizhen Road, Tunxi District, Anhui Province, Huangshan, China;
Tsinghua University, 30 Shuangqing Rd, Haidian District, Beijing, 100190, China;
University of Science and Technology of China, Hefei, Anhui, 230026, China

ABSTRACT: We present new precision measurements of the elastic electron-proton scattering cross section for momentum transfer (Q^2) up to 15.75 (GeV/c)². Combined with existing data, these provide an improved extraction of the proton magnetic form factor at high Q^2 and double the range over which a longitudinal or transverse separation of the cross section can be performed. The difference between our results and polarization data agrees with that observed at lower Q^2 and attributed to hard two-photon exchange (TPE) effects, extending to 8 (GeV/c)² the range of Q^2 for which a discrepancy is established at >95% confidence. We use the discrepancy to quantify the size of TPE contributions needed to explain the cross section at high Q^2 . © 2022 American Physical Society.

Ibrahim, A.I.M., Batlle, E., Sneha, S., Jiménez, R., Pequerul, R., Parés, X., Rüngeler, T., Jha, V., Tuccinardi, T., Sadiq, M., Frame, F., Maitland, N.J., Farrés, J., Pors, K.
Expansion of the 4-(Diethylamino)benzaldehyde Scaffold to Explore the Impact on Aldehyde Dehydrogenase Activity and Antiproliferative Activity in Prostate Cancer
(2022) Journal of Medicinal Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125785695&doi=10.1021%2facs.jmedchem.1c01367&partnerID=40&md5=1f5c002c2d84a28756fd773643a78ebf)

85125785695&doi=10.1021%2facs.jmedchem.1c01367&partnerID=40&md5=1f5c002c2d84a28756fd773643a78ebf
AFFILIATIONS: Institute of Cancer Therapeutics, School of Pharmacy and Medical Sciences, Faculty of Life Sciences, University of Bradford, YorkshireBD7 1DP, United Kingdom;
Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
Department of Biochemistry and Molecular Biology, Faculty of Biosciences, Universitat Autònoma de Barcelona, Barcelona, E-08193, Spain;
Department of Pharmacy, University of Pisa, Via Bonanno 6, Pisa, 56126, Italy;
Cancer Research Unit, Department of Biology, University of York, YorkshireYO10 5DD, United Kingdom

ABSTRACT: Aldehyde dehydrogenases (ALDHs) are overexpressed in various tumor types including prostate cancer and considered a potential target for therapeutic intervention. 4-(Diethylamino)benzaldehyde (DEAB) has been extensively reported as a pan-inhibitor of ALDH isoforms, and here, we report on the synthesis, ALDH isoform selectivity, and cellular potencies in prostate cancer cells of 40 DEAB analogues; three analogues (14, 15, and 16) showed potent inhibitory activity against ALDH1A3, and two analogues (18 and 19) showed potent inhibitory activity against ALDH3A1. Significantly, 16 analogues displayed increased cytotoxicity (IC₅₀ = 10–200 μM) compared with DEAB (>200 μM) against three different prostate cancer cell lines. Analogues 14 and 18 were more potent than DEAB against patient-derived primary prostate tumor epithelial cells, as single agents or in combination treatment with docetaxel. In conclusion, our study supports the use of DEAB as an ALDH inhibitor but also reveals closely related analogues with increased selectivity and potency. © 2022 American Chemical Society

Maha, A.H.N., Ali, A.-S., Jasim, A.-S.M., Humam, A.-S.M., Rudaina, O.Y., Emad, A.-D.A.S.
COSMETICS USAGE HABITS AND EFFECT ON HEALTH SEEKING BEHAVIOR AMONG JORDANIAN WOMEN

(2022) Indian Drugs, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131516814&doi=10.53879%2fid.59.03.12752&partnerID=40&md5=cf5a2a6e5d1142b84e585c6d7bbc4672)

85131516814&doi=10.53879%2fid.59.03.12752&partnerID=40&md5=cf5a2a6e5d1142b84e585c6d7bbc4672

AFFILIATIONS: Department of Cosmetic Science, Pharmacological and Diagnostic Research Centre, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, 19328), Jordan;

Pharmacological and Diagnostic Research Centre, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Marketing, Faculty of Business, AL-Zaytoonah University, Jordan;

Department of Prosthodontics, College of Dentistry, Mustansiriyah University, Baghdad, Iraq;

Founding commission member, AL-Zahrawi university college, Karbala, Iraq;

Centre for Cardiovascular Science, Queen's Medical Research Institute, University of Edinburgh, Edinburgh, United Kingdom

ABSTRACT: Cosmetics are composed of a mixture of chemicals and natural compounds, and most adverse effects occur due to sharing the same products and using the makeup after the expiry date. This behavior tends to increase the side effects of cosmetics due to pathogenic infections. Lack of awareness and knowledge were found to be the main factors that could affect women's perception which plays a critical role in using expired cosmetic preparations and had negative impact on health behavior. It has been shown that awareness, reference groups, experience, and information produced a statistically significant effect on the perception. In addition, knowledge didn't have a statistically significant effect. Regarding utilizing the second-hand used cosmetics products, 84 % of women agreed that they have used those that belonged to another person. There is a need to educate women about the possible risks of expired or previously used cosmetics by formal channels, internet websites, and social media. © 2022 Indian Drug Manufacturers' Association. All rights reserved.

Alameri, O.H., Alhourani, M.I., Al-Hady, E.M.H.A.

A Semiotic Study of "Contemplation of Estrangement Features": "Leave Me Alone" as a Model

(2022) Academic Journal of Interdisciplinary Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128734349&doi=10.36941%2fajis-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128734349&doi=10.36941%2fajis-2022-0059&partnerID=40&md5=aa9164de02802701dc913c4e81c1cfb1db)

0059&partnerID=40&md5=aa9164de02802701dc913c4e81c1cfb1db

AFFILIATIONS: Kuwait International Law School, Doha Super Motorway, Kuwait;

College of Education, Humanities and Social Sciences, Al Ain University, Mohamed Bin Zayed City, Abu Dhabi, United Arab Emirates;

Literature and Modern Criticism, Al-Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, Jordan

ABSTRACT: Contemplation of Estrangement Features is the title of one of the story series by the Jordanian story writer, Teriz Haddad.1 This study aims to critically and analytically survey this series according to the semiotic principles, in an attempt to uncover the main narrative elements, aesthetic features, and the ideological, social, artistic and aesthetic contents of the series. This story series is important because it is one of the relatively early models of feminist literature in general and of short stories in Jordan in particular. In addition, this series is written by a Jordanian story writer whose works have not been criticized and studied sufficiently. This is probably because I made an attempt to search for a critical report or study of this story series, but I found nothing. The study consists of an introduction and three parts. The first part deals with the series' title as a "paratext" helping to convey the meaning of the series and sketch it out. The second part, however, gives a general look at the series' stories, where their summaries and paramount occurrences and ideas as well as their paramount techniques are presented. Finally, the last part came to deal, in some detail, with the story Leave Me Alone. This story has been analyzed and its most important artistic elements have been studied. Such elements include: The narrator, language, place, time and impression integrity. In the conclusion of the study, the most important results of the research have been incorporated. © 2022 Alameri et al.

Kanan, T., Hawashin, B., Alzubi, S., Almaita, E., Alkhatib, A., Maria, K.A., Elbes, M.

Improving Arabic Text Classification Using P-Stemmer

(2022) Recent Advances in Computer Science and Communications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126923132&doi=10.2174%2f2666255813999200904114023&partnerID=40&md5=08f03149aa0942cb51807cdee52b1907)

85126923132&doi=10.2174%2f2666255813999200904114023&partnerID=40&md5=08f03149aa0942cb51807cdee52b1907

AFFILIATIONS: Department of Computer Science, ALZaytoonah University, Amman, Jordan;

Department of Computer Information System, ALZaytoonah University, Amman, Jordan;

Department of Power and Mechatronics Engineering, Tafila Technical University, Tafilah, Jordan

ABSTRACT: Introduction: Stemming is an important preprocessing step in text classification, and could contribute to increasing text classification accuracy. Although many works have proposed stemmers for the English language, few stemmers have been proposed for Arabic text. Arabic language has gained increasing attention in the previous decades and the need to further improve Arabic text classification. Methods: This work combined the use of the recently proposed P-stemmer with various classifiers to find the optimal classifier for the P-stemmer in terms of Arabic text classification.

As part of this work, a synthesized dataset was collected. Results: The previous experiments show that the use of P-stemmer has a positive effect on classification. The degree of improvement is classifier-dependent, which is reasonable as classifiers vary in their methodologies. Moreover, the experiments show that the best classifier with the P-Stemmer is NB. This is an interesting result as this classifier is well-known for its fast learning and classification time. Discussion: First, the continuous improvement of the P-stemmer by more optimization steps is necessary to further improve the Arabic text categorization. This can be made by combining more classifiers with the stemmer, by optimizing the other natural language processing steps, and by improving the set of stemming rules. Second, the lack of sufficient Arabic datasets, especially large ones, is still an issue. Conclusion: In this work, an improved P-stemmer was proposed by combining its use with various classifiers. In order to evaluate its performance, and due to the lack of Arabic datasets, a novel Arabic dataset was synthesized from various online news pages. Next, the P-stemmer was combined with Naïve Bayes, Random Forest, Support Vector Machines, K-Nearest Neighbor, and K-Star. © 2022 Bentham Science Publishers.

Abdallah, A., Afifa, M.A., Saleh, I.H., Alsufy, F.

Determinants of Market Stock Price: New Evidence from an Emerging Market

(2022) Information Sciences Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126698341&doi=10.18576%2fisl%2f110223&partnerID=40&md5=edca6521cbdc5ea46fc4813dca1b498)

[85126698341&doi=10.18576%2fisl%2f110223&partnerID=40&md5=edca6521cbdc5ea46fc4813dca1b498](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126698341&doi=10.18576%2fisl%2f110223&partnerID=40&md5=edca6521cbdc5ea46fc4813dca1b498)

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Faculty of Business, Isra University, Amman, Jordan

ABSTRACT: The current study's goal is to investigate the financial determinants of the market stock price in Jordan, which is an emerging market. It gives empirical evidence from the industrial companies listed on the Amman Stock Exchange. This research was carried out over nine years (2010-2018), with a panel data analysis of 57 industrial companies used during the period. The study sample consists of all of the companies in the population, for a total of 513 observations. In conclusion, the findings of the study reveal that the ratio of assets turnover, long-term debt-to-total assets ratio, earnings per share, return on assets, inventory-to-total current assets ratio, total current assets-to-total assets ratio, and total assets significantly affect the market stock price of Jordanian industrial companies; while the equity-to-total assets ratio and working capital ratio have no significant effect. These results are compatible with the pecking order theory and signalling theory. Besides, the shift in the market stock prices of Jordanian industrial companies is governed by financial indicators at a relatively high level. As a final point, these results can be used by financial analysts, investors, and other strategic decision-makers to boost the effectiveness and efficiency of the Jordanian financial market. © 2022 NSP Natural Sciences Publishing Cor.

Al-Qerem, W., Al Bawab, A.Q., Hammad, A., Ling, J., Alasmari, F.

Willingness of the Jordanian Population to Receive a COVID-19 Booster Dose: A Cross-Sectional Study

(2022) Vaccines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126633496&doi=10.3390%2fvaccines10030410&partnerID=40&md5=a21b0d5f54e6f0e8506c31c660473e4b)

[85126633496&doi=10.3390%2fvaccines10030410&partnerID=40&md5=a21b0d5f54e6f0e8506c31c660473e4b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126633496&doi=10.3390%2fvaccines10030410&partnerID=40&md5=a21b0d5f54e6f0e8506c31c660473e4b)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Chester Road, Sunderland, SR1 3SD, United Kingdom;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, 4545, Saudi Arabia

ABSTRACT: SARS-CoV-2 (COVID-19) vaccines are critical for containing serious infections. However, as COVID-19 evolves toward more transmissible varieties and serum antibody levels in vaccinated persons steadily decline over time, the likelihood of breakthrough infections increases. This is a cross-sectional study based on an online questionnaire for Jordanian adults (n = 915) to determine how individuals who have finished the current vaccination regimen feel about a prospective COVID-19 booster shot and what factors might influence their decision. Almost half of the participants (44.6%) intended to get the booster dose of the COVID-19 vaccine. The most frequently mentioned reasons for participants' reluctance to get the COVID-19 vaccine booster dose were "The benefits of booster dose have not been scientifically proven" (39.8%), followed by "I took the last dose a short time ago, and there will be no need to take the booster dose for at least a year" (24.6%). In turn, "I was infected with COVID-19; thus, I do not require the booster dose" was the least reported reason (13.1%). These findings highlight the considerable hesitancy toward COVID-19 booster immunization among Jordanians, as well as the variables associated with vaccine hesitancy and the most frequently mentioned reasons for hesitancy, which will aid in creating excellent campaigns regarding booster doses. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Alwahsh, M., Knitsch, R., Marchan, R., Lambert, J., Hoerner, C., Zhang, X., Schalke, B., Lee, D.-H., Bulut, E., Graeter, T., Ott, G., Kurz, K.S., Preissler, G., Schölch, S., Farhat, J., Yao, Z., Sticht,

C., Ströbel, P., Hergenröder, R., Marx, A., Belharazem, D.

Metabolic Profiling of Thymic Epithelial Tumors Hints to a Strong Warburg Effect, Glutaminolysis and Precarious Redox Homeostasis as Potential Therapeutic Targets

(2022) *Cancers*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126522441&doi=10.3390%2fcancers14061564&partnerID=40&md5=1ac45bb211903c18df2e9ab7853afd66)

[85126522441&doi=10.3390%2fcancers14061564&partnerID=40&md5=1ac45bb211903c18df2e9ab7853afd66](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126522441&doi=10.3390%2fcancers14061564&partnerID=40&md5=1ac45bb211903c18df2e9ab7853afd66)

AFFILIATIONS: Leibniz-Institut für Analytische Wissenschaften–ISAS-e.V, Dortmund, 44139, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Center Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Toxicology, Leibniz Research Center for Working Environment and Human Factors at the TU Dortmund (IfADo), Dortmund, 44139, Germany;

Department of Neurology, University of Regensburg, Regensburg, 93053, Germany;

Department of Thoracic Surgery, Thoraxklinik at Heidelberg University Hospital, Heidelberg, 69120, Germany;

Thoracic Surgery, Clinic Löwenstein, Löwenstein, 74245, Germany;

Department of Clinical Pathology, Robert-Bosch-Krankenhaus and Dr. Margarete-Fischer-Bosch Institute of Clinical Pharmacology, Stuttgart, 70376, Germany;

Department of Thoracic Surgery, RBK Lungenzentrum Stuttgart, Robert Bosch Hospital, Clinic Schillerhoehe, Gerlingen, 70839, Germany;

DZL, German Center for Lung Research (Deutsches Zentrum fuer Lungenforschung), Department of Thoracic Surgery, Ludwig-Maximilians University Munich, Munich, 81377, Germany;

JCCU Translational Surgical Oncology (A430), German Cancer Research Center (DKFZ), Heidelberg, 69120, Germany;

DKFZ-Hector Cancer Institute at University Medical Center Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Department of Surgery, University Medical Center Mannheim, Medical Faculty Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Department of Pharmacy, Faculty of Pharmacy, Al Ain University, P.O. Box 122612, Abu Dhabi, United Arab Emirates;

NGS Core Facility, Medical Faculty Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Institute of Pathology, University Medical Center Göttingen, University of Göttingen, Göttingen, 37075, Germany

ABSTRACT: Thymomas and thymic carcinomas (TC) are malignant thymic epithelial tumors (TETs) with poor outcome, if non-resectable. Metabolic signatures of TETs have not yet been studied and may offer new therapeutic options. Metabolic profiles of snap-frozen thymomas (WHO types A, AB, B1, B2, B3, n = 12) and TCs (n = 3) were determined by high resolution magic angle spinning 1H nuclear magnetic resonance (HRMAS 1H-NMR) spectroscopy. Metabolite-based prediction of active KEGG metabolic pathways was achieved with MetPA. In relation to metabolite-based metabolic pathways, gene expression signatures of TETs (n = 115) were investigated in the public “The Cancer Genome Atlas” (TCGA) dataset using gene set enrichment analysis. Overall, thirty-seven metabolites were quantified in TETs, including acetylcholine that was not previously detected in other nonendocrine cancers. Metabolite-based cluster analysis distinguished clinically indolent (A, AB, B1) and aggressive TETs (B2, B3, TCs). Using MetPA, six KEGG metabolic pathways were predicted to be activated, including proline/arginine, glycolysis and glutathione pathways. The activated pathways as predicted by metabolite-profiling were generally enriched transcriptionally in the independent TCGA dataset. Shared high lactic acid and glutamine levels, together with associated gene expression signatures suggested a strong “Warburg effect”, glutaminolysis and redox homeostasis as potential vulnerabilities that need validation in a large, independent cohort of aggressive TETs. If confirmed, targeting metabolic pathways may eventually prove as adjunct therapeutic options in TETs, since the metabolic features identified here are known to confer resistance to cisplatin-based chemotherapy, kinase inhibitors and immune checkpoint blockers, i.e., currently used therapies for non-resectable TETs. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Manasrah, A., Masoud, M., Jaradat, Y., Bevilacqua, P.

Investigation of a Real-Time Dynamic Model for a PV Cooling System

(2022) *Energies*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126308993&doi=10.3390%2fen15051836&partnerID=40&md5=b8918c3e6782d849901741844b4042a0)

[85126308993&doi=10.3390%2fen15051836&partnerID=40&md5=b8918c3e6782d849901741844b4042a0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126308993&doi=10.3390%2fen15051836&partnerID=40&md5=b8918c3e6782d849901741844b4042a0)

AFFILIATIONS: Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mechanical, Energetic and Management Engineering, University of Calabria, Rende, 87036, Italy

ABSTRACT: The cooling of PV models is an important process that enhances the generated electricity from these models, especially in hot areas. In this work, a new, active cooling algorithm is proposed based on active fan cooling and an artificial neural network, which is named the artificial dynamic neural network Fan cooling algorithm (DNNFC). The proposed system attaches five fans to the back of a PV model. Subsequently, only two fans work at any given time to circulate the air under the PV model in order to cool it down. Five different patterns of working fans have been experimented with in this work. To select the optimal pattern for any given time, a back propagation neural network model was trained. The algorithm is a dynamic algorithm since it re-trains the model with new recorded surface temperatures over time. In this way, the model automatically adapts to any weather and environmental conditions. The model was trained with an indoor dataset and tested with an outdoor dataset. An accuracy of more than 97% has been recorded, with a mean square error of approximately 0.02. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Al-Kafaween, M.A., Al-Jamal, H.A.N., Hilmi, A.B.M.

De Novo Whole Genome Sequencing Data of *Pseudomonas aeruginosa* ATCC10145, an Opportunistic Pathogen (2022) *Tropical Journal of Natural Product Research*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126306824&doi=10.26538%2ftjnpr%2fv6i2.2&partnerID=40&md5=cc97639e5b14b8148dc99c98234a269d>

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Biomedicine, Faculty of Health Sciences, Universiti Sultan ZainalAbidin, Terengganu, Malaysia

ABSTRACT: *Pseudomonas aeruginosa* is an opportunistic pathogen that is commonly found in nosocomial infections. *P. aeruginosa* is one of the most frequent model bacterial species, with the genomes of hundreds of strains of this species have been sequenced to date. This study aimed to analyze the whole genome sequence of *P. aeruginosa* ATCC® 10145™. The whole genome of the *P. aeruginosa* ATCC® 10145™ was sequenced by shotgun sequencing using Genomic DNA Mini Kit, genome AnalyzerIIX with 100-bp paired-end reads and genomic DNA extracted using the MasterPure complete DNA and RNA purification kit and complete genome sequence analysis was done. The genome of the *P. aeruginosa* ATCC® 10145™ was sequenced on the IlluminaMiseq platform. The raw sequenced reads were assessed for quality using FastQC v.0.11.5 and filtered for low quality reads and adapter regions using Trimmomatic v.0.36. The de novo genome assembly was made with CLC Genomics Workbench 5.1 and annotated using Prokaryotic Genome Annotation Pipeline (PGAP) v4.10. Here, we report the whole genome sequence of *P. aeruginosa* ATCC® 10145™ strain. All filtered and assembled genomic data sequences have been submitted to National Centre for Biotechnology Information (NCBI) and can be located at DDBJ/ENA/GenBank under the accession of VAOQ000000000 (UniSZA) and BioProject number PRJNA533327 and ID: 533327). The high-quality *P. aeruginosa* ATCC® 10145™ genome sequence provides a reference for further research including investigation of horizontal gene transfer or comparative genomics. © 2022 Al-kafaween et al.

Bezziou, M., Dahmani, Z., Jebri, I., Belhamiti, M.M.

Solvability for a Differential System of Duffing Type Via Caputo-Hadamard Approach

(2022) *Applied Mathematics and Information Sciences*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126123997&doi=10.18576%2famis%2f160222&partnerID=40&md5=5f9e03cc641609a0e95c384269cc24be>

AFFILIATIONS: UDBKM University and Laboratory LPAM of Mathematics, UMAB University of Mostaganem, Algeria;

Laboratory LMPA, Faculty of Exact Sciences and Informatics, University of Mostaganem, Algeria; Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In this work, we investigate a new sequential coupled differential system of Duffing type. The considered system involves Caputo Hadamard derivatives. Based on both Banach contraction principle and Schaefer fixed point theorems, we establish two results on the existence and uniqueness of solutions for the introduced problem. Some examples are presented to show the validity of our results. To give more interpretation to the examples, we establish a new approximation of Caputo-Hadamard derivative for the case $1 < b < 2$. Then, we plot the dynamics of one of the examples in terms of time and space coordinates. © 2022. NSP Natural Sciences Publishing Cor.

Khaleel, S., Al-Hiari, Y., Kasabri, V., Haddadin, R., Albashiti, R., Al-Zweri, M., Bustanji, Y.

Antiproliferative Properties of 7,8-Ethylene Diamine Chelator-Lipophilic Fluoroqui-nolone Derivatives Against Colorectal Cancer Cell Lines

(2022) *Anti-Cancer Agents in Medicinal Chemistry*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125563802&doi=10.2174%2f1871520621666210623111744&partnerID=40&md5=253f6521ee4804d7cad718823e6eab85>

AFFILIATIONS: School of Pharmacy, Zarqa Private University, Zarqa, Jordan;

School of Pharmacy, University of Jordan, Queen Rania Street, Amman, 11942, Jordan;
Faculty of Pharmacy Al, Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;
Department of Basic Medical Sciences, College of Medicine, University of Sharjah, Sharjah, 2727,
United Arab Emirates

ABSTRACT: Background: Cancer is one of the most overwhelming diseases nowadays. It is considered the second cause of death after cardiovascular diseases. Due to the diversity of its types, stages and genetic origin, there is no available drug to treat all cancers. Serious side effects and resistance of existing drugs are other problems in the struggle against cancer. In such quest, fluoroquinolones (FQs) promising as antiproliferative compounds due to safety, low cost and lack of resistance. Objectives: Therefore, this work aims at developing lipophilic FQs and screening their antiproliferative activity against colorectal cancer. Methods: Nine prepared FQs were investigated for antiproliferative activity utilizing in vitro SRB method. In comparison to the antiproliferative agent cisplatin; the assessment of antiproliferative activities of these novel FQs in a panel of Colorectal Cancer Cell (CRC) lines (HT29, HCT116, SW620, CACO2, SW480) and normal periodontal ligament fibroblasts for safety examination was performed. Antibacterial activity (MIC) was conducted against *Staphylococcus aureus* and *Escherichia coli* standard strains using the broth double dilution method. Antioxidant properties were suspected as the mechanism of antiproliferative activity; thus, a DPPH test was performed to analyze radical scavenging potency of FQs compared to ascorbic acid as reference agent. FQs compounds 3-5(a-c) were prepared, characterized and their structure was confirmed using spectroscopy techniques. Results: All compounds manifested good to excellent antiproliferative activity on HT29, HCT116, and SW620 with high safety index. The reduced series 4a, 4b and 4c exerted excellent micro to nano-molar antiproliferative activities on HT29, HCT116, and SW620 which were stronger than the reference cisplatin against all cells. The reduced group of compounds 4(a-c) revealed higher potency vs. both nitro and triazolo groups. On cell lines HT29, HCT116, and SW620, reduced 4a with 7,8-ethylene diamine, the substitution revealed the highest antiproliferative efficacy (IC50 value) approaching nano molar affinity with higher safety vs. cisplatin. The most active compound, 4a, exhibited significant potency against HCT116, and SW620 with IC50 0.6 and 0.16 μM respectively. Novel FQs (4a, 4b and 4c) also showed strong radical scavenging activity with IC50 values (μM) 0.06, 23, and 7.99, respectively. Exquisitely 4a revealed a similar pattern of activity to doxorubicin, indicating a similar mechanism of action. Strong antiproliferative and weak antibacterial activities of series 4 endorse that their mechanism involves eukaryotic topoisomerase II inhibition. This work has revealed novel FQs with excellent anticancer activity against 5 colorectal cancer (HT29, HCT116, SW620, CACO2, SW480) cell lines with a potential chelation mechanism due to 7,8-ethylene diamine chelator bridge. Conclusion: The new FQs have confirmed that more lipophilic compounds could be more active as hypothesized. The p-halogenated aniline, N1-Butyl group in addition to 3-COOH, 8-NH2 are all essential requirements for strong antiproliferative FQ of our FQ scaffold. This work emphasizes the role of C-8 amino as part of ethylene diamine group as an essential requirement for antiproliferative FQs for the first time in the literature, entailing its role toward potential antineoplastic FQs. © 2022 Bentham Science Publishers.

Sunoqrot, S., Niazi, M., Al-Natour, M.A., Jaber, M., Abu-Qatouseh, L.

Loading of Coal Tar in Polymeric Nanoparticles as a Potential Therapeutic Modality for Psoriasis (2022) ACS Omega, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85125350741&doi=10.1021%2facomega.1c07267&partnerID=40&md5=2d2470fab2f5333cb0de224e4c0f905

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan

ABSTRACT: Coal tar (CT) is a commonly used therapeutic agent in psoriasis treatment. CT formulations currently in clinical use have limitations such as toxicity and skin staining properties, leading to patient nonadherence. The purpose of this study was to develop a nanoparticle (NP) formulation for CT based on biocompatible poly(lactide-co-glycolide) (PLGA). CT was entrapped in PLGA NPs by nanoprecipitation, and the resulting NPs were characterized using dynamic light scattering and high-performance liquid chromatography (HPLC) to determine the particle size and CT loading efficiency, respectively. In vitro biocompatibility of the NPs was examined in human dermal fibroblasts. Permeation, washability, and staining experiments were carried out using skin-mimetic Strat-M membranes in Franz diffusion cells. The optimal CT-loaded PLGA NPs achieved 92% loading efficiency and were 133 nm in size with a polydispersity index (PDI) of 0.10 and a zeta potential of -40 mV, promoting colloidal stability during storage. CT NPs significantly reduced the cytotoxicity of crude CT in human dermal fibroblasts, maintaining more than 75% cell viability at the highest concentration tested, whereas an equivalent concentration of CT was associated with 28% viability. Permeation studies showed that only a negligible amount of CT NPs could cross the Strat-M membrane after 24 h, with 97% of the applied dose found accumulated within the membrane. The superiority of CT NPs was further demonstrated by the notably diminished staining ability and enhanced washability compared to those of crude CT. Our findings present a promising CT nanoformulation that can overcome its

limitations in the treatment of psoriasis and other skin disorders. © 2022 The Authors. Published by American Chemical Society

Al-Omoush, K.S., Ancillo, A.D.L., Gavril, S.G.

The role of cultural values in social commerce adoption in the Arab world: An empirical study (2022) *Technological Forecasting and Social Change*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121560634&doi=10.1016%2fj.techfore.2021.121440&partnerID=40&md5=024bb4e2ee61f5d9d89f6b08e2d0dbc9)

85121560634&doi=10.1016%2fj.techfore.2021.121440&partnerID=40&md5=024bb4e2ee61f5d9d89f6b08e2d0dbc9

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Economics Business and Tourism, Universidad de Alcalá, Alcalá de Henares, Spain

ABSTRACT: This study aims to examine the impact of Arab cultural values on consumer adoption of social commerce (s-commerce). Data were obtained from 528 participants through an online questionnaire. Structural equation modeling (PLS-SEM) was utilized to test the research hypotheses. The findings indicate a significant positive impact of collectivism and masculinity cultural values on s-commerce adoption. At the same time, the findings reveal a significant impact of uncertainty avoidance. Furthermore, the findings reveal a mediating impact by perceived value on the relationship between word of mouth (WOM) and s-commerce adoption. The findings contribute to a better understanding of the impact of cultural values on the adoption of s-commerce in the Arab world. It also shows how WOM and the perceived value of s-commerce both contribute to social commerce adoption, taking into consideration both the direct and mediated impacts of WOM. © 2021 Elsevier Inc.

Sweidan, O.D., Elbargathi, K.

The effect of oil rent on economic development in Saudi Arabia: Comparing the role of globalization and the international geopolitical risk

(2022) *Resources Policy*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119301094&doi=10.1016%2fj.resourpol.2021.102469&partnerID=40&md5=29a62ee5fbf1a87a438a3a0ba6f0e569)

85119301094&doi=10.1016%2fj.resourpol.2021.102469&partnerID=40&md5=29a62ee5fbf1a87a438a3a0ba6f0e569

AFFILIATIONS: Department of Innovation in Government and Society, United Arab Emirates University, P.O. Box 15551, Al-Ain, United Arab Emirates;

Assistant Professor of Economics, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: We explored the effect of globalization and international geopolitical risks on Saudi Arabia's economic development via the channel of Saudi's oil rent during the period 1970–2018. In addition, we tested if globalization and international geopolitical risk can strengthen or weaken the impact of oil rent on Saudi Arabia's economic development. A time series autoregressive distributed lag model with moderation effects was used to achieve the paper's objective. Our results revealed that the direct short and long run effects of oil rent and globalization are statistically significant and positive, while the influence of international geopolitical risk is statistically insignificant in the short and long run. However, adding the moderation effects to the analysis reversed the results. The interaction terms of our paper are significant and negative. It implies that the interaction terms deflate the direct positive effects. Therefore, the final effect of oil rent and globalization could be either positive or negative, while the final effect of the international geopolitical risk is negative. The findings from the current paper confirms that globalization effect is dominant on economic development, compared to geopolitical risk. The policy implication of our paper focuses on diversifying Saudi's economy and strengthen Saudi Arabia's institutional framework. © 2021 Elsevier Ltd

Farah, R.I., Althunayyan, A.A., Al-Haj Ali, S.N., Farah, A.I.

Reduction of aerosols and splatter generated during ultrasonic scaling by adding food-grade thickeners to coolants: an in-vitro study

(2022) *Clinical Oral Investigations*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119159440&doi=10.1007%2fs00784-021-04265-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119159440&doi=10.1007%2fs00784-021-04265-0&partnerID=40&md5=867c8c306112c73a628e5ecac0b8c6b7)

0&partnerID=40&md5=867c8c306112c73a628e5ecac0b8c6b7

AFFILIATIONS: Department of Prosthetic Dental Sciences, College of Dentistry, Qassim University, Al-Mulaydah, Qassim, Saudi Arabia;

College of Dentistry, Qassim University, Al-Mulaydah, Qassim, Saudi Arabia;

Department of Orthodontic and Pediatric Dentistry, College of Dentistry, Qassim University, Al-Mulaydah, Qassim, Saudi Arabia;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objective: The effectiveness of using food-grade coolant thickener solutions on the amount of aerosols generated and splatter contamination spread distance during simulated ultrasonic scaling was examined. Materials and methods: The study was performed using a phantom lower jaw placed on a black box. Simulated ultrasonic scaling was performed for 2 min using four coolant solutions: distilled water (control), 2% wt. polyacrylic acid (PAA), 0.4% wt. xanthan gum (XA), and 0.4% wt. carboxymethyl cellulose (CMC). The simulation was repeated 10 times for each coolant group. The generated aerosols and droplets were quantified using a handheld particle counter, and the splatter

contamination spread distance was evaluated by adding tracing fluorescent dye to the coolant reservoir supplying the scaler unit. One-way multivariate analysis of variance was performed to determine the difference among coolant groups ($\alpha = .05$). Results: The amount of aerosols and droplets and splatter contamination distance ($p < .001$) pertaining to the three food-grade coolant thickener solutions were considerably lower than those for the distilled water (control). The PAA group exhibited a significantly lower splatter contamination distance ($p < .001$) and a number of generated droplets ($p = .031$) than those of the XA group. The CMC group exhibited a significantly lower splatter contamination distance ($p < .001$) than that of the XA group. No statistically significant difference was observed between the PAA and CMC in terms of the three dependent variables ($p > .05$). Conclusion: The food-grade coolant thickeners could reduce the amount of generated aerosols and splatter contamination distance but not completely eliminate them. PAA and CMC solutions were more effective in reducing the aerosol/splatter during scaling compared to XA. Clinical relevance: Many dental procedures generate aerosols and splatter, which pose a potential risk to the patients and dental personnel, especially during the current COVID-19 pandemic. © 2021, The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature.

Elbes, M., Alrawashdeh, T., Almaita, E., AlZu'bi, S., Jararweh, Y.

A platform for power management based on indoor localization in smart buildings using long short-term neural networks

(2022) Transactions on Emerging Telecommunications Technologies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078297651&doi=10.1002%2fett.3867&partnerID=40&md5=9657df4c9fe7747847fe42bf9e9dd2d2)

[85078297651&doi=10.1002%2fett.3867&partnerID=40&md5=9657df4c9fe7747847fe42bf9e9dd2d2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078297651&doi=10.1002%2fett.3867&partnerID=40&md5=9657df4c9fe7747847fe42bf9e9dd2d2)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Electrical Engineering, Tafila Technical University, Amman, Jordan;

Department of Computer Science, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Location-based services (LBSs) have drastically changed the way smart cities and smart buildings operate, giving a new dimension to the life of citizens. LBS have various applications ranging from power management, marketing, vehicle to everything communication to social networking, and many other applications. The concept of LBS relies on the estimation of a mobile device location either inside a city or a building. In this work, we present our three-layer collaborative LBS platform for various types of users and buildings. The first of these layers is the hardware layer consisting of the hardware used for location estimation inside smart buildings. On top of the hardware layers exists the indoor localization layer, at which we implement our indoor localization algorithms using long short-term neural networks for location estimation. Finally, the collaborative LBS system lies on top of other layers. The novelty of our approach stems from providing a complete layered architecture for LBS usage for power management. The proposed system offers collaborative features and services, that is, input to power management system that optimizes power usage in smart buildings based on user locations. © 2020 John Wiley & Sons, Ltd.

Abusukhon, A., Mohammad, Z., Al-Thaher, A.

An authenticated, secure, and mutable multiple-session-keys protocol based on elliptic curve cryptography and text-to-image encryption algorithm

(2022) Concurrency and Computation: Practice and Experience, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116432416&doi=10.1002%2fcpe.6649&partnerID=40&md5=d9b99400a83584c1732cd4aec315f8cb)

[85116432416&doi=10.1002%2fcpe.6649&partnerID=40&md5=d9b99400a83584c1732cd4aec315f8cb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116432416&doi=10.1002%2fcpe.6649&partnerID=40&md5=d9b99400a83584c1732cd4aec315f8cb)

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Most of the key agreement protocols (e.g., Menezes-Qu-Vanstone [MQV] family) generate one common key per session. This leaves the session key vulnerable against various attacks. This article proposed an enhanced multiple session key (EMSK) protocol which is based on the elliptic curve Diffie-Hellman (ECDH), HMQV, and the YAK protocols. The EMSK generates multiple session keys per session. Unlike the MQV protocol, the EMSK needs only two messages to be exchanged in order to create nine session keys. However, the MQV requires 18 messages to be exchanged in order to produce these nine session keys. In EMSK, one of the session keys is used to encrypt the plaintext using the one-time pad cipher. The encrypted message is then embedded in an RGB-image in order to provide confidentiality service of communication. The EMSK is evaluated theoretically against various types of attacks and practically using the Scyther simulator. The results from the simulator showed that the EMSK protocol withstand various types of attacks on the MQV, HMQV, and the YAK protocols, and provided perfect forward secrecy. In addition, the EMSK provides a digital signature feature which validates the authenticity and integrity of a digital message using the zero knowledge prove. © 2021 John Wiley & Sons Ltd.

Subih, M., Al-Amer, R., Malak, M.Z., Randall, D.C., Darwish, R., Alomari, D., Mosleh, S.

Knowledge of Critical Care Nurses about End-of-Life Care towards Terminal Illnesses: Levels and Correlating Factors

(2022) Inquiry (United States), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126648136&doi=10.1177%2f00469580221080036&partnerID=40&md5=77d9faa51451a22ae40074bbd9597fd5)

[85126648136&doi=10.1177%2f00469580221080036&partnerID=40&md5=77d9faa51451a22ae40074bbd9597fd5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126648136&doi=10.1177%2f00469580221080036&partnerID=40&md5=77d9faa51451a22ae40074bbd9597fd5)

AFFILIATIONS: Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

University of Southampton, Hampshire, Southampton, United Kingdom;

General Dentist, 1st Year Residency Program Endodontic, Ministry of Health, Amman, Jordan;

Adult Health Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Adult Health Nursing, Faculty of Nursing, Mu'tah University, Al Karak, Jordan

ABSTRACT: Introduction: The preparedness of nurses in relation to providing palliative care is not always adequate, indeed, it is sometimes unsatisfactory; this may be caused by lack of knowledge and limited experience in end-of-life care (EOLC). Thus, this study purposed to assess the levels of registered nurses' knowledge about EOLC, examine the relationships between EOLC knowledge and some demographic variables, and explore predictors of EOLC knowledge. Methods: A cross-sectional design survey was conducted with Jordanian registered nurses in critical care units (N = 175) in different health sectors in Jordan. The End-of Life Professional Caregiver Survey (EPCS) was used. Results: Findings showed that nurses had moderate/quite a lot of knowledge (M (SD) = 2.58 (.48)) about EOLC. The cultural and ethical values was the highest subscale of knowledge about EOLC (M (SD) = 2.74 (.52)), while effective care delivery subscale was the lowest one ((M (SD) = 2.33 (.66). Knowledge about EOLC was correlated with age (r =.145, P <.05), work experience (r =.173, P <.05), and training course in palliative or EOLC (r =.217, P <.01). The main predictor of EPCS was training courses in palliative or EOLC (B =.190, P <.05). Conclusion: The nurses need to enhance their knowledge about EOLC and correlating factors should be taken into consideration when developing any intervention program. Nurses need palliative care training courses; also more attention is required in palliative care education particularly in clinical skills in effective care delivery. © The Author(s) 2022.

Jarab, F., Al-Qerem, W., Jarab, A.S., Banyhani, M.

Faculties' Satisfaction With Distance Education During COVID-19 Outbreak in Jordan

(2022) Frontiers in Education, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124941961&doi=10.3389%2ffeduc.2022.789648&partnerID=40&md5=43f70349a3719e592b0f089afa849a55)

[85124941961&doi=10.3389%2ffeduc.2022.789648&partnerID=40&md5=43f70349a3719e592b0f089afa849a55](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124941961&doi=10.3389%2ffeduc.2022.789648&partnerID=40&md5=43f70349a3719e592b0f089afa849a55)

AFFILIATIONS: Department of Oral Medicine and Oral Surgery, Faculty of Dentistry, Irbid, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Although online teaching has been implemented worldwide, specifically in higher education, resistance to technology use exists, as faculty members may lack technology familiarity and may require both guidance and training. The present study evaluated faculty members' satisfaction towards distance teaching as imposed during the COVID-19 pandemic. An online survey which evaluated socio-demographics and faculties 'satisfaction toward distance education was validated and completed by 286 faculties from different faculty-fields of education across all Universities in Jordan. Factor analysis was conducted to validate the questionnaire and univariable analysis was conducted to evaluate demographic variables association with satisfaction degree. The confirmatory factor analysis indicated that the most suitable structure for the study data was a 3-factor model constructed from 21 items. The three factors were students-related factor, institution-related factor and technology-related factor. The scores for the three factors were 2.66, 2.00 and 3.33 out of 5 respectively. Faculties who received training for online teaching and those who have attended courses as a trainee were more satisfied with distance education. In conclusion, the faculties' low satisfaction level reported in the present study shows margin for distance education improvement by conducting intensive training courses for online teaching with the aim of improving faculties' satisfaction levels towards a web-based teaching environment and hence improving education outcomes. Copyright © 2022 Jarab, Al-Qerem, Jarab and Banyhani.

Al-Kalaldehy, M., Al-Bdour, E., Shosha, G.A.

Patients' Evaluation of the Quality of Emergency Care Services in Jordan: Integration of Patient Centeredness Model

(2022) Research and Theory for Nursing Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124942383&doi=10.1891%2fRTNP-D-21-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124942383&doi=10.1891%2fRTNP-D-21-00037&partnerID=40&md5=23bcf7ae4a71e81b00638ecf49c12d16)

[00037&partnerID=40&md5=23bcf7ae4a71e81b00638ecf49c12d16](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124942383&doi=10.1891%2fRTNP-D-21-00037&partnerID=40&md5=23bcf7ae4a71e81b00638ecf49c12d16)

AFFILIATIONS: Faculty of Nursing, The University of Jordan-Aqaba Campus, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Nursing, Zarqa University, Jordan

ABSTRACT: Background and Purpose: Accreditation is viewed to enhance the total quality of healthcare.

The present study aims at assessing patients' perspectives toward the quality of emergency healthcare services at different hospitals with different characteristics in Jordan. The elements of patients' perception were aligned with the conceptual framework of Patient Centeredness Model. Methods: This descriptive cross-sectional study was carried out in four emergency departments from different healthcare sectors and accreditation statuses in Jordan. Less urgent/nonurgent, alert, and cooperative patients were identified directly after the completion of emergency treatment. The perspectives of patients about the quality of emergency services were evaluated by 10 domains articulated in a validated accident and emergency questionnaire. Results: A total of 276 patients were enrolled in the study. Private sector scored higher in all assessment domains in both accredited and nonaccredited hospitals in comparison with the government sector. Accredited government hospitals scored higher in patients' evaluation for "doctor and nurse," "investigations," "pain," and "overall respect of medical staff" domains than nonaccredited government hospitals. The overall experience was significantly different between accredited and nonaccredited government hospitals. Implications for Practice: Quality of emergency care services should be assessed through various dimensions related to patients' perspectives. Patients' perception toward the quality of emergency health services is evidently enhanced by accreditation especially in the government sector. © Copyright 2022 Springer Publishing Company, LLC.

Alamayreh, M.I., Alahmer, A., Younes, M.B., Bazlamit, S.M.
Pre-Cooling Concrete System in Massive Concrete Production: Energy Analysis and Refrigerant Replacement
(2022) Energies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124334805&doi=10.3390%2fen15031129&partnerID=40&md5=395e67d30fd294e2cef34a0f169324)

[85124334805&doi=10.3390%2fen15031129&partnerID=40&md5=395e67d30fd294e2cef34a0f169324](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124334805&doi=10.3390%2fen15031129&partnerID=40&md5=395e67d30fd294e2cef34a0f169324)

AFFILIATIONS: Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;

Indiana Department of Transportation, Indianapolis, IN 46204, United States

ABSTRACT: Several techniques for cooling mass concrete structures were developed in order to increase structural integrity and reduce the influence of cement hydration, which sometimes causes cracking in concrete structures, negatively affecting their durability. This research focuses on cooling system design, initial investment, and the influence of different refrigerants on cooling system performance aims in producing higher quality massive concrete. Cooling aggregates in massive concrete structures such as desert dams can be performed by employing cooled air from an air conditioning duct system or chilled water. The experimental study illustrates the relationship between the coefficient of performance COP, the evaporator temperature, cooling capacity, and refrigerant mass flow rate as a function of the evaporator temperature, cooling capacity, and refrigerant mass flow rate. The findings of the experiments were utilized to verify a numerical model developed utilizing engineering equation solver (EES) software. The performance of the vapor compression of the cooling systems was compared using alternative refrigerants, including R22, R32, and R410a at different operating conditions. This study revealed that R22 refrigerant has a higher coefficient of performance than R32 and R410A, while R32 has the highest cooling capacity among other refrigerants. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Barakat, M., Thiab, S., Thiab, S., Al-Qudah, R.A., Akour, A.
Knowledge and Perception Regarding the Development and Acceptability of Male Contraceptives Among Pharmacists: A Mixed Sequential Method
(2022) American Journal of Men's Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124262379&doi=10.1177%2f15579883221074855&partnerID=40&md5=aab68289c9dd91e1e5787fcfa0ba6460)

[85124262379&doi=10.1177%2f15579883221074855&partnerID=40&md5=aab68289c9dd91e1e5787fcfa0ba6460](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124262379&doi=10.1177%2f15579883221074855&partnerID=40&md5=aab68289c9dd91e1e5787fcfa0ba6460)

AFFILIATIONS: Department of Clinical pharmacy and therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

College of Pharmacy, Qatar University, Doha, Qatar;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: Community pharmacists play a crucial role in providing comprehensive patient education regarding contraception methods. This study aims to investigate Jordanian pharmacists' knowledge and perceptions toward male oral contraceptive pills (OCPs). A mixed-explanatory sequential method was divided into two phases. The first was a self-administered electronic survey that was distributed to community pharmacists/trainees in Jordan. The second phase was carried out through online semi-structured in-depth interviews targeting the maximum variation purposive sample of community

pharmacists. A total of 158 (response rate 98%) questionnaires were included in the analysis. The majority of the participants were female (n = 118, 74.2%). In terms of knowledge, only 25% of participants acknowledged the presence of male OCPs and almost half were uncertain about the mechanism of action and the possible uses. The findings of the interviews confirmed a relatively negative perception toward male OCPs and the identified barriers to male OCPs were cultural norms, side effects, and poor compliance. It is argued that there is a negative perception toward male OCPs due to the majority of pharmacists not believing such products will be successful in Jordan. Once these pills are approved for their effectiveness and safety, men may need further education and encouragement to take an active role in family planning along with their partners. © The Author(s) 2022.

Hailat, M., Zakaraya, Z., Al-Ani, I., Al Meanazel, O., Al-Shdefat, R., Anwer, M.K., Saadh, M.J., Dayyih, W.A.

Pharmacokinetics and Bioequivalence of Two Empagliflozin, with Evaluation in Healthy Jordanian Subjects under Fasting and Fed Conditions

(2022) Pharmaceuticals, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85124183660&doi=10.3390%2fph15020193&partnerID=40&md5=6eb3936948140788fa03dd4aa7e04a25

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Michael Sayegh, Faculty of Pharmacy, Aqaba University of Technology, Aqaba, 77110, Jordan;

Faculty of Pharmacy, Jadara University, Irbid, 21110, Jordan;

Department of Pharmaceutics, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-Kharj, 11942, Saudi Arabia;

Faculty of Pharmacy, Middle East University, Amman, 11831, Jordan;

Faculty of Pharmacy, Mutah University, Al-Karak, 61710, Jordan

ABSTRACT: The current study is a randomized, open-label, two-period, two-sequence, two-way crossover pharmacokinetic study in healthy Jordanian subjects to evaluate the pharmacokinetics and bioequivalence profile of two cases of empagliflozin 10 mg under fasting and fed conditions. The plasma concentrations of empagliflozin were determined using an HPLC-MS/MS method. Tolerability and safety were assessed throughout the study. This study included 26 subjects, 26 in both fasting and fed groups. The pharmacokinetic parameters, which included the area under the concentration-time curve from time zero to infinity (AUC_{0-inf}) and the final quantifiable concentration (AUC_{0-last}), maximum serum concentration (C_{max}), and time to reach the maximum drug concentration (T_{max}) were found to be within an equivalence margin of 80.00-125.00%. The pharmacokinetic profiles show that the empagliflozin test and parent reference cases were bioequivalent in healthy subjects. The two treatments' safety evaluations were also comparable. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Abu Khalaf, R., Alqazaqi, S., Aburezeq, M., Sabbah, D., Albadawi, G., Abu Sheikha, G.

Phenanthridine Sulfonamide Derivatives as Potential DPP-IV Inhibitors: Design, Synthesis and Biological Evaluation

(2022) Current Computer-Aided Drug Design, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85123811298&doi=10.2174%2f1573409916666201007124122&partnerID=40&md5=60223fe74d38a43fcc88a1455613f54

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Diabetes mellitus is a chronic metabolic disorder, characterized by hyperglycemia over a prolonged period, disturbance of fat, protein, and carbohydrate metabolism, resulting from defective insulin secretion, insulin action or both. Dipeptidyl peptidase-IV (DPP-IV) inhibitors are relatively a new class of oral hypoglycemic agents that reduce the deterioration of gut-derived endogenous incretin hormones secreted in response to food ingestion to stimulate the secretion of insulin from beta cells of the pancreas. Objective: In this study, synthesis, characterization, and biological assessment of twelve novel phe-nanthridine sulfonamide derivatives 3a-3l as potential DPP-IV inhibitors were carried out. The target compounds were docked to study the molecular interactions and binding affinities against the DPP-IV enzyme. Methods: The synthesized molecules were characterized using ¹H-NMR, ¹³C-NMR, IR, and MS. Quantum-polarized ligand docking (QPLD) was also performed. Results: In vitro biological evaluation of compounds 3a-3l reveals comparable DPP-IV inhibitory activities ranging from 10%-46% at 100 μM concentration, where compound 3d harboring or-tho-fluoro moiety exhibited the highest inhibitory activity. QPLD study shows that compounds 3a-3l accommodate DPP-IV binding site and form H-bonding with the R125, E205, E206, S209, F357, R358, K554, W629, S630, Y631, Y662, R669, and Y752 backbones. Conclusion: In conclusion, phenanthridine sulfonamides could serve as potential DPP-IV inhibitors that require further structural optimization in order to enhance their inhibitory activity. © 2022 Bentham Science Publishers.

Abed, A.F., Jarrar, Y.B., Al-Ameer, H.J., Al-Awaida, W., Lee, S.-J.

The Protective Effect of Metformin against Oxandrolone-Induced Infertility in Male Rats

(2022) Current Pharmaceutical Design, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122334813&doi=10.2174%2f1381612826666201029101524&partnerID=40&md5=7d5c7d0e49bb566ebcc76783c42e64d7)

[85122334813&doi=10.2174%2f1381612826666201029101524&partnerID=40&md5=7d5c7d0e49bb566ebcc76783c42e64d7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122334813&doi=10.2174%2f1381612826666201029101524&partnerID=40&md5=7d5c7d0e49bb566ebcc76783c42e64d7)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biology and Biotechnology, American University of Madaba, Madaba, Jordan;

Department of Pharmacology and Pharmacogenomics Research Center, Inje University College of Medicine, Inje University, Gimhae, South Korea

ABSTRACT: Background: Oxandrolone is a synthetic testosterone analog that is widely used among bodybuilders and athletes. However, oxandrolone causes male infertility. Recently, it was found that metformin reduces the risk of infertility associated with diabetes mellitus. Aim: This study aimed to investigate the protective effects of metformin against oxandrolone-induced infertility in male rats. Methods: Rats continuously received one of four treatments (n=7) over 14 days: control DMSO administration, oxandrolone administration, metformin administration, or co-administration of oxandrolone and metformin. Doses were equivalent to those used for human treatment. Subsequently, testicular and blood samples were collected for morphological, biochemical, and histological examination. In addition, gene expression of the testosterone synthesizing enzyme CYP11A1 was analyzed in the testes using RT-PCR. Results: Oxandrolone administration induced male infertility by significantly reducing relative weights of testes by 48%, sperm count by 82%, and serum testosterone levels by 96% (ANOVA, P value < 0.05). In addition, histological examination determined that oxandrolone caused spermatogenic arrest, which was associated with 2-fold downregulation of testicular CYP11A1 gene expression. However, co-administration of metformin with oxandrolone significantly ameliorated toxicological alterations induced by oxandrolone exposure (ANOVA, P-value < 0.05). Conclusion: Metformin administration provided protection against oxandrolone-induced infertility in male rats. Further clinical studies are needed to confirm the protective effect of metformin against oxandrolone-induced infertility among athletes. © 2022 Bentham Science Publishers.

Alhusban, A.A., Hamadneh, L.A., Albustanji, S., Shallan, A.I.

Lactate and pyruvate levels correlation with lactate dehydrogenase gene expression and glucose consumption in Tamoxifen-resistant MCF-7 cells using capillary electrophoresis with contactless conductivity detection (CE-C4D)

(2022) Electrophoresis, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118338054&doi=10.1002%2felps.202100217&partnerID=40&md5=8be9dcb4f07a490bdf9f4a3d1affc0a1)

[85118338054&doi=10.1002%2felps.202100217&partnerID=40&md5=8be9dcb4f07a490bdf9f4a3d1affc0a1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118338054&doi=10.1002%2felps.202100217&partnerID=40&md5=8be9dcb4f07a490bdf9f4a3d1affc0a1)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Analytical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, Egypt

ABSTRACT: Breast cancer is the second leading cause of cancer death in women after lung cancer. The first-line treatment of metastatic breast cancer in premenopausal women relies on tamoxifen. The development of tamoxifen resistance is not fully understood. In this study, capillary electrophoresis with capacitively coupled contactless conductivity detector was developed to monitor the changes in lactate and pyruvate levels in supernatant media of three models of developed MCF-7 tamoxifen-resistant cells and correlate these metabolites changes with lactate dehydrogenase genes expression and glucose consumption. The electrophoretic separation was achieved under reversed electroosmotic flow conditions. The linear ranges were 0.15–5 and 0.01–1 mM with a correlation coefficient of 0.9966 and 0.9971 and the limits of detection were 0.01 and 0.02 µM for lactate and pyruvate, respectively. Inter- and intrarun accuracy were in the range of 96.88–105.94% with precision (CV, %) of ≤7.35%. The method was completely validated and the results were in agreement with those obtained using the lactate and glucose assay kits. The results revealed a significant increase in both lactate and pyruvate production in the three tamoxifen-resistant MCF-7 cells models compared to control cells. This increase was correlated with the increase of lactate dehydrogenase genes expression and the increase of glucose consumption. © 2021 Wiley-VCH GmbH

Al-Ghabeesh, S.H.

Coping strategies, social support, and mindfulness improve the psychological well-being of Jordanian burn survivors: A descriptive correlational study

(2022) Burns, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117756020&doi=10.1016%2fj.burns.2021.04.012&partnerID=40&md5=3b6fe353d1969cc1c86b3aaa319a65a0)

[85117756020&doi=10.1016%2fj.burns.2021.04.012&partnerID=40&md5=3b6fe353d1969cc1c86b3aaa319a65a0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117756020&doi=10.1016%2fj.burns.2021.04.012&partnerID=40&md5=3b6fe353d1969cc1c86b3aaa319a65a0)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Nursing, Airport Street, Amman, Jordan
ABSTRACT: Background: Burn injury survivors usually experience multiple psychosocial problems, which occur commonly in low and middle-income countries. However, the previous literature provides limited

information about the unique roles of coping strategies, social support, and mindfulness in improving the psychological well-being of burn survivors. Therefore, this study identified the role of coping strategies, social support, and mindfulness in improving the psychological well-being of burn survivors. Methods: A descriptive correlational study on 224 burn survivors at a large government hospital in Amman, Jordan, was conducted. Participants completed questionnaires about socio-demographic and clinical data, anxiety and depression, social support, mindfulness, and coping. Standard multiple regression was performed to identify the unique role of the main study variables in improving the psychological well-being of burn survivors. Results: Participants were found to have a severe level of psychological distress. Escape avoidance coping had the highest mean score among all other coping strategies, while acceptance of responsibility had the lowest mean score. Regression analysis showed that confrontive coping ($\beta = -0.224$, $p = p < 0.01$), social support ($\beta = -.212$, $p = p < 0.01$), and mindfulness ($\beta = -.403$, $p = p < 0.01$) were significantly associated with less psychological distress. Conclusions: Therefore, confrontive coping, social support, and mindfulness-based supportive interventions could be helpful in providing enhanced support to burn survivors. © 2021 Elsevier Ltd and ISBI

Jarrar, Y.B., Jarrar, Q., Abaalkhail, S.J., Moh'd Kalloush, H., Naser, W., Zihlif, M., Al Shhab, M., El Madani, A., Jamous, Y., Lee, S.-J.

Molecular toxicological alterations in the mouse hearts induced by sub-chronic thiazolidinedione drugs administration

(2022) *Fundamental and Clinical Pharmacology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106294712&doi=10.1111%2ffcp.12694&partnerID=40&md5=32711e7641945e048ded140057117ce1)

[85106294712&doi=10.1111%2ffcp.12694&partnerID=40&md5=32711e7641945e048ded140057117ce1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106294712&doi=10.1111%2ffcp.12694&partnerID=40&md5=32711e7641945e048ded140057117ce1)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Science, Al-Isra'a University, Amman, Jordan;

Department of Pharmacology, Faculty of Medicine, The University of Jordan, Amman, Jordan;

Nanotechnology Centre, King AbdulAziz City of Science and Technology, Riyadh, Saudi Arabia;

Department of Pharmacology, College of Medicine, Inje University, Busan, South Korea

ABSTRACT: Thiazolidinediones are well-known anti-diabetic drugs. However, they are not widely used due to their cardiotoxic effects. Therefore, in this study, we aimed to determine the molecular toxicological alterations induced in the mouse hearts after thiazolidinedione administration. Balb/c mice received doses clinically equivalent to those given to humans of the most commonly used thiazolidinediones, pioglitazone, and rosiglitazone for 30 days. After that, RNA samples were isolated from the hearts. The mRNA expression of cytochrome (cyp) p450 genes that synthesize the cardiotoxic 20-hydroxyeicosatetraenoic acid (20-HETE) in addition to 92 cardiotoxicity biomarker genes were analyzed using quantitative polymerase chain reaction array technique. The analysis demonstrated that thiazolidinediones caused a significant upregulation ($p < 0.5$) of the mRNA expression of *cyp1a1*, *cyp4a12*, *itpr1*, *ccl7*, *ccl1*, and *b2 m* genes. In addition, thiazolidinediones caused a significant ($p < 0.05$) downregulation of the mRNA expression of *adra2a*, *bsn*, *col15a1*, *fosl1*, *Il6*, *bpifal*, *plau*, and *reg3b* genes. The most affected gene was *itpr1* gene, which was upregulated by pioglitazone and rosiglitazone by sevenfold and 3.5-fold, respectively. In addition, pioglitazone caused significant upregulation of ($p < 0.05$) *hamp*, *ppbp*, *psma2*, *sik1*, *timp1*, and *ucp1* genes, which were not affected significantly ($p > 0.05$) by rosiglitazone administration. In conclusion, this study showed that thiazolidinediones induce toxicological molecular alterations in the mouse hearts, such as the induction of *cyp450s* that synthesize 20-HETE, chemokine activation, inflammatory responses, blood clotting, and oxidative stress. These findings may help us understand the mechanism of cardiotoxicity involved in thiazolidinedione administration. © 2021 Société Française de Pharmacologie et de Thérapeutique

Abu Afifa, M.M., Saleh, I.

Management accounting systems effectiveness, perceived environmental uncertainty and companies' performance: the case of Jordanian companies

(2022) *International Journal of Organizational Analysis*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106287712&doi=10.1108%2fIJOA-07-2020-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106287712&doi=10.1108%2fIJOA-07-2020-2288&partnerID=40&md5=6cb0a396100e2ebcdcefe738c7bc85f4)

[2288&partnerID=40&md5=6cb0a396100e2ebcdcefe738c7bc85f4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106287712&doi=10.1108%2fIJOA-07-2020-2288&partnerID=40&md5=6cb0a396100e2ebcdcefe738c7bc85f4)

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: This study aims to investigate the relationship between management accounting systems effectiveness (MASE) and company performance and then it examines the role of perceived environmental uncertainty as a moderator on this relationship. It provides empirical evidence from a developing market, especially from the Jordanian market. Design/methodology/approach: This study is based on collecting its data using a quantitative method to assist in explaining and interpreting the results, whereby the study data were collected through a survey design approach using a questionnaire method to achieve the objectives of the study. The population of this study included all Jordanian companies listed on the Amman Stock Exchange (ASE) at the end of 2019, a total of 187 companies. Therefore, the study sample consists of all these companies (a completely sensuous population) which

are listed on ASE at the end of 2019. Findings: The findings of this study offered that two informational characteristics of MASE, namely, timeliness and integration, have a significant impact on the financial performance and other characteristics have no impact on the financial (FP) and nonfinancial (NFP) performance. The informational characteristics of management accounting systems complement each other to ensure the MASE in the company, where the relationship between MASE proxied by four informational characteristics together and FP as well as NFP, were highly significant. Additionally, the findings documented that perceived environmental uncertainty, namely, customer uncertainty, competitor uncertainty and technology uncertainty separately do not moderate the relationship between MASE and company performance (both FP and NFP). Research limitations/implications: The findings of this study shape the way for more thorough studies into monitoring MASE. Nevertheless, to start efficient decisions, managers need to comprehend the interaction of the MASE with other factors. All these considerations need to be comprehended both for and against the performance. Finally, this study addressed important issues that have practical management value. However, it is limited to a sample from one country. Future research would be interesting to study different businesses and cultural settings to enhance the theoretical and practical contributions of the study's findings and conclusions. To be more specific, further study should have a wider view of the determinants of performance by containing economic factors in different areas such as the MENA region. Originality/value: To the best of the knowledge, this is the first study of Jordan to examine the relationship between MASE and company performance from two sides (namely, financial and non-financial performance), moderated by perceived environmental uncertainty. As such, the study raises significant findings drawing attention to management accounting systems and the role of management accounting systems in Jordan. © 2021, Emerald Publishing Limited.

Khalid, M.B., Qandil, A., Beithou, N., Aybar, H.S.

Renewable hydrogen driven CHCP device

(2022) International Journal of Hydrogen Energy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119172464&doi=10.1016%2fj.ijhydene.2021.10.148&partnerID=40&md5=8d694c6e0095ee158dcc53019f21a8ca)

[85119172464&doi=10.1016%2fj.ijhydene.2021.10.148&partnerID=40&md5=8d694c6e0095ee158dcc53019f21a8ca](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119172464&doi=10.1016%2fj.ijhydene.2021.10.148&partnerID=40&md5=8d694c6e0095ee158dcc53019f21a8ca)

AFFILIATIONS: Mechanical Engineering Department, Applied Science Private University, Amman, Jordan;

Mechanical Engineering Department, Al Zaytoonah University of Jordan, Amman, Jordan;

Mechanical Engineering Department, Tafila Technical University, Tafila, Jordan;

Laser Applications Research Group, Ton Duc Thang University, Ho Chi Minh City, Viet Nam;

Faculty of Electrical and Electronics Engineering, Ton Duc Thang University, Ho Chi Minh City, Viet Nam

ABSTRACT: Rural Research Stations (RRS), Refugee Camps Motorhomes and Caravans are in need of a portable Compact Heating, Cooling and Power (CHCP) generating device. Heating and power generation devices with diesel as driving source of energy are available commercially. In this paper, an innovative compact heating, cooling and power generating device which uses renewable hydrogen and suits rural areas, extreme weather conditions and disastrous situations is proposed. The device is driven by renewable hydrogen fuel generated by PV electrolysis as the source of energy. Low vibration low noise Stirling Engine (SE) is used as mechanical energy converter. Generator is used as electrical energy converter and heat pump is used for supplying heating and cooling effects. The proposed device has many advantages such as encouraging the rural tourism, supply rural research stations the heating and/or cooling loads and contribute in saving lives in the extreme weather conditions and disastrous situations. Analysis of the proposed device in terms of workability and performance was performed. Results showed that renewable energy base, electricity independent, silent, low vibration and better performance were achieved (OHR = 2.662) with the current device compared to available devices. © 2021 Hydrogen Energy Publications LLC

Hmood, K.F., Goussous, J.

THE PHENOMENON OF DIVERSITY AND THE EFFECTIVE RESPONSE TO THE PHYSICAL ENVIRONMENT: THE FORMATION OF OLD TRADITIONAL MARKETS (SUQ)

(2022) Conservation Science in Cultural Heritage, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171663207&doi=10.6092%2fissn.1973-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171663207&doi=10.6092%2fissn.1973-9494%2f17305&partnerID=40&md5=8a9aa7fce4e563deb369d9d066744651)

[9494%2f17305&partnerID=40&md5=8a9aa7fce4e563deb369d9d066744651](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171663207&doi=10.6092%2fissn.1973-9494%2f17305&partnerID=40&md5=8a9aa7fce4e563deb369d9d066744651)

AFFILIATIONS: Department of Architecture, Al-Zaytoonah University of Jordan, Amman, Jordan;

University of Jordan, Jordan

ABSTRACT: Many cities worldwide take pride in their traditional markets. This research aims to verify the importance of lessons learned from old traditional markets, characterized by the effective response to their physical environment. This main aim leads to many secondary aims. First is the aim to explain the role of the phenomena of diversity in the establishment of various markets. Second, the research aims to explain the relationship between the specialization of goods, the architectural form and general planning of the market. Third, the research aims to investigate the relationship between markets and the diversity of the goods, width of the corridors, roofing style, and how this diversity affects shoppers, as well as interacting among the shoppers themselves. The research adopts

a descriptive analytical methodology for a number of market types in order to study the morphology of traditional markets, their form, their urban context, and their relationship with the diversity of the goods and the impact it has on shoppers. The most important conclusion reached by the research is that the diversity in the morphology of traditional markets corresponds to the diversity and change of goods, the width of the corridors and the style of the roof ... etc. This diversity affects shoppers and generates a state of pleasure and social interaction. © (2022). All Rights Reserved.

Ashour, M.L., Al-Debi, H.A.

The effect of internal marketing on employee job satisfaction: evidence from a Jordanian tourism and hospitality setting

(2022) International Journal of Business and Globalisation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162070168&doi=10.1504%2fIJBG.2022.126747&partnerID=40&md5=65dcbcd8aa11fde060f6ae1d7b0594c5)

[85162070168&doi=10.1504%2fIJBG.2022.126747&partnerID=40&md5=65dcbcd8aa11fde060f6ae1d7b0594c5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85162070168&doi=10.1504%2fIJBG.2022.126747&partnerID=40&md5=65dcbcd8aa11fde060f6ae1d7b0594c5)

AFFILIATIONS: Department of Marketing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The main aim of this study is to achieve an in-depth understanding of the mechanism by which internal marketing affects job satisfaction. A theoretical framework was developed basing on related marketing literature. The study model was intended to determine the influence of internal marketing dimensions (IMD) in tourism and hospitality industry, particularly in the Dead Sea Region in Jordan. 378 valid questionnaires were retrieved from respondents representing different departments in targeted hotels and resorts. SPSS statistical package and its related module Amos were used to test the relationship between the independent variables of (IMD) and dependent variables related to employees' satisfaction (ES). The findings of the study have indicated the existence of significant positive correlations between three main dimensions of internal marketing (service culture, human resources management, and marketing information) on employees' job satisfaction. However, results have shown a less motivation effect on employee's satisfaction (ES). Copyright © 2022 Inderscience Enterprises Ltd.

Alshehadeh, A.R., Elrefae, G.A., Al-Khawaja, H.A., Bagustari, B.A., Eletter, S.F., Belarabi, A.

The Role of Data Mining Tools in Commercial Banks' Cyber-Risk Management

(2022) 2022 9th International Conference on Social Networks Analysis, Management and Security, SNAMS 2022, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85158973833&doi=10.1109%2fSNAMS58071.2022.10062826&partnerID=40&md5=dc161d5e4b07a13a04b272e57cb2abe1)

[85158973833&doi=10.1109%2fSNAMS58071.2022.10062826&partnerID=40&md5=dc161d5e4b07a13a04b272e57cb2abe1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85158973833&doi=10.1109%2fSNAMS58071.2022.10062826&partnerID=40&md5=dc161d5e4b07a13a04b272e57cb2abe1)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Business, Al Ain University, Al Ain, United Arab Emirates;

Swiss FinTech Innovation Lab, University of Zurich, Zurich, Switzerland;

Faculty of Computer Science, Universitas Indonesia, Depok, Indonesia

ABSTRACT: This study explored the data mining tools role in cyber-risk management among Jordanian commercial banks listed on the Amman Stock Exchange. A standardized questionnaire was distributed to the information technology and bank risk management staff (n=139) in 13 commercial banks. There were significant effects of data mining tools in cyber-risk management on the discovery, dissemination, and participation of knowledge systems, and on opportunities to improve knowledge systems through the development of the environment for study and data retrieval systems. This study emphasizes the need to look for areas of improvement that would affect the efficiency of using data mining tools in the discovery, dissemination, and sharing of knowledge systems to manage cyber risks, as well as the need to combine data mining technology with to use their cognitive abilities and technical concepts with the necessary methods and tools to improve the bank's knowledge culture and to provide all necessary data stores and warehouses for the formation of new knowledge, which would help in the development of cyber risk management in Jordanian banks, which are listed on the Amman Stock Exchange. © 2022 IEEE.

Hammad, A.M., Bachu, R.D., Muskiewicz, D.E., Hall, F.S., Tiwari, A.K.

Alcohol and Cocaine Co-usage

(2022) Handbook of Substance Misuse and Addictions: From Biology to Public Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85156255337&doi=10.1007%2f978-3-030-92392-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85156255337&doi=10.1007%2f978-3-030-92392-1_152&partnerID=40&md5=74fb5d64b25ce21480e0f7a956e65404)

[1_152&partnerID=40&md5=74fb5d64b25ce21480e0f7a956e65404](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85156255337&doi=10.1007%2f978-3-030-92392-1_152&partnerID=40&md5=74fb5d64b25ce21480e0f7a956e65404)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States;

Center of Medical and Bio-allied Health Sciences Research, Ajman University, Ajman, United Arab Emirates;

Department of Cell and Cancer Biology, College of Medicine and Life Sciences, University of Toledo, Toledo, United States

ABSTRACT: Addiction is a chronic relapsing disorder, which creates challenges for its treatment. Chronic use of drugs of abuse can change the neurobiology and neurochemistry of brain circuits and underlies drug relapse during voluntary abstinence. The role of dopamine (DA) and glutamate in drug addiction has been extensively investigated, and interactions between these neurotransmitters are important for the development of drug use disorders and drug relapse. For the past two decades, the role of glial glutamate transporters has emerged as a key mechanism in drug dependence and relapse. This chapter focuses on the role of these mechanisms in two commonly abused drugs, ethanol and cocaine, that are often abused at the same time. Here, the effect of acute and chronic exposure to cocaine and ethanol on glutamatergic systems in different brain regions within the mesocorticolimbic pathway is considered. The ultimate goal of research into mechanisms of co-use of cocaine and ethanol is to consider how co-use amplifies the changes in this circuitry and complicates attempts to abstain from drug use. This research has the ultimate goal of identifying therapeutic targets that will be effective in preventing relapse in individuals suffering from concurrent alcohol and cocaine use disorders. © Springer Nature Switzerland AG 2022.

Alzu'bi, S., Abushanab, S., Almi'ani, M.M., Mughaid, A.

Transfer Learning Enabled CAD System for Monkey Pox Classification

(2022) 2022 9th International Conference on Internet of Things, Systems, Management and Security, IOTSMS 2022, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150679059&doi=10.1109%2fIOTSMS58070.2022.10062163&partnerID=40&md5=5f9f5c8de46828544b2d590e8a8ad908)

[85150679059&doi=10.1109%2fIOTSMS58070.2022.10062163&partnerID=40&md5=5f9f5c8de46828544b2d590e8a8ad908](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150679059&doi=10.1109%2fIOTSMS58070.2022.10062163&partnerID=40&md5=5f9f5c8de46828544b2d590e8a8ad908)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Amman, Jordan;

Gulf University for Science and Technology, Management Information System Department, Kuwait;

The Hashemite University, Faculty of Prince Al-Hussien Bin Abdullah || for It, Zarqa, Jordan

ABSTRACT: Skin disease diagnosis using modern artificial intelligence (AI) approaches proved impressive results in classifying diseases compared to dermatologists. Employing AI techniques in computer-aided diagnosis systems will help in self-identification using intelligent nodes in healthcare facilities. Convolutional Neural Networks (CNN) have been employed by many previous researchers for skin lesion classification. In this work, the use of several Transfer Learning will be introduced for classifying monkey pox from other skin diseases. Even though deep learning (DL) and Transfer Learning (TL) have advantages over a dermatologist, they also have significant weaknesses, such as the potential to incorrectly identify photos in some cases. The achieved results conclude the best environment and techniques for diagnosing monkey pox from other skin diseases. Accuracy, loss, precision, recall, and F1 score will be used to assess the suggested system's performance. Using TL in Keras and computer vision models, the system successfully diagnoses 3 distinct types of skin illnesses with an accuracy rate of 99.3 %. The best model was InceptionResNetV2 with exponents with epoch 50 and Adam optimizer. © 2022 IEEE.

Alzu'bi, S., Abushanab, S.A., Altalihin, I., Abdalla, A.M., Tamimi, A.A.

Secure Transmission of Noisy Images over Fiber Optic Communication

(2022) 2022 9th International Conference on Internet of Things, Systems, Management and Security, IOTSMS 2022, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150679027&doi=10.1109%2fIOTSMS58070.2022.10061881&partnerID=40&md5=4a260ff87b0555c09bbfe84d9ab020be)

[85150679027&doi=10.1109%2fIOTSMS58070.2022.10061881&partnerID=40&md5=4a260ff87b0555c09bbfe84d9ab020be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150679027&doi=10.1109%2fIOTSMS58070.2022.10061881&partnerID=40&md5=4a260ff87b0555c09bbfe84d9ab020be)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Amman, 11733, Jordan

ABSTRACT: Optical fiber has become the medium of choice for reliable high speed and high capacity data transfer. Signal to Noise Ratio (SNR) and Bit Error Rate (BER) are two important parameters used for evaluating the quality of Fiber Optic transmission. SNR is a logarithmic ratio of the received signal and noise power, while BER is the measure of the probability of incorrect bit identification. This paper aims to improve the transmission security for images over Fiber Optic communication. Several modulation methods have been implemented to find the best modulation method for transmission over a Fiber Optic channel in the single-mode to minimize SNR and BER. To maximize the correlation value between transferred and received images, the Malta Simulink environment has been used. The simulation results showed that the best accuracy can be obtained using Binary Phase-Shift Keying (BPSK). © 2022 IEEE.

Qaralleh, E., Al-Btoush, I.

The Duality of Image and Significance in the Single Singular in Rashid Issa's Poetry

(2022) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150253465&doi=10.35516%2fhum.v49i6.3781&partnerID=40&md5=a20ebe5e7510aede4df42df815e9b2b6)

[85150253465&doi=10.35516%2fhum.v49i6.3781&partnerID=40&md5=a20ebe5e7510aede4df42df815e9b2b6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150253465&doi=10.35516%2fhum.v49i6.3781&partnerID=40&md5=a20ebe5e7510aede4df42df815e9b2b6)

AFFILIATIONS: Al-Balqa Applied University, Jordan;

Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study analyzes numerous models of complete sentence forms combined in one word that contain a verb, a subject and an object, or only a verb and a subject, such as Tarrazani's "embroider me" and Zambagat "lily", where these formulas are abundantly found in Rashid Issa's poetry, and this phenomenon has become an aesthetic advantage shining in his poetic language, in addition, one of the reasons we sought to identify other structural aspects of the single word that the poet brought to serve the image and the psychological state that brought him to this, such as generating from the rigid, its conjugation and the necessary transgression of verbs, and also his use of formulas that contradict linguistic analogy. To reveal the importance of these technical advantages, the researchers memorized the potential spaces of the poetic image in those universal formulas, and deduced the semantic fields expected in them as well, by relying on the analytical, descriptive, and psychological methods. The researchers concluded that the poet's use of such words (sentences) was based on what was measured against the words of the Arabs, especially in the field of derivation according to Ibn Jana and others, however, he presented to the Arabic poem a new set of innovative linguistic enriching, such as "sawsantne" from Alsawsanah (lily), and "Lailakaha" from the lilac star or the lilac flower, and "Tamarimat" from Mary, mother of Jesus, peace be upon him. © 2022 DSR Publishers/ The University of Jordan.

Al Tal, R., Theodory, R., Bazlamit, S.M.

ASSESSING THE INTERSECTED RELATIONSHIP BETWEEN LAND USE AND TRANSPORTATION PLANNING

(2022) Geography, Environment, Sustainability, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85148589516&doi=10.24057%2f2071-9388-2022-008&partnerID=40&md5=cc914d08f49ca99e89e5fa68e6c7120e>

AFFILIATIONS: German Jordanian University, School of Architecture and Built Environment, Department of Architecture and Interior Architecture, P.O. Box 35247, Amman, 11180, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Engineering, Department of Civil Engineering, Amman, Jordan

ABSTRACT: This research analyses the causes of traffic congestion in urban corridors. It specifically studies the intersected relationship between land-use and transportation planning by examining Al-Madina Al Monawara street in Amman, the capital of Jordan, as a case study. Techniques implemented in data collection are personal observations, traffic counts, land use maps and questionnaires. The methods applied in analysing the collected traffic counts are: Level of Service (LOS), Automatic Traffic Counters (ATC) and Trip Attraction Analysis (TAA). The outcome of the research verified the relationship between the high level of traffic, where the traffic exceeds the actual capacity of the street by 43%, and the unregulated land use planning where 85% of the existing buildings along the street are commercial. The findings of this research will help to establish an assessment tool for testing the impacts of transportation and land use in congested developing cities. This study is important since transportation solutions receive little attention by planner's development agendas in Jordan and the neighbouring countries. © 2022, Russian Geographical Society. All rights reserved.

Al-Zoubi, H., Alzaareer, H., Zraiqat, A., Hamadneh, T., Al-Mashaleh, W.

On Ruled Surfaces of Coordinate Finite Type

(2022) WSEAS Transactions on Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147262161&doi=10.37394%2f23206.2022.21.87&partnerID=40&md5=80edd497fe61afd278d1583f64ab41f2)

[85147262161&doi=10.37394%2f23206.2022.21.87&partnerID=40&md5=80edd497fe61afd278d1583f64ab41f2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147262161&doi=10.37394%2f23206.2022.21.87&partnerID=40&md5=80edd497fe61afd278d1583f64ab41f2)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: This article, in the introduction, gives a brief historic description on surfaces of finite Chen-type and of coordinate finite Chen-type according to the first, second and third fundamental form of a surface in the Euclidean space E^3 . Then, an important class of surfaces was introduced, namely, the ruled surfaces were classified according to its coordinate finite Chen type with respect to the second fundamental form. © 2022 World Scientific and Engineering Academy and Society. All rights reserved.

Abdaljlil, S.A., Almqadim, H., Zerek, A.R., Jaradat, Y.

BER Performance Investigation of OSTBC-MIMO Systems Concatenated with QAM-TCM Over AWGN and Fading Channels

(2022) 2022 IEEE 21st International Conference on Sciences and Techniques of Automatic Control and Computer Engineering, STA 2022 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147253986&doi=10.1109%2fSTA56120.2022.10019126&partnerID=40&md5=b42c031e21e6a0779335ef5cf23e1045)

[85147253986&doi=10.1109%2fSTA56120.2022.10019126&partnerID=40&md5=b42c031e21e6a0779335ef5cf23e1045](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147253986&doi=10.1109%2fSTA56120.2022.10019126&partnerID=40&md5=b42c031e21e6a0779335ef5cf23e1045)

AFFILIATIONS: Sabratha University, Faculty of Engineering, Sabratha, State of Libya;

College of Electronic Technology, Tripoli, State of Libya;

Libya Open University, Janzour, State of Libya;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Modern wireless communication technologies require improved reliability, efficient spectrum

utilization, and huge data rates that achieve better channel capacity. Multi Input Multi Output (MIMO) systems with multiple antenna elements at both link ends are an efficient solution to enhance the system performance under the constraints of limited bandwidth and transmit power by using Orthogonal Space-Time Block Code (OSTBC). In this work, a performance investigation of uncoded and Trellis-coded QAM, sequential with OSTBC 2×2 , 2×3 , and 4×4 MIMO systems over AWGN and fading channels, in terms of Bit Error Rate. The simulation outcomes indicate that the more signal to noise ratio (E_b/N_0) is required for uncoded QAM to achieve the same BER performance of Trellis coded QAM. The overall system performance has been improved by about 3.5 dB in terms of E_b/N_0 saving in the case of applying Trellis Coded Modulation (TCM) technique. Additionally, the simulation outcomes exhibited that the system in both cases uncoded-QAM and Trellis coded-QAM has performed better in the case of AWGN channel compared to Rician and Rayleigh channels. © 2022 IEEE.

Alshehadeh, A.R., Elrefae, G.A., Al-Khawaja, H.A., Eletter, S.F., Qasim, A.

The Impact of Data Mining Techniques on Information Quality: Insurance Companies as Case (2022) Proceedings - 2022 23rd International Arab Conference on Information Technology, ACIT 2022, . <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146908617&doi=10.1109%2fACIT57182.2022.9994227&partnerID=40&md5=2606d37ce073b8ac30ef920b9ce442f5>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Amman, Jordan;

College of Business Al Ain University, Al Ain, United Arab Emirates;

University of Zurich, Swiss FinTech Innovation Lab, Zurich, Switzerland

ABSTRACT: This study aimed to show the impact of data mining techniques on achieving the quality of the information in insurance companies listed on the Amman Stock Exchange to achieve these goals the study authors used the descriptive and analytical approach based on the questionnaire distributed to the members of the study community by (130) employees in the areas of information technology, accounting and insurance risk management processes and distributed to (25) insurance companies representing the entire study community. The study found that the ranking of the areas seen when investigating the effect of data mining methods on achieving the quality of the data in insurance companies, was according to their importance and level of importance in them among the members of the study community, as follows: chances to strengthen knowledge systems with the growth of the environment of study systems and data retrieval This variable obtained the highest average and the arithmetic average of this variable was equal to (4.17), followed by the variable of discovery, distribution and participation of knowledge systems' and the arithmetic average of this variable was equal to (4.01). In addition, there is a statistically significant effect of data mining methods (enhancing knowledge systems with the growth of the environment of study and data retrieval systems, discovery, distribution and sharing of knowledge systems) on achieving the quality of the data in insurance companies listed on the Amman Stock Exchange. One of the main recommendations of the study is the need for continuous development and improvement of the use of data mining techniques, necessary to improve knowledge systems with the development of the environment of research and data retrieval systems, to achieve the quality of information, and in a way that helps achieve the goals sought by these techniques to increase the efficiency and effectiveness of the production of appropriate information, in addition to the need to employ data mining techniques to facilitate the innovation of new ideas in an organized and appropriate framework to produce information to increase the predictive capabilities of policymakers at all levels. © 2022 IEEE.

Eletter, S.F., Elrefae, G.A., Yasmin, T., Qasem, A., Alshehadeh, A.R., Belarbi, A.

Leveraging Blockchain-Based Smart Contracts in the Management of Supply Chain: Evidence from Carrefour UAE

(2022) Proceedings - 2022 23rd International Arab Conference on Information Technology, ACIT 2022, . <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146880941&doi=10.1109%2fACIT57182.2022.9994083&partnerID=40&md5=e159858d88903bb1f4d4cc44b96801f7>

AFFILIATIONS: Al Ain University, College of Business, United Arab Emirates;

Al Zaytoonah University, College of Business, Jordan

ABSTRACT: The fourth industrial revolution brought digital solutions to modernize how firms manufacture and distribute their products. A fusion of artificial intelligence advances is utilized to blur boundaries between the biological, physical, and digital worlds. Firms are redesigning their supply chains to attain high levels of operational effectiveness. Supply chain activities are crucial for the success of manufacturing firms. Blockchain is a promising technology for managing the supply chain efficiently. Blockchain is an immutable, distributed ledger to record transactions digitally. A smart contract is a coded agreement between two parties that executes an exchange automatically in the absence of trusted authorities. This study aimed to explore the prospects of utilizing blockchain and smart contracts as empowering technologies for food supply chain management. The study used a case study approach. Blockchain has the potential to play a vital role in almost every aspect of the future. Implementing blockchain in the supply chain will enhance the transparency, traceability, and flow of goods and services across the supply chain. Additionally, a blockchain-based smart contract will facilitate, validate and impose negotiation and execution agreements among multiple parties in

real-time, enhancing the collaboration and quality of management. Carrefour UAE successfully joined IBM Food Trust. Carrefour's initiative came after growing customers' concerns about product provenance and ethical sourcing. The Carrefour initiative helped to resolve the problem of trust in the food supply. Improvements in the supply chain are expected to happen, including enhanced efficiency, traceability, reduced execution risk, low cost, etc. © 2022 IEEE.

Hayajneh, A.M., Aldalahmeh, S., Zaidi, S.A.R., McLernon, D., Obeidollah, H., Alsakarnah, R. Channel State Information based Device Free Wireless Sensing for IoT Devices Employing TinyML (2022) 2022 4th IEEE Middle East and North Africa COMMUNICATIONS Conference, MENACOMM 2022, . <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146878160&doi=10.1109%2fMENACOMM57252.2022.9998267&partnerID=40&md5=6160620ad82912bdc2f9d22c191c9ea2>

AFFILIATIONS: The Hashemite University, Faculty of Engineering, Department of Electrical Engineering, Zarqa, 13133, Jordan;
Al-Zaytoonah University of Jordan, Department of Communication and Computer Engineering, Amman, Jordan;

University of Leeds, School of Electronic and Electrical Engineering, Leeds, LS2 9JT, United Kingdom
ABSTRACT: The channel state information (CSI) of the sub-carriers employed in orthogonal frequency division multiplexing (OFDM) systems has been employed traditionally for channel equalisation. However, the CSI intrinsically is a signature of the operational RF environment and can serve as a proxy for certain activities in the operational environment. For instance, the CSI gets influenced by scatterers and therefore can be an indicator of how many scatterers or if there are mobile scatterers etc. The mapping between the activities whose signature CSI encodes and the raw data is not deterministic. Nevertheless, machine learning (ML) based approaches can provide a reliable classification for patterns of life. Most of these approaches have only been implemented in lab environments. This is mainly because the hardware requirements for capturing CSI, processing it and performing signal-processing algorithms are too complex to be implemented in commercial devices. The increased proliferation of IoT sensors and the development of edge-based ML capabilities using the TinyML framework opens up possibilities for the implementation of these techniques at scale on commercial devices. Using RF signature instead of more invasive methods e.g. cameras or wearable devices provide ease of deployment, intrinsic privacy and better usability. The design space of device-free wireless sensing (DFWS) is complex and involves device, firmware and ML considerations. In this article, we present a comprehensive overview and key considerations for the implementation of such solutions. We also demonstrate the viability of these approaches using a simple case study. © 2022 IEEE.

Al-Jazzar, S.O., Aldalahmeh, S.A. Drone Localization Through Non-Ideal Angle-Of-Arrival Measurements (2022) 2022 4th IEEE Middle East and North Africa COMMUNICATIONS Conference, MENACOMM 2022, . <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146864853&doi=10.1109%2fMENACOMM57252.2022.9998098&partnerID=40&md5=50f8da2583d53e996b5b7e4fa61970f4>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan
ABSTRACT: In this paper, we introduce a method to enhance drone location estimation using angle-of-arrivals (AOA)s measurements. It is assumed that sensors are distributed in a field and each two close sensors form doublets. AOA estimation for the drone is performed by each doublet. The locus of each AOA estimation for each doublet will form a cone with its axis coincides with the doublet axis. A previous published method in the literature proposed using the loci interceptions of six AOA estimations to estimate the drone location. Practically, when considering the noise in the AOA measurements, the cones will not intercept in a point and a residual error will appear. So, a cost function is formed from the sum of squared of these residual errors. Then by minimizing this cost function to achieve an optimum solution, this will lead to an enhanced drone location estimation. In this paper, we utilize the gradient descent algorithm to minimize the proposed cost function. Significant enhancement in locating the drone is achieved as will be shown in the simulation results provided in the paper. © 2022 IEEE.

Alsharedeh, R.H., Alshraiedeh, N., Bashatwah, R., Huwaitat, R., Taybeh, E. Pharmacy students' overall knowledge and awareness regarding biofilms (2022) Journal of Advanced Pharmacy Education and Research, . <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85146704836&doi=10.51847%2fGhbRJyJncW&partnerID=40&md5=cd9a82c739b250d612c556b07077768b>
AFFILIATIONS: Faculty of Pharmacy, Department of Pharmaceutics and Pharmaceutical Technology, Yarmouk University, Irbid, Jordan;
Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;
Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Department of Applied Pharmaceutical Sciences and Pharmacy Practice, Isra University, Amman, Jordan

ABSTRACT: Biofilms have a negative impact on the health of the patients, it is one of the global health concerns that need to be nullified to enhance and improve the health outcome. The knowledge and awareness of biofilms among pharmacy students is very essential. Hence this study aimed to assess the overall knowledge and awareness regarding biofilms among pharmacy/Phar.D. students in multiple universities in Jordan. A descriptive cross-sectional study was conducted in the period between February 1st, 2022, and April 1st, 2022, to assess and evaluate knowledge about biofilms among undergraduate pharmacy/Phar.D. students in Jordanian universities, this was performed by sampling respondents from pharmacy schools in both public and private universities. An online questionnaire-based survey was used to collect the data which were then statistically analyzed using SPSS software. A total of 1,058 undergraduate pharmacy/Phar.D. students are enrolled in this study. Nearly all the students were in their 3rd and 4th year of study. A high number of participating students (80.7%) have previously been enrolled in or are currently receiving an academic course in pharmaceutical microbiology and around half (48.0%) have been enrolled in or are currently receiving a related course. The study found a significant lack of information in the enrolled students regarding the specifics of biofilms, creating a better understanding of the information needed to be supplemented to raise students' knowledge and avoid common misconceptions. © 2022 Journal of Advanced Pharmacy Education & Research | Published by SPER Publication

Hussein, B.H., Kasabri, V., Al-Hiari, Y., Arabiyat, S., Ikhmais, B., Alalawi, S., Al-Qirim, T. Selected Statins as Dual Antiproliferative-Anti-inflammatory Compounds

(2022) Asian Pacific Journal of Cancer Prevention, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85145242341&doi=10.31557%2fAPJCP.2022.23.12.4047&partnerID=40&md5=ed465bbf31adabe0d3ec4127ba636802)

[85145242341&doi=10.31557%2fAPJCP.2022.23.12.4047&partnerID=40&md5=ed465bbf31adabe0d3ec4127ba636802](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85145242341&doi=10.31557%2fAPJCP.2022.23.12.4047&partnerID=40&md5=ed465bbf31adabe0d3ec4127ba636802)

AFFILIATIONS: School of Pharmacy, University of Jordan, Queen Rania Street, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P. O. Box 130, Amman, 11733, Jordan;

Salt College, AlBalqa Applied University, Salt, 19117, Jordan

ABSTRACT: Background: We hypothesized that superlative dual cytotoxicity-antiinflammation bioefficacies of 9 selected lipophilic statins correlate to their chelation effect of 3,5-dihydroxyheptanoic acid. Methodology: Lipophilic-acid chelating statins have been screened for in vitro duality of proliferation inhibition and NO-radical scavenging capacities. Results: Their spectrum of selectivity indices for safety in PDL fibroblasts -based 72h incubations was reported. Surprisingly despite its lack on macrophages LPS-triggered inflammation over 5-200 µM and unlike the 8 statins; cerivastatin had growth inhibition IC50 values of 40nM (SW620), 110nM (HT29), 2.9 µM (HCT116), 6µM (SW480), and most notably 38µM (<50 µM, in Caco2). Exclusively cerivastatin exerted antitumorigenesis IC50 values <50 µM in all T47D, MCF7 and PANC1 72h cultures. In statins with greater antiinflammation affinity than indomethacin's; lovastatin had cytotoxicity IC50 values <20 µM in SW620<HT29<ACT116<SW480 and >100 µM in Caco2. Atorvastatin was found of viability reduction IC50 value <20 µM in HCT116<SW620. Simvastatin exerted growth inhibition IC50 values <20 µM in HT29<SW620<SW480 and MCF7. Rosuvastatin, pitavastatin and fluvastatin proved equipotency to indomethacin but cytotoxicity IC50 values >50µM in T47D, MCF7 and PANC1. Rosuvastatin had antineoplastic IC50 values (<50 µM) in SW620<SW480<MCF7. Pitavastatin was ascribed cytotoxicity IC50 values (<50µM) in HT29<SW620<HCT116<SW480. Fluvastatin had antiproliferation IC50 values (<50µM) in SW620<HT29<SW480<HCT116, and the rest were >50 µM in remaining colorectal, breast and pancreatic cancer cell lines. In statins with appreciable antiinflammation but reasonably lower affinity than indomethacin's and cytotoxicity IC50 values >50µM in T47D, MCF7 and PANC1; pravastatin had viability reduction IC50 values <50µM in HT29<HCT116. Mevastatin was reported for growth inhibition IC50 values <50µM in HT29<SW620<HCT112<SW480. Antitumorigenesis IC50 values>50 µM were for statins in remaining colorectal cancer cell lines, breast cancer and pancreatic cancer cell lines. Conclusion: Among the rest, cerivastatin warrants further novel scaffold development to maximize efficacy and optimal molecular action mechanisms of chemotherapy/prevention. © This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License.

Al-Qerem, W., Jarab, A.S., Badinjki, M., Qarqaz, R.

Validating a tool to measure quality of life among type 2 diabetics and exploring variables associated with it

(2022) Diabetes Epidemiology and Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144733123&doi=10.1016%2fj.deman.2021.100039&partnerID=40&md5=364b82b2662350bb6e0f8994719c8745)

[85144733123&doi=10.1016%2fj.deman.2021.100039&partnerID=40&md5=364b82b2662350bb6e0f8994719c8745](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144733123&doi=10.1016%2fj.deman.2021.100039&partnerID=40&md5=364b82b2662350bb6e0f8994719c8745)

AFFILIATIONS: Department of pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Background: Quality of life (QoL) of diabetic patients is a primary outcome in the management of diabetes. However, to improve patients' QoL, validated instruments are necessary to

measure QoL, moreover, identifying variables that may influence patients QoL is the first step in improving patients' QoL. The study aim was to develop and validate a brief tool to assess diabetic patients' QoL and identify the factors associated with poor QoL among adult Jordanian patients with type 2 diabetes. Method: Based on literature review, a brief questionnaire (Brief Arabic Diabetes QoL (BADQoL)) was developed to evaluate patients' QoL in the present cross-sectional study. Patients' socio-demographics and disease status information were gathered, in addition to the participants' beliefs about medicines and their medication adherence. Factor analysis was conducted to validate the use of BADQoL. Stepwise binary regression analysis was performed to identify the independent predictors of poor QoL. Results: A total of 287 diabetic patients were enrolled in the study. The factor analysis indicated that one factor with 14 items was the best model for BADQoL. Moderate QoL was observed among the participants as the QoL score mean was 47.17(± 11.33) out of 70. Necessity score significantly increased the odds of having higher QoL (OR=9.11, p-value < 0.01), while low adherence and moderate adherence (OR=0.09 and 0.13 respectively, p-value < 0.01), uncontrolled diabetes (OR=0.19, p-value < 0.01) and longer duration of diabetes significantly decreased the odds of having higher QoL (OR=0.85, p-value < 0.01). Conclusion: Several factors were associated with diabetic patients' QoL. Implementing disease management programs while taking into consideration these factors could improve diabetic patients' QoL. © 2021 The Author(s)

Althaher, A.R.

An Overview of Hormone-Sensitive Lipase (HSL)

(2022) Scientific World Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144340745&doi=10.1155%2f2022%2f1964684&partnerID=40&md5=923f55ae279f2c9a92ea93d25ab67946)

[85144340745&doi=10.1155%2f2022%2f1964684&partnerID=40&md5=923f55ae279f2c9a92ea93d25ab67946](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144340745&doi=10.1155%2f2022%2f1964684&partnerID=40&md5=923f55ae279f2c9a92ea93d25ab67946)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Hormone-sensitive lipase (HSL) is a pivotal enzyme that mediates triglyceride hydrolysis to provide free fatty acids and glycerol in adipocytes in a hormonally controlled lipolysis process. Elevated plasma-free fatty acids were accompanied by insulin resistance, type-2 diabetes, and obesity. Inhibition of lipolysis through HSL inhibition may provide a mechanism to prevent the accumulation of free fatty acids and to improve the affectability of insulin and blood glucose handling in type II diabetes. The published studies that examine the structure, regulation, and function of HSL and major inhibitors were reviewed in this paper. © 2022 Arwa R. K. Althaher.

Saleh, I., Afifa, M.A., Al-Hawatmah, Z., Albakkar, O.

Earnings Management, Earnings Quality, Board Gender Diversity and Cost of Equity Capital: Evidence from an Emerging Market

(2022) Global Business Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144232264&doi=10.1177%2f09721509221133513&partnerID=40&md5=b9167752cc392f3b1212e47b348a941f)

[85144232264&doi=10.1177%2f09721509221133513&partnerID=40&md5=b9167752cc392f3b1212e47b348a941f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144232264&doi=10.1177%2f09721509221133513&partnerID=40&md5=b9167752cc392f3b1212e47b348a941f)

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study seeks to analyse the direct association between earnings management (EM), earnings quality (EQ) and the cost of equity capital (CoEC). It also studies the mediating role of EQ and the moderating role of board gender diversity (BGD) in the context of the EM-CoEC nexus. Contradictions in the results of earlier investigations inspired the current study, with the findings filling a gap in the existing literature. This study presented a novel empirical model based on a mediation-moderation model, which sheds light on the mechanism of effect of numerous factors on the CoEC. The findings of this study reveal that the influence of EM practices on EQ is negative. Furthermore, the impact of EM practices on CoEC was positively significant, implying that the more EM practices there were, the higher the CoEC. At the same time, the findings show that EQ has a negative significant influence on CoEC. Additional findings confirm that EQ fully mediates the EM practices-CoEC nexus. Following that, in terms of BGD's moderating role, the findings indicate that BGD has a significant negative impact on CoEC, and the interaction impact (EM \times BGD) is positive and significant. © 2022 International Management Institute, New Delhi.

Sandri, S., Alshyab, N., Sha'ban, M.

The effect of digitalization on unemployment reduction

(2022) New Medit, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144182044&doi=10.30682%2f2022%2f04&partnerID=40&md5=7ca1a5b13ecb53915424361db9b02713)

[85144182044&doi=10.30682%2f2022%2f04&partnerID=40&md5=7ca1a5b13ecb53915424361db9b02713](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85144182044&doi=10.30682%2f2022%2f04&partnerID=40&md5=7ca1a5b13ecb53915424361db9b02713)

AFFILIATIONS: German Jordanian University, Amman, Jordan;

Yarmouk University, Irbid, Jordan;

Al-Zaytoonah University, Amman, Jordan

ABSTRACT: Digital transformation and the digitalization of economic activity are ongoing trends profoundly shaping the global economy. Digitalization reflects digital inputs in the production process and new household and government consumption modes, investment possibilities, and financial instruments, increasingly envisaged by digital technologies and tools. This is also impacting the

labour markets, on the one hand substituting machines to labour for routinized tasks and thus decreasing the demand for soft skills labour, but on the other hand, increasing the need for new professions revolving around new production and consumption modalities and digital skills. Considering these contrasting effects, it is essential to estimate the overall impact of digitalization on employment. Therefore, this study captures the impact of economic growth and digitalization on unemployment change, evaluating a modified version of Okun's Law on a balanced panel data set for 58 countries between 2013 and 2019. The results from the estimation of a fixed-effect model show the empirical validity of Okun's law for the sampled countries and a significant contribution of digitalization on unemployment reduction. © 2022, Bononia University Press. All rights reserved.

Mellah, M., Ouannas, A., Batiha, I.M.

A general method for stabilizing the fractional-order discrete neural networks via linear control law (2022) *Nonlinear Studies*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143836378&partnerID=40&md5=b78851e20dc322698da60f3a689ab8dd)

[85143836378&partnerID=40&md5=b78851e20dc322698da60f3a689ab8dd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143836378&partnerID=40&md5=b78851e20dc322698da60f3a689ab8dd)

AFFILIATIONS: Laboratory of Mathematics, Informatics and Systems (LAMIS), University of Larbi Tebessi, Tebessa, Algeria;

Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

Department of Mathematics, Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: This paper intends to propose a general approach established to control the states of some classes of fractional-order discrete neural networks. For this reason, a novel influential result is set up and theoretically derived in light of the Lyapunov direct method in order to assure the accomplishment of the desired stabilization for those classes under consideration. The influence of such stabilization approach is validated through some performed numerical simulations. © CSP - Cambridge, UK; I&S - Florida, USA, 2022

Oudetallah, J., Batiha, I.M.

Mappings and Finite Product of Pairwise Expandable Spaces

(2022) *International Journal of Analysis and Applications*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143809375&doi=10.28924%2f2291-8639-20-2022-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143809375&doi=10.28924%2f2291-8639-20-2022-66&partnerID=40&md5=927cf6dc92387402fb8a7cd84bd48dd1)

[66&partnerID=40&md5=927cf6dc92387402fb8a7cd84bd48dd1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143809375&doi=10.28924%2f2291-8639-20-2022-66&partnerID=40&md5=927cf6dc92387402fb8a7cd84bd48dd1)

AFFILIATIONS: Department of Mathematics, Faculty of Science and Information Technology, Irbid National University, P.O. Box 2600, Irbid, 21110, Jordan;

Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: In this work, we intend to study certain mappings in bitopological spaces such as pairwise perfect and pairwise countably perfect mappings that possess the property (E). Some properties of such mappings are provided which have helped us to obtain some finite product theorems concerning with pairwise expandable and almost pairwise expandable spaces. Two illustrative examples are given to demonstrate the effectiveness of some proposed results. © 2022 the author(s).

Balasmeh, R., Jarrar, Y., Al-Sheikh, I., Alshaiha, H., Jarrar, Q., Alani, R., Abudahab, S.

Effects of Fasting and Phoenix dactylifera on the Expression of Major Drug-Metabolizing Enzymes in the Mouse Livers

(2022) *Current Drug Metabolism*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143644622&doi=10.2174%2f1389200223666220820105330&partnerID=40&md5=1b43e0ce5388d273c7b9b70cbe6bead9)

[85143644622&doi=10.2174%2f1389200223666220820105330&partnerID=40&md5=1b43e0ce5388d273c7b9b70cbe6bead9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143644622&doi=10.2174%2f1389200223666220820105330&partnerID=40&md5=1b43e0ce5388d273c7b9b70cbe6bead9)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Science, Al-Isra'a University, Amman, Jordan;

Department of Pharmacotherapy and Outcomes Science, Virginia Commonwealth University, Richmond, VA, United States

ABSTRACT: Aims: This study aimed to investigate the effects of consuming Phoenix dactylifera and fasting on the mRNA expression of major hepatic drug-metabolizing enzymes in mice. Methods: Phoenix dactylifera ethanolic extract was analyzed using LC-MS/MS. We used forty-two male Balb/c mice, which were treated with low (300 mg/kg) and high (2583 mg/kg) doses of Phoenix dactylifera and fasted for 24 hours, two weeks, and one month. Then, we analyzed the expression of cyp3a11, cyp2c29, cyp2d9, and ugt2b1 using real-time polymerase chain reaction assay. In addition, we assessed the relative liver weights of the mice and the hepatic pathohistological alterations. Results: We found that Phoenix dactylifera ethanolic extract contained 38 phytochemical compounds, mainly kaempferol, campesterol, lutein, apigenin, genistein, and isoquercetin. Fasting significantly upregulated the mRNA expression

of several drug-metabolizing enzymes in a time-dependent manner and we showed that consuming the low dose of Phoenix dactylifera significantly upregulated the expression of drug-metabolizing enzymes more than the high dose. The results of the histological examinations and relative liver weight showed that fasting and consuming of Phoenix dactylifera did not cause any toxicological alterations in the liver of the mice. Conclusion: It is concluded from this study that fasting and consuming of Phoenix dactylifera upregulated the mRNA expression of major drug-metabolizing enzymes in mouse livers. These findings may explain, at least partly, the variation of drug response during fasting in the month of Ramadan and would direct future clinical studies in optimizing the dosing of pharmacotherapeutic regimen. © 2022 Bentham Science Publishers.

Alhadid, A., Bustanji, Y., Harb, A., Al-Hiari, Y., Abdalla, S.
Vanillic Acid Inhibited the Induced Glycation Using in Vitro and in Vivo Models
(2022) Evidence-based Complementary and Alternative Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143054589&doi=10.1155%2f2022%2f7119256&partnerID=40&md5=71af3b37595616fb161139579e1b5a8b)

[85143054589&doi=10.1155%2f2022%2f7119256&partnerID=40&md5=71af3b37595616fb161139579e1b5a8b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143054589&doi=10.1155%2f2022%2f7119256&partnerID=40&md5=71af3b37595616fb161139579e1b5a8b)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biopharmaceuticals and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Basic Medical Sciences, College of Medicine, University of Sharjah, Sharjah, 27272, United Arab Emirates;

Department of Basic Sciences, Faculty of Arts and Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Biological Sciences, School of Science, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Background. Glycation is implicated in the pathophysiology of many diseases, including diabetes, cancer, neurodegenerative diseases, and aging. Several natural and synthetic compounds were investigated for their antiglycation activity. We evaluated the antiglycation effect of vanillic acid (VA) using in vitro and in vivo experimental models. Methods. In vitro, bovine serum albumin (BSA) (50 mg/ml) was incubated with glucose (50 mM) with or without VA at 1.0-100 mM for 1 week at 37°C, and then, excitation/emission fluorescence was measured at 370/440 nm to determine glycation inhibition. The cytoprotective effect of VA was evaluated using RAW 264.7 cells incubated with or without VA at 7.8-500 µM along with 100-400 µM of methylglyoxal for 48 hours, and cell viability was determined using the MTT assay. Aminoguanidine (AMG) was used as a positive control in both in vitro and cell culture experiments. In vivo, 52 streptozotocin-induced diabetic rats were randomly assigned to 4 groups and treated with 0, 1.5, 4.5, or 15 mg/kg VA for four weeks. Serum fructosamine and blood glycosylated hemoglobin (HbA1c) were then measured, and advanced glycation end-products (AGEs) were detected in the kidneys and the skin of deboned tails using an immunohistochemistry assay. Results. VA caused a concentration-dependent effect against BSA glycation (IC50 of 45.53 mM vs. 5.09 mM for AMG). VA enhanced cell viability at all concentrations of VA and methylglyoxal. VA did not affect serum fructosamine or blood HbA1c levels, although it markedly decreased AGEs in the kidney in a dose-dependent manner and decreased AGEs in the skin of deboned tail tissues. Conclusion. VA had significant antiglycation activity at cellular and long-term glycation. © 2022 Amani Alhadid et al.

Ghunaim, E.S.

Improving the Performance of Bifacial Modules by Adding Reflection Material

(2022) 2022 11th International Conference on Power Science and Engineering, ICPSE 2022, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142928331&doi=10.1109%2fICPSE56329.2022.9935349&partnerID=40&md5=9c4445818fb82761e4915466027f5e04)

[85142928331&doi=10.1109%2fICPSE56329.2022.9935349&partnerID=40&md5=9c4445818fb82761e4915466027f5e04](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142928331&doi=10.1109%2fICPSE56329.2022.9935349&partnerID=40&md5=9c4445818fb82761e4915466027f5e04)

AFFILIATIONS: Al-Zaytoonah University, Jordan

ABSTRACT: A bifacial photovoltaic (bPV) is a double-sided solar panel that converts sunlight into electrical energy using both sides. They are different from conventional PVs which only use one side of the solar panel. In this work, a comparison study of bPVs performance is conducted. More precisely, the study considers different reflecting grounds to the rear side of the bifacial panels, such as asphalt and reflective white painted ground. Different design parameters of the bifacial solar technology are investigated, such as installation height and albedo factor. The results show considerable improvement in bPV performance using the reflective white painted ground over other material, recording better albedo metric and increasing the power gain by around 20%. Moreover, improved efficiency can be obtained when the optimal parameters are determined in the design of bPVs. © 2022 IEEE.

Alamayrah, M.I., Jaber, J.O., Bashir, A., Othman, A.M., Mansour, I.M., Dalabieh, A., Al-Aboshi, A.
E-Learning in faculties of engineering during COVID-19 pandemic in Jordan
(2022) Journal of Engineering Education Transformations, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85142532671&doi=10.16920%2fjeet%2f2022%2fv36i2%2f22155&partnerID=40&md5=138448938ba2e569cc3d78b749b73f38

AFFILIATIONS: Alternative Energy Department, Al-Zaytoonah University of Jordan, Amman, Jordan;
Faculty of Engineering Technology, Al-Balqa Applied University, Jordan;
Faculty of Engineering, The Hashemite University, Zarqa, Jordan;
Faculty of Engineering Technology, Zarqa University, Zarqa, Jordan;
Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The recent pandemic COVID-19 has forced almost all governments in the globe to take stringent actions to counteract the spread of this new deadly virus. In Jordan, the government introduced the Marshal Law and enforced lockdown of all activities in both of private and public sectors in the country including schools, universities and social gatherings. As a result, demand on the Internet increased sharply: working from home, on-line teaching and learning and on-line orders for different supplies. Such sudden and unexpected dramatic changes increased the load on the fragile existing network and available E-learning systems. In this study, online teaching process, in-house solutions for virtual coaching, in the faculties of engineering, was evaluated and analyzed, with focus on students' points of view. To achieve such goal, a structured questionnaire was distributed to engineering students from different levels and streams. Statistical analysis was conducted to determine the level of satisfaction of students and testify how far the E-learning process was successful as compared with conventional classroom learning. It was concluded that students were not comfortable with this first experience related to online teaching, especially when it comes to specialized technical and practical courses as well as labs. Moreover, they faced serious problems in following up online lectures. This could be attributed to the fact that this is the 1st experience on distance learning and weakness in existing facilities and lack of awareness among students as well as staff members. © 2022, Rajarambapu Institute Of Technology. All rights reserved.

Alzu'bi, S., Zraiqat, A., Hendawi, S.

Sustainable Development: A Semantics-aware Trends for Movies Recommendation System using Modern NLP (2022) International Journal of Advances in Soft Computing and its Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85142293459&doi=10.15849%2fIJASCA.221128.11&partnerID=40&md5=f97ff61b130bd984d68b0926d9599b67

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Recommendation systems are an important feature in the proposed virtual life, where users are often stuck with choices most of the time and need help to be able to find what they are looking for. In this work, content-based techniques have been employed in the proposed recommender system in two ways, a deep review for content and features contents such as (cast, crew, keywords, and genres) has been conducted. A preprocessing stage using TF-IDF and CountVectorizer methods have been employed efficiently to prepare the dataset for any similarity measurements. Cosine similarity algorithm has been employed as well with and without sigmoid and linear kernels. The achieved result proves that similarities between movies using TF-IDF with-Cosine similarity (sigmoid kernel) overcomes the TF-IDF with-Cosine similarity (linear_kernel) and Cosine similarity with CountVectorizer in collaborative filtering. The accuracy values of different machine learning models are validated with K-fold Cross Validator techniques. The performance evaluation has been measured using ROOT Mean Square Error and Mean Absolute Error. Five Machine learning algorithms (NormalPredictor, SVD, KNNBasic (with k=20 and K=10), KNNBasic (with sim_options), and NMF (in several rating scales)). Accuracies are finally been validated with 3 folds from each validator. The best achieved RMSE and MAE scores are using SVD (RMSE = 90%) and (MAE = 69%), followed by KNNBasic (with sim_options, K= 20), NMF, KNNBasic (K=20), KNNBasic (K=10), ending with KNNBasic(sim_options, K= 10). © Al-Zaytoonah University of Jordan (ZUJ).

Altarawneh, M.H., Hassan, M.S.

Readiness of Higher Education Institutions for E-learning Case of Jordanian Universities (2022) International Journal of Advances in Soft Computing and its Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85142258277&doi=10.15849%2fIJASCA.221128.12&partnerID=40&md5=5ff19d25299e739cbbb67bcca6c2d3c8

AFFILIATIONS: Department of Educational Sciences/ Classroom Teacher, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study aimed to assess Readiness of Jordanian Universities for E-learning. For the purpose of the study a questionnaire consisting of (42) items was developed and divided into five domains, namely: organizational readiness, ICT tools, technical resources, faculty members, and students. The statistical analyses have been done using descriptive and inferential analytical approaches by the Statistical Package for Social Sciences. The results indicated that Readiness of Jordanian Universities for e-learning was medium. On one hand, the findings indicate that there were statistically significant differences at the significance level ($\alpha \leq 0.05$) in individual responses to the study sample attributed to the type of faculty variable in favor of sciences faculties. On other

hand there were no statistically significant differences at the significance level ($\alpha \leq 0.05$) in individual responses to the study sample attributed to variable of faculty members by the academic rank. © Al-Zaytoonah University of Jordan (ZUJ).

Batiha, I.M.

Solvability of the Solution of Superlinear Hyperbolic Dirichlet Problem

(2022) International Journal of Analysis and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142051264&doi=10.28924%2f2291-8639-20-2022-62&partnerID=40&md5=1918d2788ac184ff51368ae3b29c3c9d>

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: In this paper, we aim to study the solutions of superlinear hyperbolic problems with boundary condition of Dirichlet type where we show the existence and the uniqueness of the strong solutions for the superlinear problems by the method of energy inequality. © 2022 the author(s).

Hamdan, M., Al Louzi, R., Al Aboushi, A., Abdelhafez, E.

Enhancement of Solar Water Disinfection Using Nanocatalysts

(2022) Journal of Ecological Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141774586&doi=10.12911%2f22998993%2f154775&partnerID=40&md5=fbeaa260cbcf6094ac5448f399d1cf32>

AFFILIATIONS: Renewable Energy Technology Department, Applied Science Private University, Amman,

Jordan;

School of Engineering, Department of Mechanical Engineering, The University of Jordan, Amman, 11942, Jordan;

Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Solar water disinfection (SODIS) is a simple and low-cost method of increasing water quality. However, it takes about 6 hours of exposure to solar radiation. The elimination of harmful pathogenic germs from drinking water can be accelerated using a combination of sun disinfection and nanotechnology. In this study, a hybrid water purification technique using solar water disinfection, Titanium Oxide (TiO₂), and natural mineral clays was investigated. TiO₂, natural kaolin clay nanoparticles, and a mixture of TiO₂ and natural clay were added to contaminated wastewater containers at different concentrations. After that, the containers were exposed to sunlight for different time intervals. Samples were then collected from all tests to measure the total counts of Total Coliform and Escherichia coli (E. coli) using the IDEXX system. The results showed that the addition of TiO₂ and natural kaolin clay to wastewater with solar water disinfection reduced the total count of the pathogenic microorganisms and decreased the time needed time for the disinfection process compared to using solar energy alone. The results also showed that the optimum concentration of the TiO₂, which yielded the shortest purification time and lowest levels of pathogenic microorganisms, was 0.006 g/ml. In contrast, the most effective concentration of natural clay was 0.0015 g/ml. Moreover, the results showed that the optimum concentration of the mixture of TiO₂ and natural clay, which speeds up the purification time and lowest the level of pathogenic microorganisms was 0.006 g/ml for TiO₂ and 1.2 g/ml for the natural clay. © 2022, Journal of Ecological Engineering. All Rights Reserved.

Al-Ghabeesh, S.H., Al-Awayssa, R.M., Rayan, A.H., Assaf, E.A.

Perceived Occupational Stressors and the General Health of Critical Care Nurses During COVID-19 Pandemic

(2022) SAGE Open Nursing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141736398&doi=10.1177%2f23779608221134770&partnerID=40&md5=6aae6612f71811b6bca8f029ab6242b0>

AFFILIATIONS: Faculty of Nursing/Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Collage of Nursing, Applied Science Private University, Amman, Jordan

ABSTRACT: Introduction: The COVID-19 situation is placing nurses under great stress which may negatively influence their health. Objective: The purpose of this study was to examine the association between occupational stress and general health of critical care nurses during COVID-19 pandemic. Methods: A descriptive, cross-sectional design was used. A convenience sample of 150 Jordanian critical care nurses completed the study. Results: Occupational stress was a significant predictor of nurses' general health. Female gender, young, living with elderly or persons having chronic diseases, and little nursing experience were associated with worse general health, while living with elderly or persons having chronic diseases were associated with more occupational stress.

Conclusion: Providing psychological support services for critical care nurses is required to reduce the impact of occupational stress on nurses' poor general health. © The Author(s) 2022.

Toqan, D., Malak, M.Z., Ayed, A., Fashafsheh, I., Salameh, B., Sarhan, A.L., Azizeh, S., Batran, A. Effect of Progressive Muscle Relaxation Exercise on Anxiety Among Male Nursing Students Undergoing Maternity Clinical Training

(2022) SAGE Open Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141730980&doi=10.1177%2f23779608221136644&partnerID=40&md5=d1d02471f0e4fad348a7ba48d584f4c4)

[85141730980&doi=10.1177%2f23779608221136644&partnerID=40&md5=d1d02471f0e4fad348a7ba48d584f4c4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141730980&doi=10.1177%2f23779608221136644&partnerID=40&md5=d1d02471f0e4fad348a7ba48d584f4c4)

AFFILIATIONS: Faculty of Nursing, Arab American University, Jenin, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Medicine and Health Sciences, Department of Biomedical Sciences, Public Health Division, An-Najah National University, Nablus, Palestine;

Higher College of Technology, Health Science Program, Fujairah, Abu Dhabi, United Arab Emirates;

Faculty of Allied Medical Sciences, Department of Nursing, Palestine Ahliya University, West Bank, Bethlehem, Palestine

ABSTRACT: Introduction: Student in a maternity nursing program must be engaged in practical training and they must be well prepared and directed along the way to becoming qualified professionals.

Objective: The study aimed to investigate the effect of progressive muscle relaxation exercise on anxiety among male nursing students undergoing maternity clinical training. Methods: A quasi-experimental, pre-post study was conducted on nursing at Arab American University Palestine. The sample of the study consisted of 48 male nursing students enrolled in the maternity nursing course. They were selected through convenience sampling. This study was conducted on one group of male nursing students that received Jacobson's progressive muscle relaxation exercise for five consecutive days per week. The S-anxiety scale (STAI Form Y-1) was applied to collect data before and after the intervention. Results: The magnitude of anxiety reduction after the progressive muscle relaxation exercise was greater than before ($t(47) = 21.2, p < .05$). Conclusion: The current study's findings indicated the influence of progressive muscle relaxation on maternity clinical setting anxiety reduction among male nursing students. © The Author(s) 2022.

Alzoubi, M., Alkhatib, A., Alsmadi, A.A., Kasasbeh, H.

BANK SIZE AND CAPITAL: A TRADE-OFF BETWEEN RISK-TAKING INCENTIVES AND DIVERSIFICATION

(2022) Banks and Bank Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141423774&doi=10.21511%2fbbs.17%284%29.2022.01&partnerID=40&md5=225368ee462eed660b47becf0ca2efb3)

[85141423774&doi=10.21511%2fbbs.17%284%29.2022.01&partnerID=40&md5=225368ee462eed660b47becf0ca2efb3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141423774&doi=10.21511%2fbbs.17%284%29.2022.01&partnerID=40&md5=225368ee462eed660b47becf0ca2efb3)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This paper analyzes the importance of size and capital for risk-taking incentives of Jordanian banks using panel data of 13 commercial banks for the period 2007–2017. The results reveal that size and capital add to stability, consistent with the economies of scale and scope hypothesis. In developing countries, banks are more conservative and less involved in market-based activities; however, they are interconnected just as in developed countries. The results of the first model and second model reveal that as size increases by 1 percent, risk decreases by 0.11 percent and 0.03 percent, respectively, implying that too-big-to-fail is not present and that moral hazard is not a serious issue. In both models, large size is driven by diversification not by risk-taking incentives. In terms of capital, the results of the first model and second model reveal that as capital increases by 1 percent, risk decreases by 0.48 and 0.12 percent, respectively. The fact that Jordanian banks are overcapitalized indicates that the central bank regulation is not binding. Banks increase their capital adequacy ratios to reduce risk. It is clear that there is economic benefit from increased size. However, the failures of large banks are systemic due to their interconnectedness. Therefore, regulators need to pay special attention to them in accordance with Basel III Accord. © Marwan Alzoubi, Alaa Alkhatib, Ayman Abdalmajeed Alsmadi, Hamad Kasasbeh, 2022.

Khalaf, R.A., Nasrallah, A., Jarrar, W., Sabbah, D.A.

Cholesteryl ester transfer protein inhibitory oxoacetamido-benzamide derivatives: Glide docking, pharmacophore mapping, and synthesis

(2022) Brazilian Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141125550&doi=10.1590%2fs2175-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141125550&doi=10.1590%2fs2175-97902022e20028&partnerID=40&md5=976596bf05dfc83ad3c6b9d8d08eccfb)

[97902022e20028&partnerID=40&md5=976596bf05dfc83ad3c6b9d8d08eccfb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141125550&doi=10.1590%2fs2175-97902022e20028&partnerID=40&md5=976596bf05dfc83ad3c6b9d8d08eccfb)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Dyslipidemia is an abnormal lipid profile associated with many common diseases, including coronary heart disease and atherosclerosis. Cholesteryl ester transfer protein (CETP) is a hydrophobic plasma glycoprotein that is responsible for the transfer of cholesteryl ester from high-density lipoprotein athero-protective particles to pro-atherogenic very low-density lipoprotein and low-density lipoprotein particles. The requirement for new CETP inhibitors, which block this process

has driven our current work. Here, the synthesis as well as the ligand-based and structure-based design of seven oxoacetamido-benzamides 9a-g with CETP inhibitory activity is described. An in vitro study demonstrated that most of these compounds have appreciable CETP inhibitory activity. Compound 9g showed the highest inhibitory activity against CETP with an IC₅₀ of 0.96 μM. Glide docking data for compounds 9a-g and torcetrapib provide evidence that they are accommodated in the CETP active site where hydrophobic interactions drive ligand/CETP complex formation. Furthermore, compounds 9a-g match the features of known CETP active inhibitors, providing a rationale for their high docking scores against the CETP binding domain. Therefore, these oxoacetamido-benzamides show potential for use as novel CETP inhibitors. © 2022, Faculdade de Ciencias Farmaceuticas (Biblioteca). All rights reserved.

Alnaeem, M.M., Muayyad, A.

Constipation Severity and Quality of Life among Patients with Cancer Who Received Prophylactic Laxatives: Quasi-Experimental Study

(2022) Asian Pacific Journal of Cancer Prevention, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141004220&doi=10.31557%2fAPJCP.2022.23.10.3473&partnerID=40&md5=ff390e7d1c38e9860935f99cc510ee12)

[85141004220&doi=10.31557%2fAPJCP.2022.23.10.3473&partnerID=40&md5=ff390e7d1c38e9860935f99cc510ee12](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85141004220&doi=10.31557%2fAPJCP.2022.23.10.3473&partnerID=40&md5=ff390e7d1c38e9860935f99cc510ee12)

AFFILIATIONS: Palliative Care and Pain Management, School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Clinical Nursing Department, School of Nursing, the Universe of Jordan, Amman, Jordan, Amman, Jordan

ABSTRACT: Background: Prophylactic laxatives were associated with decreasing the incidence of Opioid-induced constipation among patients with cancer. This study aims to evaluate the effectiveness of early prophylactic laxatives therapy on the severity of constipation and quality of life among patients with cancer receiving opioids. Methods: Using a quasiexperimental design with 64 patients assigned to control group and 66 patients assigned to intervention group. The final sample was composed from 112 patients (57 in control group and 55 in intervention group), who were selected from an oncology clinic. Patients in the intervention group have received prophylactical laxatives The intervention included an oral colonic stimulant laxative (i.e., Bisacodyl, Dose= 3 tab/ day and/or Senna 6.8 mg twice daily) and an oral colonic osmotic laxative (i.e., Lactulose, Dose = 15 ml three times per day). Patients in the control group continue to receive their routine care without laxatives. Results: Patients in the intervention group have reported a significant reduction in the severity of constipation symptoms at eight weeks post the intervention ($p < 0.001$). Furthermore, the patients in the intervention group have revealed a significant improvement in their quality of life (QoL) ($p < 0.001$). Conclusions: Patients with cancer need to use the first line of laxatives as prophylactic alongside with opioids to minimize the severity of Opioid-induced constipation symptoms and to enhance the QoL. © This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License.

Al-Zaqeba, M., Al-Khawaja, H.A., Jebiril, I.H.

The effect of Supply Chain Management on Competitive Advantage: COVID-19

(2022) 2022 ASU International Conference in Emerging Technologies for Sustainability and Intelligent Systems, ICETIS 2022, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140911453&doi=10.1109%2fICETIS55481.2022.9888807&partnerID=40&md5=afee2a9f2453bdd50a59fc2e4c7d589b)

[85140911453&doi=10.1109%2fICETIS55481.2022.9888807&partnerID=40&md5=afee2a9f2453bdd50a59fc2e4c7d589b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140911453&doi=10.1109%2fICETIS55481.2022.9888807&partnerID=40&md5=afee2a9f2453bdd50a59fc2e4c7d589b)

AFFILIATIONS: Universiti Sains Islam Malaysia (USIM), Faculty of Economics and Muamalat (FEM), Malaysia;

Swiss FinTech Innovation Lab, University of Zurich, Switzerland;

Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Companies try to create robust supply chains that allow them to bring their products to market faster, more efficiently, and more affordable than their competitors. However, due to the crisis repercussions, many companies faced many challenges to maintain their revenues and enhance their competitive positions, by gaining a competitive advantage and sustaining them for the longest possible period. However, this paper aims to investigate the moderating role of talent management processes between supply chain and competitive advantage in light of COVID-19. a survey questionnaire was used, which was constructed according to sources related to supply chains in the context of Jordanian industrial companies. Moreover, this paper is characterized by recognizing the role that supply chain management plays in achieving competitive advantage, and the modified role of talent management. Contributions were made to decision makers about taking advantage of the benefits of supply chain management in achieving competitive advantage and the need to more focus on talent management. © 2022 IEEE.

Al-Shalabi, R., Kanaan, G., Kanan, T., Elbes, M.

A Review Study for Arabic Machine Learning and Deep Learning Methods

(2022) 2022 ASU International Conference in Emerging Technologies for Sustainability and Intelligent Systems, ICETIS 2022, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140878901&doi=10.1109%2fICETISIS55481.2022.9888948&partnerID=40&md5=4b7275de700ed867bfceadeea4cbc555>
AFFILIATIONS: Applied Science University-Bahrain, Bahrain;
International Center for Scientific Research and Studies, Jordan;
Al Zaytoonah University of Jordan-Jordan, Jordan
ABSTRACT: The fields of Natural Language Processing (NLP), Computer vision and speech processing witnessed great breakthroughs caused by the continuous advances in Deep Learning (DL). The implementation of DL techniques in Online Social Networking and Sentiment Analysis have proved to provide a state-of-the-art result in these areas. In this research, we survey the papers that claims to use the DL methods in NLP. We focus on the research that is related to the Arabic language due to the scarce resources in Arabic NLP. We concluded that most of the early research in Arabic NLP focusses of OCR-Digitization and most recently is focusing on applying DL methods in Sentiment Analysis, diacritization and machine translation. We present this survey to provide the growing community of researchers in ANLP in the hope of bridging the gap between the ANLP and the English NLP. © 2022 IEEE.

Al-Momany, B., Hasan, H., Abu-Romman, S.
Oxophytodienoic acid reductase 1 (HvOPR1) is differentially expressed during spike development of barley
(2022) Plant OMICS, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140601496&doi=10.21475%2fPOJ.15.01.22.p3466&partnerID=40&md5=04eda84c62be340b4c487e80bf6ed28e>
AFFILIATIONS: Department of Biotechnology, Faculty of Agricultural Technology, Al-Balqa Applied University, Al-Salt, 19117, Jordan;
Department of Plant Production and Protection, Faculty of Agricultural Technology, Al-Balqa Applied University, Al-Salt, 19117, Jordan;
Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan
ABSTRACT: Interest is increasing towards revealing genes network underlying cereals developmental stages. Pattern of HvOPR1 gene expression during spike developmental stages has remained unknown. In this study, the relationship between HvOPR1 and spike development in barley was identified. Transcriptomic levels of HvOPR1 gene were quantified using qRT-PCR. Expression analysis revealed that HvOPR1 was differentially regulated during spike development. The lowest expression levels were scored for Milk Development and Dough Development stages. One the other hand, the highest expression of HvOPR1 was noticed during Heading. Our data showed an evidence of a possible regulatory role of HvOPR1 during booting, heading and pollination stages. © 2022, Plant OMICS. All Rights Reserved.

Al-qbelat, R.M., Subih, M.M., Malak, M.Z.
Effect of Educational Program on Knowledge, Skills, and Personal Preparedness for Disasters Among Emergency Nurses: A Quasi-Experimental Study
(2022) Inquiry (United States), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140507871&doi=10.1177%2f00469580221130881&partnerID=40&md5=f34c3da1295631091f4317e51758af11>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Continuous nursing education has a significant correlation with increasing knowledge, improving skills, and personal preparedness for disasters among nurses which leads to a decrease in mortality rate and enhances the quality of care. However, there is limited literature evaluating the effect of educational programs on the knowledge, skills, and personal preparedness for disaster preparedness among emergency nurses at Arab countries including, Jordan. This study evaluated the effect of an educational program on knowledge, skills, and personal preparedness for disasters among emergency nurses. A quasi-experimental study and one-group pretest-posttest design was used. A convenience sample was adopted to recruit registered nurses who are working in emergency rooms in the private and government health sectors in Jordan (N = 50). This study was conducted between May and June 2021. The intervention included an educational program consisting of 5 topics about disasters. The participants attended this program for 8 h over 1 week via Zoom application. There were significant differences between the pre-post educational intervention for knowledge ($t = 4.79$, $P \leq .001$), skills ($t = 6.66$, $P \leq .001$), and personal preparedness ($t = 9.56$, $P \leq .001$) for disasters. These findings suggested the importance of implementing continuous education and training programs for emergency nurses about disasters due to increasing frequency of disasters worldwide. © The Author(s) 2022.

Al-Jabra, A.A., Al-Afaishat, M.M.S., Al-Arasi, S.M.
Legal Protection of Private Electronic Life: Problems and Solutions
(2022) Studies in Computational Intelligence, .
https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140493147&doi=10.1007%2f978-3-031-05258-3_55&partnerID=40&md5=bea485e22c81f8583b2dd567072a80b8

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: As the concept of individual's private electronic life has broadened, it became a real challenge for humanity which is subject to infringement, violations, and penetration on one hand and difficult to technologically and legally control, being a human right, on the other. Thus, methods for controlling and protecting it have become more difficult. Consequently, the difficulty to control methods of committing the crime of penetrating private electronic life and to include that in strict legal provisions assist to achieve a successful protection for it. Undoubtedly, the absence of legislative provisions for some forms of crimes endangers the future of individual's private electronic life, hence fails in to punish penetrators and parasites, due to the legislative provision which stipulates that no crime and no punishment can be inflicted without a provision. The current study sheds light on private electronic life of individuals through presenting problems and challenges that it encounters, besides the preventive remedial possible solutions for this phenomenon which disturbs whoever deals with information technology. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Khamaiseh, A.M., Al Hadid, L.A., Barmawi, M.A., AlAzzam, M., Taha, H.A.

Predictors and Components in the Academic Motivation of Nursing Students during the Covid-19 Pandemic in Jordan

(2022) Jordan Medical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140492081&doi=10.35516%2fjfmj.v56i3.363&partnerID=40&md5=2bfd9a18d99c63e8728576e5052a262f)

[85140492081&doi=10.35516%2fjfmj.v56i3.363&partnerID=40&md5=2bfd9a18d99c63e8728576e5052a262f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140492081&doi=10.35516%2fjfmj.v56i3.363&partnerID=40&md5=2bfd9a18d99c63e8728576e5052a262f)

AFFILIATIONS: Faculty of Nursing, Community and Mental Health Nursing Department, Mutah University, Jordan;

Faculty of Nursing, Al Balqa' Applied University, Jordan;

Faculty of Nursing, Alzaytoonah University of Jordan, Jordan;

Princess Salma Faculty of Nursing, Al al-Bayt University, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, The Hashemite University, Jordan;

Stetson University, Department of Environmental Sciences and Studies, Public Health Program, Deland, FL, United States

ABSTRACT: Background: Nursing is a noble profession that aims to care for individuals, families, and communities to achieve optimum health and quality of life. Nurses are the largest constituent of the healthcare team and nursing students' motivation towards their field of inquiry affects their satisfaction and academic performance. Aim: To examine the academic motivation among nursing students in public universities in Jordan in the context of COVID-19. Materials and Methods: A descriptive cross-sectional study conducted in three public universities in Jordan. A total of 437 nursing students in their second, third, or fourth year of study answered a self-administered online questionnaire. Descriptive and multivariant analysis was conducted using SPSS 24. Results: Academic motivation among students from three public universities was below the averages reported in the international literature. Students' mean scores on the academic motivation scale knowledge was 90.25 out of 196, and the average mean scores for all subscales were just above the midpoint, except for the extrinsic regulation scale, which was 14.57 out of 30. Students reported higher levels of extrinsic motivation. Conclusions: Educators must focus on nursing students' need for support and consider the development of a curriculum that strengthens student learning and nurtures their internal and external motivation needs. © 2022 DSR Publishers / The University of Jordan. All Rights Reserved.

Al-Dahoud, A., Fezari, M., Al Dahoud, A.

User Interface Development Tools and Software for Arduino "A Comparative Study"

(2022) Studies in Computational Intelligence, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140490564&doi=10.1007%2f978-3-031-05258-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140490564&doi=10.1007%2f978-3-031-05258-3_4&partnerID=40&md5=58be79d7e24e6563d4a7e10421ffcd06)

[3_4&partnerID=40&md5=58be79d7e24e6563d4a7e10421ffcd06](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140490564&doi=10.1007%2f978-3-031-05258-3_4&partnerID=40&md5=58be79d7e24e6563d4a7e10421ffcd06)

AFFILIATIONS: Faculty of IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Faculty of Engineering, Badji Mokhtar Annaba University, Annaba, Algeria;

Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this paper, we have introduced some of the most interesting user interface software for developing applications with Arduino modules. A brief comparison of the most used Graphical interfaces is done based on student's feedback and experiment. The first scenario was a questionnaire presented to License L3 students and Master students in their final project work. The second scenario is taken from research's documentation from the web. We concluded that students like to have GUI in their applications however they prefer simplicity, clearness in the GUI and real-time interaction. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Abu Afifa, M., Marei, Y., Saleh, I., Othman, O.H.

Big Data Analytics and Audit Quality: Evidence from Canada

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140489374&doi=10.1007%2f978-3-031-05258-3_22&partnerID=40&md5=3df8f3a6e439d3faf2c7c8f223db39ce

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Seneca College of Applied Arts and Technology, Toronto, Canada;

Accounting Department, Faculty of Business, Isra University, Amman, Jordan

ABSTRACT: This paper aims to understand better how Big Data and Big Data Analytics (BDA) affect professional judgement, audit performance and perceived audit quality in Canadian audit firms. Our findings are based on semi-structured interviews conducted with audit professionals firms. This research evidence suggests that auditors' skills and competence to perform engagement activities are assertively affected by BDA in audit methodology. Auditors benefit from being able to visualise audit evidence so they can use it to guide their professional judgement and decision making. We found evidence that the early stages of adopting data analytics and implementing are inefficient, but they save auditors' time as the tools get more familiarised. Finally, we documented that auditing professionals can use analytics to gain more insight into clients' business and offer them insights, which leads to confidence in clients. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Marei, Y., Abu Afifa, M., Abdallah, A., Ayoush, M., Amoush, A.

Big Data and Big Data Analytics in Audit Brainstorming Sessions: A Canadian Qualitative Research

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140484204&doi=10.1007%2f978-3-031-05258-3_51&partnerID=40&md5=981e5b02f9c2916b17baf2912a254a11

AFFILIATIONS: Seneca College of Applied Arts and Technology, Toronto, Canada;

Faculty of Business, Accounting Department, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This exploratory research aims to ascertain participants' perspectives on the use of Big Data and Big Data Analytics methods during audit brainstorming sessions at Canadian audit firms, and whether such methods aid in the risk assessment process to fraud detection. A Canadian qualitative research method is applied in this study to provide an overview of the results from audit industry interviews. The complete sample included twenty-two external auditor participants who attended an office interview in Canada during the third and fourth quarters of 2019; twelve auditors from the Big-4 and ten from mid-size audit firms. The research discovered that, on average, brainstorming sessions interpret the impact of Big Data and Big Data Analytics favourably. Additionally, our study findings show that utilising Big Data Analytics during brainstorming sessions improves the efficiency and effectiveness of fraud risk evaluations substantially. Finally, the paper discussed how Big Data had altered auditors' positions and professional decisions. Our analysis and results have a broader effect on the purpose of fraud detection brainstorming sessions and the quantification of fraud risk in an audit context. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Dajani, D., Yaseen, S.G., Alqirem, S.N.

Cultural Value Orientations Among Managers of Travel Agencies

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140482957&doi=10.1007%2f978-3-031-05258-3_29&partnerID=40&md5=1e872ac40de966b51d207b5f48ab8c2a

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study aims to examine cultural value orientations on the work orientation of marketing managers of Jordanian travel agencies. Cultural Orientations are investigated depending on the theoretical framework proposed by Kluckhohn and Stodtbeck's (1961) model. Descriptive analysis and structural equation modeling approach are used to test the effect of cultural value orientations on work orientation. The study reveals that travel agency managers are characterized by some traditional values such as subjugation, individualism, future time orientation, being work orientation, and changeable human nature. Furthermore, managers are future-oriented, subjugated, and individualistic. They have a high tendency towards "being orientation" and changeable human nature. The study is one of the first to examine the influence of culture in the field of the hospitality industry in developing countries. It necessitates more studies to compare cultural values between Arab and western managers. However, the cross-sectional nature of the data is incapable of confirming the causal inference empirically. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

kasasbeh, H., Alzoubi, M., Alsmadi, A.A., Al-dweik, A.'F.

The Impact of COVID-19 on Amman Stock Market (ASE) Performance: An ARDL Approach

(2022) Studies in Computational Intelligence, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140476387&doi=10.1007%2f978-3-031-05258-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140476387&doi=10.1007%2f978-3-031-05258-3_29&partnerID=40&md5=1e872ac40de966b51d207b5f48ab8c2a)

3_35&partnerID=40&md5=f367d3c4eb64328f3bfb9d417a5f1be

AFFILIATIONS: Department of Banking and Financial Sciences, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of this paper is to investigate the impact of Covid-19 on Amman Stock Exchange performance (ASE) in Jordan using the Auto Regressive Distributed Lag Model (ARDL) and daily observations over the period of January 3, 2021 to April 25, 2021. The variables included in this study are the ASE index, the Covid-19 positive cases, the Covid-19 death cases, the Covid-19 recovered cases, the world Oil prices and the Euro/JD exchange rate. The long-run results reveal that positive cases have negative effect on ASE performance, recovered cases and exchange rate have positive effects. The positive reaction of the performance of ASE to movements in exchange rate may be attributed to the fact that imports largely exceeds exports. Therefore, an appreciation of the JD makes imports less costly which goes in line with economic theory as gross consumption in Jordan is mainly attributed to foreign products. Furthermore, positive cases are also highly significant while death cases are not which could be attributed to the fact that positive cases may have spill-over effect while death cases may not. Also, the magnitude of positive cases is much larger than that of death cases. In the short-run, all variables except recovered cases cause the performance of ASE. The system adjusts in the current day to any short-run departure in the previous day from long-run equilibrium in the previous day, which confirms the evidence of the long-run cointegration relationship. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Qatawneh, A.M., Kasasbeh, H.

Role of Accounting Information Systems (AIS) Applications on Increasing SMES Corporate Social Responsibility (CSR) During COVID 19

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140476354&doi=10.1007%2f978-3-031-05258-3_43&partnerID=40&md5=5645c8980193b440686b7948243fb7e8

AFFILIATIONS: Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Banking and Financial Scenics, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Main aim was to highlight role of AIS applications in increasing CSR during COVID 19. (132) individuals responded to an online questionnaire. Results indicated that AIS supported CSR among SMEs in Jordan attributed to credibility and reliability of AIS outcomes. In other words, main hypothesis was accepted and there was a positive impact of AIS applications on CSR in the fields of legal, economic, ethical and philanthropy and indicated that organizations were to support the community during the pandemic through organizing their own finances, avoid corruption and support the society through funding, donations and charity works as they were aware of their profits and abilities. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Alnadawi, A.A., Abdulrahman, M., Omran, F.

Opportunities and Challenges of Applying Electronic Human Resources Management in Business Organizations an Applied Study in the Telecommunications Sector, Jordan

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140475699&doi=10.1007%2f978-3-031-05258-3_19&partnerID=40&md5=ae39005fcec38e86ca335f1f4412690

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Electronic human resources management constitutes an important element in achieving success for business organizations today. The use of electronic human resources management techniques directly contributes to creating effective human resources, which is the decisive factor in achieving organizational goals. Business organizations are currently facing great challenges in various fields of their work, especially in the field of electronic human resources management and its role in providing appropriate and qualified talents to accomplish work and achieve success by taking advantage of the available opportunities and addressing the threats. The aim of this study is to identify the reality of electronic human resources management in business organizations and its role in contributing in the development of work and assisting organizations in taking advantage of the available opportunities and more effectively facing the challenges. The sample of the study amounted to (332) respondents who were selected from among the employees of the three Jordanian telecommunications companies. One of the most prominent findings of the study is the presence of a clear and statistically significant impact of electronic human resources management on the work of Jordanian telecommunications companies, taking advantage of the available opportunities and contributing to effectively facing the challenges. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Hamdallah, M.E., Srouji, A.F., Al-Ibbini, O.A.

Does Perceived Organizational Support Have a Mediating Role in Directing the Relationship Between E-Banking and Corporate Digital Responsibility?

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140474485&doi=10.1007%2f978-3-031-05258-3_49&partnerID=40&md5=1c2b367311cea25d4840c372200cc431

AFFILIATIONS: Accounting Department, Business Faculty, Al-Zaytoonah University, Airport Road, Amman, Jordan;

Accounting Department, King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, Jordan

ABSTRACT: The aim of this research paper is to investigate E-Banking impact on Corporate Digital Responsibility in the Jordanian banking service sector. Meanwhile, then this work also focuses to propose a mediating role of Perceived Organizational Perspective (POS) to measure the association influences between exogenous and endogenous variables. Modeling tests based on hypotheses was performed through e-surveys, totaling 88 respondents from the financial department gathered from 16 Jordanian banks. Results based on the respondents' opinions reveal determination that E-Banking is a direct element in the dimensional model that assists in indicating a positive relationship Social Corporate Digital Responsibility (SCDR), Economic Corporate Digital Responsibility (ECDR), and Technological Corporate Digital Responsibility (TechCDR). POS has a partial positive mediating effect in the relationship between E-Banking and ECDR, and between E-Banking and TechCDR, with no mediating effect in the relationship between E-Banking and SCDR. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Hamad, M.'J., Yassin, M.M.

Cloud ERP Systems and Firm Performance

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140468760&doi=10.1007%2f978-3-031-05258-3_15&partnerID=40&md5=d46c6ca85af657591b62fa8ff057b081

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Cloud ERP systems provide solutions to all difficulties and challenges which traditional ERP systems may encounter, in addition to providing more benefits. This study aimed at providing an evidence on whether cloud ERP adoptions improved the financial performance of companies. A range of financial indicators were used to test the effect of implementing cloud ERP over a window of three years (One year before and two years after). The results showed that the return ratios had increased and the cost ratios had decreased after the cloud ERP implementation. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Yassen, S.G., Dajani, D., El-Qirem, I.A., Eletter, S.F.

Continuance Intention to Use YouTube Applying the Uses and Gratifications Theory

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140467077&doi=10.1007%2f978-3-031-05258-3_23&partnerID=40&md5=3a2bdfcfa63e6553d49533951006aaaf

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Business, Al Ain University, Al Ain, United Arab Emirates

ABSTRACT: The current research attempts to examine how gratifications predict the continuance intention to use YouTube among university students. Partial least squares structural equation modeling (PLS-SEM) was used to examine causal relations proposed in the research model. The sample comprised 446 students from selected universities in the United Arab Emirates. The research findings revealed that hedonic, escapism and social interaction gratifications have a significant impact on the continuance intention. However, it is unexpected to find that information seeking, mobility and information overload gratifications have an insignificant effect on the continuance intention. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al Ganideh, S.F.

Revisiting the Concept of Consumer Ethnocentrism After the Plague: Why Buying Local Matters

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140461017&doi=10.1007%2f978-3-031-05258-3_27&partnerID=40&md5=5644151f461c05d7a1ec29aeea32e1f0

AFFILIATIONS: Faculty of Business, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The pandemic took a heavy and instant toll on jobs all over the globe and represented the most severe crisis for employment since the 1930s Great Depression. How do ethnocentric tendencies towards local products and empathetic feelings towards local workers impact consumers' willingness to purchase local products during the pandemic is the main question that this paper grapples with at its most general level. Data were collected from 217 Jordanian subjects during the summer of 2020. Our findings show that COVID-19 pandemic outbreak contributed to build a new "buy local" line that might shift spending towards locally made products. Also, the results concluded that when Jordanian consumers express empathetic feelings towards local workers due the COVID-19, they are more willing to purchase local products. Finally, our study provides some interesting insights for managers on how to market their products during a severe crisis such as the pandemic. © 2022, The Author(s), under

exclusive license to Springer Nature Switzerland AG.

Al-lozi, E., Masa'deh, R.

Knowledge Management by Firms: A Systematic Review

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140457633&doi=10.1007%2f978-3-031-05258-3_11&partnerID=40&md5=cdb1f3c8fbcc653f41129de7522b0eb8

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, The University of Jordan, Amman, Jordan

ABSTRACT: Knowledge management is well researched topic in the empirical as well as theoretical literature. The purpose of this study was to understand the literature that has already been published in the field of knowledge management especially related to firms. The literature mainly focused on knowledge management and organizational performance. While reviewing the literature it has been observed that leadership play a significant role in developing the culture for learning and knowledge management. The systematic review identified several research streams and has identified several inconsistencies which raise certain ambiguities and open the doors for research. The purpose of this study is to understand the new directions that can be set through the review of existing literature in the field of knowledge management. For the said purpose a systematic review was conducted. The articles were initially collected based on key words knowledge management and firm performance. While filtering the articles all the articles related to other fields were removed and finally 75 chosen articles were kept on the basis of which the analysis has been made. The study opened the horizons for future research and concluded that knowledge management in becoming more and more important for the sustainability, survival, and performance of businesses. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Alzoubi, M., Salem, N.

Bank Interest Rate Spread: Operating Expenses and Noninterest Income Beyond Risk

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140449453&doi=10.1007%2f978-3-031-05258-3_40&partnerID=40&md5=d9f152fc4fb290845a7c22c149495fe9

AFFILIATIONS: Department of Banking and Financial Sciences, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study investigates the impact of Operating Efficiency, Noninterest Income and risk on net interest margin (NIM) of Jordanian banks during the period 2007-2017 by applying the random effect model in a panel setting. Our results confirm that bankers are risk-averse; they require risk premiums by widening the spread whenever their risks are higher. Operating efficiency (Operating expenses to total assets) is highly significant with the expected positive sign. This may be due to lack of competition and requires additional measures by regulators such as licensing new banks. To examine this further, we find that concentration is significant and positively associated with bank spread. Likewise, since noninterest income helps reduce the margin, banks could improve their performance with better diversification. Such as providing consultancy services, cash management, leasing, venture capital financing, insurance (through subsidiaries), investment banking (underwriting) and trust services in addition to the off-balance sheet activities. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Najm, N.A., Al-nsour, J.A., Yousif, A.S.H., Al-nadawy, A.B.

COVID-19 and the Economic Activity of Jordanian Companies: The Mediating Role of the Community Response

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140448574&doi=10.1007%2f978-3-031-05258-3_50&partnerID=40&md5=8e7d56348cd621e885752bc10db384d5

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study aimed at determining the impact of Covid-19 on the economic activity of Jordanian companies through three dimensions of the pandemic (damage and risks, working under the pandemic, and the need for treatment) as factors affecting economic activity during two stages: the recession and recovery. The study also sought to identify the impact of the societal response as a mediating variable on the causal relationship between the dimensions of COVID-19 and the economic activity of Jordanian companies. The results of this study have contributed considerably to understanding the impact of the pandemic on Jordanian companies. On the other hand, the outcomes of the study have confirmed that Nigeria damages and risks had the greatest effect in creating the economic recession. The results of the study also, have confirmed that the need for medical treatment had stronger impact on economic stagnation than its impact on recovery. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Yaseen, S.G.

Preface

(2022) Studies in Computational Intelligence, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140448228&partnerID=40&md5=cd7f85d31d6ec067dc4120e49c34cf3d>

AFFILIATIONS: Business Analytics and Information Systems Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

Al-Omoush, K.S., Yaseen, S.G., Qirem, I.A.E.

The Impact of the COVID 19 Shock on Intention to Adopt Social Commerce

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140445635&doi=10.1007%2f978-3-031-05258-3_9&partnerID=40&md5=8ed067012560ea482f7adc6f92e169a2

AFFILIATIONS: Al-Zaytoonah Univeristy of Jordan, Amman, Jordan

ABSTRACT: This study aims to explore the impact of the COVID 19 shock on the intention to adopt social commerce. It also examines the impact of the pandemic shock on Electronic Word of Mouth (EWOM) and the perceived usefulness of social commerce. Data were collected from Facebook users in Jordan and analyzed using smart PLS software. The results show a significant impact of the COVID 19 shock on EWOM, perceived usefulness, and intention to adopt social commerce. The findings also show a significant mediating impact of EWOM and perceived usefulness on the relationship between the COVID 19 shock and intention to adopt social commerce. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al-Shayea, Q.

Deep Neural Network to Forecast Stock Market Price

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140444554&doi=10.1007%2f978-3-031-05258-3_12&partnerID=40&md5=2b091ce0adf3b075a0cd358c4834ea20

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The forecasting of the stock exchange asking price has been affected by a number of monetary and nonmonetary indexes that might be used as a warning rule for investors. Expecting the future trend of the stock market is a critical issue in investment sector. In this work, the forecasting of futurity open and close asking price of Dow Jones Industrial Average (DJIV) has been performed utilization deep neural network. The Long short term memory (LSTM) network was used to predict values of futurity time steps of a sequence of opening and closing into Dow Jones Industrial Average stock market. The LSTM network learns to forecast the value of the next step. By train the LSTM network, we have expect the value of future time steps of open and close of the stock market. The performance of the proposed technique is promising for DJIV stock market expectation. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Shaban, O.S.

Impact of Pro-cyclicality Fluctuations, Financial Assets' Fair Value, Equity Ratio on Banks' Financial Position Statement

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140442873&doi=10.1007%2f978-3-031-05258-3_54&partnerID=40&md5=23c1f570e21c0b544bac9239f0dc02e5

AFFILIATIONS: Department of Accounting, Al_Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This research aims to study two different financial performance situations for the impact of Pro-cyclicality on financial assets fair value and on equity ratios. The study also compared this relationship across two different years, one is an ordinary year 2019, and the second year is the Covid-19 year 2020. The study population is formed out from the Jordanian Commercial Banks. Moreover, one sample T-test was performed to assess the difference between Pro-cyclicality disclosure, Financial Assets' Fair Value disclosure, and equity ratio performance of the year 2019 and the year 2020. The study concluded that, Jordanian banks were having an inverse relationship between pro-cyclical fluctuations and the fair value of financial assets, also most of these banks were having positive relationship between pro-cyclical fluctuations and equity ratio. Also, Banks equity ratios, Pro-cyclicality disclosure, and Financial Assets' Fair Value disclosure in the ordinary year 2019 is significantly different in the pandemic year 2020. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Abu Afifa, M., Van, H.V., Le Hoang Van, T.

Factors Affecting the Intention to Use Cloud Accounting in SMEs: Evidence from Vietnam

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140441743&doi=10.1007%2f978-3-031-05258-3_47&partnerID=40&md5=fabff9956b4df292c1dc16d3a6776e5c

AFFILIATIONS: Faculty of Business, Accounting Department, Al-Zaytoonah University of Jordan, Amman,

Jordan;

Tien Giang University, Tien Giang Province, My Tho, Viet Nam

ABSTRACT: Cloud accounting and its application in business activities are relatively new research topics in Vietnam. This study investigates the factors affecting the intention to use cloud accounting according to managerial and accountant perspective in small and medium-sized enterprises (SMEs). It provides empirical evidence from Vietnam. Data is collected quantitatively utilizing an online-survey questionnaire. It was sent by email to managers and accountants in 300 SMEs. The results show that perceived usefulness and availability to embrace technology have a positive impact on the intention to use cloud accounting. A rather interesting result is that perceived ease of use technology has also a positive effect on the intention to use cloud accounting. These results provide reliable evidence for managers and accountants to strategically accelerate the cloud accounting application process and improve financial and business efficiency. These results are also a reference for software manufacturers providing products with more suitable features. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Sha'ban, M., Girardone, C., Sarkisyan, A.

Bank Capital and Reputational Risk

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140439042&doi=10.1007%2f978-3-031-05258-3_39&partnerID=40&md5=6e61054b8579e75d62c9717209730eff

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Essex Business School, University of Essex, Colchester, United Kingdom

ABSTRACT: Environmental, social, and governance risks are becoming increasingly relevant for bank regulators and stakeholders due to market developments, regulation, and social attitudes. This paper investigates the relationship between equity capital and reputational risk related to Environmental Social Governance (ESG) issues for the European Economic Area's listed banks. We find that banks with higher reputational risk face higher costs of financial distress and therefore tend to have more capital. Additionally, in line with the corporate finance literature, we find that equity capital is negatively associated with size and positively with profits and market return volatility risk. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Alshehadeh, A.R., Elrefae, G.A., Kourtel, F., Belarbi, A., El-Qirem, I.A.

The Relationship Between the Innovative Marketing Mix Elements and the Firms' Performance

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140437520&doi=10.1007%2f978-3-031-05258-3_33&partnerID=40&md5=c119a2f791c9bc54d3ee5348c7de7e82

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Business, Al Ain University, Al Ain, 64141, United Arab Emirates;

Department of Marketing, Setif University, Setif, Algeria

ABSTRACT: This study explored the innovative practices related to marketing mix elements and investigates their impact on firms' performance. Validated questionnaires (n = 60) were distributed to four of the biggest malls in Amman. The main finding of this study is that the growing complexity of customers' needs and the changeable businesses environments promoted investors to use innovative marketing tools, which improves the organization's performance in terms of efficiency and effectiveness. Also, the innovative marketing tools is not limited to a single element of the marketing mix but include all the marketing strategies related to the product, pricing, distribution, and promotion. Implementing more innovative marketing mix elements in the organization will add value and be beneficial to the customers. It is recommended to give more attention to identifying innovative marketing tools that were ignored by other competitors, then build integrated marketing mix strategies, considering these overlooked aspects, which is expected to enable them to maximize their performance internally and externally. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Alshehadeh, A.R., Elrefae, G.A., Khudari, M., Injadat, E.

Impacts of Financial Technology on Profitability: Empirical Evidence from Jordanian Commercial Banks

(2022) Studies in Computational Intelligence, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140430646&doi=10.1007%2f978-3-031-05258-3_38&partnerID=40&md5=0af650011895d1a66186bbb5d0ddba0c

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Business, Al Ain University, Al Ain, 64141, United Arab Emirates;

College of Graduate Studies, Universiti Tenaga Nasional, Selangor, Kajang, 43000, Malaysia;

Business Administration, Sur University College, 411 Sur Sultanate, Sur, Oman

ABSTRACT: This study aimed to illustrate the effects of the financial technology tools as a base for reinforcing financial inclusion indicators on profitability in the Jordanian commercial bank listed in the Amman stock exchange. A panel of data from 16 banks listed in the Amman stock exchange was

used between 2010 and 2019. The financial technology changed the structure of the overall financial services, therefore, increase the availability for a wider social group. Further, the financial technology tools significantly reinforce the financial inclusion indicators over the studied profitability indicators, including return on assets and equity. It is recommended to adopt effective and modern financial, technological strategies that provide the marginalized social groups access to the financial services and products that meet their needs. Thus, getting the added value, which would increase the financial inclusion indicators. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Odeh, M., Amer, R., Al Bawab, A.Q., Kearney, M.-C., Alzoubi, K.H.

Pharmaceutical innovation: The gap between knowledge, attitude, and perceptions among pharmacists and final-year pharmacy students

(2022) Journal of Applied Pharmaceutical Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140034719&doi=10.7324%2fJAPS.2022.121009&partnerID=40&md5=bbc1058e33bcaa272f82a5218dec42b)

[85140034719&doi=10.7324%2fJAPS.2022.121009&partnerID=40&md5=bbc1058e33bcaa272f82a5218dec42b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140034719&doi=10.7324%2fJAPS.2022.121009&partnerID=40&md5=bbc1058e33bcaa272f82a5218dec42b)

AFFILIATIONS: Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmaceutical Sciences, The Hashemite University, Zarqa, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Pharmacy, Queens University Belfast, Belfast, United Kingdom;

Department of Pharmacy Practice and Pharmacotherapeutics, University of Sharjah, Sharjah, United Arab Emirates;

Department of Clinical Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Recently, there has been an increasing interest in innovative business development.

Nevertheless, in the pharmacy practice field, there seems to be a gap in perceptions, attitudes, and knowledge about innovation between practicing pharmacists and academia. This study explores this gap and aspects of pharmaceutical innovation in Jordan comparing pharmacists and last-year pharmacy students. A validated ($r_2 = 0.74$) and reliable (Pearson's $r = 0.88$) online questionnaire was designed to assess and compare knowledge, attitude, and perceptions about pharmaceutical innovation. A total of 397 participants (215 pharmacy students and 182 pharmaceutical professionals) responded. Compared with 50% of the pharmacists, only 32.1% of the students claimed that they knew the differences between pharmaceutical innovation, discovery, invention, and entrepreneurship [$\chi^2(2) = 14.238$, $p = 0.001$; Cramer's $V = 0.189$]. Pharmacists demonstrated a higher level of trust in the innovative website design for their institution compared with students (25.3% vs. 16.3%, $p < 0.001$, Cramer's $V = 0.327$). However, 60% of the students did not know the innovative design standards for websites, while the corresponding percentage was 37% for the pharmacists ($p < 0.001$; Cramer's $V = 0.327$). The majority of the students were interested in pharmaceutical innovation (81.9%). Unfortunately, 76.3% never studied about innovation in their pharmacy curricula. Similarly, most pharmacists (76.4%) considered adopting innovation, but only 30% had a concrete plan. For the field where pharmacists aim to innovate in the next 5 years, new pharmaceutical services were the dominant field (34.6%). Despite a positive attitude and perception, pharmacists and pharmacy students expressed poor knowledge about innovation. Policies to enhance awareness about innovation and professional educational tools should be implemented. © 2022 Mohanad Odeh et al. This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>).

Dayyih, W.A., Hailat, M., Al Hujran, T.A., Magharbeh, M., Zakaraya, Z., Al Tamimi, L., Aburumman, A.M., Abumansour, H., Awad, R.

Spectrophotometric analysis of empagliflozin tablets as SGLT2 inhibitors in pharmaceutical samples (2022) Journal of Applied Pharmaceutical Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140005295&doi=10.7324%2fJAPS.2022.121015&partnerID=40&md5=725034d593897b2b86d945fe0775e8e7)

[85140005295&doi=10.7324%2fJAPS.2022.121015&partnerID=40&md5=725034d593897b2b86d945fe0775e8e7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140005295&doi=10.7324%2fJAPS.2022.121015&partnerID=40&md5=725034d593897b2b86d945fe0775e8e7)

AFFILIATIONS: Faculty of Pharmacy, Mutah University, Al-Karak, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Pharmacy, Zarqa University, Al-Zarqa, Jordan;

Pharmacological and Diagnostic Research Center, Al-Ahliyya Amman University, Al-Salt, Jordan;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan

ABSTRACT: Azo dyes account for 70% of dye chemistry, and their importance may grow in the future.

Empagliflozin is a sodiumglucose co-transporter-2 (SGLT2) inhibitor. SGLT2 transporters are primarily responsible for glucose reabsorption in the kidney. In 2014, empagliflozin was approved for medical use in the United States and the European Union. With over 4 million prescriptions in 2019, it was the 146th most commonly prescribed medication in the United States in 2019. The spectrophotometric determination of empagliflozin is described using coupling agents such as 3-chloro-4-nitroaniline or sulfanilamide. These methods are straightforward and are based on the reaction of empagliflozin with diazotized products of 3-chloro-4-nitroaniline or sulfanilamide to produce colored azo dyes with

absorption maxima at 470 and 480 nm. Empagliflozin was linear from 1.2 to 26.6 μgml^{-1} or 0.8 to 20.4 μgml^{-1} when combined with diazotized 3-chloro-4-nitroaniline or sulfanilamide, respectively. Empagliflozin's molar absorptivity and Sandell's sensitivity to 3-chloro-4-nitroaniline or sulfanilamide azo dyes were $3.179 \times 10^4 \text{ l mol}^{-1}\text{cm}^{-1}$ or $4.367 \times 10^4 \text{ l mol}^{-1}\text{cm}^{-1}$ and $1.149 \times 10^{-2} \mu\text{gcm}^{-2}$ or $8.368 \times 10^{-3} \mu\text{gcm}^{-2}$, respectively. The formed colored azo dyes are stable for more than 12 hours. The optimal reaction conditions and other analytical parameters are assessed. Foreign organic compound interference has been studied. The method has been successfully used to determine empagliflozin in pharmaceutical samples © 2022 Wael Abu Dayyih et al. This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>).

Abu Afifa, M.M., Nguyen, N.M.

Nexus among big data analytics, environmental process integration and environmental performance: moderating role of digital learning orientation and environmental strategy

(2022) VINE Journal of Information and Knowledge Management and Systems, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139484777&doi=10.1108%2fvjikms-05-2022-0186&partnerID=40&md5=9cdc5a4ce245c60518e00a31927ef36e>

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Faculty of Economic - Law, Tien Giang University, My Tho, Viet Nam

ABSTRACT: Purpose: This study aims to examine the influence of big data analytics (BDA) on environmental performance (ENP) in the post-COVID-19 context in Vietnam, as a developing country. In which, this study considers environmental process integration in accounting reports as a mediator variable. Furthermore, digital learning orientation (DLO) and environmental strategy (ES) are proposed as the moderator variables for relationships in the proposed model.

Design/methodology/approach: Data was collected by survey method via email with convenient sampling method. In total, 611 emails, including the survey, were sent to executive managers of Vietnamese manufacturing companies listed on stock exchanges. The final sample of 419 responses was used for analysis. Findings: By using the partial least squares structural equation modeling, this study's results elucidate that BDA positively affects ENP. Moreover, DLO positively moderates the nexus between BDA and environmental process integration in accounting reports, while ES plays a positive moderating role on the nexus between environmental process integration and ENP. Practical

implications: In terms of managerial implications, this paper mentions pretty attractive features of using modern technique and ENP. This research emphasizes the key role of the BDA for both reporting and accounting performance (e.g. environmental process integration and ENP) of the company. Thus, managers should examine implementing BDA when necessary to make accounting reports more transparent and modern, thereby enhancing the organization's ENP. Particularly, managers should focus on improving the organization's ENP indicators. Originality/value: This study complements the ENP literature by showing a positive effect of BDA and environmental process integration on ENP. Additionally, this study's results determine the efficacy of DLO and ES as well as their regulatory roles. Finally, this study was conducted to supplement empirical evidence on ENP in the post-COVID-19 context in developing countries, specifically Vietnam. © 2022, Emerald Publishing Limited.

Alsmadi, A.A., Alrawashdeh, N., Al-Gasaymeh, A., Alhwamdeh, L.N., Al-Hazimeh, A.M.

Do oil prices and oil production capacity influence decision making and uncertainty in the financial market? Evidence from Saudi Arabia

(2022) Investment Management and Financial Innovations, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139421197&doi=10.21511%2fifimfi.19%283%29.2022.28&partnerID=40&md5=d0348d5fa7da9771fbd78b94dc01a255>

AFFILIATIONS: Finance and Banking Department, Business Faculty, AlZaytoonah University of Jordan, Jordan;

Finance and Banking Department, Business Faculty, Isra University, Jordan;

Finance and Banking Department, Business Faculty, Applied Science Private University, Jordan;

Applied Science Private University, University of Petra, Jordan;

School of Business, Accounting Department, Al-Bayt University, Jordan

ABSTRACT: The aim of this study is to investigate the relationship between oil prices and oil production capacity and financial market performance in the Kingdom of Saudi Arabia and how oil prices and oil production capacity influence the decision making and uncertainty factors in Saudi Arabia's financial markets. The key variables considered are oil prices and oil production capacity in the Kingdom of Saudi Arabia. Other variables such as foreign direct investment decisions and domestic investment decisions are adopted to explore their impact and reaction to the various risks identified. Therefore, data was collected from online sources to analyze qualitative and quantitative information to understand risks, uncertainties and decision-making considerations. The findings of this paper indicate that rising oil prices increase the value of the Saudi Arabian financial market. The study showed that the diversification of the investor portfolio increases the stability of Saudi

Arabia's financial market. Also, the KSA's financial market volatility primarily reflects oil price fluctuations, and the Saudi Arabian oil production capacity directly affects its financial market performance. Saudi Arabia's oil production was also found to pose insignificant risk to long-term economic growth and stability, thereby putting investors' long-term investments at risk. The study also showed that investors in Saudi Arabia's financial market fail to objectively analyze risks by focusing on short-term high-profit margins from oil prices. © Ayman Abdalmajeed Alsmadi, Najed Alrawashdeh, Anwar Al-Gasaymeh, Loai Naser Alhwamdeh, Amer Moh'd Al_hazimeh, 2022.

Jarab, A.S., Al-Qerem, W., Mukattash, T.L., Al-Hajjeh, D., Al-Azayzih, A., Hammour, K.A.
Impact of Distance Learning on Pharmacy and Pharm.D Undergraduates' during the COVID-19 Pandemic in Jordan

(2022) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139195256&doi=10.35516%2fjpps.v15i3.409&partnerID=40&md5=fc6e4758c31b3817e12caebc0bc8f704)

[85139195256&doi=10.35516%2fjpps.v15i3.409&partnerID=40&md5=fc6e4758c31b3817e12caebc0bc8f704](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85139195256&doi=10.35516%2fjpps.v15i3.409&partnerID=40&md5=fc6e4758c31b3817e12caebc0bc8f704)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Jordan;

College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Jordan

ABSTRACT: Objective: The study aims to evaluate the impact of distance education on Pharmacy, Pharm.D and postgraduate students' satisfaction and its associated factors during COVID-19 pandemic. Methods: A cross-sectional web-based survey was distributed online for Pharmacy, Pharm.D and postgraduate Diploma and Master Students across Jordanian universities. Expiratory factor analysis (EFA) and Cronbach's alpha were conducted to examine the validity and the internal consistency of the survey, respectively. Analysis of Covariance (ANCOVA), Chi square test and t-test were conducted to evaluate the variables associated with students' satisfaction with distance learning. Results: A total of 860 students completed the survey. The EFA generated a three-factor model including positive impact, negative impact and general impact. The mean scores of the factors were 2.84 (SD=1.03), 2.78 (SD=0.92) and 2.34 (SD=1.22) respectively. Several factors were associated with students' level of satisfaction with distant learning including gender, nationality, university type and field of study. Conclusion: Distance education had negative impact on Pharmacy and Pharm.D. students' satisfaction, which opens the doors for the necessity to improve the distance education for university students. Variables including gender, nationality, university type and field of study were associated with students' level of satisfaction. © 2022 DSR Publishers/The University of Jordan. All Rights Reserved.

Ullah, M.F., Ahmad, A., Bhat, S.H., Abuduhier, F.M., Mustafa, S.K., Al-Qirim, T.

Functional profiling of *Achillea fragrantissima* (a perennial edible herb) against human cancer cells and potential nutraceutical impact in neutralizing cell proliferation by interfering with VEGF and NF- κ B signaling pathways

(2022) Italian Journal of Food Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138811082&doi=10.15586%2fIJFS.V34I3.2211&partnerID=40&md5=1cebcc624d9cdbca653c4b60421f5aec)

[85138811082&doi=10.15586%2fIJFS.V34I3.2211&partnerID=40&md5=1cebcc624d9cdbca653c4b60421f5aec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138811082&doi=10.15586%2fIJFS.V34I3.2211&partnerID=40&md5=1cebcc624d9cdbca653c4b60421f5aec)

AFFILIATIONS: Department of Medical, Laboratory Technology, Faculty of Applied Medical Science, University of Tabuk, Tabuk, Saudi Arabia;

Department of Anesthesiology and Perioperative Medicine, University of Alabama at Birmingham, Birmingham, AL, United States;

Dermatology Institute and Translational Research Institute, Hamad Medical Corporation, Doha, Qatar;

Department of Medical, Laboratory Technology and Molecular Diagnostics, Center for Vocational Studies, Islamic University of Science and Technology, Jammu & Kashmir, India;

Department of Chemistry, Faculty of Science, University of Tabuk, Tabuk, Saudi Arabia;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Chemoprevention with alternative approaches is emerging as a significant component of therapeutic regimen for the management of various diseases in human population including cancer. The concept of personalized nutrition is attracting considerable interest as an effective and affordable strategy in the prevention of chronic diseases. It is acknowledged that diet-derived agents or non-dietary natural products are not only the source of traditional medicines but also the lead compounds for currently used pharmaceuticals with excellent efficacy against a number of human diseases. *Achillea* species (Asteraceae) are considered as functional foods, which are important constituents of traditional medicine and commonly consumed as herbal tea or food additives worldwide. The studies presented herein demonstrate the effects of the hydro-methanolic extract of *A. fragrantissima* against a panel of cancer cells that include breast cancer (MDA-MB-231, MCF-7, SKBR3), pancreatic cancer (BxPC-3, MiaPaCa-2), prostate cancer (LNCaP, C4-2B, PC-3), and lung cancer (A549). The experimental results presented in the study show that the extract, which is rich in structurally diverse phytochemicals, effectively inhibits the cell growth and induces apoptotic cell death in human cancer

cells. The treatment of the cancer cells with the extract resulted in a progressive decrease in cell migration and invasiveness, demonstrating an effective anti-metastatic activity. The mechanism by which the extract exerts its effects against cancer cells potentially engages NF- κ B signaling and downregulation of its target cytokines such as VEGF. The study provides evidence that partially support the importance of functional foods and highlights their significance in disease prevention. © 2022 Chiriotti Editori. All rights reserved.

Alnajjar, M.S., Jawhar, D.S., Aburuz, S., Saeed, D.A., Ibrahim, A.H.

Point prevalence survey of antibiotic utilization in secondary care hospital in the United Arab Emirates

(2022) Pharmacy Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138710199&doi=10.18549%2fPharmPract.2022.3.2685&partnerID=40&md5=2066b2383336167b1a95857506213d33)

85138710199&doi=10.18549%2fPharmPract.2022.3.2685&partnerID=40&md5=2066b2383336167b1a95857506213d33

AFFILIATIONS: Department of Biopharmaceutics & Clinical Pharmacy, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Pharmacy Department, Saqr Hospital, Emirates Health Services Establishment, Ras Al Khaimah, United Arab Emirates;

College of Medicine and Health Sciences, The United Arab Emirates University, Al Ain, United Arab Emirates;

Faculty of Pharmacy, The University of Jordan, Amman, Jordan;

School of Pharmacy, Middle East University, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objectives: The present study was carried out to identify and report the pattern of antibiotics prescribing to determine the adherence to the international empirical and therapeutic guidelines of antibiotic use. Methods: A point prevalence survey took place at a selected date of January 26, 2020, in which data collection was performed to all the patients present in the hospital who used at least one systemic antibiotic agent as an inpatient from 00:00 am until midnight of that day. This was performed using European Surveillance of Antimicrobial Consumption (ESAC - audit tool). The participated hospital in this point prevalence study represents a major government hospital in the UAE. Descriptive statistics were used and results were expressed using standard statistical methods. Results: Out of the 125 hospitalized patients, a total of 41 (32.8%) patients were included in the survey and treated with different trends of antibiotics on the date point prevalence survey. The total number prescribed antibiotics was 54 with a higher percentage of treatment indication (70.4%), compared to prophylaxis indication (29.6%). The combinations of penicillin's win in being the most commonly used agents by a percent of 31.5%, including the use of Amoxicillin-clavulanic acid by 22.2% and Piperacillin-tazobactam with 9.3%. The compliance with local/international guidelines accounts for 78.0% of the treated & prophylaxis patients. Conclusions: Considerable results have been obtained which can assure the quality improvement of the antibiotic use in the studied hospital. © the Authors.

Al-Kafaween, M.A., Kafaween, H., Al-Groom, R.M.

A Comparative Study of Antibacterial Activity of Citrus and Jabali Honeys with Manuka Honey

(2022) Applied Environmental Biotechnology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138628318&doi=10.26789%2fAEB.2022.01.004&partnerID=40&md5=3d8a9029fc4c5f02011df7c159ae6637)

85138628318&doi=10.26789%2fAEB.2022.01.004&partnerID=40&md5=3d8a9029fc4c5f02011df7c159ae6637

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Allied Medical Sciences, Zarqa University College, Al-Balqa Applied University, Jordan

ABSTRACT: Honey is now being renowned as an alternative treatment due to its broad-spectrum antibacterial activity. The purpose of this study was to compare the antibacterial activity of Citrus honey (CH) and Jabali Honey (JH) with that of Manuka honey (MH) against *Pseudomonas aeruginosa*. The antibacterial, antibiofilm and antivirulence activities of CH, JH and MH against *P. aeruginosa* were investigated by agar well diffusion, Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), time-kill curve, microtiter plate and reverse transcription-quantitative polymerase chain reaction (RT-qPCR). Agar inhibition assay showed that the CH, JH and MH at 20% have antibacterial activity with an inhibition zone of 14.1 ± 0.1 mm, 12.2 ± 0.2 mm and 10.9 ± 0.1 mm respectively against *P. aeruginosa*. The results showed that the MIC values for CH and JH were 25% compared to MH (12.5%) and the MBC values for CH and JH were 50% compared with MH (25%) against *P. aeruginosa*. In addition, the MIC₅₀ and MIC₉₀ values for CH and JH were 25% and 50% respectively compared with MH (MIC₅₀: 12.5% and MIC₉₀: 25%) against *P. aeruginosa*. In time-kill curve, treatment *P. aeruginosa* with 2×MIC of MH, CH and JH for 9-hours resulted in reduction in colony-forming unit. The lowest concentration 20% of MH, CH and JH was found to inhibit and eradicate *P. aeruginosa* biofilm. RT-qPCR analysis revealed that the expression of all genes (*oprB*, *oprC*, *fleN*, *fleQ*, *fleR*, *lasR* and *lasI*) in *P. aeruginosa* were downregulated after exposure to all the tested honeys. Among the all-tested honeys, MH showed the highest total antibacterial, antibiofilm and antivirulence

activities against *P. aeruginosa*. This study indicates that CH and JH has antibacterial and antibiofilm activities compared with that of MH due to a decrease in expression of essential genes associated with *P. aeruginosa*. © 2022 Mohammad A. Al-kafaween et al.

Alshehadeh, A.R., Elrefae, G., Injadat, E.

INFLUENCE OF TRADITIONAL PERFORMANCE INDICATORS ON ECONOMIC ADDED VALUE: EVIDENCE FROM INSURANCE COMPANIES

(2022) Corporate Governance and Organizational Behavior Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138615942&doi=10.22495%2f2fcgobrv6i4p2&partnerID=40&md5=e761d0f60b3b8cbfc29e18b1e8c7c7ff8)

[85138615942&doi=10.22495%2f2fcgobrv6i4p2&partnerID=40&md5=e761d0f60b3b8cbfc29e18b1e8c7c7ff8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138615942&doi=10.22495%2f2fcgobrv6i4p2&partnerID=40&md5=e761d0f60b3b8cbfc29e18b1e8c7c7ff8)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Business, Al Ain University, Al Ain, United Arab Emirates;

Business Administration, Sur University College, Sur, Oman

ABSTRACT: This research aims to explore the impact of profitability indicators (including return on equity, gross profit margin, operating profit margin, and return on investments) on EVA of equity-owned Jordanian insurance companies. Economic value added (EVA) is an innovative approach to measuring company performance and gives a more realistic view of the company's current finances compared to traditional performance indicators (Subedi & Farazmand, 2020). Many traditional indicators of performance that have been used by the companies could not provide an objective assessment that differentiates between return and capital (Siniak & Lozanoska, 2019). EVA is used to calculate the true economic profit of a company (Pernamasari, 2020). All companies that have complete annual reports from 2006 to 2019 were included in this study (n = 13). The multiple and simple regression analysis to answer the questions of the problem and test the hypotheses of the study was applied. This study found an impact of profitability indicators on the EVA. Therefore, it is necessary to draw the attention of investors and the Amman Stock Exchange to the EVA, as it is a more effective and comprehensive indicator than the traditional ones when it comes to evaluating the company's financial performance, as it reflects useful and adequate information. © 2022 The Authors.

Toumeh, A.A.

The Influence of Enterprise Resource Planning System Implementation on Accrual-Based Earnings Management: Empirical Evidence from Jordan

(2022) Global Business Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138274427&doi=10.1177%2f09721509221116692&partnerID=40&md5=6b35063a295142202e058aa9191c2b41)

[85138274427&doi=10.1177%2f09721509221116692&partnerID=40&md5=6b35063a295142202e058aa9191c2b41](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138274427&doi=10.1177%2f09721509221116692&partnerID=40&md5=6b35063a295142202e058aa9191c2b41)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This research provides evidence on whether enterprise resource planning (ERP) implementation affects accrual-based earnings management (AEM) in the service and manufacturing firms listed on the Amman Stock Exchange (ASE). The Huber-White's sandwich estimator for pooled ordinary least squares (OLS) regression was utilized for this investigation as the primary statistical technique. Using three different AEM models and a sample of 390 firm-year observations for the period spanning from 2015 to 2019, this study reveals a significant and negative nexus between ERP implementation and AEM. The findings show that ERP adopting firms are less likely to engage in AEM practices than ERP non-adopting firms. In terms of contribution, the present research is considered among the first to investigate the impact of ERP system adoption on earnings management (EM) in Jordan. © 2022 International Management Institute, New Delhi.

Alzaareer, H., Al-Zoubi, H., Abdel-Fattah, F.

Quadrics with finite Chen-type Gauss map

(2022) Journal of Prime Research in Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138024579&partnerID=40&md5=4856b2c5bc4fb09c878d17f3f7926378)

[85138024579&partnerID=40&md5=4856b2c5bc4fb09c878d17f3f7926378](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138024579&partnerID=40&md5=4856b2c5bc4fb09c878d17f3f7926378)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Cyber Security, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In this article, we investigate the family of quadric surfaces in E³ according to its finite type Gauss map. We prove that spheres, circular cylinders, and planes are the only quadric surfaces with finite Chen type Gauss map corresponding to the first fundamental form I. ©

2022, International Journal of Systematic Innovation. All Rights Reserved.

Sweidan, K., Sheikha, G.A., Shattat, G., Al-Qirim, T., Bkhaitan, M.

Synthesis and In Vivo Hypolipidemic Effect of Some N-(Benzoylphenyl)-Carboxamide Derivatives in Triton WR-1339-Induced Hyperlipidemic Rats

(2022) Brazilian Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137938986&doi=10.1590%2fs2175-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137938986&doi=10.1590%2fs2175-97902022e191142&partnerID=40&md5=a803ba0606a4b7ee21c31f7fa410939d)

[97902022e191142&partnerID=40&md5=a803ba0606a4b7ee21c31f7fa410939d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137938986&doi=10.1590%2fs2175-97902022e191142&partnerID=40&md5=a803ba0606a4b7ee21c31f7fa410939d)

AFFILIATIONS: Department of Chemistry, The University of Jordan, Amman, Jordan;
Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
College of Science and Health Professions, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia;
King Abdullah International Medical Research Center, Riyadh, Saudi Arabia;
Basic medical sciences unit, Arab American University, Jenin, 62451, Palestine

ABSTRACT: A series of N-(benzoylphenyl)-carboxamide derivatives (2a, 2b, 3a, 3b, 4a, 4b, 5a, 5b, 6a and 6b) was prepared with good yields by reacting the corresponding carbonyl chlorides with aminobenzophenones at room temperature. This was followed by evaluating the hypotriglyceridemic and hypocholesterolemic effects of 3b, 5a and 5b. Triton WR-1339 (300 mg/kg) was intraperitoneally administered to overnight-fasted rats to induce hyperlipidemia. Rats were divided into six groups: control, hyperlipidemic, hyperlipidemic plus compounds 3b, 5a and 5b and hyperlipidemic plus bezafibrate. Results showed that after 18 h of treatment at a dose of 15 mg/kg body weight of each of the test compounds, the elevated plasma levels of triglycerides (TG) and total cholesterol (TC) were significantly lowered by compounds 5b and 3b ($p < 0.001$) and by 5a ($p < 0.0001$), compared to the hyperlipidemic control group. Compounds 3b and 5a significantly increased levels of high-density lipoprotein cholesterol (HDL-C) by 58 and 71%, respectively. In addition, compounds 3b and 5a caused significant reduction ($p < 0.0001$) of low-density lipoprotein cholesterol (LDL-C) levels compared to the control group. These results suggest a promising potential for compounds 3b, 5a and 5b as lipidlowering agents, which may contribute to reducing the risk of atherosclerosis and cardiovascular disease. © 2022, Faculdade de Ciencias Farmaceuticas (Biblioteca). All rights reserved.

Al-Kafaween, M.A., Abu-Sini, M., Al-Jamal, H.A.N.

Antibiotic Susceptibility and Differential expression of virulence genes in *Staphylococcus aureus* (2022) Applied Environmental Biotechnology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136803864&doi=10.26789%2fAEB.2022.01.002&partnerID=40&md5=8c126bf1408ae7869220c521a2ddea68)

[85136803864&doi=10.26789%2fAEB.2022.01.002&partnerID=40&md5=8c126bf1408ae7869220c521a2ddea68](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136803864&doi=10.26789%2fAEB.2022.01.002&partnerID=40&md5=8c126bf1408ae7869220c521a2ddea68)

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Biomedicine, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: *Staphylococcus aureus* is one of the most common pathogens in biofilm-associated chronic infections. Bacteria within biofilm are typically more resistant to antibiotics than are planktonic cells. The objective of the study was to evaluate the effect of Ciprofloxacin (CP), Gentamicin (GEN), Tetracycline (TET), Amikacin (AMK), Clindamycin (CLI), Erythromycin (Ery) and Vancomycin (VAN) against *S. aureus*. The effects of CP, GEN, TET, AMK, CLI, Ery and VAN on *S. aureus* planktonic and biofilm were determined by antibiotic susceptibility test, Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), microtiter plate and RT-qPCR. Antibiotic susceptibility test showed that CP, GEN, TET, AMK, CLI, Ery and VAN have antibacterial activity against *S. aureus* with an inhibition zone of 28 mm, 21 mm, 27 mm, 20 mm, 25 mm, 27 mm and 19 mm respectively. The results showed that the CP and AMK possessed the lowest MIC and MBC values with 0.125 µg/mL and 0.25 µg/mL respectively against *S. aureus*. All the tested antibiotics at MIC concentration were found to disrupt microcolony formation in *S. aureus*. In addition, at 0.25 µg/mL concentration to 8 µg/mL concentration of each antibiotic were significantly found to degrade and inhibit biofilm formation in *S. aureus*. The RT-qPCR analysis showed that four genes *argF*, *purC*, *adh*, and *fabG* in *S. aureus* were downregulated, whilst, three genes *scdA*, *pykA* and *menB* were upregulated after exposure to CP, GEN, TET, AMK, CLI, Ery and VAN. This study showed the activity of all antibiotics against planktonic, biofilm and gene expression profile in *S. aureus* and that different concentrations of antibiotics have different degrees of potential effect on planktonic, biofilm and gene expression. These results provide the theoretical parameters for the selection of effective antimicrobial in clinical therapy and demonstrate how to correctly use antibiotics at MIC and sub-MIC as preventive drugs. © 2022 Mohammad A. Al-kafaween, Mohammad Abu Sini and Hamid A. Nagi Al-Jamal.

Aljabarin, N., Al-Amayreh, M., Alahmer, A., Alsaqoor, S.

EXPERIMENTAL DETERMINATION OF A MINIMUM SPOUTING VELOCITY FOR CERAMIC-COATED BEARINGS IN CONICAL-CYLINDRICAL SPOUTED BEDS

(2022) Journal of Porous Media, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135903785&doi=10.1615%2fJPorMedia.2021035189&partnerID=40&md5=858bab3e8fdb2e61a95a967e3838f31)

[85135903785&doi=10.1615%2fJPorMedia.2021035189&partnerID=40&md5=858bab3e8fdb2e61a95a967e3838f31](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135903785&doi=10.1615%2fJPorMedia.2021035189&partnerID=40&md5=858bab3e8fdb2e61a95a967e3838f31)

AFFILIATIONS: Department of Natural Resources and Chemical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan

ABSTRACT: The present study was conducted to analyze the hydrodynamic characteristic of a conical-cylindrical spouted bed reactor for the application of ceramic-coated bearings. In this experimental work, dioxide titanium films were prepared as a coating layer on ceramic substrates to enhance their mechanical properties. Four different ceramic substrate materials made of silicon carbide, steatite, corundum, and sintered clay in various shapes (rings, cylinders, and spheres) were considered as porous ceramic media, having a porosity in the range of 0.35-0.59. A liquid metal solution of dioxide titanium in ethanol was pushed through a porous ceramic by an external pressure using a piston pump inside the conical-cylindrical spouted bed. Furthermore, ventilated hot air around 70°C was used to evaporate the ethanol and coat a thin film of metal titanium onto the ceramic material. It was demonstrated that the relation between the pressure differences of inlet and outlet ventilation air during an increasing or decreasing flow is a hysteretic process. This nonlinear phenomenon is due to the different input flow rates and initial conditions. Besides that, the characteristics of pressure drops were investigated at different bed depths and porosities. We included a comprehensive literature review of the topic and an accurate new correlation equation developed from the experimental results as a function of ceramic structure geometry and the properties of ceramic and fluid flow. The correlation equation is valid in the Reynolds number range $745 < (Re)_m < 2200$, the bed height with respect to the inlet flow diameter range $0.6 < H_0/d_0 < 1.35$, and the angle of conical base range $30^\circ \leq \gamma \leq 40^\circ$. © 2022 by Begell House, Inc.

Odeh, M., Tailakh, H.M., Al Bawab, A.Q.F., Elsahoryi, N.A., Alzoubi, K.H.

A Comprehensive Assessment of Knowledge, Attitudes, and Practicalities Related to Doping Agents use among Jordanians

(2022) Clinical Practice and Epidemiology in Mental Health, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135753705&doi=10.2174%2f17450179-v18-e2202280&partnerID=40&md5=fc19362305be09a717249370691024d6>

AFFILIATIONS: Department of Clinical Pharmacy and Pharmacy Practice, The Hashemite University, Zarqa, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Nutrition, Faculty of Pharmacy and Medical Sciences, The University of Petra, Amman, Jordan;

Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, Sharjah, United Arab Emirates;

Department of Clinical Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Background: People perform sports for better health and wellbeing. However, the use of doping agents is emerging among young adults. This study investigated aspects related to doping agents. Methods: A reliable self-administered questionnaire (Cronbach's alpha =0.72, Pearson's r = 0.89) was used to assess knowledge, attitudes, and practicalities related to the use of doping agents. Results for pharmacists as health care providers (HCP, n=550) were compared with non-healthcare providers (Non-HCP, n=319). Results: Among pharmacists, 82.9% knew the definition of doping agents vs. 72.4% of non-HCP ($P < 0.001$). However, 36.7% of pharmacists vs. 39.6% of non-HCP incorrectly classified doping agents ($P = 0.02$). The majority of responders (89.8%) supported having an anti-doping authority, yet, only 15% were aware of the anti-doping organizations. The majority of responders (83%) did not receive an official education related to doping agents. Enhancing physical performance was perceived as a leading driver (82.1%) to use doping agents. More than 90% of responders supported awareness in the community. The perceived best tool for awareness was social media and TV sites, as suggested by pharmacists (95.0%) and non-HCP (92.1%, $P = 0.312$). A total of 6.1% had ever used doping agents (3.6% pharmacist vs. 9.8% non-HCP, $P < 0.001$). Almost half of the users utilized a diet or medication to counteract the side effects of doping agents. Within pharmacists, males received more requests to provide doping agents (41.9%) compared with females (23.8%, $P < 0.001$). Conclusion: It is crucial to enhance professional and legal knowledge and public awareness about doping agents, not only for non-HCP but also for HCPs. Applying more restrictions on doping agents is strongly recommended. © 2022 Odeh et al.

Manasrah, A., Masoud, M., Jaradat, Y., Alia, M., Zerek, A.

Private Tutoring during COVID in Jordan. Improving Academic Performance, or Chasing after an Illusion (2022) 2022 IEEE 2nd International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, MI-STA 2022 - Proceeding, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135753566&doi=10.1109%2fMI-STA54861.2022.9837707&partnerID=40&md5=c044327bb6dbac8105703bc3696298a5>

AFFILIATIONS: Al Zaytoonah University of Jordan, Dept. of Mechanical Engineering, Amman, Jordan;

Al Zaytoonah University of Jordan, Dept. of Electrical Engineering, Amman, Jordan;

Al Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

University of Zawia, Department of Communication Engineering, Zawia, State of Libya

ABSTRACT: Online learning has been the center of the education systems around the world for approximately two years now. Since the COVID pandemic appeared, many nations have resorted to online

learning formats in their schools and higher education institutes. Consequently, private tutoring in all education levels started to rise as students were trying to cope with the sudden changes in their courses. However, the effect of private tutoring is somewhat ambiguous due to the lack of feedback from students. This study presents an online survey on students' experiences with private tutoring in the higher education institutions in Jordan. A total of 107 students participated in this study from different academic levels. The results of the survey showed that 63% of participants believed that the online learning format in their courses was one of the reasons they went to private tutoring. However, nearly half of the sample did not believe that instructors played a role in them resorting to private tutoring. The results also showed that senior level students believed that private tutoring improved their academic standings. In fact, their answers were statistically significantly different than students from the other academic levels. The results also showed that students in the lower academic levels (freshmen, and sophomores) expressed their disappointment in the outcomes of private tutoring. © 2022 IEEE.

Alzoubi, M.

Stock market performance: Reaction to interest rates and inflation rates

(2022) Banks and Bank Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135750283&doi=10.21511%2fbbs.17%282%29.2022.16&partnerID=40&md5=ebc8ab1cf90fcd287ba12b7f8b591f76)

[85135750283&doi=10.21511%2fbbs.17%282%29.2022.16&partnerID=40&md5=ebc8ab1cf90fcd287ba12b7f8b591f76](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135750283&doi=10.21511%2fbbs.17%282%29.2022.16&partnerID=40&md5=ebc8ab1cf90fcd287ba12b7f8b591f76)

AFFILIATIONS: Finance, Alzaytoonah University of Jordan, Jordan

ABSTRACT: This paper investigates the wealth effects of the consumer price index, interest rate, domestic credit and real economic activity on the Amman Stock Exchange performance. Over the period 1991-2020 using the autoregressive distributed lag (ARDL) bounds test. While the interest rate is a powerful monetary tool to fight inflation and recession, it can be detrimental to investors. The target variables, consumer price index (CPI) and interest rate (IDR), are both highly significant with the correct signs. An increase of 1 percent in CPI and IDR leads to a fall in stock prices by 1.6 percent and 5 percent, respectively. While the central bank is targeting inflation by raising interest rates, its actions reflect negatively on the stock market. The short-run model confirms the causality from the independent variables to the dependent variable. Moreover, the error correction term (ECT) is very high and significant at the 1 percent level amounting to 83.3 percent, which confirms the evidence of the long-run relationship. Monetary objectives are really important, but financial stability is also important. © Marwan Alzoubi, 2022.

Jaradat, Y., Masoud, M., Jannoud, I., Manasrah, A., Zerek, A.

Comparison of Genetic Algorithm Crossover Operators on WSN Lifetime

(2022) 2022 IEEE 2nd International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, MI-STA 2022 - Proceeding, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135748481&doi=10.1109%2fMI-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135748481&doi=10.1109%2fMI-STA54861.2022.9837587&partnerID=40&md5=7059921b72cdaadc27892748bd116315)

[STA54861.2022.9837587&partnerID=40&md5=7059921b72cdaadc27892748bd116315](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135748481&doi=10.1109%2fMI-STA54861.2022.9837587&partnerID=40&md5=7059921b72cdaadc27892748bd116315)

AFFILIATIONS: AlZaytoonah University of Jordan, Electrical Engineering, Jordan;

AlZaytoonah University of Jordan, Civil and Infrastructure Engineering, Jordan;

AlZaytoonah University of Jordan, Mechanical Engineering, Jordan;

University of Zawia-Libya, Communication Engineering, State of Libya

ABSTRACT: This paper's purpose is to introduce and present a simulation-based study of the effect of using different crossover operators in a genetic algorithm to extend the life span of a wireless sensor network (WSN) and reduce its overall energy expenditure. One of the genetic algorithm's pillars is the crossover operator. Crossover operators are classified into four types: one-point crossover, uniform crossover, k-point crossover and hybrid crossover. It is shown that using different types of crossover operators has only a minor impact on WSN lifetime and stability period. When compared to other operators, one-point crossover improves network stability period and throughput slightly. © 2022 IEEE.

Abendeh, R.M., Alhorani, R.A., Bani Baker, M.I., Asaad, S.A., Ahmad, H.S.

Influence of Jordanian Bentonite as Partial Replacement of Cement and Fine Aggregate on the Workability, Mechanical Properties and Impermeability of Concrete

(2022) International Review of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135298303&doi=10.15866%2firece.v13i3.21371&partnerID=40&md5=ae7f220a00df5909298d6146fdbb9367)

[85135298303&doi=10.15866%2firece.v13i3.21371&partnerID=40&md5=ae7f220a00df5909298d6146fdbb9367](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135298303&doi=10.15866%2firece.v13i3.21371&partnerID=40&md5=ae7f220a00df5909298d6146fdbb9367)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In recent decades, concrete prepared with bentonite clay has evolved as an accepted substitute of natural aggregate concrete due to the increasing focus on the development of sustainability and the environmental issues. In this research, the evaluation of possible and suitable use of Jordanian bentonite as a partial replacement of Ordinary Portland Cement (OPC) or fine aggregate in the production of concrete mixtures has been investigated. Bentonite has been used

as 0, 5%, 10% and 15% by weight replacement of OPC or fine aggregate passing sieve No. 50 to conduct and compare the fresh properties, the mechanical strength and the permeability of concrete mixtures. Elemental compositions and crystalline phases of bentonite clay have been tested by using X-Ray Fluorescence (XRF) and X-Ray Diffraction (XRD), respectively. The test results have revealed that the compressive and flexural strengths have decreased as bentonite level has increased beyond 5% with substitutions of fine aggregate, whereas the compressive strength has decreased at every increased dosage of bentonite replacing partially the OPC. The strength activity indices have been higher than the ASTM C618 specified limit of 75%, except for the concrete mixture containing 15% bentonite replacing OPC. The incorporation of bentonite improves the permeation resistance of concrete and the enhancement is more pronounced at higher bentonite increments, especially when replacing the fine aggregate partially with bentonite. © 2022 Praise Worthy Prize S.r.l.-All rights reserved.

Salih, M.A.F., Al-Hiari, Y., Kasabri, V., Darwish, R., Abumansour, H., Bourghli, L., Al Alawi, S., Albashiti, R.

Newly Substituted Anilino-Fluoroquinolones with Proliferation Inhibition Potential against a Panel of Cancer Cell Lines

(2022) Asian Pacific Journal of Cancer Prevention, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135265771&doi=10.31557%2fAPJCP.2022.23.7.2507&partnerID=40&md5=79b1e49420e1b6495acf781260bcb6ae)

[85135265771&doi=10.31557%2fAPJCP.2022.23.7.2507&partnerID=40&md5=79b1e49420e1b6495acf781260bcb6ae](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135265771&doi=10.31557%2fAPJCP.2022.23.7.2507&partnerID=40&md5=79b1e49420e1b6495acf781260bcb6ae)

AFFILIATIONS: School of Pharmacy, University of Jordan, Queen Rania Street, Amman, 11942, Jordan; Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Background: From a chemistry point of view, we hypothesized that superlative dual cytotoxicity-radical scavenging bioefficacies of series 4 FQs correlate to their acidic groups and C8-C7 ethylene diamine Chelation Bridge. Methodology: Newly synthesized 16 lipophilic-acid chelating FQs have been screened for in vitro duality of proliferation inhibition and radical scavenging capacities. Results: Substantially in LPS prompted RAW264.7 macrophages inflammation, IC50 values (μM) in the ascending order of new FQs' NO scavenging/antiinflammation capacity were $4e<4b<3d<4f<5c<indomethacin$ ($17.6<25.5<27.7<38.5<46.1<indomethacin$'s 55.1, respectively). Exceptionally reduced FQ 4b exhibited comparable DPPH radical scavenging capacity to ascorbic acid (IC50 values (μM) 4.3 vs. 3.4, $p>0.05$). In comparison to classical and robust antineoplastic agent cisplatin and unlike triazoloFQs; nitroFQs (3a, 3b and 3f) and the reduced FQs (4a, 4c, 4d and 4e) exerted antiproliferation IC50 values $<50\ \mu\text{M}$ in leukaemia K562. Besides nitroFQ 3, the reduced FQs (4c and 4f) exhibited antineoplastic IC50 values $<50\ \mu\text{M}$ in lung A549 carcinoma. NitroFQ 3c and reduced FQs 4b, 4c, and 4f in breast MCF7 and reduced 4c in pancreatic PANC1 had reduction of viability IC50 values $<50\ \mu\text{M}$. NitroFQ 3e, reduced FQs 4b and, 4c and triazoloFQ 5a exerted antiproliferation IC50 values $<50\ \mu\text{M}$ in breast T47D cells. Also nitroFQ 3e, reduced FQ 4c and triazoloFQ 5f exhibited antineoplastic IC50 values $<50\ \mu\text{M}$ in PC3 prostate cancer cells. Exceptionally triazoloFQ 5a, but neither nitron or reduced FQs, had cytotoxicity IC50 value $<50\ \mu\text{M}$ in resistant melanoma A375 cells. Unequivocally 4b antineoplastic effectiveness linked with its radical scavenging and antiinflammation effects while 3d and 5c lacked matching antiproliferation potentialities to their exquisite antiinflammation capacities. Explicitly reduced 4e and 4f exerted antiinflammationselective cytotoxicity duality in vitro. Conclusion: Collectively, this work reveals lipophilic-acidic chelator FQs as authentic agents for the repurposing approach in anticancer chemotherapy/prevention. © This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License.

Shaban, N.A., Manasrah, A., Nasser, I.

INVESTIGATION OF TRANSIENT AND STEADY HEAT TRANSFER IN SATURATED POROUS MEDIUM FILLED IN A VERTICAL CYLINDER WITH THERMAL DISPERSION AND RADIATION

(2022) Thermal Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135083578&doi=10.2298%2fTSCI210501344A&partnerID=40&md5=393e2a56b8c6b6958ebc3f811a3616f2)

[85135083578&doi=10.2298%2fTSCI210501344A&partnerID=40&md5=393e2a56b8c6b6958ebc3f811a3616f2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135083578&doi=10.2298%2fTSCI210501344A&partnerID=40&md5=393e2a56b8c6b6958ebc3f811a3616f2)

AFFILIATIONS: Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this study, the influence of thermal radiation and dispersion on a porous medium which was filled in a vertical cylinder was numerically solved. A finite-difference method was used to solve the non-dimensional equations by applying a Crank-Nicolson implicit numerical technique. Moreover, an experimental set-up has been initially built to investigate the effect of three different grain sizes of the porous materials on the heat transfer process. The numerical results indicated that the thermal radiation increased the momentum and the thickness of the thermal boundary-layer during the natural-convection heat transfer process. Whereas, the thermal dispersion factor decreased the momentum and the thickness of the boundary-layer during the natural-convection heat transfer process, which enabled a steady and transient heat transfer. The experimental results indicated that the pore size of the medium significantly affected the rate of the heat transfer process. A smaller pore size showed a greater effect and could be used in different applications that involve a higher heat transfer rate, while a larger pore size can potentially be used as an

insulating material. © 2022. Society of Thermal Engineers of Serbia Published by the Vinča Institute of Nuclear Sciences, Belgrade, Serbia. This is an open access article distributed under the CC BY-NC-ND 4.0 terms and conditions

Abdelgani, Y., Makki, Q.H., Ali, H., Alzu'bi, S.

Intelligent Covid-19 Vaccine Supplychain Management System

(2022) 2022 13th International Conference on Information and Communication Systems, ICICS 2022, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135028119&doi=10.1109%2fICICS55353.2022.9811172&partnerID=40&md5=73a5ffee8946937e05214e3740c1d73b)

[85135028119&doi=10.1109%2fICICS55353.2022.9811172&partnerID=40&md5=73a5ffee8946937e05214e3740c1d73b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135028119&doi=10.1109%2fICICS55353.2022.9811172&partnerID=40&md5=73a5ffee8946937e05214e3740c1d73b)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In light of the trend of countries to give vaccines to their people, it was concluded that the best solution to confront the COVID-19 pandemic is to give the vaccine, as it prevents its transmission from person to person, and if the infection is infected, the symptoms are much less than the degree of danger of the person who did not meet the vaccine. In this paper, we presented tables on the types of vaccines, a brief explanation of the Coronavirus, and the idea of our software project. Vaccine handling skills, where gives users the opinions of the people who received the vaccine and the doctors also according to the age group and the disease. © 2022 IEEE.

Al Rifaee, M.M., Abdallah, M.M., Salah, M.I., Abdalla, A.M.

Unconstrained Hand Dorsal Veins Image Database and Recognition System

(2022) Computers, Materials and Continua, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135025161&doi=10.32604%2fcmc.2022.030033&partnerID=40&md5=47cfa3aa91a7e521468f5129c9d88036)

[85135025161&doi=10.32604%2fcmc.2022.030033&partnerID=40&md5=47cfa3aa91a7e521468f5129c9d88036](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135025161&doi=10.32604%2fcmc.2022.030033&partnerID=40&md5=47cfa3aa91a7e521468f5129c9d88036)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Hand veins can be used effectively in biometric recognition since they are internal organs that, in contrast to fingerprints, are robust under external environment effects such as dirt and paper cuts. Moreover, they form a complex rich shape that is unique, even in identical twins, and allows a high degree of freedom. However, most currently employed hand-based biometric systems rely on hand-touch devices to capture images with the desired quality. Since the start of the COVID-19 pandemic, most hand-based biometric systems have become undesirable due to their possible impact on the spread of the pandemic. Consequently, new contactless hand-based biometric recognition systems and databases are desired to keep up with the rising hygiene awareness. One contribution of this research is the creation of a database for hand dorsal veins images obtained contact-free with a variation in capturing distance and rotation angle. This database consists of 1548 images collected from 86 participants whose ages ranged from 19 to 84 years. For the other research contribution, a novel geometrical feature extraction method has been developed based on the Curvelet Transform. This method is useful for extracting robust rotation invariance features from vein images. The database attributes and the veins recognition results are analyzed to demonstrate their efficacy. © 2022 Tech Science Press. All rights reserved.

Rifaee, M., Rawajbeh, M.A., Alokosh, B., Abdel-Fattah, F.

A New approach to Recognize Human Face Under Unconstrained Environment

(2022) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134712033&doi=10.15849%2fIJASCA.220720.01&partnerID=40&md5=5b2a00692505b526300babba560d076f)

[85134712033&doi=10.15849%2fIJASCA.220720.01&partnerID=40&md5=5b2a00692505b526300babba560d076f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134712033&doi=10.15849%2fIJASCA.220720.01&partnerID=40&md5=5b2a00692505b526300babba560d076f)

AFFILIATIONS: Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Human face is considered as one of the most useful traits in biometrics, and it has been widely used in education, security, military and many other applications. However, in most of currently deployed face recognition systems ideal imaging conditions are assumed; to capture a fully featured images with enough quality to perform the recognition process. As the unmasked face will have a considerable impact on the numbers of new infections in the era of COVID-19 pandemic, a new unconstrained partial facial recognition method must be developed. In this research we proposed a mask detection method based on HOG (Histogram of Gradient) features descriptor and SVM (Support Vector Machine) to determine whether the face is masked or not, the proposed method was tested over 10000 randomly selected images from Masked Face-Net database and was able to correctly classify 98.73% of the tested images. Moreover, and to extract enough features from partially occluded face images, a new geometrical features extraction algorithm based on Contourlet transform was proposed. The method achieved 97.86% recognition accuracy when tested over 4784 correctly masked face images from Masked Face-Net database. © Al-Zaytoonah University of Jordan (ZUJ).

Alshehadeh, A.R., Al-Khawaja, H.A.

Financial Technology as a Basis for Financial Inclusion and its Impact on Profitability: Evidence from Commercial Banks

(2022) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134684453&doi=10.15849%2fIJASCA.220720.09&partnerID=40&md5=6627ea2706c7fa8bc35442e0931e00ac)

85134684453&doi=10.15849%2fIJASCA.220720.09&partnerID=40&md5=6627ea2706c7fa8bc35442e0931e00ac

AFFILIATIONS: Faculty of Business, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Swiss FinTech Innovation Lab, University of Zurich, Switzerland

ABSTRACT: The purpose of this study was to show how financial technology tools can be used to reinforce financial inclusion indicators on the profitability indicators of a Jordanian commercial bank listed on the Amman stock exchange. Between 2010 and 2020, a quantitative and qualitative panel data set was used. The study population is represented by all the banks listed on the Amman stock exchange (n = 16). The study found that financial technology through its multitools changed the structure of the overall financial services, besides the diversity and style of financial services for the commercial banks' clients, thus reinforcing and increasing the availability for a wider social group that did not have access to that service. Further, it was found that there is a significant effect of the financial technology tools to reinforce the financial inclusion indicators over the studies' profitability indicators that include return on assets, return on equity, and earnings per share (JD). It is recommended to adopt effective and modern financial and technological strategies that provide marginalized social groups and small and medium enterprises reasonable access to the financial services and products that meet their needs, including transactions, payments, savings, credit, and insurance. Thus, getting the added value of the data and investing it to increase the financial inclusion indicators improves the profitability indicators and income for commercial banks. © Al-Zaytoonah University of Jordan (ZUJ).

Judeh, D.A., Hammad, M.A.

Applications of Conformable Fractional Pareto Probability Distribution

(2022) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134643807&partnerID=40&md5=6c287150931e9fc40e619a231ba60dac)

85134643807&partnerID=40&md5=6c287150931e9fc40e619a231ba60dac

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In this paper looks at fractional isotopes conformable to some basic concepts linked to the probability distribution of random variables, which is density, cumulative distribution, survival, and hazard function. Furthermore, it introduces conformable fractional isotopes with the expected values, r th moments, mean, variance, skewness, and kurtosis. As well, it introduces conformable fractional isotopes with measures of entropy such as Shannon, Renyi, and Tsallis and characteristic function. © Al-Zaytoonah University of Jordan (ZUJ).

Mumtaz, R., Samawi, V., Alhroob, A., Alzyadat, W., Almukahel, I.

PDIS: A Service Layer for Privacy and Detecting Intrusions in Cloud Computing

(2022) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134641973&doi=10.15849%2fIJASCA.220720.02&partnerID=40&md5=dc09fe90606e2f54645b87180121fe8f)

85134641973&doi=10.15849%2fIJASCA.220720.02&partnerID=40&md5=dc09fe90606e2f54645b87180121fe8f

AFFILIATIONS: Faculty of Information technology, Isra University, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Cloud computing faces numerous challenges in many areas including security and privacy issues. In this work, a developed approach is suggested to tackle three security and privacy issues: network intrusion detection (NID), privacy, and internal attacks. A decision tree (J48) has been used to generate a set of rules based on the CICIDS2017 dataset to solve the NID problem. The accuracy of the generated rules approaches 99.8%. A set of policies are attached to the data file on the bases of a sticky policy to preserve privacy. A new approach is suggested based on blockchain to detect internal attacks in real-time, in which a set of trustees-chain are identified by the data owner. Any data modification conducted by a trusted member will be reported to all members of the trust group including the owner. The developed approach suggests adding a Privacy and Detecting Intrusions Service (PDIS) layer as part of the cloud computing main service model. PDIS includes the three suggested approaches above (NID, sticky policy, and trustees-chain). Finally, a web-based application is implemented to act as casework to validate PDIS and evaluate its reliability. © Al-Zaytoonah University of Jordan (ZUJ).

Batiha, I.M., Njadat, S.A., Batyha, R.M., Zraiqat, A., Dababneh, A., Momani, S.

Design Fractional-order PID Controllers for Single-Joint Robot Arm Model

(2022) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134640728&doi=10.15849%2fIJASCA.220720.07&partnerID=40&md5=e48fe4e4f5b54a440a9c6b174e740d93)

85134640728&doi=10.15849%2fIJASCA.220720.07&partnerID=40&md5=e48fe4e4f5b54a440a9c6b174e740d93

AFFILIATIONS: Department of Mathematics, Irbid National University, Irbid, 2600, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;

Department of Computer Science, Irbid National University, Irbid, 2600, Jordan;
Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;
Department of Mathematics, University of Jordan, Amman, 11942, Jordan

ABSTRACT: The major goal of the this work is to present an optimal design of the Fractional-order Proportional-Derivative-Integral (FoPID) controller for the single-joint arm dynamics. For meeting this aim, the Particle Swarm Optimization (PSO) algorithm will be implement to tune the parameters of such con-troller. Six FoPID-controllers will be generated in accordance with two kinds of approaches (Continued Fraction Expansion (CFE) and Outstaloup's approaches) for Laplacian operators, coupled with three fitness functions (IAE, ITAE, ITSE). These controllers will be competed to each other to determine which one can provide to the closed-loop system of the single-joint robot arm model a good rise time, short settling time, and an excellent overshoot. © Al-Zaytoonah University of Jordan (ZUJ).

Masoud, M.Z., Jaradat, Y., Alsakarnah, R.

A Non-Content Multilayers Hybrid Machine Learning Web Phishing Detection Model

(2022) International Review on Modelling and Simulations, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134603978&doi=10.15866%2firemos.v15i2.21975&partnerID=40&md5=62840c438157abd88862fd20099f9143)

[85134603978&doi=10.15866%2firemos.v15i2.21975&partnerID=40&md5=62840c438157abd88862fd20099f9143](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134603978&doi=10.15866%2firemos.v15i2.21975&partnerID=40&md5=62840c438157abd88862fd20099f9143)

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Phishing detection is one of the most important services for cyber security. Phishing is an easy to implement attack that depends on social engineering. It is implemented leveraging web, Short Message Service (SMS) and social media. This attack is the backbone of other attacks. In this work, a new web phishing detection algorithm is proposed based on machine learning algorithms. The proposed algorithm is a hybrid machine learning algorithm that consists of two main layers. The first layer is the feature extraction and reduction layer that consists of multiple machine learning algorithms that work in parallel. The second layer consists of one feed-forward neural network layer. Different numbers and types of algorithms can be leveraged in the first layer of the proposed algorithm. The proposed model has been tested with four algorithms in the first layer, namely, K-means, support vector machine, logistic regression and random forest. Four features have been extracted from this layer and fed into the second layer "the neural network layer". The output of the second layer shows an accuracy that exceeded 99%. © 2022 Praise Worthy Prize S.r.l.-All rights reserved.

Abdelhafez, E., Fava, S.

Performance of a PV Module Using Water Based Titanium Oxide Nano Fluid Coated Fins

(2022) International Journal on Energy Conversion, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134581247&doi=10.15866%2firecon.v10i2.21816&partnerID=40&md5=81a328fb7e372641f340adbe280f1c56)

[85134581247&doi=10.15866%2firecon.v10i2.21816&partnerID=40&md5=81a328fb7e372641f340adbe280f1c56](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134581247&doi=10.15866%2firecon.v10i2.21816&partnerID=40&md5=81a328fb7e372641f340adbe280f1c56)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Engineering and Technology, Department of Alternative Energy Technology, Amman, 11733, Jordan;

Selinus University of Sciences and Literature, Via Roma, 200, Ragusa, 97100, Italy

ABSTRACT: The temperature of a photovoltaic (PV) panel has a detrimental impact on the electricity output. The operating temperature of the PV increases as the amount of solar irradiation falling on the solar panel increases. As a result, energy efficiency suffers. In order to keep PV temperatures as low as possible, a cooling system is required. This research has adopted a passive cooling strategy using Titanium oxide-coated L-shaped aluminum fins attached to the backside of the PV at different spacings. Five identical PV modules have been installed side by side. One has been used as a base module for comparison purposes. The backside of each of the other four fins has been attached at a fixed spacing and coated with a specific concentration of water-based TiO₂ nanofluid. The hourly average temperature of each module has been measured using three K-type thermocouples attached to its backside. The current and the produced power from each PV have been estimated using load resistors. Finally, the ambient temperature and the solar radiation values have been measured using the GRWS100 weather station located on the site. The passive cooling strategy using natural convection has significantly reduced the temperature at the backside of the PV modules, according to the findings. The highest significant power improvement has been roughly 9 W when using a 2 cm spacing between the fins and a 0.04% TiO₂ concentration. PV panels with 2 cm spacing and 0.04% TiO₂ fin cooling boosted their efficiency by roughly 1.72%. © 2022 Praise Worthy Prize S.r.l.-All rights reserved.

Khalaf, R.A., Asa'ad, M., Habash, M.

Thiomethylphenyl Benzenesulfonamides as Potential Cholesteryl Ester Transfer Protein Inhibitors: Synthesis, Molecular Modeling and Biological Evaluation

(2022) Current Organic Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134578656&doi=10.2174%2f1385272826666220601150913&partnerID=40&md5=4ef72fca67c4b0520fb5da474fb75d60)

[85134578656&doi=10.2174%2f1385272826666220601150913&partnerID=40&md5=4ef72fca67c4b0520fb5da474fb75d60](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134578656&doi=10.2174%2f1385272826666220601150913&partnerID=40&md5=4ef72fca67c4b0520fb5da474fb75d60)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Aqaba University of Technology, Aqaba, Jordan
ABSTRACT: Background: The number of lipid disorders cases has risen dramatically around the world as a result of poor dietary habits, hereditary risk factors, or other diseases or medicines. Cholesteryl ester transfer protein (CETP) is a 476 amino acid lipophilic glycoprotein that helps transport cholesteryl esters and phospholipids from proatherogenic LDL and VLDL to atheroprotective HDL. CETP inhibition increases HDL cholesterol, lowers LDL cholesterol and triglycerides, rendering it a promising therapy option for hyperlipidemia and its comor-bidities. Methods: In this research, fourteen benzenesulfonamides 7a-7g and 8a-8g were synthesized and identified using¹H-NMR,¹³C-NMR, IR and MS. The in vitro biological evaluation of 7a-7g and 8a-8g revealed CETP inhibitory activities ranging from 15.6 to 100% at 10 μM concentration. Results: Four aromatic rings compounds bearing either m-CH₃ (8c) or p-Cl (8g) were the most potent compounds with 100% CETP inhibition, while the most active compound was 7c bearing three aromatic rings and m-CH₃ with an IC₅₀ of 0.12 μM. LibDock displayed that benzenesulfonamides can form hydrophobic interactions with the side chains of Leu129, Cys13, Ala202, Val198, Leu217 and Ile215 and participate in n-n stacking with Phe441, Phe197 and Arg201 in the binding pocket of CETP. Conclusion: Pharmacophore mapping showed significant matching with the pharmacophoric features of Hypo4/8 and shape-complemented Hypo4/8 of CETP inhibitors for potent compounds. © 2022 Bentham Science Publishers.

El-Qirem, I.A., Alsmadi, A.A., Al-Lozi, E.

Impact of Interactive Education on the Learning Outcomes and Quality Assurance

(2022) Journal of Higher Education Theory and Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134300228&doi=10.33423%2fjhetp.v22i5.5210&partnerID=40&md5=c73da9eba1dd0444d39f5c6626c5a7d9)

[85134300228&doi=10.33423%2fjhetp.v22i5.5210&partnerID=40&md5=c73da9eba1dd0444d39f5c6626c5a7d9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134300228&doi=10.33423%2fjhetp.v22i5.5210&partnerID=40&md5=c73da9eba1dd0444d39f5c6626c5a7d9)

AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan

ABSTRACT: What distinguishes the traditional education system is that it depends entirely on the transfer of information in one direction. As we note that in the past decades, the theoretical aspects of education were the core of the education process for students only, and this is certainly not enough to raise the level of students in higher education stages. Furthermore, understanding the handling and investing of securities is a challenging subject that requires students to understand and apply financial models and theories. Therefore, this study sought to seek the impact of the simulation room of the Amman Stock Exchange on the level of students of the College of Business at Al-Zaytoonah University of Jordan through the predictive approach. A total of 150 students were randomly used as a predictive experimental group. The results show that the simulation education system has many advantages, including; The use of technology in education can be encouraging for students and increase their intellectual abilities in the classroom. Secondly, an interactive session that attracts the attention of the students due to the strong relationship with the teacher. Finally, it gives a great opportunity for students to acquire the skills of dealing with the financial market in a practical and applied manner. © 2022, North American Business Press. All rights reserved.

Alhusban, A.A., Hamadneh, L.A., Shallan, A.I., Tarawneh, O.A.

Automated online monitoring of lactate and pyruvate in tamoxifen resistant MCF-7 cells using sequential-injection capillary electrophoresis with contactless conductivity detection (SI-CE-C4D) and correlation with MCT1 and MCT4 genes expression

(2022) Journal of Liquid Chromatography and Related Technologies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134073666&doi=10.1080%2f10826076.2022.2098760&partnerID=40&md5=6f5b018a482cbd81e6dbb593e994d094)

[85134073666&doi=10.1080%2f10826076.2022.2098760&partnerID=40&md5=6f5b018a482cbd81e6dbb593e994d094](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134073666&doi=10.1080%2f10826076.2022.2098760&partnerID=40&md5=6f5b018a482cbd81e6dbb593e994d094)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Analytical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, Egypt

ABSTRACT: Breast cancer is among the most common cancer types worldwide. The first and second line treatment protocols for various stages of breast cancer in females rely on tamoxifen. Until now, the development of tamoxifen resistance is not entirely understood. In this study, an automated sequential injection capillary electrophoresis with capacitively coupled contactless conductivity detector was developed for online levels monitoring of both lactate and pyruvate from the supernatant media of MCF-7 cells developing tamoxifen resistance. Changes in concentration of the two metabolites were simultaneously monitored from three model cell cultures and two control untreated cells. The electrophoretic separation was performed under reversed electroosmotic flow conditions. The system delivers high sample throughput at low sample consumption of 20 μL per analysis. The method is robust and achieved high sensitivity and resolution. Limits of detection were 8.0 and 17.0 nM and linear ranges were 0.15–5 and 0.01–1 mM with a correlation coefficient of 0.9951 and 0.9963 for lactate and pyruvate, respectively. Inter-run and intra-run accuracy were in the range of 95.37–107.02% with precision (RSD, %) of ≤9.84%. The method was completely validated and the data obtained were in agreement with results achieved using the lactate and pyruvate assay kits. The highly informative generated data revealed a significant increase in lactate and pyruvate production in the three tamoxifen resistant MCF-7 cells models compared to the two control cells starting from 5.8 hours and

6.8 hours culturing times, respectively. The increase in concentrations of both lactate and pyruvate were correlated with an increase in MCT1 and MCT4 genes expression. © 2022 Taylor & Francis Group, LLC.

Alsmadi, A.A., Al-Gasaymeh, A., Alrawashdeh, N., Alhwamdeh, L.N.
Financial supply chain management: A bibliometric analysis for 2006-2022
(2022) *Uncertain Supply Chain Management*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85134015894&doi=10.5267%2fj.uscm.2022.5.010&partnerID=40&md5=15973be2ad52a67dc321536f6ad30641

AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan;

Applied Science University, Jordan;

Isra University, Jordan;

Middle East University of Jordan, Jordan

ABSTRACT: Supply Chain Finance (SCF) is playing an increasingly important role in operational and financial practices and attracted growing attention from academia and industry alike. However, researchers have not yet been totally able to reach a consensus on the definition of this phenomenon. The study presented in the paper provides an overview of the advancements present in research on Financial Supply Chain Management. Using a bibliometric analysis approach, the paper summarizes the trends of development and the status quo of the Financial Supply Chain Management. The aim is to provide the reader with guidance and a solid conceptual framework for future research. © 2022 Growing Science Ltd. All rights reserve.

Bouacha, M., Besnaci, S., Boudiar, I., Al-Kafaween, M.A.

Screening of the antibacterial and anti-biofilm effect of multifloral honey against multidrug-resistant *Pseudomonas aeruginosa*

(2022) *Acta Microbiologica Hellenica*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85133520814&partnerID=40&md5=d4108eb1acdb2150cf08e92681d8c54f

AFFILIATIONS: Laboratory of Biochemistry and Environmental Toxicology, Department of Biochemistry, Faculty of Sciences, University of Badji Mokhtar, Annaba, Algeria;

Laboratory of Cellular Toxicology, Department of Biology, Faculty of Sciences, University of Badji Mokhtar, Annaba, Algeria;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this study, seven Algerian honey samples were assessed for their antibacterial activity on the growth, viability, and biofilm formation of clinical strains of *Pseudomonas aeruginosa* isolated from infected wounds. The evaluation of the antibacterial activity of honey samples was determined by both well assay and micro-broth dilution assay. The effect of honey samples on the viability of *P. aeruginosa* was evaluated by a time-kill assay. The anti-biofilm effect was performed by using 96-well plates. The results revealed that Algerian honey exhibit an antibacterial effect against *P. aeruginosa*. The inhibitory diameters ranged from 14.97 ± 3.88 mm to 27.98 ± 3.19 mm. Minimum inhibitory concentration (MIC) values were in the range of 10 to 40% (w/v). The MIC₅₀ varied from 7.88 % (w/v) for honey sample 5 to 18.5% (w/v) for honey sample 7 and the MIC₉₀ was in the range of 18.78 to 38.35% (w/v). The minimum bactericidal concentration (MBC) values ranged from 22.43 ± 6.62 % (w/v) to 39.51 ± 8.35 % (w/v) and the MBC/MIC ratios were less than 2, indicating that Algerian honey displayed bactericidal activity on *P. aeruginosa* strains. In the time-kill curve, honey samples (1, 2, 3, 4, and 7) destroyed *P. aeruginosa* after 24 hours of incubation, with honey samples 5 and 6 destroying the bacterium after 21 hours of incubation. The anti-biofilm effect revealed that all tested honey samples effectively inhibited biofilm formation with percentages varying from 54.32% to 97.48%. In conclusion, Algerian honey can be effective as an alternative antibacterial agent for the treatment of infected wounds, especially those caused by *P. aeruginosa*. © 2022 Greek Society of Microbiology Ascent Ltd. All rights reserved.

Najm, N.A., Ridha, M.B., Aboyasir, N.

Six Sigma and market performance in Jordanian hospitals

(2022) *International Journal of Value Chain Management*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85133349178&doi=10.1504%2fIJVCM.2022.123547&partnerID=40&md5=f940d55a2a0d5cfc6e5f8b0e4cb6f3f

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Abu-Ghazaleh University College for Innovation, P.O. Box 3966, Amman, 11953, Jordan

ABSTRACT: This study provides a broad review of the evolution of the Six Sigma dimensions as a strategic vision and an effective methodology for improving quality and reducing defect in the growing interest of its application to the industrial and service fields. This study seeks to determine the effect of the Six Sigma elements (strategic vision, DMAIC cycle, patient (customer) orientation and hospital commitment to employees) on two criterions for market performance (competitiveness and hospital reputation) in Jordanian hospitals. The effect of the mediator variable

(acceptance of failure) in hospitals on the relationship between the Six Sigma and competitiveness is also investigated. The results confirm there is a positive impact of the three dimensions of the Six Sigma on the competitiveness and reputation of the company. The DMAIC cycle however, does not seem to have a significant effect. As well, acceptance of failure as a mediator variable does not show any significant impact on the relationship between Six Sigma and competitiveness. Copyright © 2022 Inderscience Enterprises Ltd.

Algadri, N.A., Al-Diabat, A.M., Ahmed, N.M.

High sensitive UV photodetector based on ZnS/PS thin film prepared via spray pyrolysis method (2022) Energy Sources, Part A: Recovery, Utilization and Environmental Effects, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85133161481&doi=10.1080%2f15567036.2022.2084577&partnerID=40&md5=ee19f1002efc31d846d66c7aaf3f0a1e)

85133161481&doi=10.1080%2f15567036.2022.2084577&partnerID=40&md5=ee19f1002efc31d846d66c7aaf3f0a1e

AFFILIATIONS: Department of Physics, Isra University, Amman, Jordan;

Department of Physics, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Physics, Universiti Sains Malaysia, Penang, Malaysia

ABSTRACT: Electrochemical etching (ECE) served to fabricate porous silicon (PS), and the impact of different volume ratios of HF:ethanol on the morphological properties of PS has been examined. ZnS/PS composites were obtained by depositing ZnS film on PS substrate with the adoption of the spray method at a substrate temperature of 300°C and a spray rate of 3 ml/min. The thin film was characterized systematically by using several characterization techniques such as field emission scanning electron microscopy (FESEM), X-ray diffraction (XRD), and UV-Vis-NIR spectrometry. The deposited film highlights a cubic structure with energy band gap of 3.66 eV. UV photodetectors (PDs) based on ZnS have been fabricated on PS substrates, and the PDs had shown a high photosensitivity (14×10^3) for 400 nm UV light with the current decay and rise times of 0.6 and 0.9 s, respectively, and bias voltage of 2 V. © 2022 Taylor & Francis Group, LLC.

Al-Qerem, W., Jarab, A., Hammad, A., Alsajri, A.H., Ling, J., Alabdullah, A.S., Salama, A., Mosleh, R., Al-Hishma, S.W.

Knowledge, Attitudes, and Practices of Adult Iraqi Population Towards COVID-19 Booster Dose: A Cross-Sectional Study

(2022) Patient Preference and Adherence, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132970402&doi=10.2147%2fPPA.S370124&partnerID=40&md5=c40fa37ce054bf855b8ca777073b2974)

85132970402&doi=10.2147%2fPPA.S370124&partnerID=40&md5=c40fa37ce054bf855b8ca777073b2974

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Specialized Bone Marrow Transplant Center, Baghdad, Iraq;

University of Sains Malaysia, School of Pharmaceutical Sciences, Penang, Malaysia;

Department of Pharmacy, Faculty of Science and Wellbeing University of Sunderland, Sunderland, United Kingdom;

Faculty of Pharmacy, University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Middle East University, Amman, Jordan;

Department of Pharmacy, Faculty of Medicine & Health Sciences, An-Najah National University, Nablus, Palestine

ABSTRACT: Purpose: COVID-19 vaccines are critical for containing the pandemic and preventing serious SARS-CoV-2 infections. In addition to the two main doses, a booster dose has been utilized to improve immunity. The aim of current study is to evaluate Iraqi adult population knowledge, attitudes, and practices towards COVID-19 booster dose. Subjects and Methods: This online cross-sectional survey of adult Iraqis (n = 754) assessed the attitudes of people who have had both immunizations regarding a potential COVID-19 vaccine booster dosage and to identify potential factors that might impact these attitudes. Factors evaluated in the current study included previously received vaccine type in the first two doses, socioeconomic characteristics, health status, knowledge about COVID-19 and its vaccines and adherence to protective practices. Results: Overall, 61.1% of participants expressed willingness to receive a COVID-19 booster dose, with a high median score of knowledge and practice toward COVID-19. Participants who did not perceive COVID-19 to be serious, p-value <0.001), participants who believed they would not be infected with COVID-19 in the next 6 months (p-value <0.001), low knowledge score group (p-value <0.001), lower education (p-value <0.001), participants who received the COVID-19 vaccine because of imposed laws (p-value <0.001), participants who received AstraZeneca vaccine (p-value <0.001), younger participants (p-value=0.003), low level of practice (p-value <0.001), participants who did not know someone who had died due to COVID-19 (p-value=0.01), low risk of developing serious side effects if infected with COVID-19 and participants in the low side effects score were significantly less frequently willing to receive a booster COVID-19 dose (p-value <0.001). The main reasons for booster dose hesitancy/refusal were the perceived lack of need for a booster shot, the uselessness of a booster shot and the conspiracy theory of boosting corporate profits through booster shots. Conclusion: There is high hesitancy towards COVID-19 booster dose

acceptance among the Iraqi population. The study identified several factors associated with vaccine hesitancy including low socioeconomic status and low knowledge about COVID-19 and its vaccines. © 2022 Al-Qeremet al.

Hodrob, A.M.S., Malak, M.Z., Ayed, A.

Effect of high-fidelity simulation airway management training program on nursing students' performance, satisfaction, and self-confidence in Palestine

(2022) Interactive Learning Environments, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132889812&doi=10.1080%2f10494820.2022.2086576&partnerID=40&md5=3560365e7415d146f0ed5c89c1e06e77)

85132889812&doi=10.1080%2f10494820.2022.2086576&partnerID=40&md5=3560365e7415d146f0ed5c89c1e06e77

AFFILIATIONS: Adult Health Nursing, Faculty of Nursing, Arab American University, Jenin, Palestine;

Clinical Nursing/Adult, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pediatric Health Nursing, Faculty of Nursing, Arab American University, Jenin, Palestine

ABSTRACT: Airway management is one of the main situations that required nursing skills. Actual airway management experience on live patients is limited due to few opportunities to perform endotracheal intubation for students and issues related to students' liability. Therefore, this study evaluated the effect of High Fidelity Simulation airway management training program on nursing students' performance, satisfaction, and self-confidence in Palestine. A pre-post-test control group was applied through the recruitment of a 154 nursing students from Arab American University Palestine. The sample distributed randomly to experimental and control groups. Data were collected using the American Heart Association airway management performance checklist and the learner satisfaction and self-confidence for Learning (LSSCL) Questionnaires. Findings showed that there were no significant differences of airway management performance, satisfaction, and self-confidence scores between both groups at pre-test. On the contrary, there were significant differences between both groups of airway management performance, satisfaction, and self-confidence at post-test. Thus, High-fidelity simulation (HFS) was found to be an effective tool to provide a safe and effective learning environment for nursing students, consequently improving their airway management performance and increasing their satisfaction and self-confidence. This study supports the need to integrate HFS into the nursing curriculum. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Al-Shdefat, R., Hailat, M., Alshogran, O.Y.

Solubilization of a novel antitumor drug ribociclib in water and ten different organic solvents at different temperatures

(2022) Drug Development and Industrial Pharmacy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132753091&doi=10.1080%2f03639045.2022.2089161&partnerID=40&md5=88c26f5328c1849ee5fd974007c0deb8)

85132753091&doi=10.1080%2f03639045.2022.2089161&partnerID=40&md5=88c26f5328c1849ee5fd974007c0deb8

AFFILIATIONS: Department of Pharmaceutical Sciences, Faculty of Pharmacy, Jadara University, Irbid, Jordan;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, University of Science and Technology, Irbid, Jordan

ABSTRACT: Objective: This study reports new solubility and physicochemical data for ribociclib (RCB) in water and ten organic solvents including "methanol (MeOH), ethanol (EtOH), isopropyl alcohol (IPA), n-butanol (n-BuOH), propylene glycol (PG), polyethylene glycol-400 (PEG-400), acetone, ethyl acetate (EA), Transcutol-HP (THP), and dimethyl sulfoxide (DMSO)" at 293.2–313.2 K and 101.1 kPa. Significance: The obtained data are useful for the industrial applications of RCB. Methods: The solubility of RCB was measured and regressed using "van't Hoff, Buchowski-Ksiazczak λ , the modified Apelblat, and Jouyban models." Results: The overall deviations of $\pm 4.0\%$ were recorded for all four models. The maximum mole fraction solubility of RCB was 2.66×10^{-2} in PEG-400 at 313.2 K, however, the lowest one was in the water. The RCB solubility increased with temperature and the order followed in the water and ten different organic solvents was PEG-400 (2.66×10^{-2}) > THP (1.00×10^{-2}) > PG (5.39×10^{-3}) > DMSO (5.00×10^{-3}) > n-BuOH (3.23×10^{-3}) > acetone (3.11×10^{-3}) > IPA (1.58×10^{-3}) > EA (1.41×10^{-3}) > EtOH (1.37×10^{-3}) > MeOH (8.10×10^{-4}) > water (2.38×10^{-5}) at 313.2 K. The maximum solute-solvent interactions were found in RCB-PEG-400 in comparison with other combination of RCB and solvents. "Apparent thermodynamic analysis" indicated an "endothermic and entropy-driven dissolution" of RCB in water and ten organic solvents. Conclusions: Based on all these data and observations, PEG-400 can be used as the best co-solvent for RCB solubilization. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Hamadneh, T., Al Zoubi, H., Abu Falahah, I., Al-Sabbagh, M.

Direct Algorithm for Bernstein Enclosure Boundary of Polynomials

(2022) Journal of Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132506322&doi=10.1155%2f2022%2f9156188&partnerID=40&md5=8e60ead4048219bcd0b296055ab3f49f)

85132506322&doi=10.1155%2f2022%2f9156188&partnerID=40&md5=8e60ead4048219bcd0b296055ab3f49f

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;
The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Department of Basic Engineering, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

ABSTRACT: Multivariate polynomials of finite degree can be expanded into Bernstein form over a given simplex domain. The minimum and maximum Bernstein control points optimize the polynomial curve over the same domain. In this paper, we address methods for computing these control points in the simplicial case of maximum degree L . To this end, we provide arithmetic operations and properties for obtaining a fast computational method of Bernstein coefficients. Furthermore, we give an algorithm for direct determination of the minimum and maximum Bernstein coefficients (enclosure boundary) in the simplicial multivariate case. Subsequently, the implicit form, monotonicity, and dominance cases are investigated. © 2022 Tareq Hamadneh et al.

Atieh, A., Alshehadeh, A.R., Ayyash, H., Ashour, M.

PREDICTING FUTURE OPERATING CASH FLOWS IN JORDANIAN COMMERCIAL BANKS BY USING FAIR VALUE ACCOUNTING
[PREDVIDANJE BUDUCIH OPERATIVNIH NOVČANIH TOKOVA U JORDANSKIM POSLOVNIM BANKAMA KORISTEĆI
RACUNOVODSTVENU FER VRIJEDNOSTI]

(2022) Ekonomski Pregled, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85132043666&doi=10.32910%2fep.73.2.6&partnerID=40&md5=02d86a9350049907334d5f84c0c04dfa

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Jordan;

Jordan Ahli Bank, Jordan

ABSTRACT: The aim of this paper is to examine the ability of fair value accounting data to predict future operating cashflows up to three years ahead in Jordanian commercial banks, as well as to test whether there are significant differences among banks according to their size with regard to the ability of fair value accounting to predict cashflows. Multiple linear regression method is used to analyze the financial data of the study population, which consist of (13) Jordanian commercial Banks for the period (2005-2014). The study sample is the same as the study population. The fair value financial assets and liabilities are used in (3) models. The first model contains net financial assets; the second model includes total financial assets and total financial liabilities; and the third model contains the detailed components of financial assets and liabilities. The study concludes that fair value accounting data (through net financial assets, through total financial assets and total financial liabilities, and through items of financial assets and financial liabilities) have a statistically significant predictive ability in predicting future operating cashflows of Jordanian commercial banks for three subsequent years. The results also show that there are no statistically significant differences among Jordanian commercial banks according to their size with regard to the ability of fair value accounting to predict future operating cashflows up to three years ahead. Nevertheless, the predictive ability is greater for largesized banks. This study recommends maintaining the continuity of applying fair value accounting by Jordanian commercial banks, and following any updates related to fair value accounting in the IFRS. © 2022, Hrvatsko Drustvo Ekonomista. All rights reserved.

Al-Qerem, W., Hammad, A., Jarab, A., Saleh, M.M., Amawi, H.A., Ling, J., Alasmari, F.

Knowledge, attitudes, and practice with respect to antibiotic use among pharmacy students: a cross-sectional study

(2022) European Review for Medical and Pharmacological Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85131223874&doi=10.26355%2feurrev_202205_28834&partnerID=40&md5=aa6149bd4ee21aeadfc31adf38cc3e29

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, Yarmouk University, Irbid, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Sunderland, United Kingdom;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

ABSTRACT: OBJECTIVE: Antibiotic resistance is a major health threat and efforts should be intensified to reduce its burden. Healthcare providers, especially pharmacists, can be actively involved in the reduction of antibiotic resistance. However, negative practices among pharmacists have been observed. This study evaluated knowledge, attitudes, and practices (KAP) among Jordanian pharmacy students. PATIENTS AND METHODS: A cross-sectional study used an online questionnaire that was developed and distributed to Jordanian pharmacy students from five different universities. KAP scores were calculated, with students categorized into low and high levels based on each score mean. RESULTS: A total of 890 pharmacy students completed the questionnaire. High positive response rate (PR%) for the

majority of the knowledge items was observed, exceeding 60% in all knowledge items, and similar PR% was observed in attitude items. The variables significantly associated with attitude were age [OR=0.92 (95% CI 0.87: 0.98), $p=0.01$] and knowledge [OR=1.35 (95% CI 1.01:1.82), $p=0.04$], while knowledge was significantly associated with practice [OR=0.23 (95% CI 0.16:0.31), $p<0.001$]. CONCLUSIONS: Jordanian pharmacy students showed adequate KAP toward the use of antibiotics although several aspects of malpractice were identified. Hence, adequate knowledge about antibiotics among pharmacy students should be ensured as knowledge is associated with attitudes and practices. © 2022 Verduci Editore s.r.l. All rights reserved.

Al-Akayleh, F., Jaber, N., Al-Remawi, M., Al Odwan, G., Qinna, N.

Chitosan-biotin topical film: preparation and evaluation of burn wound healing activity (2022) *Pharmaceutical Development and Technology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131091409&doi=10.1080%2f10837450.2022.2079132&partnerID=40&md5=ea623182bcc5d7cc69da6f0778c1753c)

[85131091409&doi=10.1080%2f10837450.2022.2079132&partnerID=40&md5=ea623182bcc5d7cc69da6f0778c1753c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85131091409&doi=10.1080%2f10837450.2022.2079132&partnerID=40&md5=ea623182bcc5d7cc69da6f0778c1753c)

AFFILIATIONS: Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: A new composite film from chitosan (CS) and biotin (BIO) was developed to enhance burn wound healing. The film was prepared by electrostatic interaction between CS and BIO. Four different ratios of CS to BIO v/v (4:1, 3:2, 2:3, and 1:4) were prepared. The films were comprehensively characterized using FTIR, DSC, and AFM. The in-vitro release studies showed that the most promising formula with the highest release behavior was CS to BIO 1: 4. The ex vivo adhesion times were reported as 0.50 ± 0.30 min for CS film compared to 6.2 ± 0.30 , 8.4 ± 0.40 , 11.2 ± 0.50 , and 13.83 ± 1.04 min for CS to BIO films v/v (1:4, 2:3, 3:2 and 4:1), respectively. Most importantly, the skin healing activities of CS/BIO film in the excision wound model in mice and skin burn model in rats showed faster rates of healing compared to CS and placebo. Furthermore, skin stretching and burn wound contraction behavior treated with CS/BIO were higher than that of CS treated skin. In conclusion, the results obtained revealed that CS/BIO films possessed superior burn wound healing activity compared to CS. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Al-Amer, R.M., Malak, M.Z., Darwish, M.M.

Self-esteem, stress, and depressive symptoms among Jordanian pregnant women: social support as a mediating factor

(2022) *Women and Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130946907&doi=10.1080%2f03630242.2022.2077508&partnerID=40&md5=62c9f8240cd009a2be72cc31f0dfbb40)

[85130946907&doi=10.1080%2f03630242.2022.2077508&partnerID=40&md5=62c9f8240cd009a2be72cc31f0dfbb40](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130946907&doi=10.1080%2f03630242.2022.2077508&partnerID=40&md5=62c9f8240cd009a2be72cc31f0dfbb40)

AFFILIATIONS: Mental Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

School of Nursing and Midwifery, Western Sydney University, Sydney, Australia;

Community Health Nursing, Faculty of Nursing, Al- Zaytoonah University of Jordan, Amman, Jordan;

Vascular Surgery, University Hospital of Wales, Cardiff, United Kingdom

ABSTRACT: This study purposed to assess the mediating role of social support between stress, depressive symptoms, and self-esteem among Jordanian pregnant women. Across-sectional study recruited a total of 538 pregnant Jordanian women using a cluster stratified random sampling technique, during the period from September 2019 to February 2020. The study used the following measures: The Perceived Stress Scale (PSS), Beck's Depression Inventory (BDI), Rosenberg Self-Esteem Scale, and Multidimensional Social Support Scale (MSPSS). Descriptive statistics and inferential statistics were used to test the mediating effect of social support in terms of the association between depression and self-esteem. The results were considered significant if $p \leq .05$. The findings showed that 75.6% of participants had moderate-to-high stress levels. High levels of stress, depressive symptoms, and low self-esteem were highly correlated with low social support ($p < .05$). Depressive symptoms predict the self-esteem ($F(2, 537) = 158.631$ $p < .05$). Social support significantly mediates the relationship between the depressive symptoms and self-esteem with $p = .01$. Thus, during the antenatal care, administration of screening tools to identify pregnant women with low social support levels and at risk of developing psychological difficulties would allow primary healthcare to promote for positive health outcomes for the mothers and the babies. © 2022 Taylor & Francis Group, LLC.

Al Shbail, M.O., Jaradat, Z., Jbarah, M., Al Shbeil, S.O.

Factors that influence employees' acceptance of e-accounting: evidences from Jordanian SMEs (2022) *International Journal of Business Innovation and Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130699576&doi=10.1504%2fIJBIR.2022.122968&partnerID=40&md5=5a2681e22d23c80f099a9941c5072332)

[85130699576&doi=10.1504%2fIJBIR.2022.122968&partnerID=40&md5=5a2681e22d23c80f099a9941c5072332](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130699576&doi=10.1504%2fIJBIR.2022.122968&partnerID=40&md5=5a2681e22d23c80f099a9941c5072332)

AFFILIATIONS: Faculty of Economic and Administrative Sciences, Al al-Bayt University, P.O. Box 130040, Mafraq, 25113, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Faculty of Business, Middle East University, Amman, 11831, Jordan

ABSTRACT: This paper explored the factors influencing the acceptance of e-accounting among SMEs

employees. The authors adopted the unified theory of acceptance and use of technology (UTAUT) as the underpinning theory, and distributed questionnaire copies to SMEs employees, from which 227 were deemed valid. The variables in UTAUT namely, performance expectancy, effort expectancy, social influence and facilitating conditions were examined. The results showed that performance expectancy, effort expectancy, and social influence all positively and significantly affected behavioural intention to use e-accounting. Moreover, facilitating conditions and behavioural intention to use e-accounting had positive and significant effects on e-accounting use behaviour. The role of UTAUT model is to explore and provide attention to the adaptation of new technology in SMEs. It is expected that the study framework could guide SMEs in their promotion and achievement of employees' e-accounting adoption. Copyright © 2022 Inderscience Enterprises Ltd.

Hamad, M.J., Yassin, M.M., Okour, S.M.

CRITICAL SUCCESS FACTORS OF CLOUD ENTERPRISE RESOURCE PLANNING SYSTEMS AND FINANCIAL PERFORMANCE: EVIDENCE FROM EMERGING MARKETS

(2022) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130572697&doi=10.22495%2fjgrv11i1siart15&partnerID=40&md5=dba61b666fbaac1245fb5a54d229377)

[85130572697&doi=10.22495%2fjgrv11i1siart15&partnerID=40&md5=dba61b666fbaac1245fb5a54d229377](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130572697&doi=10.22495%2fjgrv11i1siart15&partnerID=40&md5=dba61b666fbaac1245fb5a54d229377)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

The World Islamic Science and Education University, Amman, Jordan

ABSTRACT: Cloud ERP (C-ERP) systems help firms to reach greater levels of sustainable performance (Gupta, Qian, Bhushan, & Luo, 2019). Ali (2016) demonstrate that the enterprise resource planning (ERP) system implementation influences financial performance indicators. Huang, Rahim, Foster, and Anwar (2021) had investigated and identified the critical success factors (CSFs) which may affect the successful implementation of C-ERP systems. However, no empirical evidence was found on the relationship between C-ERP critical success factors and financial performance. This study examined the effect of key CSFs of the C-ERP systems on financial performance in the post-implementation stage. An online questionnaire was developed to collect data about CSFs in C-ERP firms. The financial ratios were collected from the Amman Stock Exchange (ASE) filings. OLS analysis suggests that financial performance is affected by technological competence, management support, organizational culture, and system characteristics. The study provides empirical evidence on the cause-effect relationship which emphasizes the difference made in long-term financial success by the various managerial techniques. The results provide practical implications to management and service providers that help in installing and maintaining C-ERP systems. © 2022 The Authors.

Allan, M.S., Ashour, M.L., Ali, N.N., Al Warasneh, A.N.

FACTORS AFFECTING FEMALE ONLINE PURCHASE DECISION

(2022) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130567160&doi=10.22495%2fjgrv11i1siart14&partnerID=40&md5=403a23724a4ea9fbd26597f2ee58a3c2)

[85130567160&doi=10.22495%2fjgrv11i1siart14&partnerID=40&md5=403a23724a4ea9fbd26597f2ee58a3c2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130567160&doi=10.22495%2fjgrv11i1siart14&partnerID=40&md5=403a23724a4ea9fbd26597f2ee58a3c2)

AFFILIATIONS: Department of Marketing, Al Zaytoonah University of Jordan, Amman, Jordan;

Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study enhances the existing literature on female online buying decisions by evaluating the factors shaping women's clothing purchase decision-making. Hence, it investigates the influence of social media interactive marketing activities, i.e., electronic advertising (e-Ads), electronic word of mouth (e-WOM), interaction (Int.), and content credibility (CC), on female purchase decisions. The study adopted the logic of quantitative approach using an e-questionnaire as a main data collection tool targeting online female consumers. Data were collected from 388 female social media users, and regression analysis was applied. The results of the study confirmed the association between a firm's use of and female activities and applications interactive marketing purchase decisions. In addition, the results pointed out the electronic interactive activities of social media platforms such as e-Ads, CC, and e-WOM as powerful tools that support firm's marketing strategies via their positive influence on female purchase decisions. The result is consistent with previous research (Park, Hyun, & Thavisay, 2021; Tran, 2017). The study provides several implications and recommendations for practice: focusing on content credibility, enriching the interactive content of brand name page, providing more details about offerings, and the continuous development of advertising, contents, and techniques. And for future research, as this study derived its findings from an evaluation carried out in the Jordanian clothing market, it is recommended to extend this evaluation to be conducted in other contexts and to consider other demographical and economic variables. © 2022 The Authors.

Shaban, N.A., Alshabat, N., Al-Qawabah, S.

Effect of Flap Peening Speed on the Surface Quality and Micro Hardness of Aircraft Aluminum Alloys

(2022) Archives of Metallurgy and Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130494582&doi=10.24425%2famm.2022.139675&partnerID=40&md5=ddf2c4df930539552ab50639f49ac2c8)

[85130494582&doi=10.24425%2famm.2022.139675&partnerID=40&md5=ddf2c4df930539552ab50639f49ac2c8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130494582&doi=10.24425%2famm.2022.139675&partnerID=40&md5=ddf2c4df930539552ab50639f49ac2c8)

AFFILIATIONS: Zaytoonah University of Jordan, Mechanical Engineering Department, Amman, Jordan; Tafila Technical University, Mechanical Engineering Department, Tafila, 66110, Jordan

ABSTRACT: Flap peening (FP) is a cold working technique used to apply a compressive force using small shots, this will lead to enhance the surface properties that it can sustain for long life during working conditions. In this study, several aircraft aluminum alloys materials namely; 2219 T6, 2024 T6, 7075T6, and 6061 T6 were flap peened under different rotational speeds. The effect of rotational speed on the average surface roughness (Ra) and average surface micro hardness have been investigated. As seen by the Scanning Electron Microscope SEM photos that the hardness of peened layer is increased. It was found that as the flap peening speeds increase the percent change in surface roughness (Ra) increases, and the percent change in surface micro hardness decreases. The maximum increase in Ra occurs in 2219 T80 and the minimum in 6061 T6 alloys, and for hardness, it is reported that the maximum occurs in 6061 T6 and the minimum in 2019 T80 alloy. © 2022. The Author(s).

Al Zoubi, J.Z., Dahiyat, S.E., Obeidat, A.M., Aboyassin, N.A.

National culture, trust, social networking and knowledge sharing within a knowledge-intensive sector: a mediation analysis

(2022) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130451771&doi=10.1504%2fIJPQM.2022.122755&partnerID=40&md5=60d34d5361bbf9f20aa8194f64a1c56d)

[85130451771&doi=10.1504%2fIJPQM.2022.122755&partnerID=40&md5=60d34d5361bbf9f20aa8194f64a1c56d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130451771&doi=10.1504%2fIJPQM.2022.122755&partnerID=40&md5=60d34d5361bbf9f20aa8194f64a1c56d)

AFFILIATIONS: Department of Public Administration, School of Business, University of Jordan, Queen Rania Street, Amman, 11942, Jordan;

Department of Business Management, School of Business, University of Jordan, Queen Rania Street, Amman, 11942, Jordan;

Department of Business Administration, Faculty of Business, Al Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The aim of this study is to investigate the effects of the four national culture (NC) dimensions of uncertainty avoidance, collectivism, power distance and masculinity on knowledge sharing. In addition, this study aims to examine the mediating effects of trust and social networking on the relationships between the four NC dimensions and knowledge sharing (KS). A theoretical model was developed, and a questionnaire-based survey was designed and targeted a 'knowledge intensive' sector, namely the healthcare sector in Jordan. Findings show that collectivism and uncertainty avoidance were the only two dimensions found to have a positive and significant effect on knowledge sharing, trust as well as social networking. Both trust and social networking were found to have positive and significant effects on knowledge sharing. Trust fully mediated the effect of collectivism on knowledge sharing and partially mediated the effect of uncertainty avoidance, whereas social networking was found to have a partial mediating effect. In conclusion, the study has contributed to the extant NC and KS literature by complementing studying a nation's distinctive cultural traits' on an organisational-level routine. © 2022 Inderscience Enterprises Ltd.

Hammad, M.A., AlSharif, Sh., Khalil, R., Shmasneh, A.

Fractional Bessel differential equation and fractional Bessel functions

(2022) Italian Journal of Pure and Applied Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130352555&partnerID=40&md5=7239c50fa9385aeccf0fe03747f22278)

[85130352555&partnerID=40&md5=7239c50fa9385aeccf0fe03747f22278](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130352555&partnerID=40&md5=7239c50fa9385aeccf0fe03747f22278)

AFFILIATIONS: Department of Mathematics, AlZaytoonah University of Jordan, Amman, Jordan;

Department of Mathematics, Yarmouk University, Irbed, Jordan;

Department of Mathematics, Jordan University, Amman, Jordan

ABSTRACT: Using a new simple and well-behaved definition of the fractional derivative which is different from the Caputo and Riemann-Liouville fractional derivative and recently introduced by Khalil and others, we reformulate the second order Bessel differential equation in this new setting. In this article by the use of power series, one of the solution of the fractional differential equation is obtained. Moreover, we find the generating function and use it to prove some nice standard results and recurrence relations. Finally, we present some application and integral representations of Bessel functions of fractional type including sines and cosines. © 2022 Forum-Editrice Universitaria Udinese SRL. All rights reserved.

Alzyadat, W., Muhairat, M., Alhroob, A., Rawashdeh, T.

A Recruitment Big Data Approach to interplay of the Target Drugs

(2022) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129886590&doi=10.15849%2fIJASCA.220328.01&partnerID=40&md5=58746ad196c11841de56b756cb7240f8)

[85129886590&doi=10.15849%2fIJASCA.220328.01&partnerID=40&md5=58746ad196c11841de56b756cb7240f8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129886590&doi=10.15849%2fIJASCA.220328.01&partnerID=40&md5=58746ad196c11841de56b756cb7240f8)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University, Amman, Jordan;

Faculty of Science and Information Technology, Al-Zaytoonah University, Amman, Jordan;

Faculty of Information Technology, Isra University, Amman, Jordan;

Faculty of Science and Information Technology, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: The various model that has been used to predict, datamining, and information retrieval are useful to use through the traditional database, due to big data the prediction should derive in a different role that conduct the hidden structure data based on a stability scale to allow discovering accrue unsupervised drug data. Especially, the drug data must be understandable to analysts. Following this approach, conduct the stability drug data through computation methods are quality measurements, preprocess data, k-mean cluster, and decision tree. This approach seeks to identify the data by two dimensions (vertically and horizontally), which extrapolations, compilation, and interpretation values of the dataset while considering individual attributes. A comparison with clusters defines the set for features using balance value by K-mean algorithm to determine the k clusters that consider the set of features based on two values 0 and 1, which given the discernible between dependent and independent class target, and pinpoint the relationship among them. © Al-Zaytoonah University of Jordan (ZUJ).

Hawash, M., Mosleh, R., Jarrar, Y., Hanani, A., Hajjousef, Y.

The Prevalence of Water Pipe Smoking and Perceptions on its Addiction among University Students in Palestine, Jordan, and Turkey

(2022) Asian Pacific Journal of Cancer Prevention, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129780369&doi=10.31557%2fAPJCP.2022.23.4.1247&partnerID=40&md5=0c1278c24819df11b13597c6ddc4304a)

[85129780369&doi=10.31557%2fAPJCP.2022.23.4.1247&partnerID=40&md5=0c1278c24819df11b13597c6ddc4304a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129780369&doi=10.31557%2fAPJCP.2022.23.4.1247&partnerID=40&md5=0c1278c24819df11b13597c6ddc4304a)

AFFILIATIONS: Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, 00970, Palestine;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, 00970, Palestine

ABSTRACT: Background: Understanding the university students' perception of Water Pipe smoking addictions and factors behind the rise in the prevalence of Water Pipe smoking will contribute effectively in the prevention strategies and policies development. Aims: Thus, this study aims to assess the prevalence of Water Pipe smoking among university students and their perceptions on its addiction in Palestine, Jordan, and Turkey, as an initial step to reduce the spread of Water Pipe smoking. Methods: An online self-structured questionnaire was administered to 2030 selected university students from Palestine, Jordan, and Turkey. Prevalence, knowledge and other related factors concerning Water Pipe smoking and its addiction were compared between university students from three Middle East countries (Palestine, Jordan, and Turkey) using SPSS software for statistical analysis. Results: The overall prevalence of Water Pipe smoking was 31.8%, less than a quarter of university students (21.7%) had ever smoked Water Pipe. The highest percentage of current Water Pipe smokers were Palestinians (36.11%), and the lowest percentage was from Turkey (20.23%). Approximately 43% of Water Pipe smokers believe that they will be addicted to Water Pipe smoking and almost half of them smoke Water Pipe daily. The highest percentage of smokers were university students 25 years old and above. However, the highest percentage of smokers was low monthly income students. The university students living with their families were smoking Water Pipe less frequently than students living in private residencies. Conclusions: The prevalence of Water Pipe smoking among university students in Palestine and Jordan was high compared to Turkey. It was believed that the Turkish rules and regulations of Water Pipe smoking limit the Water Pipe smoking in Turkey © This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License

Yassin, M.M., Shaban, O.S., Al-Sraheen, D.A.-D., Al Daoud, K.A.

REVENUE STANDARD AND EARNINGS MANAGEMENT DURING THE COVID-19 PANDEMIC: A COMPARISON BETWEEN IFRS AND GAAP

(2022) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129638730&doi=10.22495%2fjgrv11i2art7&partnerID=40&md5=614b7e92e0d612f92781e9cbfd7ad2cf)

[85129638730&doi=10.22495%2fjgrv11i2art7&partnerID=40&md5=614b7e92e0d612f92781e9cbfd7ad2cf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129638730&doi=10.22495%2fjgrv11i2art7&partnerID=40&md5=614b7e92e0d612f92781e9cbfd7ad2cf)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Al Al-Bayt University, Mafraq, Jordan;

Yarmouk University, Irbid, Jordan

ABSTRACT: International Financial Reporting Standards 15 – Revenue from Contracts with Customers (IFRS 15) was issued to inhibit the use of revenues for earnings management purposes. During COVID-19, the standard was used to manage earnings (Lopatta, Alexander, Gastone, & Tammen, 2020). This study aims to explain earnings management practices by using a revenue standard. An online questionnaire was distributed by Momentive Inc. (formerly SurveyMonkey Inc.) to accountants working in two different contexts: Jordan as an IFRS country and the USA as a Generally Accepted Accounting Principles (GAAP) country. A convenience sample of 304 questionnaires from both countries was valid for analysis. The findings of ordinary least square (OLS) regression suggest that, during COVID-19, both users used the revenue standard as a tool to manage earnings. In addition, IFRS users were more conservative than GAAP users in terms of existing contracts, while both of them were the same in terms of future contracts. The results should help policymakers and regulators to rethink the

flexibility given to managers in dealing with revenue contracts. In addition, they should help managers efficiently manage the revenue contracts. © 2022 The Authors.

Aldalahmeh, S.A., Ciuonzo, D.

Distributed Detection Fusion in Clustered Sensor Networks over Multiple Access Fading Channels (2022) IEEE Transactions on Signal and Information Processing over Networks, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129523730&doi=10.1109%2FTSIPN.2022.3161827&partnerID=40&md5=bb0c9a8273bc8aac2b341348f5a47d15)

85129523730&doi=10.1109%2FTSIPN.2022.3161827&partnerID=40&md5=bb0c9a8273bc8aac2b341348f5a47d15

AFFILIATIONS: Department of Communications and Computer Engineering, Al-Zaytoonah University of Jordan, Jordan, Amman, 11733, Jordan;

Department of Electrical Engineering and Information Technologies (DIETI), University of Naples Federico II, Amman, Napoli, 80138, Italy

ABSTRACT: In this paper, we tackle decision fusion for distributed detection in a randomly-deployed clustered Wireless Sensor Networks (WSNs) operating over a non-ideal multiple access channels (MACs), i.e. considering Rayleigh fading, path loss and additive noise. To mitigate fading, we propose the distributed equal gain transmit combining (dEGTC) and distributed maximum ratio transit combining (dMRTC). The first and second order statistics of the received signals were analytically computed via stochastic geometry tools. Then the distribution of the received signal over the MAC are approximated by Gaussian and log-normal distributions via moment matching. This enabled the derivation of moment matching optimal fusion rules (MOR) for both distributions. Moreover, suboptimal simpler fusion rules were also proposed, in which all the CHs data are equally weighed, which is termed moment matching equal gain fusion rule (MER). It is shown by simulations that increasing the number of clusters improve the performance. Moreover, MOR-Gaussian based algorithms are better under free-space propagation whereas their lognormal counterparts are more suited in the ground-reflection case. Also, the latter algorithms show better results in low SNR and SN numbers conditions. We have proved that the received power at the CH in MAC is proportional $O(\lambda^2 R^2)$ and to $O(\lambda^2 \ln^2 R)$ in the free-space propagation and the ground-reflection cases respectively, where λ is SN deployment intensity and R is the cluster radius. This implies that having more clusters decreases the required transmission power for a given SNR at the receiver. © 2015 IEEE.

Al-Kafaween, M.A., Al-Jamal, H.A.N.

A comparative study of antibacterial and antivirulence activities of four selected honeys to Manuka honey

(2022) Iranian Journal of Microbiology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129015586&doi=10.18502%2Fijm.v14i2.9193&partnerID=40&md5=35ee4d85ca12ddf96af295f6f8aa64e3)

85129015586&doi=10.18502%2Fijm.v14i2.9193&partnerID=40&md5=35ee4d85ca12ddf96af295f6f8aa64e3

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Biomedicine, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Background and Objectives: Honey has excellent antibacterial properties against various microorganisms of several different species. To date, there is no comparative evaluation of the antibacterial activity of Jarrah honey (JH), Kelulut Madu honey (KMH), Gelam honey (GH), and Acacia honey (AH) with that of Manuka honey (MH). The purpose of this study was to conduct such study and to compare the antibacterial activity of JH, KMH, GH, and AH with that of MH against *Pseudomonas aeruginosa* and *Streptococcus pyogenes*. Materials and Methods: Activity was assessed using broth microdilution, time kill viability, microtiter plate, scanning electron microscope (SEM) and Quantitative Real-Time Polymerase Chain Reaction (RT-qPCR). Results: The susceptibility tests revealed promising antibacterial activities of all honeys against both bacteria. The MICs of JH, KMH, GH, and AH ranged from 20% to 25% compared to MH (12.5%) against both bacteria. The MBCs of JH, KMH, GH, and AH ranged from 20% to 50% compared to MH (20%) against both bacteria. Treatment of both bacteria with 2x MIC (Minimum inhibitory concentration) of MH, JH, KMH, GH, and AH for 9 hours resulted in reduction in colony-forming unit (CFU/ml). SEM images showed that the morphological changes, cell destruction, cell lysis and biofilm disruption in both bacteria after exposure to all honeys. RT-qPCR analysis revealed that the expression of all genes in both bacteria were downregulated following treatment with all honeys. Among the all-tested honeys, MH showed the highest total antibacterial and antivirulence activities. Conclusion: Our results indicate that all honeys activity included inhibition of both bacteria due to a decrease in expression of essential genes associated with both bacteria, suggesting that all honeys could potentially be used as an alternative therapeutic agent against certain microorganisms particularly against *P. aeruginosa* and *S. pyogenes*. © 2022 The Authors. Published by Tehran University of Medical Sciences.

Al-Qerem, W., Jarab, A.S., Badinjki, M., Hammad, A., Ling, J., Alasmari, F.

Factors associated with glycemic control among patients with type 2 diabetes: a cross-sectional study (2022) European Review for Medical and Pharmacological Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128798021&doi=10.26355%2feurev_202204_28475&partnerID=40&md5=f8bdeb609a8d7426cea66b0cbdc8f07f)

85128798021&doi=10.26355%2feurev_202204_28475&partnerID=40&md5=f8bdeb609a8d7426cea66b0cbdc8f07f

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Sunderland, United Kingdom;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

ABSTRACT: OBJECTIVE: Achieving glycemic control significantly improves the progression of the disease among diabetes mellitus patients although this is not achieved by many diabetics. The aim of the study is to explore the factors associated with glycemic control among patients with type 2 diabetes.

PATIENTS AND METHODS: In addition to socio-demographic variables, beliefs about medications and medication adherence were evaluated using the validated Beliefs about Medications Questionnaire and the 4-item medication adherence scale. A cut-off point of HbA1c% <7 was used as an indicator of glycemic control. Stepwise binary logistic regression was conducted to explore the variables associated with poor glycemic control. RESULTS: A total of 287 patients participated in the study. More than half (58%) were found to have poor glycemic control. Females had significantly higher odds of having controlled diabetes (OR=2.28, p-value <0.01). Increasing necessity for diabetes medications was significantly associated with improved glycemic control (OR=2.75, p-value <0.01). Participants in low or moderate adherence groups had significantly higher odds of having uncontrolled diabetes.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

CONCLUSIONS: Future diabetes management programs should focus on emphasizing medication necessity and improving medication adherence, particularly for male patients, with the aim of improving glycemic control and health outcomes among patients with type 2 diabetes. © 2022 Verduci Editore s.r.l. All rights reserved.

quality model that can help create and measure data collection methods and techniques. However, the quality model is still introductory and needs to be further investigated. © 2022, Springer Nature Switzerland AG.

Alhroob, E., Mohammed, M.F., Hujainah, F., Al Sayaydeh, O.N., Ghani, N.A.

Investigation of contraction process issue in fuzzy min-max models

(2022) International Journal of Data Mining, Modelling and Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128564266&doi=10.1504%2fIJDDMM.2022.122034&partnerID=40&md5=cfad9ae7842622cad231195857a7751f)

[85128564266&doi=10.1504%2fIJDDMM.2022.122034&partnerID=40&md5=cfad9ae7842622cad231195857a7751f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128564266&doi=10.1504%2fIJDDMM.2022.122034&partnerID=40&md5=cfad9ae7842622cad231195857a7751f)

AFFILIATIONS: Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, University of Zakho, KRG, Duhok, Iraq;

Computer Science and Engineering Department, Chalmers and University of Gothenburg, Gothenburg, 412 96, Sweden;

Faculty of Computing, Universiti Malaysia Pahang, Kuantan, 26300, Malaysia;

IBM Centre of Excellence, Universiti Malaysia Pahang, Cybercentre, Pahang Technology Park, Pahang, Kuantan, 26300, Malaysia

ABSTRACT: The fuzzy min-max (FMM) network is one of the most powerful neural networks. It combines a neural network and fuzzy sets into a unified framework to address pattern classification problems. The FMM consists of three main learning processes, namely, hyperbox contraction, hyperbox expansion and hyperbox overlap tests. Despite its various learning processes, the contraction process is considered as one of the major challenges in the FMM that affects the classification process. Thus, this study aims to investigate the FMM contraction process precisely to highlight its usage consequences during the learning process. Such investigation can assist practitioners and researchers in obtaining a better understanding about the consequences of using the contraction process on the network performance. Findings of this study indicate that the contraction process used in FMM can affect network performance in terms of misclassification and incapability in handling the membership ambiguity of the overlapping regions. Copyright © 2022 Inderscience Enterprises Ltd.

Alqudah, M.A.Y., Mukattash, T.L., Al-Shammari, E., Jarab, A.S., Al-Qerem, W., Abu-Farha, R.K.

An Audit on Pharmacists' Knowledge and Experience in Pediatric Care

(2022) Journal of Pediatric Pharmacology and Therapeutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128459393&doi=10.5863%2f1551-6776-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128459393&doi=10.5863%2f1551-6776-27.2.172&partnerID=40&md5=78c865c590bca373012b3ff1d4016201)

[27.2.172&partnerID=40&md5=78c865c590bca373012b3ff1d4016201](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128459393&doi=10.5863%2f1551-6776-27.2.172&partnerID=40&md5=78c865c590bca373012b3ff1d4016201)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan

ABSTRACT: OBJECTIVE The aim of this study was to determine pharmacists' perceived knowledge and expertise required to deliver pharmaceutical care services to pediatric patients. METHODS Once ethical approval was obtained, a questionnaire was posted on local pharmacy groups. The questionnaire is composed of 4 domains: 1) Demographics, 2) Perceived knowledge of pediatric treatment and dosing, 3) Real-life pediatric cases, and 4) Future aspirations to enhance pediatric pharmacy. RESULTS A total of 200 questionnaires were completed and submitted online. Most participants (62.5%) practiced in a community setting. Most respondents (40%) reported that 41% to 60% of their patients were pediatrics. In general, respondents had a good perception of their knowledge and expertise to deliver pharmaceutical care services to pediatric patients. However, most respondents had a low knowledge score when faced with real-life pediatric cases. On a scale of 7 most respondents obtained the score of 2 (32%). CONCLUSIONS The present study sheds light on an alarming lack of knowledge in pediatric pharmaceuticals among pharmacies in Jordan. Further training and educational programs should be put in place to address this gap in knowledge. © Pediatric Pharmacy Association.

Lafi, Z., Aboalhaja, N., Afifi, F.

Ethnopharmacological importance of local flora in the traditional medicine of Jordan: (A mini review)

(2022) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128344982&partnerID=40&md5=eb7417e4256c105eec94274cff0ee416)

[85128344982&partnerID=40&md5=eb7417e4256c105eec94274cff0ee416](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128344982&partnerID=40&md5=eb7417e4256c105eec94274cff0ee416)

AFFILIATIONS: Faculty of Pharmacy, Middle East University, Amman, Jordan;

Faculty of Pharmacy, Al Zaytoonah University, Amman, Jordan;

Faculty of Pharmacy, Applied Science Private University, Amman, Jordan

ABSTRACT: Traditional knowledge of medicinal plant use in Jordan is poorly described. During the last years, many phytochemists and botanists from Jordan have conducted qualitative and quantitative several studies, to gather information from the local people in the different rural regions where herbal medicine flourishes. To assess the effectiveness of the specific plants used in the treatment

of certain diseases, several ethnopharmacological studies were carried out in different regions of Jordan. The reported use value (UV) and informant's consensus factor (Fic) of these studies were analysed and summarised. Artemisia and Achillea species scored the highest UV (above 0.8). Ajloun area, rich in medicinal plants, showed the highest average UV, followed by the rural area of Badia. Among all reported illnesses dental pain has achieved the highest homogeneity of the information (Fic 0.97). This ethnopharmacological review revealed that despite the availability of modern medicine in Jordan, traditional medicine is also widely practiced, especially in the rural areas of the country. © 2022 DSR Publishers/The University of Jordan. All Rights Reserved.

Al-Shdayfat, N., Alnatour, A., Alhusban, R., Yehia, D., Al-Shanableh, N.M., Alsarairh, A., Alkhaldeh, J.M.

Student Nurses Attitudes Towards Using Social Media to Raise the Awareness of their Community about the COVID-19 Pandemic in Jordan
(2022) Open Public Health Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127461750&doi=10.2174%2f18749445-v15-e2201120&partnerID=40&md5=22d0caa4e211265cbc60f5c6f66b6fdb>

AFFILIATIONS: Faculty of Nursing, Community and Mental Health Department, Al Albayt University, Al Mafraq, Jordan;

Faculty of nursing, Community and Mental Health Department, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Nursing, Zarqa University, Zarqa City, Jordan;

Faculty of Nursing, Al-Zytoonah University of Jordan (ZUJ), Amman, Jordan;

Faculty of Information Technology, Department of Computer Science, Al Albayt University, Al Mafraq, Jordan;

Maternal and Child Health and Midwifery Department, Faculty of Nursing, University of Mut'ah, Mutah, AlKarak, Jordan;

Faculty of Nursing, Advanced Nursing Department, Isra University, PO Box 33 and 22 Isra University Office 11622, Amman, Jordan

ABSTRACT: Aims: The current study investigates the student nurses' attitudes and opinions towards their health promotion role during the COVID-19 pandemic using social media. Background: Social media and networking have become the most secure modes of communication among health care providers and their clients during the COVID-19 pandemic all over the world. However, it is the primary means of disseminating health information about disease prevention and control. Methods: A cross-sectional study was conducted on 296 student nurses aged 19-49 enrolled at twelve Jordanian universities (6 public and six private) in Jordan. The research team developed the self-administered questionnaire to explore the student nurses' attitudes towards their health promotion role during the COVID-19 pandemic using social media and the Internet. Results: Findings revealed that the student nurses had positive attitudes towards their health promotion role during the COVID-19 pandemic. The majority of student nurses are using social media to raise the awareness of their community about COVID-19 prevention. Conclusion: The current research findings provide baseline data on the student nurses' attitudes about the proper utilization of social media to enhance their community health about COVID-19. Given the student nurses' positive attitudes about their role in COVID-19 health promotion, we strongly recommend that they be provided with the necessary knowledge and skills to demonstrate effective health education. © 2022.

Elbes, M., Kanan, T., Alia, M., Ziad, M.

COVID-19 Detection Platform from X-ray Images using Deep Learning

(2022) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126959082&doi=10.15849%2fIJASCA.220328.13&partnerID=40&md5=1fc1defb942d99fb6b1fee70648214be)

[85126959082&doi=10.15849%2fIJASCA.220328.13&partnerID=40&md5=1fc1defb942d99fb6b1fee70648214be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126959082&doi=10.15849%2fIJASCA.220328.13&partnerID=40&md5=1fc1defb942d99fb6b1fee70648214be)

AFFILIATIONS: AlZaytoonah University of Jordan, Jordan

ABSTRACT: Since the early days of 2020, COVID-19 has tragic effects on the lives of human beings all over the world. To combat this disease, it is important to survey the infected patients in an inexpensive and fast way. One of the most common ways of achieving this is by performing radiological testing using chest X-Rays and patient coughing sounds. In this work, we propose a Convolutional Neural Network-based solution which is able to identify the positive COVID-19 patients using chest X-Ray images. Multiple CNN models have been adopted in our work. Each of these models provides a decision whether the patient is affected with COVID-19 or not. Then, a weighted average selection technique is used to provide the final decision. To test the efficiency of our model we have used publicly available chest X-ray images of COVID positive and negative cases. Our approach provided a classification performance of 88.5%. © Al-Zaytoonah University of Jordan (ZUJ).

A. Alruwaili, M., Jarrar, Y.

Effects of vitamin C and D on the mRNA expression of angiotensin converting enzyme 2 receptor, cathepsin L, and transmembrane serine protease in the mouse lungs

(2022) Libyan Journal of Medicine, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126672403&doi=10.1080%2f19932820.2022.2054111&partnerID=40&md5=7360d84be3e6890e7d89b2636ce68fa9>
AFFILIATIONS: Department of Clinical Laboratory Sciences, College of Applied Medical Sciences, Jouf University, Skaka, Saudi Arabia;
Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Vitamins (Vit) C and D are widely used as immunogenic supplements among severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infected patients. The SAR-CoV-2 virus enters into the pulmonary endothelial cells through attachment to angiotensin converting enzyme 2 receptor (Ace2) and the proteolytic activity of Cathepsin L (Ctsl) and transmembrane serine protease 2 (Tmprss2) enzymes. This study aimed to determine the influence of Vit C and D on the mRNA expression of Ace2, Tmprss2, and Ctsl genes in the mouse lungs. Vitamins C and D were administrated to different groups of mice through intra-peritoneal route in doses equivalent to human for 30 days. Then, the mRNA expression of SARS-CoV-2 entry gene was analyzed using qRT-PCR. It is found that Vit D, but not C, upregulated significantly ($P < 0.05$) the mRNA expression of Ace2 by more than six folds, while downregulated the expression of Ctsl and Tmprss2 genes by 2.8 and 2.2 folds, respectively. It can be concluded from this study that Vit D alters the mRNA expression of Ace2, Tmprss, and Ctsl genes in the mouse lungs. This finding can help us in understanding, at least in part, the molecular influence of Vit D on genes involved in the entry of SARS-CoV-2 into the cells. © 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Qatawneh, A.

THE INFLUENCE OF DATA MINING ON ACCOUNTING INFORMATION SYSTEM PERFORMANCE: A MEDIATING ROLE OF INFORMATION TECHNOLOGY INFRASTRUCTURE

(2022) Journal of Governance and Regulation, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126662119&doi=10.22495%2fjgrv11i1art13&partnerID=40&md5=73e87d25a12b88e46de731654082d4e6>
AFFILIATIONS: Al-Zaytoonah University of Jordan, P. O. Box 130, Amman, 11733, Jordan
ABSTRACT: The current study aimed at examining the influence of data mining (information and communication technologies (ICTs), knowledge management (KM), data warehousing (DW), and data mining (DM) on performance and outcomes of accounting information system (AIS) application through a mediating role of information technology (IT) infrastructure. Through adopting a quantitative approach, a questionnaire was distributed on 143 individuals working within food manufacturing organizations in Jordan; primary data were screened and analyzed depending on SPSS version 27. Results of the study matched what came along with Zhang (2021) and indicated that there is a positive relationship between data mining and AIS performance in terms of the fact that data mining along with its strategies (prediction, classification, collecting, and distributing) had the ability to ease the process of managing huge amount of data and transfer it to AIS application for better processing in accounting means. However, this relationship, as according to Kim (2020), was attributed to a well-built IT infrastructure that appeared to be the main and most important aspect that played a role in determining the level of performance of both data mining and AIS applications. In conclusion, the current study summed up that adopting technology means generating more data, the more data an organization gets the more it needs to improve its data organization, storage, classification, and analysis. This can only come from organizational vigilance and total awareness of technology and how it can improve organizational ability to generate well-built information that helps in decision-making. © 2022 The Author.

Althunibat, A., Altarawneh, F., Dawood, R., Almaiah, M.A.

Propose a New Quality Model for M-Learning Application in Light of COVID-19

(2022) Mobile Information Systems, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126566983&doi=10.1155%2f2022%2f3174692&partnerID=40&md5=af5f18405f732a4eba765b42d2f786c9>
AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;
College of Computer Science and Information Technology, Department of Computer Networks and Communications, King Faisal University, Al-Ahsa, Al Hofuf31982, Saudi Arabia
ABSTRACT: The coronavirus disease (COVID-19) prevented millions of students around the world from receiving their lessons, because of the closure of thousands of schools. The new COVID-19 global epidemic invaded the barriers of time and space. Using mobile phones in education is a new form of the distance learning system. M-learning is characterized by many characteristics, the most important of which are providing an interactive educational environment, flexibility in space and time, better adaptation to individual needs, acquisition of knowledge, interactive effectiveness, and developing self-learning skills for students. The main aim of this paper is to suggest a quality model for M-learning applications for children which contains the most common characteristics of M-learning, which must be taken into account when designing M-learning applications. Through previous studies

related to the quality model for M-learning applications, we proposed two quality characteristics, technical and pedagogical. We proposed 8 subcharacteristics with their features following the structure of the IOS/IEC 912 and DeLone and McLean IS model to find the effect of technical and pedagogical factors on user satisfaction with M-learning applications for children. Results show that the proposed model can be useful and effective to ensure the development of high-quality M-learning applications. © 2022 Ahmad Althunibat et al.

Abuarqoub, D., Mahmoud, N.N., Zaza, R., Abu-Dahab, R., Khalil, E.A., Sabbah, D.A.

The in Vitro Immunomodulatory Effects of Gold Nanocomplex on THP-1-Derived Macrophages

(2022) Journal of Immunology Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126403957&doi=10.1155%2F2022%2F6031776&partnerID=40&md5=a2d8d1dd474d84df2bd38228dce74e18)

[85126403957&doi=10.1155%2F2022%2F6031776&partnerID=40&md5=a2d8d1dd474d84df2bd38228dce74e18](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126403957&doi=10.1155%2F2022%2F6031776&partnerID=40&md5=a2d8d1dd474d84df2bd38228dce74e18)

AFFILIATIONS: Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

Cell Therapy Center, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Introduction. This study is aimed at investigating the immunological response after treating THP-1 cells with gold nanorods conjugated with a phosphatidylinositol 3-kinase (PI3K α) inhibitor. Methodology. Gold nanorods were synthesized and functionalized with cholesterol-PEG-SH moiety, and the treatment groups were as follows: nanocomplex (a drug-conjugated gold nanorods), free drug (phosphatidylinositol 3-kinase (PI3K α) inhibitor), and GNR (the nanocarrier; cholesterol-coated gold nanorods). THP-1 cells were differentiated into macrophages and characterized by measuring the expression of macrophage surface markers by flow cytometry. Then, differentiated cells were activated by lipopolysaccharide (LPS). Afterwards, activated macrophages were treated with the different treatments: nanocomplex, free drug, and GNR, for 24 hrs. After treatment, the production of the inflammatory cytokines measured at gene and protein levels by using qPCR and CBA array beads by flow cytometry. Results. Our results show that THP-1 cells were successfully differentiated into macrophages. For inflammatory cytokine expression response, nanocomplex and free drug showed the same expression level of cytokines at gene level, as the expression of IL-1 β , IL-6, and TNF- α was significantly downregulated ($p < 0.0005$, $p < 0.0005$, $p < 0.0005$), respectively, while IL-8, IL-10, and TGF- β were all upregulated in a significant manner for nanocomplex ($p < 0.00005$, $p < 0.00005$, $p < 0.00005$) and free drug treatment group ($p < 0.00005$, $p < 0.05$, $p < 0.05$) compared to the control untreated group. While in the GNR group, IL-6 and TNF- α were downregulated ($p < 0.005$, $p < 0.00005$), and IL-12p40 ($p < 0.00005$) was upregulated all in a statistically significant manner. While at protein level, cells were treated with our nanocomplex: IL-1 β , IL-6, TNF- α , and IL-12p70 and were significantly decreased ($p < 0.00005$, $p < 0.005$, $p < 0.05$, $p < 0.00005$), and IL-10 was found to be significantly increased in culture compared to the untreated control group ($p < 0.005$). For free drug; IL-1 β and IL-12p70 were significantly decreased ($p < 0.00005$, $p < 0.00005$), while a significant increase in the secretion levels of IL-10 only was noticed compared to the untreated group ($p < 0.005$). For GNR treatment groups, IL-1 β , TNF- α , and IL-12p70 were significantly decreased ($p < 0.00005$, $p < 0.05$, $p < 0.00005$). Conclusion. We can conclude that our nanocomplex is a potent effector that prevents tumoral progression by activating three main immunological strategies: switching the surface expression profile of the activated macrophages into a proinflammatory M1-like phenotype, downregulating the expression of proinflammatory cytokines, and upregulating the expression level of anti-inflammatory cytokines. © 2022 Duaa Abuarqoub et al.

Jarab, F.S., Al-Qerem, W., Qarqaz, R.

Oral Cancer Awareness, Attitudes, and Barriers among Jordanian Adults: A Cross-sectional Study

(2022) Oral Health and Preventive Dentistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126403699&doi=10.3290%2Fj.ohpd.b2805373&partnerID=40&md5=0098431970fda1d92def28d953e50446)

[85126403699&doi=10.3290%2Fj.ohpd.b2805373&partnerID=40&md5=0098431970fda1d92def28d953e50446](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126403699&doi=10.3290%2Fj.ohpd.b2805373&partnerID=40&md5=0098431970fda1d92def28d953e50446)

AFFILIATIONS: Department of Oral Medicine and Surgery, Faculty of Dentistry, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: To identify the gaps in the Jordanian population's knowledge about oral cancer, screening and attitudes toward screening, in addition to determining the barriers to oral cancer screening. Materials and Methods: A cross-sectional web-based study was conducted. The first section of the questionnaire employed collected the participants' sociodemographic data. A question about whether patients had heard about oral cancer was then included, and those who answered 'no' were instructed to submit the questionnaire. The subsequent parts evaluated the participants' knowledge of oral cancer and screening, attitudes toward screening, and barriers against screening. ANOVA and chi-squared tests were conducted to investigate the sample characteristics associated with the participants' unfamiliarity with oral cancer. Binary regression was conducted to predict the variables associated with the participants' knowledge and attitudes. Results The questionnaire was filled

by 1307 participants (1011 females). Most of the participants (70.01%) stated that they had heard of oral cancer, and the variables associated with awareness of oral were sex, monthly income, health insurance coverage, working status, and educational level. Sources of information and age were significantly associated with knowledge and attitude levels. The most 'agree/strongly agree' responses about barriers were lack of knowledge and lack of awareness. Conclusion The study participants had moderate knowledge about oral cancer and satisfactory attitudes toward screening. Nearly all barriers to screening can be overcome by the joint efforts of healthcare providers and health authorities. © This work is licensed under the Creative Commons Attribution 4.0 International License

Al-Qerem, W., Al Bawab, A.Q., Hammad, A., Jaber, T., Khair, S.I., Kalloush, H., Ling, J., Mosleh, R. Parents' attitudes, knowledge and practice towards vaccinating their children against COVID-19: a cross-sectional study

(2022) Human Vaccines and Immunotherapeutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126004475&doi=10.1080%2f21645515.2022.2044257&partnerID=40&md5=a4946b39e617b8482a6501afada96953)

[85126004475&doi=10.1080%2f21645515.2022.2044257&partnerID=40&md5=a4946b39e617b8482a6501afada96953](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126004475&doi=10.1080%2f21645515.2022.2044257&partnerID=40&md5=a4946b39e617b8482a6501afada96953)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Health Sciences & Wellbeing, University of Sunderland, Sunderland, United Kingdom;

Department of Pharmacy, Faculty of Medicine & Health Sciences, An-Najah National University, Nablus, Palestine

ABSTRACT: The question of whether children should be vaccinated against COVID-19 is currently being argued. The risk-benefit analysis of the vaccine in children has been more challenging because of the low prevalence of acute COVID-19 in children and the lack of confidence in the relative effects of the vaccine and the disease. One of the most convincing arguments for vaccinating healthy children is to protect them from long-term consequences. The aim of this study was to assess Jordanian parents' intention to vaccinate their children. This is an Internet-based cross-sectional survey. The researchers prepared a Google Forms survey and shared the link with a number of Jordanian Facebook generic groups. Data were gathered between September and November 2021. In this study, convenience sampling was used. Knowledge about COVID-19 and preventive practices against COVID-19 were calculated for each participant. A total of 819 participants completed the survey (female = 70.9%). Of these, 274 (30.2%) participants intended to vaccinate their children, whereas the rest were either unsure 176 (21.5%) or intended not to vaccinate their children 396 (48.4%). The variables that increased the odds of answering "No" vs "Yes" to "will you vaccinate your children against COVID-19" included not willing to take the vaccines themselves (OR 3.75; CI, 1.46-9.62) and low protective practice group (OR 1.73; CI, 1.12-2.68). Participants had significant levels of refusal/hesitancy. Several barriers to vaccination were identified; attempts to overcome these should be stepped up. © 2022 The Author(s). Published with license by Taylor & Francis Group, LLC.

Althunibat, A., Abdallah, M., Almaiah, M.A., Alabwaini, N., Alrawashdeh, T.A.

An Acceptance Model of Using Mobile-Government Services (AMGS)

(2022) CMES - Computer Modeling in Engineering and Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125630143&doi=10.32604%2fCMES.2022.019075&partnerID=40&md5=373a52a48d39678a7da1b524739a244)

[85125630143&doi=10.32604%2fCMES.2022.019075&partnerID=40&md5=373a52a48d39678a7da1b524739a244](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125630143&doi=10.32604%2fCMES.2022.019075&partnerID=40&md5=373a52a48d39678a7da1b524739a244)

AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Computer Sciences and Information Technology, King Faisal University, Al-Ahsa, Saudi Arabia

ABSTRACT: In recent years, the telecommunications sector is no longer limited to traditional communications, but has become the backbone for the use of data, content and digital applications by individuals, governments and companies to ensure the continuation of economic and social activity in light of social distancing and total closure in most countries in the world. Therefore, electronic government (e-Government) and mobile government (m-Government) are the results of technological evolution and innovation. Hence, it is important to investigate the factors that influence the intention to use m-Government services among Jordan's society. This paper proposed a new m-Government acceptance model in Jordan (AMGS); this model combines the Information System (IS) Success Factor Model and Hofstede Cultural Dimensions Theory. The study was conducted by surveying different groups of the Jordanian community. A structured questionnaire was used to collect data from 203 respondents. Multiple regression analysis has been conducted to analyze the data. The results indicate that the significant predictors of citizen intention to use m-Government services in Jordan are Information Quality, Service Quality, Uncertainty Avoidance, and Indulgence vs. restraint. While, the results also suggest that Power Distance is not a significant predictor of citizen intention to use m-Government services. © 2022 Tech Science Press. All rights reserved.

Abdalla, A.M., Awad, M.A., AlZoubi, O., Al-Samraie, L.A.

Automatic Segmentation and Detection System for Varicocele Using Ultrasound Images

(2022) Computers, Materials and Continua, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125413044&doi=10.32604%2fcmc.2022.024913&partnerID=40&md5=6c990f561952a7f7514464a9723b2b70)

85125413044&doi=10.32604%2fcmc.2022.024913&partnerID=40&md5=6c990f561952a7f7514464a9723b2b70

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Computer Science, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Water and Environmental Engineering, Al-Huson University College, Al-Balqa Applied University, Irbid, Jordan

ABSTRACT: The enlarged veins in the pampiniform venous plexus, known as varicocele disease, are typically identified using ultrasound scans. The medical diagnosis of varicocele is based on examinations made in three positions taken to the right and left testicles of the male patient. The proposed system is designed to determine whether a patient is affected. Varicocele is more frequent on the left side of the scrotum than on the right and physicians commonly depend on the supine position more than other positions. Therefore, the experimental results of this study focused on images taken in the supine position of the left testicles of patients. There are two possible vein structures in each image: A cross-section (circular) and a tube (non-circular) structure. This proposed system identifies dilated (varicocele) veins of these structures in ultrasound images in three stages: Preprocessing, processing, and detection and measurement. These three stages are applied in three different color modes: Grayscale, Red-Green-Blue (RGB), and Hue, Saturation, and Value (HSV). In the preprocessing stage, the region of interest enclosing the pampiniform plexus area is extracted using a median filter and threshold segmentation. Then, the processing stage employs different filters to perform image denoising. Finally, edge detection is applied in multiple steps and the detected veins are measured to determine if dilated veins exist. Overall implementation results showed the proposed system is faster and more effective than the previous work. © 2022 Tech Science Press. All rights reserved.

Hamdallah, M.E., Srouji, A.F.

THE INFLUENCE OF SUSTAINABLE INNOVATION ON FINANCIAL ENTREPRENEURSHIP PERFORMANCE: GROWTH AND PREDICTION IN AN EMERGING MARKET

(2022) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124881459&doi=10.22495%2fjgrv11i1art3&partnerID=40&md5=ce5b0ad187b12697bc4a58312b2f9a4c)

85124881459&doi=10.22495%2fjgrv11i1art3&partnerID=40&md5=ce5b0ad187b12697bc4a58312b2f9a4c

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University, Amman, Jordan; Accounting Department, King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, Jordan

ABSTRACT: This study aims to perceive the effect of financial entrepreneurship performance (FEP) over sustainable innovation (SI) disclosure in an emerging market. Jordanian banks are tested based on a multiple regression analysis for the periods 2008 and 2018 and a time series forecasting webinar analysis for the period from 2019 to 2029 based on data ranging from 2008 to 2018. Innovation is indicated through disclosed intangible assets (IA), and items related to research and development (R&D) costs. As organizations anticipate stability by concentrating on technological awareness to influence higher innovative performance (Guo, Guo, Zhou, & Wu, 2020), this study came to converse the relationships between previous literature variables; Hussain (2015) as well as Lassala, Apetrei, and Sapena (2017) revealed through the regression models that there is a relationship between FEP and SI. Meanwhile, bank FEP is directed by return on assets (ROA) and return on equity (ROE). Results reveal that bank FEP affects SI disclosure in a positive manner for the period 2008 and at a higher significant level than 2018. In the meantime, the growth prediction analyses divulge that both ROA and ROE are expected to decrease rapidly within a coming couple of years and then increase promptly. © 2022 The Authors.

Abu Sharour, L., Al Sabei, S., Al Harrasi, M., Anwar, S., Bani Salameh, A., Al Qadire, M.

Quality of Oncology Nursing Care as Perceived by Patients with Cancer: Results from Three Arab Countries

(2022) Cancer Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124804351&doi=10.1097%2fNCC.0000000000000993&partnerID=40&md5=e9018a23effccc3897def31ca549c80a)

85124804351&doi=10.1097%2fNCC.0000000000000993&partnerID=40&md5=e9018a23effccc3897def31ca549c80a

AFFILIATIONS: Department of Nursing, Al Zaytoonah University of Jordan, PO Box 130, Amman, 11733, Jordan;

Department of Adult Health and Critical Care, Sultan Qaboos University, Muscat, Oman;

Department of Adult Health and Critical Care, Alexandria University, Egypt

ABSTRACT: Background Patient satisfaction was defined as expectation and perception of the patients about real nursing care they receive. Objective The aim of this study was to evaluate the quality of oncology nursing care as perceived by patients with cancer in 3 Arabic countries (Jordan, Oman, and Egypt). Methods A cross-sectional design with convenience sampling approach was used. A total of 517 patients with cancer (Jordan, 200, 38.7%; Sultanate of Oman, 137, 26.5%; and Egypt, 180, 34.8%) participated and completed the study's questionnaires including sociodemographic data and the Quality

of Oncology Nursing Care Scale (QONCS). Results Moderate quality of oncology nursing care was reported by the participants. The overall mean for the quality of oncology care as measured by the QONCS-Ar (QONCS Arabic version) was highest in Oman (153.40; SD, 4.10), followed by Jordan (150.93; SD, 2.10) and then Egypt (148.0; SD, 3.80). The results were significantly different in the total score of the QONCS-Ar ($F = 45.20$, $P < .001$) among the 3 countries. The results also differed in all domains of oncology nursing care according to days of treatment and marital status. Conclusion Findings are considered a baseline for future research and highlight the importance of evaluating quality of oncology nursing care as perceived by the patients with cancer. Implications for Practice The results from the current study can be used to develop an interventional program focusing on the needs of patients and their perceptions of care. © Wolters Kluwer Health, Inc. All rights reserved.

Al-Mashaleh, W., Qawaqneh, H., Al-Zoubi, H.

Some results on traces of the generalized products and sums of positive semidefinite matrices (2022) International Journal of Mathematics and Computer Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124728094&partnerID=40&md5=0a9b89ca7d2312b8a0400fd787714d30)

85124728094&partnerID=40&md5=0a9b89ca7d2312b8a0400fd787714d30

AFFILIATIONS: Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Matrix inequalities that expand certain scalar ones have been within the center of numerous researchers considerations. The purpose of this article is to prove the trace inequality depending on positive semidefinite block matrix (Formula Presented). In this direction, we give some examples in support of the given concepts and presented results © 2022, International Journal of Mathematics and Computer Science. All Rights Reserved.

Jaradat, Y., Masoud, M., Jannoud, I., Zeidan, D.

Genetic Algorithm Energy Optimization in 3D WSNs with Different Node Distributions

(2022) Intelligent Automation and Soft Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124648819&doi=10.32604%2fiasc.2022.024218&partnerID=40&md5=2a39250e9a0e89d232bee1ff71cea5ce)

85124648819&doi=10.32604%2fiasc.2022.024218&partnerID=40&md5=2a39250e9a0e89d232bee1ff71cea5ce

AFFILIATIONS: Department of Electrical Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Optimal node clustering in wireless sensor networks (WSNs) is a major issue in reducing energy consumption and extending network node life time and reliability measures. Many techniques for optimizing the node clustering process in WSN have been proposed in the literature. The metaheuristic algorithms are a subset of these techniques. Genetic algorithm (GA) is an evolutionary metaheuristic technique utilized to improve the network reliability and extending the network life time by optimizing the clustering process in the network. The GA dynamic clustering (GA-DC) algorithm is proposed in this paper to extend the network reliability and node life time of three dimensional (3D) WSN. The GA-DC algorithm made use of an improved fitness function that takes into account a variety of metrics such as energy expenditure per protocol round, clustering distance, and the number of long-distance wireless connections. There have been two types of simulation scenarios run. First, simulation results show that the GA-DC algorithm increases network life time by 80% and network throughput by 55% when compared to the well-known LEACH protocol. Second, simulation results show that the uniform node distribution outperforms the normal and exponential distributions in terms of network life time by 5.7% and 7%, network reliability by 4.2% and 76%, and data throughput by 10.85% and 19.54%, respectively. © 2022, Tech Science Press. All rights reserved.

Abu Kamel, A.M., Shawish, N.S., El-Sayed Taha, E., Morsy, S.R.

Midwifery Students' Acquisition and Retention of Essential Newborn Care Competencies: An Experimental Study

(2022) Malaysian Journal of Medicine and Health Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124463028&partnerID=40&md5=faf54bfc82c8cf49bdea0bfb6b36f763)

85124463028&partnerID=40&md5=faf54bfc82c8cf49bdea0bfb6b36f763

AFFILIATIONS: Al-Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, Jordan;

Department of Nursing, Faculty of Nursing, Irbid National University, Irbid, Jordan;

Department of Nursing Education, Faculty of Nursing, Alexandria University, Izbet Saad, Sidi Gaber, Alexandria, Egypt

ABSTRACT: Introduction: Annually, over two million newborns die worldwide immediately after birth, mostly because of failure to initiate and sustain breathing. A significant decline in newborn deaths can be achieved by using proper essential newborn care (ENC) techniques. Competency-based education (CBE) could successfully build ENC skills. The purpose of the present study was to investigate the effect of applying CBE on Midwifery students' knowledge and skills acquisition and retention of ENC. Methods: This quasi-experimental study recruited third-year under-graduate midwifery students (n=54). They were equally assigned to the interventional and control group. The interventional group was taught ENC by using CBE, whereas the control group was taught by using traditional methods. Students'

ENC knowledge was assessed three times using a multiple-choice question exam. The ENC skills were measured twice by using the Essential Neonatal Care Performance Checklist. Results: The intervention group exhibited significant ENC knowledge and skills, performance acquisition, and retention ($p < 0.001$). Conclusion: CBE is a useful educational model for the acquisition and retention of ENC. © 2022 UPM Press. All rights reserved.

Abu Sabra, M.A., Hamaideh, S.H., Hamdan-Mansour, A.M.

Testing Efficacy of Relapse Prevention Intervention among Patients Diagnosed with Schizophrenia in Jordan

(2022) *Issues in Mental Health Nursing*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124370063&doi=10.1080%2f01612840.2022.2025634&partnerID=40&md5=e66ae482def062063fd041940ae345a5)

[85124370063&doi=10.1080%2f01612840.2022.2025634&partnerID=40&md5=e66ae482def062063fd041940ae345a5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124370063&doi=10.1080%2f01612840.2022.2025634&partnerID=40&md5=e66ae482def062063fd041940ae345a5)

AFFILIATIONS: Psychiatric Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan;

Community and Mental Health Nursing Department Faculty of Nursing, The Hashemite University, Zarqa, Jordan;

Psychiatric Nursing, School of Nursing, The University of Jordan, Amman, Jordan

ABSTRACT: Background: Relapse prevention is an essential component in sustaining positive treatment outcomes. Objective: The purpose of this study was to test the efficacy of a relapse prevention intervention on the ability of patients and their primary caregivers to self-detect and manage early warning signs of relapse, and its impact on relapse rate among patients diagnosed with schizophrenia. Method: Quasi-experimental design; one group posttest only, repeated measure time-series design was employed. A total of 40 patients and their primary caregivers represented the sample in this study. Results: The statistical analysis revealed that the effect of relapse prevention intervention on patients and their primary caregivers' ability to self-detect severity and manage early warning signs of relapse has sustainable and positive effect on patients and their primary caregivers from T1 to T3 (patients, $M = 9.0-9.3$; caregivers, $M = 9.7-9.9$). Also, positive effect of intervention detected on abilities of patients and primary caregivers to manage EWS from T1 to T3 (patients, $M = 35-36.0$; caregivers, $M = 39.7-38.1$). The analysis also showed a low relapse rate (14.9%). Conclusion: The study showed that relapse prevention interventions is effective and applicable approach that psychiatric nurses can use to ensure sustainable positive outcomes of psychiatric healthcare among patients with schizophrenia. © 2022 Taylor & Francis Group, LLC.

Bouacha, M., Besnaci, S., Boudiar, I., Al-Kafaween, M.A.

Impact of Storage on Honey Antibacterial and Antioxidant Activities and their Correlation with Polyphenolic Content

(2022) *Tropical Journal of Natural Product Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124352930&doi=10.26538%2ftjnpr%2fv6i1.7&partnerID=40&md5=2a2a4065779030004ab31963b229d9ec)

[85124352930&doi=10.26538%2ftjnpr%2fv6i1.7&partnerID=40&md5=2a2a4065779030004ab31963b229d9ec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124352930&doi=10.26538%2ftjnpr%2fv6i1.7&partnerID=40&md5=2a2a4065779030004ab31963b229d9ec)

AFFILIATIONS: Laboratory of Biochemistry and Environmental Toxicology, Department of Biochemistry, Faculty of Sciences, University of Badji Mokhtar, Annaba, Algeria;

Laboratory of Cellular Toxicology, Department of Biology, Faculty of Sciences, University of Badji Mokhtar, Annaba, Algeria;

Laboratory of Biochemistry and Applied Microbiology, Department of Biochemistry, Faculty of Sciences, University of Badji Mokhtar, Annaba, Algeria;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The quality of honey may be affected during storage. The purpose of this study was to assess the impact of storage of nine Algerian honey samples on its antibacterial activity and antioxidant effect. The antibacterial activity of honey samples was evaluated by both the agar well diffusion and micro-broth dilution assays. The antioxidant activity was performed by using in vitro scavenging assays of 2,2-diphenyl-1-picrylhydrazyl (DPPH) and ferric-reducing antioxidant power (FRAP). All the analyses were performed before storage and after every six months of storage in the dark at room temperature ($24 \pm 4^\circ\text{C}$). All the honey samples showed a decrease in antibacterial activity after six months of storage except for the honey sample 2. Indeed, there were no significant variations in the total polyphenolic content and DPPH values before and after storage, except for honey sample 6. However, there was a significant decrease in the antioxidant capacity measured by FRAP assay ($P = 0.0002$). There was a strong correlation between the total polyphenolic content of honey and its antioxidant activity and a moderate correlation with the antibacterial activity. The storage of honey in the dark at room temperature for 18 months influences the quality of honey. However, further investigations are required to strengthen this argument. © 2022 Bouacha et al.

Al-Qerem, W., Hammad, A., Alsajri, A.H., Al-Hishma, S.W., Ling, J., Mosleh, R.

COVID-19 Vaccination Acceptance and Its Associated Factors Among the Iraqi Population: A Cross Sectional Study

(2022) *Patient Preference and Adherence*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124350511&doi=10.2147%2fPPA.S350917&partnerID=40&md5=4c2693da58c8fecde555b71a6818a104)

85124350511&doi=10.2147%2fPPA.S350917&partnerID=40&md5=4c2693da58c8fecde555b71a6818a104

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Specialized Bone Marrow Transplant Center, Baghdad, Iraq;

University of Sains Malaysia, School of Pharmaceutical sciences, Penang, Malaysia;

Department of Pharmacy, Faculty of Science and Wellbeing University of Sunderland, Sunderland, United Kingdom;

Department of Pharmacy, Faculty of Medicine & Health Sciences, An-Najah National University, Nablus, Palestine;

Department of Pharmacy, Faculty of Medicine & Health Sciences, An-Najah National University, PO Box 7, Nablus, Palestine

ABSTRACT: Purpose: The Coronavirus Disease 2019 (COVID-19) pandemic poses a serious threat to countless lives. Development of an efficient vaccination can help end the pandemic. Vaccine hesitancy/refusal is a huge issue that could stymie attempts to combat the disease. The goal of this study is to examine COVID-19 vaccine hesitancy in Iraq where at the end of July 2021, only 7.4% of the population was vaccinated. Participants and Methods: This is a cross-sectional web-based study. A survey was used to assess knowledge, attitudes and practice (KAP) toward COVID-19. Willingness to be vaccinated against COVID-19 was assessed, with a logistic regression used to identify variables associated with vaccine acceptance. Motives for vaccination refusal/hesitation were reported. Results: A total of 1542 participants (females = 56.7%) completed the questionnaire. Participants displayed high knowledge and good protective practices toward COVID-19 (median score = 15 out of 19 and 20 out of 25 respectively). 88.6% were willing to be vaccinated. Variables associated with vaccine acceptance included have not been infected with COVID-19 (OR=0.53, p=0.01), low-and moderate-income (ORs=0.42 and 0.63, p<0.01 respectively), low education level (OR=0.33, p-value<0.01) and perceived degree of vaccination importance (OR=1.30, P-value<0.01). The most mentioned reasons for vaccine refusal were concerns about vaccine safety and side effects (90.35%) and the need for more information about the vaccine (81.2%). Conclusion: Participants showed high acceptance toward COVID-19 vaccination, nevertheless more efforts should be applied to overcome barriers mentioned by the participants. © 2022 Al-Qerem et al.

Halloush, S., Alhifany, A.A., Alkhatib, N.S., Al Bawab, A.Q., AL-Qawasmeh, B., Al Shawakri, E., Koeller, J.

Cost-effectiveness of palonosetron and dexamethasone-based triple and quadruple regimens in preventing highly emetogenic chemotherapy-induced nausea and vomiting

(2022) Current Medical Research and Opinion, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124274644&doi=10.1080%2f03007995.2022.2033011&partnerID=40&md5=a1790414f0e3a4fae7e17c927914f5cd)

85124274644&doi=10.1080%2f03007995.2022.2033011&partnerID=40&md5=a1790414f0e3a4fae7e17c927914f5cd

AFFILIATIONS: Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Clinical Pharmacy Department, College of Pharmacy, Umm Al-Qura University, Makkah, Saudi Arabia;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Center for Health Outcomes and PharmacoEconomic Evaluation, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

College of Pharmacy, The University of Mississippi, Oxford, MS, United States;

College of Pharmacy, The University of Texas at Austin, Austin, TX, United States;

Pharmacotherapy Education and Research Center, UT HealthTX, United States

ABSTRACT: Objective: Cost-effectiveness analyses that consider all currently used antiemetics in the case of emetogenic chemotherapy-induced nausea and vomiting (CINV) have not been performed yet. We aim to compare the cost-effectiveness of olanzapine (OLA), or/and neurokinin-1 receptor antagonists (NK-1-RAs), in combination with palonosetron (PAL) and dexamethasone (DEX) in preventing highly emetogenic CINV. Methods: Two decision analytic models were constructed. The first model was based on overall complete response (CR); the second model was based on rate of absence of nausea. Four antiemetic regimens PAL + DEX, NK-1-RAs + PAL + DEX, OLA + PAL + DEX, and PAL + NK-1-RA + DEX + OLA were compared in terms of cost, overall CR and rate of absence of nausea. Base case incremental cost-effectiveness ratio (ICER) estimates were calculated. The study was from the US payer perspective. Results: In terms of CR, the PAL + NK-1-RA + DEX + OLA was associated with the highest gains in the percentage of CR among all treatment regimens at base case ICERs of \$4220 versus PAL + DEX, \$4656 versus NK-1-RA + PAL + DEX, \$16,471 versus OLA + PAL + DEX. In term of rate of absence of nausea, the PAL + NK-1-RA + DEX + OLA was associated with the highest rate of absence of nausea among all the treatment regimens at base case ICERs of \$2291 versus PAL + DEX, \$1304 versus NK-1-RA + PAL + DEX, \$2657 versus OLA + PAL + DEX. Conclusion: from an economic perspective, our study revealed that whether to use overall CR or/and rate of absence of nausea as determinants in the antiemetic decision for the CINV patients, the CR-based-, and rate of absence of nausea-based cost-effectiveness analyses, showed negotiable ICER estimates for the treatment PAL + NK-1-RA + DEX + OLA over the combinations PAL + DEX, NK-1-RA + PAL + DEX, and OLA + PAL + DEX regimens. © 2022 Informa UK Limited,

trading as Taylor & Francis Group.

Althaher, A.R., Oran, S.A., Bustanji, Y.K.

Induction of apoptosis by *Ruta chalepensis* L. essential oil in human breast cancer cells (MCF-7)
[Inducción de apoptosis por el aceite esencial de *Ruta chalepensis* L. en células de cáncer de mama humano (MCF-7)]

(2022) *Journal of Pharmacy and Pharmacognosy Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123841779&partnerID=40&md5=76c59941418c819eee477c51e9e9ba0c)

[85123841779&partnerID=40&md5=76c59941418c819eee477c51e9e9ba0c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123841779&partnerID=40&md5=76c59941418c819eee477c51e9e9ba0c)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biological Sciences, The University of Jordan, Amman, 11942, Jordan;

Department of Basic Medical Sciences, University of Sharjah, Sharjah, 27272, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Context: Recent scientific studies have reported that essential oils induce apoptosis in various cancer cell types by interfering with intracellular signaling pathways. Aims: To evaluate the cytotoxicity, the apoptotic activity of essential oil (EO) of *Ruta chalepensis* L. against MCF-7 cell line. Methods: Cytotoxicity was determined using methyl thiazol tetrazolium assay. The apoptotic activity of EO was analyzed using annexin V-fluorescein isothiocyanate/propidium iodide binding flow cytometry. The cell morphology was inspected under an inverted microscope. DAPI staining assay was used for the morphological observation. Activation of caspases-3/7, -8, and-9 was assessed using a caspase assay kit. Results: *Ruta chalepensis* essential oil significantly inhibited the proliferation of MCF-7 cells at 72 h. Moreover, the results showed that cell death is associated with the apoptotic process, and the number of apoptotic cells was significantly increased in the groups treated with EO than in control cells. The main morphological hallmarks of apoptosis in the nucleus were membrane blebbing, chromatin condensation, and nuclear fragmentation. Also, *R. chalepensis* EO-induced apoptosis in the MCF-7 cell line was via the extrinsic caspase-8 dependent pathway in a dose and time-dependent manner. Conclusions: *Ruta chalepensis* essential oil demonstrated significant apoptotic activity against experimental breast carcinoma. Therefore, it could be introduced as a suitable candidate for breast cancer therapy after further investigation. © 2022 *Journal of Pharmacy & Pharmacognosy Research*

Mukattash, T.L., Jarab, A.S., Al-Qerem, W., Abu Farha, R.K., Itani, R., Karout, S., Mukattash, I.L.

Coronavirus disease patients' views and experiences of pharmaceutical care services in Lebanon

(2022) *International Journal of Pharmacy Practice*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123652058&doi=10.1093%2fijpp%2friab071&partnerID=40&md5=2ac860c2ef310a936cdf42ac310cd5e5)

[85123652058&doi=10.1093%2fijpp%2friab071&partnerID=40&md5=2ac860c2ef310a936cdf42ac310cd5e5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123652058&doi=10.1093%2fijpp%2friab071&partnerID=40&md5=2ac860c2ef310a936cdf42ac310cd5e5)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Therapeutics and Clinical Pharmacy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Pharmacy Practice Department, Faculty of Pharmacy, Beirut Arab University, Beirut, Lebanon;

Department of Marketing, Faculty of Business, Applied Science Private University, Amman, Jordan

ABSTRACT: Objectives: This study aimed to explore the experiences and views of domiciliary coronavirus disease (COVID-19) patients towards pharmaceutical care services provided during their infection. Methods: This was a single-centred observational study conducted among home-treated COVID-19 patients (n = 500), who were tested positive for COVID-19 in a medical centre in Lebanon. Key findings: Out of the 500 home-treated COVID-19 patients invited to participate in the study, 279 patients completed the questionnaire. Although the participants had a good view of pharmacists caring for COVID-19 patients (mean view score: 17.79/25), their treatment experiences were unsatisfactory (mean experience score: 1.51/4). Conclusions: COVID-19 patients reported minimal involvement of pharmacists in their treatment. Therefore, in response to the COVID-19 pandemic, healthcare authorities should intervene in restructuring, guiding and reviewing unrealized new pharmaceutical services to COVID-19 outpatients. © 2021 The Author(s) 2021. Published by Oxford University Press on behalf of the Royal Pharmaceutical Society. All rights reserved.

Jarab, A.S., Al-Qerem, W., Mukattash, T.L.

Community pharmacists' willingness and barriers to provide vaccination during COVID-19 pandemic in Jordan

(2022) *Human Vaccines and Immunotherapeutics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123431244&doi=10.1080%2f21645515.2021.2016009&partnerID=40&md5=3c70604afe269c8bf300873d405f2757)

[85123431244&doi=10.1080%2f21645515.2021.2016009&partnerID=40&md5=3c70604afe269c8bf300873d405f2757](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123431244&doi=10.1080%2f21645515.2021.2016009&partnerID=40&md5=3c70604afe269c8bf300873d405f2757)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Providing vaccination in community pharmacies could increase the vaccination coverage rate as well as help reducing the workload of the healthcare system. The current study was conducted to evaluate community pharmacists' willingness and barriers to provide vaccination in community pharmacy setting. A validated questionnaire which included eight items to evaluate willingness and eleven items to evaluate the barriers to provide vaccines was distributed online. Binary logistic regression was conducted to explore the factors that are significantly associated with willingness and barriers to provide the vaccine. Among the 201 participating pharmacists, 174 (86.6%) had a high willingness level. Lack of authorization (91.6%), lack of collaboration with other healthcare professionals (85.6%), and lack of space for storage (74.1%) were the most recognized barriers to vaccinate. Pharmacists with BSc degree demonstrated less willingness (OR = 0.18 (0.07-0.46), and increased barriers (OR = 4.86 (1.56-15.17) to provide the vaccine when compared with Pharm D and postgraduate pharmacists $P < .01$. Factors including male gender (OR: 6.10), working in chain pharmacy (OR: 8.98) and rural areas (OR: 4.31), moderate income (OR: 19.34) and less years of experience (OR:0.85) were significantly associated with increased barriers to provide the vaccine ($P < .05$). Despite the high willingness of the community pharmacists to vaccinate, several barriers were present. Enhancing pharmacists' authorization and collaboration with other healthcare professionals and providing space for storage along with providing training courses and workshops should be considered to enhance pharmacist's engagement in vaccination service. © 2022 The Author(s). Published with license by Taylor & Francis Group, LLC.

Jarrar, Y., Lee, S.-J.

Demand for Pharmacogenomics and Personalized Medicine in the United Arab Emirates
(2022) Journal of Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123213413&doi=10.3390%2fjpm12010104&partnerID=40&md5=20183c80b0d2572749c08e2673f478cf)

[85123213413&doi=10.3390%2fjpm12010104&partnerID=40&md5=20183c80b0d2572749c08e2673f478cf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123213413&doi=10.3390%2fjpm12010104&partnerID=40&md5=20183c80b0d2572749c08e2673f478cf)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
Department of Pharmacology and Pharmacogenomics Research Center, College of Medicine, Inje University, Busan, 50834, South Korea

Alkhatib, S.M., Alkhatib, E.S.

The Evolution and Diffusion of the Standard Business Reporting (SBR) Initiatives: Evidence from UK Small Businesses

(2022) International Journal of Digital Accounting Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123102568&doi=10.4192%2f1577-8517-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123102568&doi=10.4192%2f1577-8517-v22_1&partnerID=40&md5=64009bd03110fe432ff02e85154bace4)

[v22_1&partnerID=40&md5=64009bd03110fe432ff02e85154bace4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123102568&doi=10.4192%2f1577-8517-v22_1&partnerID=40&md5=64009bd03110fe432ff02e85154bace4)

AFFILIATIONS: School of Business, The University of Jordan, Jordan;

School of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Few studies have comprehensively described Standard Business Reporting (SBR) as a policy-driven initiative based on inline eXtensible Business Reporting Language (iXBRL) aimed at reducing the administrative burden of statutory business reporting. The SBR term is still difficult to understand even by the countries where it has been implemented. The objective of this study is twofold. First, it describes in detail the evolution of the SBR initiatives in the UK. Second, it investigates the drivers and inhibitors of the take-up of the SBR initiative by small businesses based on the technology, organization, and environment (TOE) framework. It draws on contextual data and 23 interviews with participants involved in the development of these initiatives. The findings show that the following are perceived as drivers of the take-up of the SBR initiatives by small private companies: the relative advantages of using WebFiling, commercial filing software, and the digital services, the organizational accountant's readiness, and the influence of commercial filing software. However, we find no evidence that the relative advantage of using the joint-filing facility via iXBRL was perceived as a driver of the take-up of this innovation. The findings indicate that the absence of critical mass among government agencies inhibits its diffusion. This study provides specific implications to small businesses, the accountants working in small businesses and practice, government agencies in the UK, and other jurisdictions embarking on the SBR initiatives for further developments to reduce the reporting burden on smaller entities. © 2022, Universidad de Huelva. All rights reserved.

AL-Sagarat, A.Y., Al Hadid, L.A., Tapsell, A., Moxham, L., Al Barmawi, M., Khalifeh, A.H.

Evaluating and identifying predictors of emotional well-being in nursing students in Jordan: a cross-sectional study

(2022) Advances in Mental Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122804532&doi=10.1080%2f18387357.2021.2018940&partnerID=40&md5=85a9594a9c58b07b3652b11e44ea2558)

[85122804532&doi=10.1080%2f18387357.2021.2018940&partnerID=40&md5=85a9594a9c58b07b3652b11e44ea2558](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122804532&doi=10.1080%2f18387357.2021.2018940&partnerID=40&md5=85a9594a9c58b07b3652b11e44ea2558)

AFFILIATIONS: Community and Mental Health Nursing Department, Faculty of Nursing, Mutah University, AL-Karak, Jordan;

Faculty of Nursing, Al Balqa' Applied University, Salt, Jordan;

School of Nursing, University of Wollongong, Wollongong, Australia;
Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;
Faculty of Nursing, Zarqa University, Zarqa, Jordan

ABSTRACT: Objectives: The study aims were to evaluate the emotional well-being of nursing students in Jordan by measuring student levels of anxiety, depression, behavioural control, positive affect, and general distress, and to identify predictors of emotional well-being in nursing students. Background: Owing to a unique number of stressors, nursing students have been shown to experience high levels of stress. This stress may impact their learning, physical health, and mental health, as well as lead to burnout and potentially self-harmful behaviours. Identifying the predictors of psychological distress among nursing students is therefore critical. Method: A descriptive cross-sectional survey design was utilised. The Mental Health Inventory (MHI-38) was administered to a convenience sample of nursing students (n = 230) from a university in Jordan. Multiple regression analysis was performed to determine predictors of psychological distress and well-being. In presenting this research, the STROBE checklist was followed. Results: Nursing students had higher levels of psychological distress and moderate levels of emotional well-being. Nursing students scored high on general positive affect; however scores on domains related to the loss of behavioural/emotional control and anxiety were also high. Discussion: A significant proportion of nursing students within this study were experiencing psychological distress. Implications for practice: This study may be the first to evaluate the emotional well-being among nursing students in Jordan. Research evidence can inform decision makers in that they devise strategies and interventions that aim to build students' coping skills and promote emotional well-being. © 2022 Informa UK Limited, trading as Taylor & Francis Group.

Masoud, M.Z., Jaradat, Y., Alia, M.

IEEE802.11 Access Point's Service Set Identifier (SSID) for Localization and Tracking
(2022) Computers, Materials and Continua, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122739923&doi=10.32604%2fcm.2022.023781&partnerID=40&md5=156093c48950895f3ec0cee4d83f6a23)

[85122739923&doi=10.32604%2fcm.2022.023781&partnerID=40&md5=156093c48950895f3ec0cee4d83f6a23](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122739923&doi=10.32604%2fcm.2022.023781&partnerID=40&md5=156093c48950895f3ec0cee4d83f6a23)

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Computer Science Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: IEEE802.11, known as WiFi has proliferated in the last decade. It can be found in smartphones, laptops, smart TVs and surveillance cameras. This popularity has revealed many issues in health, data privacy and security. In this work, a WiFi measurement study has been conducted in Amman, the capital city of Jordan. An Android App has been written to harvest WiFi information of the transmitted frames of any surrounding Access points (APs). More than 240,000 APs information has been harvested in this work. The harvested data have been analyzed to find statistics of WiFi devices in this city. Moreover, three power distribution models have been derived from the data for three different areas, closed, open and hybrid areas. In addition, the collected data revealed that the SSID can be leveraged as a landmark for the access points (APs). To this end, SSIDtrack algorithm is proposed to track shoppers/walkers in closed areas, such as malls to find their walking route utilizing only the SSID information collected from the surrounding area. The algorithm has been tested in two different malls that consist of four different floors. The accuracy recorded for the algorithm acceded 95%. © 2022 Tech Science Press. All rights reserved.

Obaidat, R., Shameh, A.A., Aljarrah, M., Hamed, R.

Preparation and Evaluation of Polyvinylpyrrolidone Electrospun Nanofiber Patches of Pioglitazone for the Treatment of Atopic Dermatitis

(2022) AAPS PharmSciTech, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122463685&doi=10.1208%2fs12249-021-02204-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122463685&doi=10.1208%2fs12249-021-02204-6&partnerID=40&md5=9ba956a41ee8e43427cad0875a0aac61)

[6&partnerID=40&md5=9ba956a41ee8e43427cad0875a0aac61](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122463685&doi=10.1208%2fs12249-021-02204-6&partnerID=40&md5=9ba956a41ee8e43427cad0875a0aac61)

AFFILIATIONS: Department of Pharmaceutical Technology, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Chemical Engineering, Faculty of Engineering, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Nanofibers have many promising biomedical applications. They can be used for designing transdermal and dermal drug delivery systems. This project aimed to prepare and characterize polyvinylpyrrolidone-based nanofibers as a dermal and transdermal drug delivery system using pioglitazone. Pioglitazone is an oral antidiabetic drug. In addition, it can act as an inflammatory process modulator, making it a good candidate for managing different skin inflammatory conditions such as atopic dermatitis, skin ulcers, and diabetic foot wound healing. Several nanofiber formulations were prepared using the electrospinning method at different drug loadings, polyvinylpyrrolidone concentrations, and flow rates. A cast film with the exact composition of selected nanofiber formulations was prepared as a control. Nanofibers were characterized using a

scanning electron microscope to calculate the diameter. Fourier-transform infrared spectroscopy, differential scanning calorimetry, thermogravimetric analysis, and powder X-ray diffraction were performed for physical and biochemical characterizations. In vitro release, drug loading efficiency, and swelling studies were performed. Ex vivo permeation studies were performed using Franz diffusion cells with or without applying a solid microneedle roller. Round uniform nanofibers with a smooth surface were obtained. The diameter of nanofibers was affected by the drug loading and polymer concentration. Fourier-transform infrared spectra showed a potential physical interaction between the drug and the polymer. According to X-ray diffraction, pioglitazone existed in an amorphous form in prepared nanofibers, with partial crystallinity in the casted film. Nanofibers showed a higher swelling rate compared to the casted film. The drug dissolution rate for nanofibers was 2.3-folds higher than the casted films. The polymer concentration affected the drug dissolution rate for nanofibers; however, drug loading and flow rate did not affect the drug dissolution rate for nanofibers. The application of solid microneedles slightly enhances the total amount of drug permeation. However, it did not affect the flux of the drug through the separated epidermis layer for pioglitazone. The drug permeation flux in nanofibers was approximately five times higher than the flux of the casted film. It was observed that pioglitazone is highly retained in skin layers. [Figure not available: see fulltext.]. © 2022, The Author(s), under exclusive licence to American Association of Pharmaceutical Scientists.

Abu Hammad, M.

Conformable fractional martingales and some convergence theorems

(2022) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121581974&doi=10.3390%2fm10010006&partnerID=40&md5=30ae9043ebc1d0dd0429c363065b52b2)

[85121581974&doi=10.3390%2fm10010006&partnerID=40&md5=30ae9043ebc1d0dd0429c363065b52b2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121581974&doi=10.3390%2fm10010006&partnerID=40&md5=30ae9043ebc1d0dd0429c363065b52b2)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Queen Alia Airport St. 594, Amman, 11942, Jordan

ABSTRACT: In this paper, we define conformable Lebesgue measure and conformable fractional count-able martingales. Some convergence theorems are proved. © 2021 by the author. Licensee MDPI, Basel, Switzerland.

Jannoud, I., Jaradat, Y., Masoud, M.Z., Manasrah, A., Alia, M.

The role of genetic algorithm selection operators in extending wsn stability period: A comparative study

(2022) Electronics (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121422922&doi=10.3390%2felectronics11010028&partnerID=40&md5=daf3c7694e340883343ac8aff0488e5d)

[85121422922&doi=10.3390%2felectronics11010028&partnerID=40&md5=daf3c7694e340883343ac8aff0488e5d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121422922&doi=10.3390%2felectronics11010028&partnerID=40&md5=daf3c7694e340883343ac8aff0488e5d)

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Computer Science Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: A genetic algorithm (GA) contains a number of genetic operators that can be tweaked to improve the performance of specific implementations. Parent selection, crossover, and mutation are examples of these operators. One of the most important operations in GA is selection. The performance of GA in addressing the single-objective wireless sensor network stability period extension problem using various parent selection methods is evaluated and compared. In this paper, six GA selection operators are used: roulette wheel, linear rank, exponential rank, stochastic universal sampling, tournament, and truncation. According to the simulation results, the truncation selection operator is the most efficient operator in terms of extending the network stability period and improving reliability. The truncation operator outperforms other selection operators, most notably the well-known roulette wheel operator, by increasing the stability period by 25.8% and data throughput by 26.86%. Furthermore, the truncation selection operator outperforms other selection operators in terms of the network residual energy after each protocol round. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

AL-Sagarat, A.Y., Al Hadid, L.A., Al Barmawi, M., Al-Khawaldeh, O.

Factors influencing university students' acceptance to undertake the COVID-19 vaccine in Jordan

(2022) Critical Care Nursing Quarterly, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120697470&doi=10.1097%2fcnq.0000000000000393&partnerID=40&md5=d3dfcddb7b16ec29cd5a8e8d5df529e0)

[85120697470&doi=10.1097%2fcnq.0000000000000393&partnerID=40&md5=d3dfcddb7b16ec29cd5a8e8d5df529e0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120697470&doi=10.1097%2fcnq.0000000000000393&partnerID=40&md5=d3dfcddb7b16ec29cd5a8e8d5df529e0)

AFFILIATIONS: Community and Mental Health Nursing Department;

Adult Health Nursing Department;

Faculty of Nursing, Al Balqa' Applied University, Salt, Jordan;

Clinical Department, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Vaccines are effective measures that can mitigate the high burden of diseases. However, vaccine refusal poses serious challenges for achieving coverage for population immunity. With the

availability of coronavirus disease-2019 (COVID-19) vaccines, limited information is available about the university students' acceptability and attitudes toward COVID-19 vaccines. This article reports study findings regarding factors that influence university students' decision of acceptability to the COVID-19 vaccine in Jordan. Results highlight the continued need for clear and consistent information about the vaccine by health care decision-makers and university administrations. Copyright © 2022 Wolters Kluwer Health, Inc. All rights reserved.

Dodoo, J.E., Al-Samarraie, H., Alsswey, A.

The development of telemedicine programs in Sub-Saharan Africa: Progress and associated challenges (2022) *Health and Technology*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119887265&doi=10.1007%2fs12553-021-00626-7&partnerID=40&md5=321212f860ad23c329dce3241d61213b>

AFFILIATIONS: College of Distance Education, Department of Business Studies, University of Cape Coast, Cape Coast, Ghana;

School of Design, University of Leeds, Leeds, United Kingdom;

Centre for Instructional Technology & Multimedia, Universiti Sains Malaysia, Penang, Malaysia;

Department of Multimedia Technology, AL-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Monitoring the progress of telemedicine use in Sub-Saharan Africa (SSA) countries has received a considerable attention from many health organizations and governmental agencies. This study reviewed the current progress and challenges in relation to the development of telemedicine programs in SSA. The results from reviewing 66 empirical studies revealed an unbalanced progress across SSA countries. Further, technological, organisational, legal and regulatory, individual, financial, and cultural aspects were identified as the major barriers to the success of telemedicine development in SSA. This study reported the current trends in telemedicine application, as well as highlighting critical barriers for consideration by healthcare decision makers. The outcomes from this study offer a number of recommendations to support wider implementation and sustainable usage of telemedicine in SSA. © 2021, The Author(s).

Ayed, A., Malak, M.Z., Al-amer, R.M., Batran, A., Salameh, B.

Corrigendum to "Effect of High Fidelity Simulation on Perceptions of Self-Awareness, Empathy, and Patient-Centered Care among University Pediatric Nursing Classes" [*Clinical Simulation in Nursing* 56C (2021) 84–90] (*Clinical Simulation in Nursing* (2021) 56 (84–90), (S1876139921000426), (10.1016/j.ecns.2021.04.005))

(2022) *Clinical Simulation in Nursing*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119445644&doi=10.1016%2fj.ecns.2021.10.001&partnerID=40&md5=7c5368e9ae582acc3daa69440ee0c393>

AFFILIATIONS: Pediatric Health Nursing, Faculty of Nursing, Arab American University, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra University Amman, Jordan;

Western Sydney University, School of Nursing and Midwifery, Sydney, Australia;

Pediatric Health Nursing, Faculty of Nursing, American Arab University, Palestine

ABSTRACT: The authors would like to correct the following. Under the discussion section, when citing the Haley et. al (2017) study, the authors stated that the Haley study was conducted in Italy, however the study was conducted in the USA. The authors would like to apologise for any inconvenience caused. © 2021 Elsevier Ltd

Zihlif, M., Bashaireh, B., Rashid, M., Almadani, Z., Jarrar, Y.

Effect of major cyp2c19 genetic polymorphisms on helicobacter pylori eradication based on different treatment regimens

(2022) *Molecular and Clinical Oncology*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119152954&doi=10.3892%2fbr.2021.1485&partnerID=40&md5=b4f1ed50b32de9ff4dfd147b734ea01e>

AFFILIATIONS: Department of Pharmacology, Faculty of Medicine, The University of Jordan, Amman, 11492, Jordan;

Department of Internal Medicine, Faculty of Medicine, The University of Jordan, Amman, 11492, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11731, Jordan

ABSTRACT: Helicobacter pylori (H. pylori) infection is a global issue. Its eradication in affected individuals is important to prevent several further complications that may occur if left untreated.

Proton pump inhibitors (PPIs) serve an important role in the eradication regimens of H. pylori. PPIs are metabolized primarily through the CYP2C19 enzyme in the liver. Inter-individual variation in the response to eradication treatment may partly be due to variations in the metabolism of PPIs. The aim of this study was to determine whether there was any association between CYP2C19 genetic polymorphisms and the response to eradication therapy amongst Jordanians infected with H. pylori receiving lansoprazole-based regimens. The present study was approved by the Institutional Review Board of The University of Jordan Hospital. A total of 141 patients infected with H. pylori were

genotyped for the polymorphisms CYP2C19*2 and CYP2C19*17 using the PCR-restriction fragment length polymorphism assay method. Patients received lansoprazole-based triple or sequential therapy. The assessment of eradication was performed using either a H. pylori stool antigen test or from feedback from patients regarding their improvement. Eradication rates were 84.6% and 64.5% in the intermediate-metabolizer and extensive-metabolizer group, respectively. This difference was not statistically significant. Moreover, no significant association was found between the carriers of the CYP2C19*17 polymorphism and the response to eradication therapy. These findings suggest that there was no significant association between the CYP2C19 genotype and the response to eradication therapy amongst Jordanians infected with H. pylori. © 2022, Spandidos Publications. All rights reserved.

Alkhatib, A.A.A., Abed-Al, Q.

Multivariate outlier detection for forest fire data aggregation accuracy

(2022) Intelligent Automation and Soft Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85116293886&doi=10.32604%2fiasc.2022.020461&partnerID=40&md5=bc9effc058a5c4286bd00c30770f1682

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Wireless sensor networks have been a very important means in forest monitoring applications. A clustered sensor network comprises a set of cluster members and one cluster head. The cluster members are normally located close to each other, with overlaps among their sensing coverage within the cluster. The cluster members concurrently detect the same event to send to the Cluster Head node. This is where data aggregation is deployed to remove redundant data at the cost of data accuracy, where some data generated by the sensing process might be an outlier. Thus, it is important to conserve the aggregated data's accuracy by performing an outlier data detection process before data aggregation is implemented. This paper concerns evaluating multivariate outlier detection (MOD) analysis on aggregated accuracy of data generated by a forest fire environment using OMNeT++ and performing the analysis in MATLAB R2018b. The findings of the study showed that the MOD algorithm conserved approximately 59.5% of aggregated data accuracy, compared with an equivalent algorithm, such as the FTDA algorithm, which conserved 54.25% of aggregated data accuracy for the same event. © 2022, Tech Science Press. All rights reserved.

Al Barmawi, M., Al Hadid, L.A., Al Kharabshah, M.

Reasons for delay in seeking healthcare among women with acute coronary syndrome from rural and urban areas in Jordan

(2022) Health Care for Women International, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85115989200&doi=10.1080%2f07399332.2021.1955889&partnerID=40&md5=f03e7a62b38496d435540f91487afe3a

AFFILIATIONS: Faculty of Nursing, Department of Nursing, Alzaytoonah University of Jordan (ZUJ), Amman, Jordan;

Irbid University College, Al Balqa' Applied University, Salt, Jordan;

Salt College, Al-Balqa' Applied University, Salt, Jordan

ABSTRACT: We aimed to explore reasons for delay in seeking healthcare among women with acute coronary syndrome (ACS) for the first time from urban and rural areas in Jordan. A qualitative descriptive design was used through face-to-face interviews with 33 women. Themes that explained why women delayed seeking healthcare when experiencing ACS were: Knowledge deficit about coronary artery disease; the effect of disparity in healthcare services on women decision; and life priorities of women during the ACS attack. Educational needs should be addressed based on variations in both areas. Supplemental data for this article is available online at

<https://doi.org/10.1080/07399332.2021.1955889>. © 2021 Taylor & Francis Group, LLC.

Al-Madi, N.A., Hnaif, A.A.

Optimizing traffic signals in smart cities based on genetic algorithm

(2022) Computer Systems Science and Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85114791763&doi=10.32604%2fcSSE.2022.016730&partnerID=40&md5=c097b0d1f17241650fbd96abb7fcc34

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Amman, 11733, Jordan

ABSTRACT: Current traffic signals in Jordan suffer from severe congestion due to many factors, such as the considerable increase in the number of vehicles and the use of fixed timers, which still control existing traffic signals. This condition affects travel demand on the streets of Jordan. This study aims to improve an intelligent road traffic management system (IRTMS) derived from the human community-based genetic algorithm (HCBGA) to mitigate traffic signal congestion in Amman, Jordan's capital city. The parameters considered for IRTMS are total time and waiting time, and fixed timers are still used for control. By contrast, the enhanced system, called enhanced-IRTMS (E-IRTMS), considers additional important parameters, namely, the speed performance index (SPI), speed reduction index (SRI), road congestion index (Ri), and congestion period, to enhance IRTMS decision. A

significant reduction in congestion period was measured using E-IRTMS, improving by 13% compared with that measured using IRTMS. Meanwhile, the IRTMS result surpasses that of the current traffic signal system by approximately 83%. This finding demonstrates that the E-IRTMS based on HCBGA and with unfixed timers achieves shorter congestion period in terms of SPI, SRI, and Ri compared with IRTMS. © 2022 CRL Publishing. All rights reserved.

Al-Ghabeesh, S.H., Rayan, A., Hattab, F., Jarrar, Y.

Mindfulness and psychological distress among hemodialysis patients

(2022) *Psychology, Health and Medicine*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111678493&doi=10.1080%2f13548506.2021.1960395&partnerID=40&md5=54fcf42ef569ee853dde4f9da1b0299d)

[85111678493&doi=10.1080%2f13548506.2021.1960395&partnerID=40&md5=54fcf42ef569ee853dde4f9da1b0299d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111678493&doi=10.1080%2f13548506.2021.1960395&partnerID=40&md5=54fcf42ef569ee853dde4f9da1b0299d)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The current study identifies the unique role of trait mindfulness in improving the psychological health of patients under hemodialysis. A correlational research design was employed with a sample of 221 patients under hemodialysis. Participants completed a survey about the basic demographics, psychological distress, and mindfulness. The mean age of the study participants was 51.87 years (SD = 14.00). Participants had a moderate level of psychological distress. Psychological distress was associated with various demographic and clinical variables. Mindfulness accounted for 2.6% additional variance above and beyond the 18% accounted by demographic and clinical variables. This study suggests that mindfulness may enhance the psychological health of patients under hemodialysis. Future research may want to develop an intervention that employs a mindfulness-based approach and assess its effectiveness in supporting patients under hemodialysis. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Al-Amer, R.M., Malak, M.Z., Aburumman, G., Darwish, M., Nassar, M.S., Darwish, M., Randall, S.
Prevalence and predictors of depression, anxiety, and stress among Jordanian nurses during the coronavirus disease 2019 pandemic

(2022) *International Journal of Mental Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105985483&doi=10.1080%2f00207411.2021.1916701&partnerID=40&md5=8a0967515da37174dd48a4ed41e234fd)

[85105985483&doi=10.1080%2f00207411.2021.1916701&partnerID=40&md5=8a0967515da37174dd48a4ed41e234fd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105985483&doi=10.1080%2f00207411.2021.1916701&partnerID=40&md5=8a0967515da37174dd48a4ed41e234fd)

AFFILIATIONS: Faculty of Nursing, Isra University, Amman, Jordan;

Faculty of Nursing, Community Health Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Engineering, Health Geography, Isra University, Amman, Jordan;

Faculty of Engineering, Health Geography, Middle East University, Amman, Jordan;

Faculty of Nursing, University of Jordan, Amman, Jordan;

Medical Doctor, MRCS, MSF, Amman, Jordan;

Susan Wakil School of Nursing and Midwifery, The University of Sydney, Sydney, Australia

ABSTRACT: Background: COVID-19 is an infectious disease with a wide range of physical and psychological health threats among health care workers, in particular, nurses because they spend a long time caring for their patients. Aims: To investigate the prevalence and predictors of depression, anxiety, and stress among Jordanian nurses. Methods: This study was conducted among 405 nurses using an online survey from March 3, 2020 to March 24, 2020. The Arabic version of the Depression, Anxiety, and Stress Scale (DASS) was used. Results: the findings of this study showed that depression, anxiety, and stress were highly prevalent among nurses (57.8, 42.4, and 50.1%, respectively). Those who had close contact with a coronavirus disease 2019 (COVID-19) patient showed stronger psychological reactions than their counterparts. The full regression models in terms of depression, anxiety, and stress which contained gender, number of children, and dealing with a person with COVID-19 were statistically significant ($F(3, 216) = 11.801; p < 0.001$), ($F(3, 216) = 10.501; p < 0.001$), and ($F(3, 216) = 11.659; p < 0.001$), respectively. Conclusion: In the COVID-19 pandemic, the levels of depression, anxiety, and stress are high among Jordanian nursing working in clinical settings. Hence, the mental health status of nurses should be given a priority, with a specific emphasis on those who are in contact with infected patients with COVID-19, female nurses, and those who have children. © 2021 Taylor & Francis Group, LLC.

Alhorani, R.A.M., Asaad, S.A., Abendeh, R.M.

Effect of white cement bypass dust on the degradation of roller compacted concrete subjected to sulphate attack

(2022) *International Journal of Pavement Engineering*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104695849&doi=10.1080%2f10298436.2021.1913592&partnerID=40&md5=b815d9e42fc70501fd19e0600ef1f2a3)

[85104695849&doi=10.1080%2f10298436.2021.1913592&partnerID=40&md5=b815d9e42fc70501fd19e0600ef1f2a3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104695849&doi=10.1080%2f10298436.2021.1913592&partnerID=40&md5=b815d9e42fc70501fd19e0600ef1f2a3)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Large amounts of waste white cement bypass dust (WCBPD) are generated in huge heaps near

white cement factories in Jordan, posing growing environmental concerns related to potential hazardous impact and additional disposal cost. This research evaluates possible and suitable recycling of WCBPD as a partial replacement of Portland cement in the production of the rapidly expanding roller compacted concrete (RCC). This experimental work aims to test the influence of using different proportions (10, 20, 30, and 40%) of WCBPD on the mechanical performance and durability of RCC subjected to sulphate attack. The investigation included compressive strength, a non-destructive test (ultrasonic pulse velocity), water absorption coefficient, and the sulphate linear expansion test. The experimental results were promising for recycling WCBPD as fractions of Portland cement in RCC mixtures at small amounts. Compared to reference cylinders, the reduction in compression strength was about 10, 28, 32 and 39% for 10, 20, 30 and 40% WCBPD replacement ratios, respectively. All RCC mixtures showed satisfactory sulphate resistance since no significant loss in compressive strength nor a significant increase in expansion ratio occurred due to sulphate exposure. The reductions in compressive strength at 180 days of sulphate exposure were 12.8, 15.6, 15.9, 16.1 and 16.6% for RCC cylinders prepared with WCBPD partial replacements of 0, 10, 20, 30 and 40%, respectively. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Abu Kamel, A.K., Alnazly, E.K.

The impact of confinement on older Jordanian adults' mental distress during the COVID-19 pandemic: A web-based cross-sectional study

(2022) Perspectives in Psychiatric Care, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104073841&doi=10.1111%2fppc.12798&partnerID=40&md5=b9df550f914a0f335a01b6a5a9734740)

[85104073841&doi=10.1111%2fppc.12798&partnerID=40&md5=b9df550f914a0f335a01b6a5a9734740](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104073841&doi=10.1111%2fppc.12798&partnerID=40&md5=b9df550f914a0f335a01b6a5a9734740)

AFFILIATIONS: Nursing Department-Community Health, Al-Zaytoonah University of Jordan, Amman, Jordan; Nursing Department-Mental Health, Al-Ahliyya Amman University, Amman, Jordan

ABSTRACT: Purpose: This study aimed to determine the impact of Coronavirus disease, 2019 (COVID-19) confinement on older Jordanian adults' mental distress and to assess which study variables that predict Posttraumatic Stress disorder. Design and methods: This cross-sectional study was conducted on 315 older Jordanian adults using an online survey in Amman, Jordan between May 28 and June 12. Findings: The assessment revealed a moderate level of avoidance ($M = 1.97$, $SD = 0.7$), a higher effect of intrusion ($M = 2.08$, $SD = 0.9$), an above midpoint level of fear 18.50 ± 8.6 , and mild depression ($M = 6.96$, $SD = 7.3$). Hierarchical Multiple Regression model revealed that 77.8% of the Impact of Event Scale-Revised was explained by both Fear of COVID-19 Scale and Patient Health Questionnaire-9 (R change = 0.66, $SE = 8.4$, $p < 0.001$). Practice implication: This suggests that confinement affects different aspects of the psychological well-being of older Jordanian adults. An early assessment and intervention can make confinement as tolerable as possible. © 2021 Wiley Periodicals LLC

Malak, M.Z., Shuhaiber, A.H., Al-amer, R.M., Abuadas, M.H., Aburoomi, R.J.

Correlation between psychological factors, academic performance and social media addiction: model-based testing

(2022) Behaviour and Information Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101614606&doi=10.1080%2f0144929X.2021.1891460&partnerID=40&md5=7e20a9cbb197e2cbd675919e4cc27c18)

[85101614606&doi=10.1080%2f0144929X.2021.1891460&partnerID=40&md5=7e20a9cbb197e2cbd675919e4cc27c18](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101614606&doi=10.1080%2f0144929X.2021.1891460&partnerID=40&md5=7e20a9cbb197e2cbd675919e4cc27c18)

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

MIS Department, College of Business, Al Ain University of Science and Technology, Abu Dhabi, United Arab Emirates;

Mental Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

Community Health Nursing, College of Nursing-Khamis Mushait, King Khalid University, Abha, Saudi Arabia;

Sociology Science, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Technological Innovation, Zayed University, United Arab Emirates;

Adjunct fellow, Western Sydney University, School of Nursing and Midwifery, Australia

ABSTRACT: Social media addiction became a serious concern that has received more attention from the public health sector due to its addictive features and its correlated psychological consequences. Thus, this study aimed to analyze the direct effect of SMA on academic performance, and the indirect effects on psychological reactions among university students in Jordan. A random survey in two universities was conducted in a sample of 510 university students; 31.4% were males and 68.6% were females. Their average age was 21.38 years ($SD = 2.12$). To test and validate the research model, advanced data analysis (Structural Equation Modelling-Partial Least Squares [SEM-PLS]) was applied in this research. Findings revealed that social media addiction had an indirect effect on academic performance, however; it has a direct impact on students' stress and anxiety levels. The stress could influence anxiety levels, which could directly affect students' academic performance. Further, students' stress levels had a direct effect on anxiety, which could result in depression. Given the importance of social media addiction and its potentially substantive effects on students'

psychological reactions and impact of these reactions on academic performance, similar studies are recommended in other universities various fields to obtain a more conclusive result. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Zaid Alkilani, A., Hamed, R., Hussein, G., Alnadi, S.

Nanoemulsion-based patch for the dermal delivery of ascorbic acid

(2022) Journal of Dispersion Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101010613&doi=10.1080%2f01932691.2021.1880924&partnerID=40&md5=9052cdb4512871708b9b0dea8f0e2235)

85101010613&doi=10.1080%2f01932691.2021.1880924&partnerID=40&md5=9052cdb4512871708b9b0dea8f0e2235

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Photo-aging is caused mainly by sun radiations, which consist mainly of the ultraviolet radiation (UVA and UVB). Ascorbic acid (AA) has been widely used in the cosmetic field as an anti-wrinkle, anti-pigmentary, and antioxidant agents, however, its cosmetic application is limited due to its poor penetration across the skin, rapid oxidation, and instability of the formulation. The objective of the present study was to utilize a nanoemulsion as a nanocarrier strategy to deliver AA dermally and stabilize it. A concentration of 80 mg/mL AA was loaded into oil-in-water (O/W) nanoemulsion and characterized in terms of droplet size, zeta potential, thermodynamic stability, and morphology. Patches were then prepared using hydroxypropyl methylcellulose (HPMC) and sodium carboxymethyl cellulose (NaCMC), AA nanoemulsion, and plasticizers (PEG 400 in Formulation 1, F1, and isopropanol in Formulation 2, F2) and evaluated in terms of stability, in vitro release, and ex vivo permeation study. The mean droplet size of the AA nanoemulsion was 14.4 ± 1.9 nm, zeta potential was close to zero. The AA nanoemulsion was physically stable showing no phase separation or turbidity after centrifugation and heating/cooling tests. The cumulative amount per area of AA permeated across Strat-M® membrane was 602.2 ± 57.9 µg/cm². The ex vivo permeation profile showed a controlled-release profile of AA within 24 h, achieving a maximum amount of 414 µg permeated across the stratum corneum. The release fitted the Higuchi model with a correlation coefficient of 0.995. Nanoemulsion-based patches could serve a potential system for the dermal delivery of unstable hydrophilic compound. © 2021 Taylor & Francis Group, LLC.

Abu-Rumman, A., Abu-Huwaij, R., Hamed, R.

Development and in vitro appraisal of Soluplus® and/or Carbopol® 971 buccoadhesive patches releasing atorvastatin

(2022) Journal of Adhesion, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097628847&doi=10.1080%2f00218464.2020.1864337&partnerID=40&md5=3886ebbb8fd6f6a81e8e9c4e5733d9f7)

85097628847&doi=10.1080%2f00218464.2020.1864337&partnerID=40&md5=3886ebbb8fd6f6a81e8e9c4e5733d9f7

AFFILIATIONS: Pharmacological and Diagnostic Research Center, Al-Ahliyya Amman University, Al-Salt, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Atorvastatin (ATR) is frequently prescribed to lower plasma cholesterol levels. However, features such as marginal aqueous solubility, high protein binding (>95%), and low bioavailability (12–14%) have opposed its oral use. Therefore, unidirectional controlled-release mucoadhesive patches of ATR, using Carbopol® (CP) as a mucoadhesive polymer, Soluplus® (SL) as a novel water-solubilizer carrier, and ethylene/vinyl acetate as a backing layer, were proposed as a potential strategy for buccal delivery. Various ratios of CP to SL were employed to prepare eight patches. Physicochemical properties, viscosity, mucoadhesion, and drug permeation were investigated. Patch A1 (3:1, CP:SL) emerged as the most promising system, with appropriate flexibility and uniform thickness, weight, and drug content. Additionally, the appropriate surface pH, positive mucoadhesion properties, and swelling level were observed. Flow curves of the polymer mixtures were fitted perfectly to the Carreau-Yasuda and Casson models. The amount of drug diffused, and flux were 51.57% and 0.82 mg/cm²/h, respectively, with a four-fold increase in permeability across the cellulose membrane ($P = 1.80$ cm/h) when compared with the reference patch composed of 0% SL. It can be postulated that micellar structures of SL were able to solubilize the poorly soluble ATR and control its release across the uncoiled buccoadhesive CP network. © 2020 Taylor & Francis Group, LLC.

Salah, R.A., Malak, M.Z., Bani Salameh, A.K.

Relationship between shift-work and life-style behaviors among emergency department nurses in Jordan

(2022) Archives of Environmental and Occupational Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097528074&doi=10.1080%2f19338244.2020.1841721&partnerID=40&md5=eec9c2d87a2fc5d8b91b439d4bcd3a4)

85097528074&doi=10.1080%2f19338244.2020.1841721&partnerID=40&md5=eec9c2d87a2fc5d8b91b439d4bcd3a4

AFFILIATIONS: Adult Health Nursing, Ministry of Health, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pediatric Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Shift-work can alter the nurses' lifestyle behaviors, which negatively influence health.

This study is purposed to assess the relationship between shift-work and selected lifestyle behaviors including, dietary habits, physical activity, and nicotine dependence among Jordanian nurses who work at the emergency department. A cross-sectional, descriptive correlational design was used. A total of 275 Jordanian nurses from the emergency department of Jordanian hospitals participated in the questionnaire. The results showed that 50.2% of the nurses suffered from poor dietary habits, 81.8% of them were physically inactive, and 65.1% had nicotine dependence. There was a positive correlation between shift-work, dietary habits, physical activity, and nicotine dependence. Therefore, the effects of shift-work should be considered when planning and developing interventional programs to enhance nurses' health and promote healthy behaviors among nurses workforce during shift-work. © 2020 Taylor & Francis Group, LLC.

Naser, W.

AN UPDATE REGARDING THE POTENTIAL PHARMACOLOGICAL APPLICATIONS OF ALPHA-LIPOIC ACID (2021) Pharmacologyonline, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130765044&partnerID=40&md5=50030a60b6510b1b30fccbd1b8f6ffcf)

[85130765044&partnerID=40&md5=50030a60b6510b1b30fccbd1b8f6ffcf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130765044&partnerID=40&md5=50030a60b6510b1b30fccbd1b8f6ffcf)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Several disorders have been linked to the onset and progression of oxidative stress. An oxidative imbalance in the cell sets in motion a chain of events that leads to cell death.

Antioxidant therapy has been identified as a potential palliative treatment, with benefits including slowed disease progression, reduced cell disintegration, and improved cellular activities. An organosulfur molecule called Alphasulfolipoic acid (ALA) is a well-known antioxidant that has been examined in a range of disease models. It's expected to be a potent micronutrient with a diverse set of pharmacological actions. It improves energy metabolism by optimizing the use of glucose and fatty acids. ALA also aids in the reduction of oxidative stress and the counteraction of inflammatory stimuli. A review of the literature was conducted using peer-reviewed journal articles to identify laboratory, animal, and clinical studies that have studied the most recent and advanced innovations regarding the possible pharmacological uses of ALA in the suppression of various pathological biomarkers. © 2021, SILAE (Italo-Latin American Society of Ethnomedicine). All rights reserved.

Alassi, A., Al-Qerem, W., Ali, D.H., Ling, J.

IRAQI PRIMARY CARE PHYSICIAN'S KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) TOWARD ANTICOAGULANT THERAPY IN NONVALVULAR ATRIAL FIBRILLATION PATIENTS: A CROSS-SECTIONAL STUDY

(2021) Pharmacologyonline, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123160841&partnerID=40&md5=2c429dd0972c994f2ff0c9c5d71453cd)

[85123160841&partnerID=40&md5=2c429dd0972c994f2ff0c9c5d71453cd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123160841&partnerID=40&md5=2c429dd0972c994f2ff0c9c5d71453cd)

AFFILIATIONS: Department of pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacy, Faculty of Science and Wellbeing, University of Sunderland, United Kingdom

ABSTRACT: Background: In Iraq, the majority of atrial fibrillation (AF) patients are managed by primary care physicians (PCPs). Therefore, this is a cross-sectional study that aimed to evaluate the PCPs' knowledge, attitudes, and practices (KAP) toward the use of oral anticoagulants (OAC) in patients with AF and to identify the barriers to OAC prescription. Methods: A self-administered online questionnaire was completed by 150 PCPs. KAP scores were categorized as poor, fair, and good. Stepwise binary logistic regressions were conducted to predict the variables significantly associated with KAP. Results: 63.3% of the PCPs had poor knowledge and none had a good knowledge score. On the other hand, 78% of the PCPs had good attitude score. Having more than 5 years of experience increased the odds of having high KAP. Similarly, attending a training about OAC in AF patients increased the odds of having better knowledge and practice. Conclusions: Iraqi PCPs had poor knowledge, but satisfactory attitudes toward the use of OAC in AF patients. The majority were willing to attend training about AF disease and anticoagulation therapy. Such trainings will significantly increase the PCPs' knowledge about OAC which would improve AF patient management. © 2021, SILAE (Italo-Latin American Society of Ethnomedicine). All rights reserved.

Naser, W.

AN OVERVIEW OF RECENT ELASTIC SKIN BIOACTIVE ENHANCERS

(2021) Pharmacologyonline, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122759958&partnerID=40&md5=ca287d640a46836c995be1c47cb81971)

[85122759958&partnerID=40&md5=ca287d640a46836c995be1c47cb81971](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122759958&partnerID=40&md5=ca287d640a46836c995be1c47cb81971)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Natural products are commonly used in cosmetics to maintain healthy skin and improve visible signs of aging due to great confidence that they are harmless. Nowadays, the therapeutic benefit of skin bioactive components has been well identified, and some of them have been established as drugs that target different kinds of skin diseases. A review of the literature was conducted using peer-reviewed journal articles to identify laboratory, animal, and clinical studies that have studied the most recent and advanced innovations in the bioactive properties and skin applications of the

different dermatological active natural ingredients that could be implemented in the development of various skin active products that could invade the photoaged skin. The provided data in this article aims to get the picture of the most recent investigations, and it might be helpful for dermatologists and other experts in cosmeceutical manufacturing companies. Despite the several advances in this field, additional development would enable scientists to develop new skin-active antiaging products. © 2021, SILAE (Italo-Latin American Society of Ethnomedicine). All rights reserved.

Sunoqrot, S., Orainee, B., Alqudah, D.A., Daoud, F., Alshaer, W.

Curcumin-tannic acid-ploxamer nanoassemblies enhance curcumin's uptake and bioactivity against cancer cells in vitro

(2021) International Journal of Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118482571&doi=10.1016%2Fj.ijpharm.2021.121255&partnerID=40&md5=0a05a3d39ca67f61b1048d9ae9a9f1d1)

[85118482571&doi=10.1016%2Fj.ijpharm.2021.121255&partnerID=40&md5=0a05a3d39ca67f61b1048d9ae9a9f1d1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118482571&doi=10.1016%2Fj.ijpharm.2021.121255&partnerID=40&md5=0a05a3d39ca67f61b1048d9ae9a9f1d1)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Cell Therapy Center, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Curcumin (CUR) is a bioactive natural compound with potent antioxidant and anticancer properties. However, its poor water solubility has been a major limitation against its widespread clinical use. The aim of this study was to develop a nanoscale formulation for CUR to improve its solubility and potentially enhance its bioactivity, by leveraging the self-assembly behavior of tannic acid (TA) and amphiphilic poloxamers to form CUR-entrapped nanoassemblies. To optimize drug loading, formulation variables included the CUR: TA ratio and the type of amphiphilic polymer (Pluronic® F-127 or Pluronic® P-123). The optimal CUR nanoparticles (NPs) were around 200 nm in size with a high degree of monodispersity and 56% entrapment efficiency. Infrared spectroscopy confirmed the presence of intermolecular interactions between CUR and the NP formulation components. X-ray diffraction revealed that CUR was entrapped in the NPs in an amorphous state. The NPs maintained excellent colloidal stability under various conditions. In vitro release of CUR from the NPs showed a biphasic controlled release pattern up to 72 h. Antioxidant and antiproliferative assays against a panel of human cancer cell lines revealed significantly higher activity for CUR NPs compared to free CUR, particularly in MCF-7 and MDA-MB-231 breast cancer cells. This was attributed to greater cellular uptake of the NPs compared to the free drug as verified by confocal microscopy imaging and flow cytometry measurements. Our findings present a highly promising NP delivery platform for CUR prepared via a simple self-assembly process with the ability to potentiate its bioactivity in cancer and other diseases where oxidative stress is implicated. © 2021 Elsevier B.V.

Sunoqrot, S., Al-Hadid, A., Manasrah, A., Khnouf, R., Hasan Ibrahim, L.

Immobilization of glucose oxidase on bioinspired polyphenol coatings as a high-throughput glucose assay platform

(2021) RSC Advances, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121529012&doi=10.1039%2Ffd1ra07467a&partnerID=40&md5=d85a2e65841ac7ed4bb5831226603715)

[85121529012&doi=10.1039%2Ffd1ra07467a&partnerID=40&md5=d85a2e65841ac7ed4bb5831226603715](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121529012&doi=10.1039%2Ffd1ra07467a&partnerID=40&md5=d85a2e65841ac7ed4bb5831226603715)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biomedical Engineering, Faculty of Engineering, Jordan University of Science and Technology, Irbid, 22110, Jordan

ABSTRACT: Glucose oxidase (GOx) is an enzyme with important industrial and biochemical applications, particularly in glucose detection. Here we leveraged the oxidative self-polymerization phenomenon of simple polyphenols (pyrogallol or catechol) in the presence of polyethylenimine (PEI) to form adhesive coatings that enabled GOx immobilization on conventional multi-well plates. Immobilization was verified and optimized by directly measuring GOx activity inside the coated wells. Our results showed that incorporating PEI in polyphenol coatings enhanced their enzyme immobilization efficiency, with pyrogallol (PG)-based coatings displaying the greatest enzyme activity. The immobilized enzyme maintained similar affinity to glucose compared to the free enzyme. GOx-immobilized PG/PEI-coated wells exhibited intermediate recycling ability but excellent resistance to urea as a denaturing agent compared to the free enzyme. GOx-immobilized 96-well plates allowed the construction of a linear glucose calibration curve upon adding glucose standards, with a detection limit of 0.4-112.6 mg dL⁻¹, which was comparable to commercially available enzymatic glucose assay kits. The assay platform was also capable of effectively detecting glucose in rat plasma samples. Our findings present a simple enzyme immobilization technique that can be used to construct a glucose assay platform in a convenient multi-well format for high-throughput glucose quantification. © The Royal Society of Chemistry 2021.

Almaiah, M.A., Al-Lozi, E.M., Al-Khasawneh, A., Shishakly, R., Nachouki, M.

Factors affecting students' acceptance of mobile learning application in higher education during covid-19 using ann-sem modelling technique

(2021) Electronics (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-8512200274&doi=10.3390%2felectronics10243121&partnerID=40&md5=5678948b3258293c26c099f042ce7b79)

[8512200274&doi=10.3390%2felectronics10243121&partnerID=40&md5=5678948b3258293c26c099f042ce7b79](https://www.scopus.com/inward/record.uri?eid=2-s2.0-8512200274&doi=10.3390%2felectronics10243121&partnerID=40&md5=5678948b3258293c26c099f042ce7b79)

AFFILIATIONS: College of Computer Sciences and Information Technology, King Faisal University, Al-Ahsa, 31982, Saudi Arabia;

Department of Management Information Systems, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Computer Information System, Irbid National University, Irbid, 21110, Jordan;

Management Department, College of Business Administration, Ajman University, Ajman, 346, United Arab Emirates;

Head of Information Technology Department, College of Engineering and Information Technology, Ajman University, Ajman, 346, United Arab Emirates

ABSTRACT: Due to the COVID-19 pandemic, most universities around the world started to employ distance-learning tools. To cope with these emergency conditions, some universities in Jordan have developed "mobile learning platforms" as a new tool for distance teaching and learning for students. This experience in Jordan is still new and needs to be evaluated in order to identify its advantages and challenges. Therefore, this study aims to investigate students' perceptions about mobile learning platforms as well as to identify the crucial factors that influence students' use of mobile learning platforms. An online quantitative survey technique using Twitter was employed to collect the data. A two-staged ANN-SEM modelling technique was adopted to analyze the causal relationships among constructs in the research model. The results of the study indicate that content quality and service quality significantly influenced perceived usefulness of mobile learning platforms. In addition, perceived ease of use and perceived usefulness significantly influenced behavioral intention to use mobile learning platforms. The study findings provide useful suggestions for decision makers, service providers, developers, and designers in the ministry of education as to how to assess and enhance mobile learning platform quality and understanding of multidimensional factors for effectively using mobile learning platforms. © 2021 by the authors.

Al-Samydai, A., Al-Samydai, M.J., Abu Hajleh, M.N., Qrimea, I.A., Badir Alindawy, A.A., Al-Halaseh, L.K., Yousif, R.O.

The de-marketing strategies as a vital resolve of antibiotics misuse dilemma

(2021) Journal of Pure and Applied Microbiology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121297523&doi=10.22207%2fJPAM.15.4.11&partnerID=40&md5=651e8b54f786dbd16d8610224eeee3a7)

[85121297523&doi=10.22207%2fJPAM.15.4.11&partnerID=40&md5=651e8b54f786dbd16d8610224eeee3a7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121297523&doi=10.22207%2fJPAM.15.4.11&partnerID=40&md5=651e8b54f786dbd16d8610224eeee3a7)

AFFILIATIONS: Pharmacological and Diagnostic Research Centre, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Marketing, Faculty of Business, Al-Zaytoonah University, Amman, Jordan;

Department of Cosmetic Science, Pharmacological and Diagnostic Research Centre, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Business Management, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Chemistry, Faculty of pharmacy, Mutah University, Al-Karak, 61710, Jordan;

Founding Commission Member, Al-Zahrawi University College, Karbala, 56001, Iraq

ABSTRACT: Developing resistance to the currently available antimicrobial agents, particularly anti-Bacterial, is a worrying issue that rises highly worldwide. Communities, health workers, and government officials around the world are joining in, calling for overuse and misuse of antibiotics to stop. The phrase "de-marketing" indicates a strategy that drives to organize the form and the level of the current and future demand; not only that, but rationalizes it by organizations (profit, non-profit organizations as well as governments) specified to discourage and minimize activities of organizations about selling, distribution, using, and advertising... etc. It is to conduct an investigation of the potential impact of demarketing in both controlling and minimizing the antibiotic misuse in Jordan. The essential purpose of the current analysis research is to manifest the contribution of the general demarketing strategy in influencing the attitude of consumers towards rationalization of taking antibiotics through regular medications, which is under the supervision and recommendations of professional doctors. In this article, we focused on those secondary resources derived from the published literature. Besides, we relied on the output of 450 consumers' interactions and responses to our 19 questions distributed as © The Author(s) 2021.

Al-Ghazawi, Z., Alawneh, R.

Use of artificial neural network for predicting effluent quality parameters and enabling wastewater reuse for climate change resilience - A case from Jordan

(2021) Journal of Water Process Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119429291&doi=10.1016%2fj.jwpe.2021.102423&partnerID=40&md5=d6dadf0d474278fac05f91a0c408c2fb)

85119429291&doi=10.1016%2fj.jwpe.2021.102423&partnerID=40&md5=d6dadf0d474278fac05f91a0c408c2fb

AFFILIATIONS: Department of Civil Engineering, Jordan University of Science and Technology, P.O.Box 3030, Irbid, 22110, Jordan;

Department of Civil and Infrastructure Engineering, Al Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Jordan is considered an arid to semi-arid country. Water resources in Jordan comprise of conventional resources (ground water and surface water) and non-conventional resources mainly treated wastewater. In this study, artificial neural network (ANN) models were developed to provide predictions for the quality of treated effluent from Wadi Arab wastewater treatment plant (WWTP)-Phase1. This plant serves South-West of Irbid city. The treated effluent of Wadi Arab WWTP is used for irrigation. Four ANN models were developed to predict effluent quality of Wadi Arab WWTP-Phase1, namely BOD5, COD, SS, NH4-N. A systematic approach was employed to find the most appropriate architecture for each ANN model. The influent flow rate (Q), Temperature, pH, BOD5, COD, SS and NH4-N were the input quality parameters for each ANN model. Sensitivity analysis was conducted to uncover the prediction uncertainty of an ANN model to variations in each input parameter. The analyses showed that all four ANN models were highly sensitive to influent pH, while all were slightly sensitive to influent SS. This study found that ANN models were reasonably robust and they could be used to alert plant staff of future problems such as those indicated in the above scenarios. The results showed that ANN models are beneficial to manage the treatment process in Wadi Arab WWTP, to produce effluent quality within the Jordanian Standards for irrigation, and to protect the ecosystem in the Jordan Valley. © 2021 Elsevier Ltd

Nabulsi, M., Hamad, N., Alqatawneh, S.

A New Approach for Simplification of Logical Propositions with Two Propositional Variables Using Truth Tables

(2021) Recent Advances in Computer Science and Communications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112158572&doi=10.2174%2f2666255813999200813144030&partnerID=40&md5=96f47fac4fab62615701199061a1613b)

85112158572&doi=10.2174%2f2666255813999200813144030&partnerID=40&md5=96f47fac4fab62615701199061a1613b

AFFILIATIONS: Department of Computer Science, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Propositions simplification is a classic topic in discrete mathematics that is applied in different areas of science such as program development and digital circuits design. Investigating alternative methods would assist in presenting different approaches that can be used to obtain better results. This paper proposes a new method to simplify any logical proposition with two propositional variables without using logical equivalences. Methods: This method is based on constructing a truth table for the given proposition, and applying one of the following two concepts: the sum of Minterms or the product of Maxterms which has not been used previously in discrete mathematics, along with five new rules that are introduced for the first time in this work. Results: The proposed approach was applied to some examples, where its correctness was verified by applying the logical equivalences method. Applying the two methods showed that the logical equivalences method cannot give the simplest form easily; especially if the proposition cannot be simplified, and it cannot assist in determining whether the obtained solution represents the simplest form of this proposition or not. Conclusion: In comparison with the logical equivalences method, the results of all the tested propositions show that our method outperforms the currently used method as it provides the simplest form of logical propositions in fewer steps, and it overcomes the limitations of logical equivalences method. Originality/Value: This paper fulfills an identified need to provide a new method to simplify any logical proposition with two propositional variables. © 2021 Bentham Science Publishers.

Almarashdeh, I., Eldaw, K.E., Alsmadi, M., Alghamdi, F., Jaradat, G., Althunibat, A., Alzaqebah, M., Mohammad, R.M.A.

The adoption of bitcoins technology: The difference between perceived future expectation and intention to use bitcoins: Does social influence matter?

(2021) International Journal of Electrical and Computer Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111080336&doi=10.11591%2fijece.v11i6.pp5351-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111080336&doi=10.11591%2fijece.v11i6.pp5351-5366&partnerID=40&md5=a4be54f63cedd21874362c6a77a2ed7b)

5366&partnerID=40&md5=a4be54f63cedd21874362c6a77a2ed7b

AFFILIATIONS: College of Applied Studies and Community Service, Imam Abdurrahman Bin Faisal University, Al-Dammam, Saudi Arabia;

Department of Computer Science, Faculty of Computer Science and Information Technology, Jerash University, Jordan;

Software Engineering Department, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mathematics, College of Science, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia;

Computer Information Systems Department, College of Computer Science and Information Technology, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

ABSTRACT: Bitcoin is a decentralized system that tries to become a solution to the shortcomings of fiat and gold-based currencies. Considering its newness, the adoption level of bitcoin is yet understood. Hence, several variables are proposed in this work in examining user perceptions regarding performance expectancy, effort expectancy, trust, adoption risk, decentralization and social influence interplay, with the context of user's future expectation and behavioral intentions to use bitcoins. Data were gathered from 293 completed questionnaire and analysed using AMOS 18. The outcomes prove the sound predictability of the proposed model regarding user's future expectations and intentions toward bitcoins. All hypotheses were supported, they were significantly affecting the dependent variables. Social influence was found as the highest predictor of behavioral intention to negatively utilize bitcoins. The significant impact of social influence, adoption risk and effort expectancy which affect behavioral intention to use bitcoins the most, are demonstrated in this study. Bitcoins should thus, present an effective, feasible and personalized program which will assist efficient usage among users. Additionally, the impacts of social influence, adoption risk and perceived trust on behavioral intention to utilize new technology were compared, and their direct path was tested together, for the first time in this context. © 2021 Institute of Advanced Engineering and Science. All rights reserved.

Sabbah, D.A., Al-Azaideh, B.A., Talib, W.H., Hajjo, R., Sweidan, K., Al-Zuheiri, A.M., Sheikha, G.A., Shraim, S.

New derivatives of sulfonylhydrazone as potential antitumor agents: Design, synthesis and cheminformatics evaluation

(2021) Acta Pharmaceutica, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104348382&doi=10.2478%2facph-2021-0043&partnerID=40&md5=85fe0e9f04b0d0e71e6b13d63b46778a>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Clinical Pharmacy and Therapeutics, Applied Science Private University, P.O. Box 166, Amman, 11931, Jordan;

Department of Chemistry, University of Jordan, Amman, 11942, Jordan;

Visiting Professor Scholar, Skaggs School of Pharmacy and Pharmaceutical Science University of California, San Diego, 9500 Gilman Drive MC0756, San diego, CA 92093-0756, United States

ABSTRACT: Phosphoinositide 3-kinase α (PI3K α) is a propitious target for designing anticancer drugs. A series of new N'-(diphenylmethylene)benzenesulfonylhydrazide was synthesized and characterized using FT-IR, NMR (1H and 13C), HRMS, and elemental analysis. Target compounds exhibited an antiproliferative effect against the human colon carcinoma (HCT-116) cell line. Our cheminformatics analysis indicated that the para-tailored derivatives [p-NO₂ (3) and p-CF₃ (7)] have better ionization potentials based on calculated Moran autocorrelations and ionization potentials. Subsequent in vitro cell proliferation assays validated our cheminformatics results by providing experimental evidence that both derivatives 3 and 7 exhibited improved antiproliferative activities against HCT-116. Hence, our results emphasized the importance of electron-withdrawing groups and hydrogen bond-acceptors in the rational design of small-molecule chemical ligands targeting PI3K α . These results agreed with the induced-fit docking against PI3K α , highlighting the role of p-substituted aromatic rings in guiding the ligand-PI3K α complex formation, by targeting a hydrophobic pocket in the ligand-binding site and forming π -stacking interactions with a nearby tryptophan residue. © 2021 Dima A. Sabbah et al., published by Sciendo 2021.

Khalaf, R.A., Alwarafi, E., Sabbah, D.

Piperazine sulfonamides as DPP-IV inhibitors: Synthesis, induced-fit docking and in vitro biological evaluation

(2021) Acta Pharmaceutica, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104318619&doi=10.2478%2facph-2021-0034&partnerID=40&md5=91e21b3bdac7213aa90b61a945be27d3>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Diabetes mellitus is a chronic illness that needs persistent medical attention and continuous patient self-management to avoid acute complications. Dipeptidyl peptidase-IV (DPP-IV) inhibitors minimize glucagon and blood glucose levels by increasing the incretin levels, glucagon-like peptide (GLP-1) and glucose-dependent insulinotropic poly-peptide (GIP), leading to insulin secretion from pancreatic beta cells. In the present study, nine 1,4-bis(phenylsulfonyl) piperazine derivatives 1a-i were synthesized and identified using 1H NMR, 13C NMR, MS and IR spectroscopies. These compounds were tested in vitro and showed inhibitory activity ranging from 11.2 to 22.6 % at 100 μ mol L⁻¹ concentration. Piperazine sulfonamide derivatives were found to be promising DPP-IV inhibitors, where the presence of electron-withdrawing groups such as Cl (1a-c) improved the activity

of the compounds more than electron-donating groups such as CH₃ (1d-f) at the same position. Additionally, meta-substitution is disfavored (1b, 1e, 1g). Induced-fit docking studies suggested that the targeted compounds 1a-i occupy the binding domain of DPP-IV and form H-bonding with the backbones of R125, E205, E206, F357, K554, W629, Y631, Y662 and R669. © 2021 Reema Abu Khalaf et al., published by Sciendo.

Afifa, M.A., Saleh, I., Haniah, F.

Direct and Mediated Associations Among Ownership Structure, Cash Holdings and Firm Value: The Case of Jordanian Insurance Firms

(2021) Vision, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101026131&doi=10.1177%2f0972262920983989&partnerID=40&md5=f3ba308b4b2cee1043c955ce93f42fdf)

85101026131&doi=10.1177%2f0972262920983989&partnerID=40&md5=f3ba308b4b2cee1043c955ce93f42fdf

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

The World Islamic Science and Education University, Amman, Jordan

ABSTRACT: This study aims to investigate the direct and mediated associations among ownership structure (OS), cash holdings (CHs) and firm value (FV). It provides empirical evidence from insurance firms listed in Jordan over the period from 2009 to 2018 using panel data analysis method. The findings conclude that ownership concentration positively affects CHs, whilst the board of directors' ownership, organizational ownership and foreign ownership do not. Additionally, the CHs negatively affect FV. At the same time, the board of directors' ownership, organizational ownership and foreign ownership as proxies for OS directly affect FV, and these proxies also have an indirect effect on FV by the mediation of CHs. Finally, this study recommends future research to study more determinants of FV, especially in different countries, such as MENA countries. © 2021 Management Development Institute.

Barakat, M., Al-Qudah, R., Akour, A., Al-Qudah, N., DallalBashi, Y.H.

Unforeseen uses of oral contraceptive pills: Exploratory study in Jordanian community pharmacies

(2021) PLoS ONE, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098923377&doi=10.1371%2fjournal.pone.0244373&partnerID=40&md5=59831ec4a9a7edd618eb93da9747b4dd)

85098923377&doi=10.1371%2fjournal.pone.0244373&partnerID=40&md5=59831ec4a9a7edd618eb93da9747b4dd

AFFILIATIONS: Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Pharmacy, Department of Biopharmaceutics and Clinical Pharmacy, University of Jordan, Amman, Jordan;

Faculty of Medicine, Al-Balqa Applied University, Al-Salt, Jordan;

School of Pharmacy, Queen's University Belfast, Belfast, United Kingdom

ABSTRACT: The use of oral contraceptive pills (OCPs) as a birth control method is very common worldwide. OCPs have many other labeled non-contraceptive indications, and as a result there is an associated risk of improper use, as with any other medications. This study was designed to assess the unforeseen improper uses of OCPs observed by community pharmacists in Jordan. Method A cross-sectional study design was conducted using a self-administered survey. A convenience sample (n = 380) of Jordanian community pharmacists, were recruited through social media resources. The survey included multiple-choice and open-ended questions. Descriptive statistics and correlation analyses were completed using SPSS. Results More than half of the recruited pharmacists (55.3%) were female, and the mean age of the participants was 32.58 ± 9.94. The majority of the pharmacists (85%) had good knowledge about the non-contraceptive indications of OCPs. About 53% of them confirmed their exposure to cases of the improper use of OCPs. About 67.5% of the pharmacists who confirmed exposure to such cases, reported the topical use of OCPs for the enhancement of hair growth. Around 15% of those pharmacists stated that OCPs were used to give negative results for addictive drug screening tests. In the event that the pharmacists suspected improper use, more than 90% suggested they would refrain from dispensing the pills. Conclusion This study has spotlighted many unforeseen uses of OCPs in Jordan and highlighted the need for restricted national regulations on the monitoring of OCP prescription/selling patterns in Jordan by policymakers. Moreover, there is a need for the establishment of national educational programs for the Jordanian community regarding the safe proper use of OCPs. © 2020 Barakat et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Alhalaiqa, F., Masa'Deh, R., Al-Yami, M., Al-Ghabeesh, S., Rayan, A., Shawashreh, A., Al-Omari, O.

Perceived stress among university students: Syrian refugees versus Jordanians

(2021) Journal of Public Health (Germany), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85083802644&doi=10.1007%2fs10389-020-01261-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85083802644&doi=10.1007%2fs10389-020-01261-8&partnerID=40&md5=b2d440eceeec67522cf28d0e4d4d28b5)

8&partnerID=40&md5=b2d440eceeec67522cf28d0e4d4d28b5

AFFILIATIONS: Faculty of Nursing, Philadelphia University, Amman, Jordan;

School of Nursing, Applied Science Private University, Amman, Jordan;

Ministry of Transportation, Riyadh, Saudi Arabia;
 Faculty of Nursing, Al-Zaytoonah Private University of Jordan, Amman, Jordan;
 Faculty of Nursing, Zarqa University, Al-Zarqa, Jordan;
 Training and Consultation Unit, Institute for Family Health, Noor Al-Hussein Foundation, Amman, Jordan;
 Fundamentals and Administration Department, Faculty of Nursing, Sultan Qaboos University, P.O. Box 50, Al Khoud, 123, Oman

ABSTRACT: Aim: A significant number of Syrian refugees are studying in Jordan's private universities. Syrian refugees are prone to many health problems, of which stress is one of the most common. Therefore, we aimed to compare the perceived stress between Syrian refugees and Jordanian university students. Subjects and methods: A cross-sectional comparative design was used. The study was conducted among four universities that were chosen by a stratified random sampling method according to each university's geographical area. A total of 1180 students participated in the study and completed questionnaires, including the Perceived Stress Scale 10-item questionnaire (PSS-10). Results: The PSS-10 revealed moderate levels of overall stress among university students. The mean level of the PSS-10 of Syrian refugees was significantly higher than for Jordanians. We also found significant differences between Syrian refugees and Jordanians in terms of their demographic characteristics, such as age. Conclusion: Syrian refugees who are studying in Jordan's universities should have access to healthcare facilities and should engage in more programmes to help them control and deal with their stress. © 2020, Springer-Verlag GmbH Germany, part of Springer Nature.

Badinjki, T.

Tess of the d'urbervilles: Hardy's nonconformist views and challenge of the prevailing social and moral ideology

(2021) Theory and Practice in Language Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120823466&doi=10.17507%2ftpls.1111.02&partnerID=40&md5=bad365d0ce7575b55d1217bfb3c9737)

[85120823466&doi=10.17507%2ftpls.1111.02&partnerID=40&md5=bad365d0ce7575b55d1217bfb3c9737](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120823466&doi=10.17507%2ftpls.1111.02&partnerID=40&md5=bad365d0ce7575b55d1217bfb3c9737)

AFFILIATIONS: Dept. of English, Al-Zaytoonah University, P.O. Box 1089, Amman, 11732, Jordan

ABSTRACT: In Tess of the d'Urbervilles Hardy's non-conformist views are evident through the dialectic of negation which opposes institutionalized codes, and rejects the stereotypical Victorian concepts of femininity. He hovers over Tess like a stricken father, and presents her as an innocent victim, yet he has not been able to save her from her pre-destined death. His endeavours to create a Utopian society and change the cultural logos in regards to sex and gender, have been hampered by various forms of repression from editors, reviews, publishers and supporters of "the purity movement". In his attempt to avoid the trauma of rejection, he made substantial expurgations and revisions of the original text, but the tragic death at the end of the book shows that the prevailing ideology, and excessive prudishness of supporters of the league of virtue have outweighed his perceptions and defeated his liberal concepts." His frustration, bitter experience, and the unpleasant attacks waged on him and his works, were apparently influential in making him cease writing novels. © 2021 ACADEMY PUBLICATION.

Alzoubi, M.

Bank Capital Adequacy: The Impact Of Fundamental And Regulatory Factors In A Developing Country

(2021) Journal of Applied Business Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135018132&partnerID=40&md5=8651800b6956867fe965a51f3337735d)

[85135018132&partnerID=40&md5=8651800b6956867fe965a51f3337735d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85135018132&partnerID=40&md5=8651800b6956867fe965a51f3337735d)

AFFILIATIONS: Alzaytoonah University of Jordan, Jordan

ABSTRACT: This paper provides evidence that the overcapitalized banks are much more sensitive to fundamental factors rather than to the regulatory requirements such the Basle's Accord requirements, which raises the question of whether Basel's limits are sufficient to minimize financial crises. Also, keeping buffers against falling below the minimum requirements appear to be of second order importance. Three fundamental factors affect capital adequacy in Jordan; risk, return and activity. Risk indicators drive the capital adequacy ratios downward. Return on average assets (ROAA) has the biggest impact among all factors, banks fuel their capital internally following the pecking order theory, and they also raise capital whenever their activities (loan to asset ratio) improve. Return on average equity (ROAE) is a cost factor; banks avoid issuing capital whenever cost of common equity is high. This paper also provides evidence that systematically important banks hold less capital, a sign of moral hazard. © by the authors.

Al-Kafaween, M.A., Hilmi, A.B.M., Al-Jamal, H.A.N.

The Beneficial Effects of Stingless Bee Kelulut Honey Against Pseudomonas aeruginosa and Streptococcus pyogenes Planktonic and Biofilm

(2021) Tropical Journal of Natural Product Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122794823&doi=10.26538%2ftjnpr%2fv5i10.15&partnerID=40&md5=8b1fc4aa1c9c729ab1288b028296bd13)

[85122794823&doi=10.26538%2ftjnpr%2fv5i10.15&partnerID=40&md5=8b1fc4aa1c9c729ab1288b028296bd13](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122794823&doi=10.26538%2ftjnpr%2fv5i10.15&partnerID=40&md5=8b1fc4aa1c9c729ab1288b028296bd13)

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Kelulut honey (KH) is produced by the stingless bees from *Trigona* species and has strong antibacterial activity and is useful medically and therapeutically. The purpose of this study was to investigate the antibacterial and antibiofilm activities of KH against *Pseudomonas aeruginosa* and *Streptococcus pyogenes*. Biofilms were cultivated in microtiter plates with and without a range of concentrations of KH, and effects on biofilm were monitored by optical density (at 570 nm), biomass (by staining with crystal violet), metabolic activity (using an esterase assay) and viability (by determining total cell counts). Structural effects on planktonic and established biofilms were examined by scanning electron microscopy (SEM). KH was found to disrupt microcolony formation in both bacteria at sublethal concentration of KH. The lowest concentration of KH found to prevent biofilm formation was 19% (w/v), whereas on average, 35.7% (w/v) of KH was required to inhibit established biofilms. Susceptibility was not differed with length of biofilm establishment between 24 and 72 hours. SEM analysis revealed marked changes in the bacterial cell morphology for both bacteria following treatment with KH. Extensive structural changes and loss of biofilm structure were seen in the sample after exposure to KH using scanning electron microscopy. Using a range of methods to evaluate planktonic and biofilm integrity, the results indicate that KH inhibits both bacteria planktonic and biofilm in vitro. © 2021 Al-kafaween et al.

Al-Hadid, K.J., Abu-Irmaileh, B., Harb, A.A., Sharab, A., Alhadid, A.

Acacia cyanophylla, *Eucalyptus camaldulensis*, and *Pistacia atlantica* Ethanol Extracts Revealed Cytotoxicity of Breast Cancer Cell Lines

(2021) *Tropical Journal of Natural Product Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122779890&doi=10.26538/2ftjnpr%2fv5i10.18&partnerID=40&md5=0027fe5c27705a6f8b738cb52e6d8129)

[85122779890&doi=10.26538/2ftjnpr%2fv5i10.18&partnerID=40&md5=0027fe5c27705a6f8b738cb52e6d8129](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122779890&doi=10.26538/2ftjnpr%2fv5i10.18&partnerID=40&md5=0027fe5c27705a6f8b738cb52e6d8129)

AFFILIATIONS: Department of Biological Sciences, School of Science, The University of Jordan, Amman, 11942, Jordan;

Hamdi Mango Research Center for Scientific Research, The University of Jordan, Amman, 11942, Jordan; Department of Basic Sciences, Faculty of Arts and Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: The available surgical and chemotherapeutic treatments of breast cancer are costly and associated with undesired side effects. Therefore, new alternative treatments need to be investigated using medicinal plants that have been the source of active ingredients for many drugs. The aim of this study is to evaluate the in vitro cytotoxicity of ethanol extracts of *Acacia cyanophylla* leaves, *Eucalyptus camaldulensis* leaves and fruits, and *Pistacia atlantica* leaves and petioles against four breast cancer cell lines and one normal skin fibroblast cell line using MTT colorimetric assay. Phytochemical analysis of the plant extracts was conducted using High Pressure Liquid Chromatography (HPLC). *Acacia cyanophylla* leaves extract showed high cytotoxicity against MDA-MB-231 and very low cytotoxicity against the normal cell line. *Eucalyptus camaldulensis* fruits extract showed high cytotoxicity against SKBR3 and ZR-75-1 cell lines, with moderate cytotoxicity against the normal cell line. *Pistacia atlantica* petioles extracts showed moderate cytotoxicity against SKBR3 cell lines and low cytotoxicity against the normal cell line. All plant extracts showed low cytotoxicity against T47D cell line. Unique chemicals were detected in each extract that could explain the difference in cytotoxicity. Chemical composition analysis of the plant extracts revealed that isorhamnetin-3-O-robinobioside and spathulenol are candidate compounds for in vivo study in order to investigate their efficacy and safety as potential drugs to treat breast cancer. In conclusion, *A. cyanophylla*, *E. camaldulensis*, and *P. atlantica* extracts have potential cytotoxic effect against breast cancer cells and could be a potential source of compounds to develop a drug to treat breast cancer. © 2021 Al-Hadid et al.

Al-Doaiss, A., Jarrar, Y., Shati, A., Alfaifi, M., Al-Kahtani, M., Jarrar, B.

Renal alterations induced by chronic exposure to therapeutic doses of antihypercholesteremic atorvastatin

(2021) *Endocrine, Metabolic and Immune Disorders - Drug Targets*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121853970&doi=10.2174/2f1871530321666210106105059&partnerID=40&md5=0a973b92454c432ac858bb17508c4c28)

[85121853970&doi=10.2174/2f1871530321666210106105059&partnerID=40&md5=0a973b92454c432ac858bb17508c4c28](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121853970&doi=10.2174/2f1871530321666210106105059&partnerID=40&md5=0a973b92454c432ac858bb17508c4c28)

AFFILIATIONS: Department of Biology, College of Science, King Khalid University, Abha, Saudi Arabia;

Department of Anatomy and Histology, Faculty of Medicine, Sana'a University, Sana'a, Yemen;

Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University, Amman, Jordan;

Department of Biological Sciences, Faculty of Science, Jerash University, Jerash, Jordan

ABSTRACT: Background: Atorvastatin (ATOR) is widely used for the treatment and prevention of hypercholesterolemia and various diseases, such as cardiovascular complications, with little data about the histopathological and ultrastructural renal alterations that might be induced by this drug.

Objectives: The present study was undertaken to investigate the potential toxicity of therapeutic doses of atorvastatin on the microanatomy and ultrastructure of renal tissues from Wistar albino rats. **Methods:** Adult male Wistar albino rats received an oral daily dose of 5 mg/kg bodyweight for 90 consecutive days. Biopsies from both kidneys of each study rat were taken for histopathological and ultrastructural examination. **Results:** ATOR-treated rats exhibited glomerular, tubular, and interstitial histological alterations, including degeneration, necrosis, hyaline droplets, edema, cortical hemorrhages, mesangial hypercellularity, and blood capillary dilation and congestion. In addition, ATOR exposure increased the activity of glucose-6-phosphate dehydrogenase and alkaline phosphatase with a concurrent reduction in proteins and neutral mucosubstances content of the glomeruli and renal cells. Moreover, ATOR-treated animals demonstrated glomerular ultrastructural alterations, consisting mainly of capillary tuft dilatation, glomerular basement membrane thickening, and mesangial cell proliferation. The renal cells of the proximal tubules demonstrated damaged mitochondria, degenerative cellular changes, endoplasmic reticulum dilatation, lysosomal and autophagosome activation, nuclear alteration, myelin figure formation, and microvilli disorganization. **Conclusion:** The findings of the present work may indicate that ATOR can induce renal histological, histochemical, and ultrastructural alterations that may affect kidney and other vital organ functions. © 2021 Bentham Science Publishers.

Subih, M., Al Hadid, L., Al Omari, D., Albana, H., Shahrour, L.A.

Professional Values Development Among Jordanian Baccalaureate Nursing Students

(2021) Nursing Education Perspectives, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85121015149&doi=10.1097%2f01.NEP.0000000000000867&partnerID=40&md5=f35112420fda46ab98fc9da8d5f67117

AFFILIATIONS: School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Nursing, Al-Balqa' Applied University, Salt, Jordan

ABSTRACT: **AIM** The aims of the study were to identify professional values among third- and fourth-year baccalaureate nursing students at private and public universities in Jordan and to investigate the demographic variables correlating with professional values. **BACKGROUND** Educational curricula reinforce professional values among nursing students. **METHOD** A cross-sectional design was used; the questionnaire included a demographic variable survey and the Nurses Professional Values Scale-3. **RESULTS** The mean score for the overall value scale was moderate (3.5, SD = 0.4, range 1-5). The caring subscale was the highest (3.9); the professionalism and the activism subscales had the same mean (3.3). Male students, studying in private universities and employed in health care, scored higher ($p = .002, .001, \text{ and } .01$, respectively). Study track and age were insignificantly correlated. **CONCLUSION** The development of professional values is associated positively with practice and employment status; clinical experience improved students' sense of professionalism. © Lippincott Williams & Wilkins.

AL-Samydai, A., Abu Hajleh, M.N., Akour, A., Shalan, N., Jaber, N., Al-Halaseh, L.K., Alzweiri, M.

Investigation into the prophylactic and therapeutic activity of coenzyme Q10 against COVID-19

(2021) Tropical Journal of Pharmaceutical Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85120871879&doi=10.4314%2ftjpr.v20i11.22&partnerID=40&md5=445e61217eea9baf6fbb885425a8704e

AFFILIATIONS: Pharmacological and Diagnostic Research Centre, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Cosmetic Science, Pharmacological and Diagnostic Research Centre, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, University of Jordan, Amman, 19328, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Mutah University, Al-Karak, 61710, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, 19328, Jordan

ABSTRACT: **Purpose:** To evaluate the anti-SARS CoV-2 effect of Coenzyme Q 10, Ubiquinol-10, and idebenone, which have beneficial therapeutic applications against diverse virus types, using molecular docking approach. **Methods:** The potential activity of Coenzyme Q10, Ubiquinol-10, and Idebenone against viral infections was explored through the collection of data from relevant literature, and by modelling these compounds virtually, using in silico investigation methods. **Results:** Coenzyme Q10 and ubiquinol-10 showed significant docking performance. They interacted with numerous amino acid residues of the main protease of SARS-CoV-2 ACE2 (7C8J), Alpha thrombin (1AE8), TYRO (4TS1) protein targets sides, SARS-coronavirus Orf7a accessory protein (1XAK), TNF (1RJ8), and Cytokine/receptor (1I1R). **Conclusion:** The findings of our study showed promising inhibitory activities of the selected compounds against the main proteases of SARS-CoV-2. Consequently, these compounds have theoretical effects on inhibiting the viral entry, reproduction, and ultimately the

prevention and/or treatment of the SARSCoV2 infection. © 2021 The authors.

Jebril, I.H., Datta, S.K., Sarkar, R., Biswas, N.

Common fixed point theorem in probabilistic metric space using lukasiecz t-norm and product t-norm (2021) Journal of Statistics Applications and Probability, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119375884&doi=10.18576%2fJSA%2f100303&partnerID=40&md5=53cead7a2c7719edb8f6f0868a2beb88)

[85119375884&doi=10.18576%2fJSA%2f100303&partnerID=40&md5=53cead7a2c7719edb8f6f0868a2beb88](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119375884&doi=10.18576%2fJSA%2f100303&partnerID=40&md5=53cead7a2c7719edb8f6f0868a2beb88)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mathematics, University of Kalyani, P.O.: Kalyani, Dist.: Nadia, Pin, West Bengal, 741235, India;

Department of Mathematics, Gour Mahavidyalaya, Malda, West Bengal, Mangalbari, India;

Department of Mathematics, Chakdaha College, Chakdaha, Nadia, Pin:, West Bengal, 741222, India

ABSTRACT: In this paper, we investigate some common fixed point theorems in probabilistic metric spaces. Also, we introduce the concept of point-wise R-weakly commuting pair of self mappings and compatible pair of mappings. © 2021 NSP

Shaban, N.A., Abdelhafez, E., Hamdan, M.

How students, in an air conditioning and heating course, assess the impact of the COVID-19 pandemic on the ABET student learning outcomes

(2021) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119192947&doi=10.3390%2fisu132212375&partnerID=40&md5=a3c1c8265a69a7c641702fda1f855c6b)

[85119192947&doi=10.3390%2fisu132212375&partnerID=40&md5=a3c1c8265a69a7c641702fda1f855c6b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119192947&doi=10.3390%2fisu132212375&partnerID=40&md5=a3c1c8265a69a7c641702fda1f855c6b)

AFFILIATIONS: Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mechanical Engineering, School of Engineering, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The COVID-19 pandemic has forced almost all universities in the world to switch from face-to-face to an online teaching format. In response to this sudden transition, the Mechanical Engineering department at the Al-Zaytoonah University in Jordan had to adapt to this change within two weeks in mid-March 2020. In addition, the department had to comply with the strict ABET accreditation regulations, among which is the indirect assessment of each course by the students each semester. They judge to what degree ABET-mandated student learning outcomes (SO) are actually met in any course designated to deliver the outcomes. Another ABET accreditation regulation is direct assessment, which is conducted by the instructor and relies on an instructor's own evaluation of tasks designated for certain student learning outcomes. The aim of this study is to determine if, during the COVID-19 pandemic, students' assessments changed significantly, in accordance with the ABET mandate, by using statistical analyses of students' responses on an online completed survey. An independent samples t-test was used to evaluate the statistical importance of the observed differences. The SO coverage rates were quite high during the pandemic, although, generally, somewhat lower than their pre-pandemic equivalents. In this study, the Air Conditioning and Heating (ACH) course was selected to compare direct and indirect student learning outcomes before and after the COVID-19 pandemic. Consequently, our findings revealed a positive effect on SO performance during the COVID-19 pandemic and due to e-learning teaching. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Alawneh, R., Jannoud, I., Rabayah, H., Ali, H.

Developing a novel index for assessing and managing the contribution of sustainable campuses to achieve un sdgs

(2021) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118208629&doi=10.3390%2fisu132111770&partnerID=40&md5=ae52f9b91d4beb49b25060524dbbb953)

[85118208629&doi=10.3390%2fisu132111770&partnerID=40&md5=ae52f9b91d4beb49b25060524dbbb953](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118208629&doi=10.3390%2fisu132111770&partnerID=40&md5=ae52f9b91d4beb49b25060524dbbb953)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Architecture, Jordan University of Science and Technology, Irbid, 21110, Jordan

ABSTRACT: Sustainable campuses have a substantial role to play in achieving the Sustainable Development Goals (SDGs). Worldwide, there are many rating schemes to assess universities' sustainability; UI GreenMetric is one of the most common global rating schemes aimed at encouraging green campuses and university sustainability worldwide. However, none of the existing rating schemes quantitatively measure the contributions of the implementation of its assessment indicators to achieve SDGs. There is a shortage of information on how sustainable campuses contribute to achieving SDGs. Thus, this research aimed to develop a novel index to assess and manage the contributions of sustainable campuses certified by UI GreenMetric to achieve SDGs. This article proposes novel indices, the GreenMetric Indicator Contribution Index (GMICI) and the GreenMetric Sustainable Campus

Index (GMSCI), to evaluate the contributions of implementing UI GreenMetric indicators for achieving the SDGs. By implementing questionnaire surveys, we collected the relevant data. Structured questionnaire surveys yielded 35 responses from experts. The contributions of UI GreenMetric indicators to achieving SDGs were evaluated using the Relative Importance Index (RII). The results indicated an important relationship between the GreenMetric indicator and SDGs 3, 4, 6, 7, 8, 9, 11, 12, 13 and 15. This research concludes that the proposed GMICI and GMSCI are a rigorous means for evaluating the contribution of UI GreenMetric indicators to UN-SDGs' achievement. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Althunibat, A., Almaiah, M.A., Altarawneh, F.

Examining the factors influencing the mobile learning applications usage in higher education during the covid-19 pandemic

(2021) Electronics (Switzerland), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85118201345&doi=10.3390%2felectronics10212676&partnerID=40&md5=59b02a89b644126207ee5b212739bb6b

AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Computer Sciences and Information Technology, King Faisal University, Al-Ahsa, 31982, Saudi Arabia

ABSTRACT: Recently, the emergence of the Covid-19 has caused a high acceleration towards the use of mobile learning applications in learning and education. Investigation of the adoption of mobile learning still needs more research. Therefore, this study seeks to understand the influencing factors of mobile learning adoption in higher education by employing the Information System Success Model (ISS). The proposed model is evaluated through an SEM approach. Subsequently, the findings show that the proposed research model of this study could explain 63.9% of the variance in the actual use of mobile learning systems, which offers important insight for understanding the impact of educational, environmental, and quality factors on mobile learning system actual use. The findings also indicate that institutional policy, change management, and top management support have positive effects on the actual use of mobile learning systems, mediated by quality factors. Furthermore, the results indicate that factors of functionality, design quality, and usability have positive effects on the actual use of mobile learning systems, mediated by student satisfaction. The findings of this study provide practical suggestions, for designers, developers, and decision makers in universities, on how to enhance the use of mobile learning applications and thus derive greater benefits from mobile learning systems. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Elayeh, E., Akour, A., Haddadin, R.N.

Prevalence and predictors of self-medication drugs to prevent or treat COVID-19: Experience from a Middle Eastern country

(2021) International Journal of Clinical Practice, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85115069604&doi=10.1111%2fijcp.14860&partnerID=40&md5=bf96ee7920b29c5f8ff23c53a5187281

AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmacy, School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: Background: The lack of definitive cure for COVID-19 and the late introduction of a vaccine were responsible to push the general public to look for a remedy to treat or prevent COVID-19. The objective of this study was to evaluate patterns and factors that affect self-medication practices in Jordan during the pandemic. Methods: This was a cross-sectional study using an online questionnaire that was developed, piloted and distributed to the general public via various social media platforms. The questionnaire assessed the type of drugs and treatments used to self-medicate, the reasons behind their self-medication, and the factors affecting their practices. Results: A total of 1179 participants (females 46.4%) with a mean age of 32 (SD = 12.5) completed the questionnaire. The overall prevalence of the use of at least one product to treat or prevent COVID-19 was 80.4%. The most commonly used products to self-medicate were vitamin C (57.6%), followed by paracetamol (51.9%), zinc (44.8%) and vitamin D (32.5%). Female gender (odds ratio [OR] = 1.603, working in the medical field (OR = 1.697), and history of COVID-19 infection (OR = 2.026) were variables associated with self-medication. The most common sources of participants' information about drugs to prevent or treat COVID-19 were newspapers (n = 519, 44.0%), followed by pharmacists (43.4%), friends (33.8%) and internet searching such as Google (30.7%). Conclusion: This study identified the main drugs and supplements used during COVID-19 and the motives behind their use. It also identified the most influential source of information on the public during the pandemic. Self-medication can lead to worsening of the patient's health and delay seeking medical advice from healthcare professionals. Efforts should be done to help mitigate risks of self-medications by active involvement of

pharmacists and other members of healthcare team to refute false claims about drug, especially in the media. © 2021 John Wiley & Sons Ltd

Hamadneh, L., Bahader, M., Abuarqoub, R., AlWahsh, M., Alhusban, A., Hikmat, S.
PI3K/AKT and MAPK1 molecular changes preceding matrix metalloproteinases overexpression during tamoxifen-resistance development are correlated to poor prognosis in breast cancer patients (2021) *Breast Cancer*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112105698&doi=10.1007%2fs12282-021-01277-2&partnerID=40&md5=fb3122545a75cec4f5e8412138cf7037>

AFFILIATIONS: Faculty of Pharmacy, AL-Zaytoonah University of Jordan, Amman, 11733, Jordan; Leibniz-Institut Für Analytische Wissenschaften - ISAS - e.v, Bunsen-Kirchhoff-Straße 11, Dortmund, 44139, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Centre Mannheim, University of Heidelberg, Mannheim, Germany

ABSTRACT: Background: Metastasis and drug resistance remain a persistent key clinical obstacle to the success of breast cancer treatments. Recent years have seen an increased focus on understanding the factors that influence metastasis and drug resistance. Methods: In this study, the changes in MMPs gene expression were investigated together with their regulatory pathways—PI3K, MAPK and NFκB pathways—during the process of developing tamoxifen resistance in MCF7 cell line. Gene correlation maps and Kaplan–Meier survival plots among all breast cancer patients and patients treated with tamoxifen were evaluated. Results: MMPs gene expression was found to be up regulated in MCF7 cell line treated with tamoxifen during the development of tamoxifen resistance using two approaches. Up-regulation of gene expression of AKT1 and MAPK1 started in cells treated with 10 μM tamoxifen that was followed with up-regulation of other genes in these pathways and MMPs in cells treated with 35 μM tamoxifen. MMPs and genes from PI3K, MAPK and NFκB pathways showed highly significant increase of expression at 50 μM or when cells were treated sequentially six times with 35 μM. Furthermore, increased genes expression was associated with aggressive pattern, clear morphological changes, higher growth rate, increased migration and adhesion potential and tamoxifen insensitivity. Breast cancer distant metastasis-free survival, and survival among tamoxifen treated patients had high expression levels of MAPK1, AKT1, TIMP2, MMP1, and MMP9 showed poor prognosis. Conclusion: Early changes of MAPK1, AKT1 gene expression upon tamoxifen treatment could possibly be used as an early marker of resistance and future poor prognosis. © 2021, The Japanese Breast Cancer Society.

Sweidan, O.D., Elbargathi, K.

Does environmental stress affect economic growth: evidence from the Gulf Cooperation Council countries?

(2021) *Clean Technologies and Environmental Policy*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111850711&doi=10.1007%2fs10098-021-02169-x&partnerID=40&md5=3772ca7211691767ce5fd40543af41f1>

AFFILIATIONS: Department of Innovation in Government and Society, United Arab Emirates University, P.O. Box 15551, Al-Ain, United Arab Emirates;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The current paper empirically investigates the effect of environmental stress on economic growth in the Gulf Cooperation Council countries during 1995–2016. A panel cointegration analysis, specifically an autoregressive distributed lag model, is used to achieve the paper's goal. The present work is motivated by the high carbon dioxide emissions per capita and environmental stress in these countries relative to other countries, and it assumes that the income per capita is a function of the natural resource's rents and environmental stress. The findings show that environmental stress enhances economic growth, mainly in the long run. At the same time, the natural resources' rents improve it in the short run and impede it in the long run. These results are significant because they tell that the Gulf Cooperation Council countries' environmental stress did not reach critical levels that produce vast negative influences on the economy, and the resource curse hypothesis is valid in the long run. The current study's policy implication states that economic policymakers should monitor and evaluate future environmental stress outcomes in these countries. There is no guarantee that the positive influence prevails. Therefore, the Gulf Cooperation Council countries should adopt genuine procedures to diversify their economies. Besides, it should continue its initial steps to expand renewable energy resources, i.e., nuclear, wind, and solar. Graphic abstract: [Figure not available: see fulltext.] © 2021, The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature.

Dabbour, L., Abdelhafez, E., Hamdan, M.

Effect of climatology parameters on air pollution during COVID-19 pandemic in Jordan

(2021) *Environmental Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111118896&doi=10.1016%2fj.envres.2021.111742&partnerID=40&md5=5c23b7fcd7597fd7328220b3054e1861)

[85111118896&doi=10.1016%2fj.envres.2021.111742&partnerID=40&md5=5c23b7fcd7597fd7328220b3054e1861](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111118896&doi=10.1016%2fj.envres.2021.111742&partnerID=40&md5=5c23b7fcd7597fd7328220b3054e1861)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Architecture and Design, Department of Architecture, Amman, 11733, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Engineering and Technology, Department of Alternative Energy Technology, Amman, 11733, Jordan;

The University of Jordan, School of Engineering, Department of Mechanical Engineering, Amman, 11942, Jordan

ABSTRACT: This study aims to explore the real-time impact of the COVID-19 pandemic on measured air pollution in the three largest cities of Jordan (Amman, Irbid and Zarqa). It is hypothesized that a sharp decrease in the emitted amounts of particulate matter (PM₁₀), CO, NO₂ and SO₂ during COVID-19 pandemic will be obtained, this corresponds with the reduced traffic due to mandated business closures. To achieve this exploration a paired sample t-test is used to compare the concentration of these four pollutants in the three cities over the period from 15 March to 30 June during the years from 2016 to 2020. It is found that there is a significant difference between the emitted concentrations mean values of CO, PM₁₀, SO₂ and NO₂ during the period of study. This was indicated by the values of p for each species, which was less than 5 % for all these pollutants. The maximum reduction in SO₂ and NO₂ concentration during the lockdown period was in Zarqa. Irbid city witnessed the highest percentage reduction in CO and PM₁₀. Furthermore, the correlation test, independent variable importance of multilayer perceptron and global sensitivity analysis using Sobol analysis showed that metrological data (Humidity, wind speed, average temperature and pressure) have a direct relationship with concentrations of CO, PM₁₀, SO₂ and NO₂ in Amman, Irbid and Zarqa before and after COVID-19 pandemic. © 2021

Mansour, H., Abu Sharour, L.

Results of survey on perception of patient safety culture among emergency nurses in Jordan: Influence of burnout, job satisfaction, turnover intention, and workload [Resultados de la encuesta sobre percepción de la cultura de seguridad del paciente entre las enfermeras de urgencias en Jordania: influencia del burnout, satisfacción laboral, planes de rotación y carga de trabajo]

(2021) Journal of Healthcare Quality Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108794138&doi=10.1016%2Fj.jhqr.2021.05.001&partnerID=40&md5=7218a03c9c638c3826b5a3002d1e8bd4)

[85108794138&doi=10.1016%2Fj.jhqr.2021.05.001&partnerID=40&md5=7218a03c9c638c3826b5a3002d1e8bd4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108794138&doi=10.1016%2Fj.jhqr.2021.05.001&partnerID=40&md5=7218a03c9c638c3826b5a3002d1e8bd4)

AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan, Jordan

ABSTRACT: Background: Patient safety culture is an essential factor in the decreasing of medical errors and development of the institutions. This study was conducted to determine to what extent the selected variables, including age, weekly working hours, years of experience, burnout, turnover intention, workload, and job satisfaction, predict perceived patient safety culture among emergency nurses in Jordanian hospitals. Methods: A cross-sectional design with convenience sampling approach was used. A total of 157 emergency nurses from governmental and public hospitals were participated in the study and completed the study's survey: Hospital Survey on Patient Safety Culture (PSC), Copenhagen Burnout Inventory-Student Survey (CBI-SS), NASA Task Load Index (NASA-TLX), Nursing Workplace Satisfaction Questionnaire (NWSQ) and turnover intention scale (TIS). Results: The results showed that there was a negative relationship found between nurses' age and PSC perception ($r = -.166$, $P = .039$), personal burnout and PSC ($r = -.160$, $P = .048$), and there was also a negative relationship between turnover intentions and perceived PSC ($r = -.334$, $P = .000$). The results from the regression model indicated that turnover intentions, reporting patient safety events, and the number of events reported predicted PSC. The results showed that $R^2 = .29$, adjusted $R^2 = .287$, $F(6,141) = 9.45$, $P \leq 0.01$. Conclusion: Our results suggests that nurses' managers may pay attention to decreasing burnout and analyze turnover intention among nurses in order to improve the culture of patient safety. © 2021 FECA

Alzaareer, H.

Lie groups of Ck-maps on non-compact manifolds and the fundamental theorem for Lie group-valued mappings

(2021) Journal of Group Theory, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106382687&doi=10.1515%2Fjgth-2018-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106382687&doi=10.1515%2Fjgth-2018-0200&partnerID=40&md5=649b5386a79693d4d2946b9a6a021dd3)

[0200&partnerID=40&md5=649b5386a79693d4d2946b9a6a021dd3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106382687&doi=10.1515%2Fjgth-2018-0200&partnerID=40&md5=649b5386a79693d4d2946b9a6a021dd3)

AFFILIATIONS: Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan

ABSTRACT: We study the existence of Lie group structures on groups of the form $C^k(M, K)$ $C^k(M, K)$, where M is a non-compact smooth manifold with rough boundary and K is a, possibly infinite-dimensional, Lie group. Motivated by introducing this new class of infinite-dimensional Lie groups, we obtain a new version of the fundamental theorem for Lie algebra-valued functions. © 2021 Walter de Gruyter GmbH, Berlin/Boston.

Almomani, E.Y., Qablan, A.M., Almomany, A.M., Atrooz, F.Y.

The coping strategies followed by university students to mitigate the COVID-19 quarantine

psychological impact

(2021) Current Psychology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105444409&doi=10.1007%2fs12144-021-01833-1&partnerID=40&md5=0889c88c80994493a23ddc5790900164>

AFFILIATIONS: Department of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan;
Department of Secondary Education, University of Alberta, Edmonton, Canada;
Department of Curriculum and Instruction, Hashemite University, Zarqa, Jordan;
Department of Pharmacological and Pharmaceutical Sciences, College of Pharmacy, University of Houston, Houston, TX, United States

ABSTRACT: Different strategies were followed to control the spread of the COVID-19 disease worldwide. Jordan declared a military-enforced curfew for three months, which successfully controlled the disease spreading. However, the curfew impacted several aspects of students' lives and personalities. This study discusses the impact of the COVID-19 curfew restrictions on university students' mental health, as this area was not fully discussed in previous studies. An online survey was distributed to cover the psychological symptoms and coping strategies of university students. Most of them experienced short temper, anxiety, and sleep problems. Female students expressed more psychological symptoms than males, they managed their stress by sleeping, studying, and worshipping. Whereas male students were working, exercising, and playing video games. A distinct interest was noticed among students of different ages. Young students (18-25 years) expressed unhappiness and distress-like symptoms; they advocated sleeping and playing video games. While elder students (>26 years) had anxiety, sleep problems, and short tempers, they managed their symptoms by studying, exercising, and worshipping. The curfew restrictions have negatively impacted the mental health of female and younger students more than other categories. These research outcomes will help decision-makers to implement healthy coping strategies to be followed during unusual conditions. © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Abu Afifa, M.M., Saleh, I.

Management accounting systems effectiveness, perceived environmental uncertainty and enterprise risk management: evidence from Jordan

(2021) Journal of Accounting and Organizational Change, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108181799&doi=10.1108%2fJAOC-10-2020-0165&partnerID=40&md5=fca390dacc9d2bd30ef2adafb5ee5e3b>

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: This study aims to investigate the direct relationship between management accounting systems effectiveness (MASE) and enterprise risk management (ERM). In addition, it aims to investigate the interaction (moderating) effect of each of the four informational characteristics of MASE and each of the three components of perceived environmental uncertainty (PEU) on ERM, using empirical evidence from the developing country's Jordanian market. Design/methodology/approach: The study population includes all Jordanian companies listed on the Amman Stock Exchange at the end of 2019, and the study sample consists of all these companies (complete surveying - census population). This study chooses a quantitative method through a survey design approach using questionnaire as the best method for data collection. Findings: The summation of the relationship and interaction effects (moderation) examined by this study are as follows: three of the four informational characteristics of MASE, namely, a broadness of scope, an aggregation and an integration, have a positive direct relationship with ERM. The characteristic 'timeliness' has non-significant negative relationship with ERM. Additionally, the interaction (moderating) effect of higher levels of two informational characteristics of MASE, namely, a timeliness and an aggregation and higher level of perceived competitor uncertainty, will result in a higher ERM implementation. Research limitations/implications: The results of this study have significant ramifications for numerous companies, administrators and interested parties, as they may allow them to build and sustain effective accounting processes for management. These results support adopting sophisticated management accounting systems (MASs) instead of traditional systems in the companies to help them in improving the information quality and control levels, as well as reducing the risks by implementation of ERM. In addition, to ensure that companies are confronted with the environmental factors they face. The results of the present study will enable administrators to develop a deeper understanding of such management accounting systems. Originality/value: To the best of the knowledge, this is the first study of Jordan to investigate the relationship between MASE and ERM, moderated by PEU. As such, the study raises significant findings, drawing attention to MASs and their role in Jordan. © 2021, Emerald Publishing Limited.

Sabbah, D.A., Hajjo, R., Sweidan, K., Zhong, H.A.

An Integrative Informatics Approach to Explain the Mechanism of Action of N1-(Anthraquinon-2-yl) Amidrazones as BCR/ABL Inhibitors

(2021) Current Computer-Aided Drug Design, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123324279&doi=10.2174%2f1573409916666200819113444&partnerID=40&md5=b81e9c2f830371670abdc1782913aaa)

85123324279&doi=10.2174%2f1573409916666200819113444&partnerID=40&md5=b81e9c2f830371670abdc1782913aaa

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan;

Department of Chemistry, The University of Nebraska, 6001 Dodge Street, Omaha, NE 68182, United States

ABSTRACT: Background: Drugs incorporating heterocyclic chemical skeletons possess a plethora of therapeutic activities such as anticancer, antimicrobial, antihypertensive, and antipsychiatric effects. It is becoming routine, nowadays, to use cheminformatics and bioinformatics methods to elucidate the mechanism(s) of action of such drugs. Objective: This study aimed to probe the activity of a recently published series of N1-(anthraquinon-2-yl) amidrazone piperazine derivatives employing computational strategies[1], identify their structural basis of binding to BCR/ABL kinase domain, and explain their anticancer activities in human breast adenocarcinoma (MCF-7) and chronic myelogenous leukemia (K562) cell lines. Methods: We applied an in silico integrative informatics approach integrating molecular descriptors, docking studies, cheminformatics, and network analysis. Results: Our results highlighted the possible involvement of the BCR/ABL and DRD2 pathways in the anticancer activity of the studied compounds, and induced fit docking (IFD) indicated that the BCR/ABL kinase domain is a putative drug target. Additionally, high-scoring docking poses identified a unique network of hydrogen bonding with amino acids Y253, K271, E286, V299, L301, T315, M318, I360, R362, V379, and D3810. Conclusion: Using an integrative informatics approach to characterize our anticancer compounds, we were able to explain the biological differences between synthesized and biologically validated amidrazone piperazine anticancer agents. We were also able to postulate a mechanism of action of this novel group of anticancer agents. © 2021 Bentham Science Publishers.

Soub, T.F.A., Amarin, N.Z.

The reality of using Moodle in a distance education program

(2021) Cypriot Journal of Educational Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119598108&doi=10.18844%2fcjes.v16i5.6237&partnerID=40&md5=3fd2b8bd1104d24938c4358b2617bca4)

85119598108&doi=10.18844%2fcjes.v16i5.6237&partnerID=40&md5=3fd2b8bd1104d24938c4358b2617bca4

AFFILIATIONS: Faculty of Art and sciences, Aqaba University of Technology, Aqaba, Jordan;

Faculty of Arts, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: Using e-learning system (moodle) in distance education in time of the Covid-19 has become a reality, and the study was concerned with revealing the degree of faculty members' benefit from the Moodle system, as well as the nature of the challenges they faced, in addition to their vision to develop the use of Moodle system in teaching. The study used the descriptive analysis method, and the results showed that faculty members have benefited from the Moodle system for a high degree, although they indicated that there are significant challenges. The faculty members suggested continuing training on using the Moodle system and updating the version of the system available at the university. Results also showed that there are statistically significant differences in the estimates of the study sample of the reality of employment in favor of female faculty members as well as faculty members with low teaching experience, in the youth group. Accordingly, the study recommends training the teaching staff to use educational platforms and face the challenges facing distance education through these platforms ©2021 Birlesik Dunya Yenilik Arastirma ve Yayincilik Merkezi. All rights reserved.

Hajjo, R., Sabbah, D.A., Bardaweel, S.K., Tropsha, A.

Shedding the light on post-vaccine myocarditis and pericarditis in covid-19 and non-covid-19 vaccine recipients

(2021) Vaccines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118573000&doi=10.3390%2fvaccines9101186&partnerID=40&md5=cb58c6cd6304d3da474fb998d3f9c8e9)

85118573000&doi=10.3390%2fvaccines9101186&partnerID=40&md5=cb58c6cd6304d3da474fb998d3f9c8e9

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27515, United States;

National Center for Epidemics and Communicable Disease Control, Amman, 11942, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Myocarditis and pericarditis have been linked recently to COVID-19 vaccines without exploring the underlying mechanisms, or compared to cardiac adverse events post-non-COVID-19 vaccines. We introduce an informatics approach to study post-vaccine adverse events on the systems biology level to aid the prioritization of effective preventive measures and mechanism-based pharmacotherapy by integrating the analysis of adverse event reports from the Vaccine Adverse Event Reporting System (VAERS) with systems biology methods. Our results indicated that post-vaccine

myocarditis and pericarditis were associated most frequently with mRNA COVID-19 vaccines followed by live or live-attenuated non-COVID-19 vaccines such as smallpox and anthrax vaccines. The frequencies of cardiac adverse events were affected by vaccine, vaccine type, vaccine dose, sex, and age of the vaccinated individuals. Systems biology results suggested a central role of interferon-gamma (INF-gamma) in the biological processes leading to cardiac adverse events, by impacting MAPK and JAK-STAT signaling pathways. We suggest that increasing the time interval between vaccine doses minimizes the risks of developing inflammatory adverse reactions. We also propose glucocorticoids as preferred treatments based on system biology evidence. Our informatics workflow provides an invaluable tool to study post-vaccine adverse events on the systems biology level to suggest effective mechanism-based pharmacotherapy and/or suitable preventive measures. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Mahmoud, N.N., Zakaria, Z.Z., Kheraldine, H., Gupta, I., Vranic, S., Al-Asmakh, M., Moustafa, A.-E.A. The effect of surface-modified gold nanorods on the early stage of embryonic development and angiogenesis: Insight into the molecular pathways

(2021) International Journal of Molecular Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117002503&doi=10.3390%2fijms222011036&partnerID=40&md5=34dede242f8b9927938201d42f0e137a)

[85117002503&doi=10.3390%2fijms222011036&partnerID=40&md5=34dede242f8b9927938201d42f0e137a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117002503&doi=10.3390%2fijms222011036&partnerID=40&md5=34dede242f8b9927938201d42f0e137a)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

College of Medicine, QU Health, Qatar University, Doha, 2713, Qatar;

Biomedical Research Center, Qatar University, Doha, 2713, Qatar;

Biomedical and Pharmaceutical Research Unit, QU Health, Qatar University, Doha, 2713, Qatar;

Department of Biomedical Sciences, College of Health Sciences, QU Health, Qatar University, Doha, 2713, Qatar

ABSTRACT: Gold nanorods have been implicated in several biomedical applications. Herein, the effect of two surface-modified gold nanorods on the early stages of embryogenesis and angiogenesis was investigated using avian embryos at three days and their chorioallantoic membrane (CAM) at five days of incubation. We found that gold nanorods (GNR) modified with PEGylated phospholipid moiety show a high mortality rate in embryos after four days of exposure compared to GNR modified with PEGylated cholesterol moiety. Meanwhile, our data revealed that surface modified-GNR significantly inhibit the formation of new blood vessels in the treated CAM model after 48 h of exposure. Moreover, we report that surface-modified GNR significantly deregulate the expression of several genes implicated in cell proliferation, invasion, apoptosis, cellular energy metabolism, and angiogenesis. On the other hand, our data point out that GNR treatments can modulate the expression patterns of JNK1/2/3, NF-KB/p38, and MAPK, which could be the main molecular pathways of the nanorods in our experimental models. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Aljanabi, R., Alsous, L., Sabbah, D.A., Gul, H.I., Gul, M., Bardaweel, S.K.

Monoamine oxidase (MAO) as a potential target for anticancer drug design and development

(2021) Molecules, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116568810&doi=10.3390%2fmolecules26196019&partnerID=40&md5=241d1197b768726fe1b04615c5f957dc)

[85116568810&doi=10.3390%2fmolecules26196019&partnerID=40&md5=241d1197b768726fe1b04615c5f957dc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116568810&doi=10.3390%2fmolecules26196019&partnerID=40&md5=241d1197b768726fe1b04615c5f957dc)

AFFILIATIONS: Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Ataturk University, Yakutiye, 25030, Turkey;

Department of Physiology, School of Medicine, Ataturk University, Yakutiye, 25030, Turkey

ABSTRACT: Monoamine oxidases (MAOs) are oxidative enzymes that catalyze the conversion of bio-genic amines into their corresponding aldehydes and ketones through oxidative deamination. Owing to the crucial role of MAOs in maintaining functional levels of neurotransmitters, the implications of its distorted activity have been associated with numerous neurological diseases. Recently, an unanticipated role of MAOs in tumor progression and metastasis has been reported. The chemical inhibition of MAOs might be a valuable therapeutic approach for cancer treatment. In this review, we reported computational approaches exploited in the design and development of selective MAO inhibitors accompanied by their biological activities. Additionally, we generated a pharmacophore model for MAO-A active inhibitors to identify the structural motifs to invoke an activity. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Ibrahim, A.I.M., Ikhmais, B., Battle, E., Abuharb, W.K., Jha, V., Jaradat, K.T., Jiménez, R., Pequerul, R., Parés, X., Farrés, J., Pors, K.

Design, synthesis, biological evaluation and in silico study of benzyloxybenzaldehyde derivatives as selective aldh1a3 inhibitors

(2021) Molecules, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115723113&doi=10.3390%2fmolecules26195770&partnerID=40&md5=e0aa6101d766c946b45e8c4be02dc197>

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; Faculty of Life Sciences, Institute of Cancer Therapeutics, School of Pharmacy and Medical Sciences, University of Bradford, West Yorkshire, BD7 1DP, United Kingdom; Department of Biochemistry and Molecular Biology, Faculty of Biosciences, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, E-08193, Spain;

Department of Pharmacy, University of Pisa, Via Bonanno 6, Pisa, 56126, Italy;

College of Engineering and Technology, American University of the Middle East, Egaila, 54200, Kuwait

ABSTRACT: Aldehyde dehydrogenase 1A3 (ALDH1A3) has recently gained attention from researchers in the cancer field. Several studies have reported ALDH1A3 overexpression in different cancer types, which has been found to correlate with poor treatment recovery. Therefore, finding selective inhibitors against ALDH1A3 could result in new treatment options for cancer treatment. In this study, ALDH1A3-selective candidates were designed based on the physiological substrate resemblance, synthesized and investigated for ALDH1A1, ALDH1A3 and ALDH3A1 selectivity and cytotoxicity using ALDH-positive A549 and ALDH-negative H1299 cells. Two compounds (ABMM-15 and ABMM-16), with a benzyloxybenzaldehyde scaffold, were found to be the most potent and selective inhibitors for ALDH1A3, with IC50 values of 0.23 and 1.29 μM , respectively. The results also show no significant cytotoxicity for ABMM-15 and ABMM-16 on either cell line. However, a few other candidates (ABMM-6, ABMM-24, ABMM-32) showed considerable cytotoxicity on H1299 cells, when compared to A549 cells, with IC50 values of 14.0, 13.7 and 13.0 μM , respectively. The computational study supported the experimental results and suggested a good binding for ABMM-15 and ABMM-16 to the ALDH1A3 isoform. From the obtained results, it can be concluded that benzyloxybenzaldehyde might be considered a promising scaffold for further drug discovery aimed at exploiting ALDH1A3 for therapeutic intervention. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Yaseen, S.G., El Refae, G.A., Dajani, D.M., Ghanem, A.A.

Conflict management styles and innovation performance: The mediating role of organizational agility (2021) International Journal of Human Capital and Information Technology Professionals, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115162886&doi=10.4018%2fIJHCITP.2021100103&partnerID=40&md5=d158d74dcd850bf77caf42d497982346>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

Al Ain University, United Arab Emirates

ABSTRACT: The aim of this research is to empirically investigate the relationship between conflict management styles (CMSs), organizational agility, and innovation performance. Covariance-based structural equation modeling was used to test Rahim and Bonoma conflict management styles and their relations to organizational agility and innovation performance. A total of 460 questionnaires were collected from the Jordanian telecommunication companies. Findings revealed that integrating style has a significant impact on the organizational agility and innovation performance. Organizational agility mediates the relationship between compromising and integrating conflict styles and innovation performance. The obliging, dominating, and avoiding conflict management styles have an insignificant effect on innovation performance. This research has significantly contributed to the existing literature where prior studies were mainly conducted in the Western context. The conflict management field is still under research in the Middle Eastern business context. Copyright © 2021, IGI Global.

Khattabi, A.M., Mahmoud, N.N.

Interaction of folate - Linked silica nanoparticles with HeLa cells: Analysis and investigation the effect of polymer length

(2021) Saudi Pharmaceutical Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112212917&doi=10.1016%2fj.jsps.2021.08.011&partnerID=40&md5=ba62716f3b44728213ae8f3e63eb7149>

AFFILIATIONS: Department of Pharmaceutical Sciences and Pharmaceutics, Applied Science Private University, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This work is a continuance to our previous findings on silica nanoparticles (NPs) modified with diamine polymer, carboxymethyl- β -cyclodextrin (CM- β -CD) and folic acid (FA), respectively. When four different polymer lengths (D230, D400, D2000 and D4000) were analyzed, the release rate of anticancer agents was inversely related to the polymer length while the cell toxicity was directly related to the length. We investigate here the effect of polymer length on the extent of cellular interaction with HeLa cells. The mean particle size, the polydispersity (PD) and the zeta potential of the NPs were measured using dynamic light scattering (DLS), the quantitative analysis of the extent of NPs' interaction was studied using fluorescence microscopy and transmission electron microscopy (TEM) was used to qualitatively visualize them. The particle size increased by increasing the polymer length, the PD values were within the acceptable ranges (0.3-0.5) and the zeta potential was in the range of (-16 to -20 mV). A direct relation was observed between the fluorescence

intensity and the length. All modified NPs were capable of entering the cells, however a greater number of NPs with long polymers was observed compared to short polymers. Thus, the direct relation of polymer length to the cell toxicity is due to the release rate behavior and the enhanced interaction of NPs which possess long polymers. © 2021 The Authors

Abul-Futouh, H., Abaalkhail, S.J., Harb, M.K., Görls, H., Weigand, W.

Structural studies and electrochemical catalysis investigation of [FeFe]-hydrogenase H-cluster mimics mediated by monophosphane ligands

(2021) Polyhedron, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111187474&doi=10.1016%2Fj.poly.2021.115382&partnerID=40&md5=a115d565d84d7a19ed8457e6304f9990)

85111187474&doi=10.1016%2Fj.poly.2021.115382&partnerID=40&md5=a115d565d84d7a19ed8457e6304f9990

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany

ABSTRACT: In this research work we present the reaction of the precursor complexes $[\text{Fe}_2(\text{CO})_6\{\mu\text{-(SeCH}_2)_2\text{CMeR}\}]$ (R = H (1) or Me (2)) with monophosphine/phosphane ligands, PPh_3 and P(OMe)_3 , to afford the mono-substituted complexes $[\text{Fe}_2(\text{CO})_5\text{PPh}_3\{\mu\text{-(SeCH}_2)_2\text{CHMe}\}]$ (3), $[\text{Fe}_2(\text{CO})_5\text{PPh}_3\{\mu\text{-(SeCH}_2)_2\text{CMe}_2\}]$ (4), $[\text{Fe}_2(\text{CO})_5\text{P(OMe)}_3\{\mu\text{-(SeCH}_2)_2\text{CHMe}\}]$ (5) and $[\text{Fe}_2(\text{CO})_5\text{P(OMe)}_3\{\mu\text{-(SeCH}_2)_2\text{CMe}_2\}]$ (6). The structures of complexes 3–6 were confirmed by X-ray diffraction analysis. Moreover, we studied the influence of the steric interference of the $\mu\text{-Se-to-Se}$ linker with the nearby ligands (PPh_3 and P(OMe)_3) on the electronic properties, the solid-state structures and the mechanism of the cathodic process of complexes 3–6 compared to that of 1 and 2. In addition, a detailed electrochemical study of complexes 3–6 in the absence and presence of acetic acid AcOH , is also reported. © 2021 Elsevier Ltd

Al-Qerem, W.

Spirometry reference equations for children from a Middle Eastern population

(2021) International Journal of Clinical Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85110980271&doi=10.1111%2Fijcp.14598&partnerID=40&md5=331bdd6f8b2d67d13a38da4db0ac8db3)

85110980271&doi=10.1111%2Fijcp.14598&partnerID=40&md5=331bdd6f8b2d67d13a38da4db0ac8db3

AFFILIATIONS: Faculty of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Spirometry is a clinically useful test that can be used to assess lung function among children. Different equations had been formulated to determine the spirometric reference values depending on several individual characteristics. However, the widely used equations do not produce perfect suitability for Middle Eastern children. Objectives: This study aims to formulate Middle Eastern-specific equations that may be applicable for other populations in the region. Methods: The spirometric data were collected from Jordanian children between the ages of 6 and 17 years. The collected data were used to formulate customised reference equations for Middle Eastern children using generalised additive models for location, scale and shape. The newly formulated equation results were compared with Global Lung Initiative 2012 (GLI-2012) equations predicted values. Results: Spirometric values for 1576 healthy participants (870 males) were used to formulate the new equations. The assessment of z-scores produced by the present study equations and GLI-2012 indicated that the new equations were more suitable than GLI-2012 for Middle Eastern children. In-depth analysis of the results indicated that the suitability of GLI-2012 equations varied between different age points. Conclusion: This study formulated new spirometric reference equations for Middle Eastern children that can improve the diagnosis and management of different respiratory conditions. © 2021 John Wiley & Sons Ltd

Bezziou, M., Jebril, I., Dahmani, Z.

A new nonlinear duffing system with sequential fractional derivatives

(2021) Chaos, Solitons and Fractals, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85110776172&doi=10.1016%2Fj.chaos.2021.111247&partnerID=40&md5=356d8dfcce095cbd2378ddf9445b35f1)

85110776172&doi=10.1016%2Fj.chaos.2021.111247&partnerID=40&md5=356d8dfcce095cbd2378ddf9445b35f1

AFFILIATIONS: Faculty of Sciences and Technologie, University of Khemis Miliana44000, Algeria;

UMAB University of Mostaganem27000, Algeria;

Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130 Amman 11733, Jordan;

Laboratory of Pure and Applied Mathematics, Faculty of SEI, UMAB, University of Mostaganem27000, Algeria

ABSTRACT: By considering the Caputo fractional derivative and Riemann-Liouville integral, in the present work, we are concerned with a nonlinear sequential fractional differential system of Duffing oscillator type. The considered system has neither the commutativity nor the semi group properties, since the sum of the two orders of derivatives, of the left hand side of the problem, are outside the

interval $[0,1]$. With the absence of these two properties, we have to find other arguments to obtain the integral representation of the problem, to be able thereafter to present the other main results. Then, using the contraction mapping principle and Schaefer theorem, two main theorems on the uniqueness and existence of solutions are proved. Finally, some examples are given to illustrate the proposed main results. © 2021

Al Qadire, M., Ballad, C.A.C., Al Omari, O., Alkhalailah, M., Sharour, L.A., Khalaf, A., Aljezawi, M. Student nurses' knowledge about the management of chemotherapy-induced neutropenia: Multi-national survey

(2021) Nurse Education Today, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109430726&doi=10.1016%2fj.nedt.2021.105053&partnerID=40&md5=1bf9a4108c6fe9b84dc7e831b6dda7ae)

[85109430726&doi=10.1016%2fj.nedt.2021.105053&partnerID=40&md5=1bf9a4108c6fe9b84dc7e831b6dda7ae](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109430726&doi=10.1016%2fj.nedt.2021.105053&partnerID=40&md5=1bf9a4108c6fe9b84dc7e831b6dda7ae)

AFFILIATIONS: College of Nursing, Sultan Qaboos University, P.O. Box 66, Muscat, PC 123, Oman;

Al Al-Bayt University, P.O.Box 130040, Mafraq, 25113, Jordan;

Fundamentals and Administration Department, College of Nursing, Sultan Qaboos University, Oman;

College of Nursing, Sultan Qaboos University, Muscat, Oman;

Department of Nursing, Tabuk University, Tabuk, Saudi Arabia;

Faculty of nursing, Al zaytoonah University of Jordan, Jordan;

Department of Maternal and Child health, College of Nursing, Sultan Qaboos University, Oman;

Community Health Department, Faculty of Nursing, Al Al-Bayt University, P.O.Box 130040, Mafraq, 25113, Jordan;

Kristianstad University, Faculty of Health Sciences, Kristianstad, SE-291 88, Sweden

ABSTRACT: Background: Chemotherapy-induced neutropenia is a serious global health concern. It is essential that student nurses who are the future of healthcare are equipped with the right knowledge to care for the unique needs of patients with neutropenia. Objective: The study assesses student nurses' knowledge of neutropenia management and examines the difference in their knowledge with regard to their demographics. Design: A descriptive cross-sectional survey design was used. Settings: Participants for this survey were recruited from four nursing schools from three countries: Jordan, Oman, and Saudi Arabia. Participants: The study sample comprised 230 student nurses representing all three countries. Methods: Online data collection was implemented. A message including the link to the study questionnaire was sent to students through their university portal. Demographic data and the neutropenia knowledge questionnaire were collected. Results: The student nurses showed poor knowledge of neutropenia and its management (mean = 10.1 out of 30). The bridging students ($M = 12.6$, $SD = 9.8$) had significantly higher mean total knowledge scores than the regular students ($M = 9.8$, $SD = 5.5$) ($t = 2.9$, $df = 38.9$, $p = 0.006$). However, students who had received previous education about neutropenia management ($M = 11.6$, $SD = 5.0$) had significantly higher mean knowledge scores than those who had not ($M = 9.5$, $SD = 5.6$) ($t = -2.73$, $df = 134.8$, $p = 0.007$). Conclusions: The study findings underscore the overarching necessity to improve students' knowledge of neutropenia and its management. However, addressing this concern is multifaceted and requires deliberate effort from various agencies. Developing innovative strategies to increase the coverage of oncology nursing in the curriculum, improving faculty expertise, enhancing staff nurses' knowledge and skills, provision of funding, and adoption of oncology-related competencies in the nursing program need to be explored as key solutions. © 2021 Elsevier Ltd

Hamadneh, L., Abu-Irmaileh, B., Al-Majawleh, M., Bustanji, Y., Jarrar, Y., Al-Qirim, T.

Doxorubicin-paclitaxel sequential treatment: insights of DNA methylation and gene expression changes of luminal A and triple negative breast cancer cell lines

(2021) Molecular and Cellular Biochemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106729850&doi=10.1007%2fs11010-021-04191-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106729850&doi=10.1007%2fs11010-021-04191-5&partnerID=40&md5=2189997b1c981957fc6475e84b09cd4e)

[5&partnerID=40&md5=2189997b1c981957fc6475e84b09cd4e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106729850&doi=10.1007%2fs11010-021-04191-5&partnerID=40&md5=2189997b1c981957fc6475e84b09cd4e)

AFFILIATIONS: Faculty of Pharmacy, AL-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Hamdi Mango Center for Scientific Research, The University of Jordan, Amman, 11942, Jordan;

Department of Basic Medical Sciences, College of Medicine, University of Sharjah, Sharjah, 27272, United Arab Emirates

ABSTRACT: Breast cancer is one of the significant causes of death among women diagnosed with cancer worldwide. Even though several chemotherapy combinations are still the primary treatment of breast cancer, unsuccessful treatments, and poor prognostic outcomes are still being reported. DNA methylation and gene expression changes among two breast cancer cell lines representing luminal A (MCF-7) and triple-negative (MDA-MB-231) cancers were determined after sequential combination treatment of doxorubicin and paclitaxel and analyzed using Ingenuity Pathway Analysis. Promoter methylation changes were seen in different treated MCF-7 cells and accompanied by changes in the gene expression of CCNA1 and PTGS2. In MDA-MB-231 cells, the hypomethylation of ESR1 was not accompanied by an increase in its gene expression in any treated cells. The hypomethylation of GSTP1 and MGMT was accompanied by an increase in gene expression levels in the group treated with doxorubicin only. Also, significant downregulation of several genes like MUC1 and MKI67 in MCF-7 cells treated with

doxorubicin showed much lower gene expression (- 37.63, - 10.88 folds) when compared with cells treated with paclitaxel (- 2.47, - 2.05 folds) or the combination treatment (- 18.99, - 2.81 folds), respectively. On the other hand, a synergistic effect on MMP9 gene expression was significantly seen in MDA-MB-231 cells treated with the combination (- 9.99 folds) in comparison with the cells treated with doxorubicin (- 3.62 folds) or paclitaxel (1.75 folds) alone. Chemotherapy combinations do not always augment the molecular changes seen in each drug alone, and these changes could be utilized as treatment response markers. © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Shehab, M., Alshawabkah, H., Abualigah, L., AL-Madi, N.

Enhanced a hybrid moth-flame optimization algorithm using new selection schemes

(2021) Engineering with Computers, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85080911464&doi=10.1007%2fs00366-020-00971-7&partnerID=40&md5=d47eabccd2d50fefb95aa249d0f82aaf>

AFFILIATIONS: Computer Science Department, Aqaba University of Technology, Aqaba, 77110, Jordan; Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan; Faculty of Computer Sciences and Informatics, Amman Arab University, Amman, Jordan

ABSTRACT: This paper presents two levels of enhancing the basic Moth flame optimization (MFO) algorithm. The first step is hybridizing MFO and the local-based algorithm, hill climbing (HC), called MFOHC. The proposed algorithm takes the advantages of HC to speed up the searching, as well as enhancing the learning technique for finding the generation of candidate solutions of basic MFO. The second step is the addition of six popular selection schemes to improve the quality of the selected solution by giving a chance to solve with high fitness value to be chosen and increase the diversity. In both steps of enhancing, thirty benchmark functions and five IEEE CEC 2011 real-world problems are used to evaluate the performance of the proposed versions. In addition, well-known and recent meta-heuristic algorithms are applied to compare with the proposed versions. The experiment results illustrate that the proportional selection scheme with MFOHC, namely (PMFOHC) is outperforming the other proposed versions and algorithms in the literature. © 2020, Springer-Verlag London Ltd., part of Springer Nature.

Alrawashdeh, T.A., Elqirem, F., Althunibat, A., Alsoub, R.

A prioritization approach for regression test cases based on a revised genetic algorithm

(2021) Information Technology and Control, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116141203&doi=10.5755%2fj01.itc.50.3.27662&partnerID=40&md5=09e2234e0f8eb723833e7a4cc2675f70)

[85116141203&doi=10.5755%2fj01.itc.50.3.27662&partnerID=40&md5=09e2234e0f8eb723833e7a4cc2675f70](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116141203&doi=10.5755%2fj01.itc.50.3.27662&partnerID=40&md5=09e2234e0f8eb723833e7a4cc2675f70)

AFFILIATIONS: Department of Software Engineering, Alzaytoonah University of Jordan, Airport Street, Amman, Jordan;

Department of Multimedia, Alzaytoonah University of Jordan, Airport Street, Amman, Jordan;

Department of Computer Science, Mutah University, Mutah, Alkarak, Jordan

ABSTRACT: The regression testing is a software-based testing approach executed to verify that changes made to the software do not affect the existing functionality of the product. On account of the constraints of time and cost, it is impractical to re-execute all the test cases for software whenever a change occurs. In order to overcome such a problem in the selection of regression test cases, a prioritization technique should be employed. On the basis of some predefined criterion, the prioritization techniques create an execution schedule for the test cases, so the higher priority test cases can be performed earlier than the lower priority test cases in order to improve the efficiency of the software testing. Many prioritization criteria for regression test cases have been proposed in software testing literature; however, most of such techniques are code-based. Keeping in view this fact, this research work has proposed a prioritization approach for regression test cases generated from software specifications which are based on the criterion of the Average Percentage Transition Coverage (APTC) by using a revised genetic algorithm. This criterion evaluates the rate of transitions coverage by incorporating knowledge about the significance of transitions between activates in the form of weights. APTC has been used as a fitness evaluation function in a genetic algorithm to measure the effectiveness of a test cases sequence. Moreover, in order to improve the coverage percentage, the proposed approach has revised the genetic algorithm by solving the problem of the optimal local solution. The experimental results show that the proposed approach demonstrates a good coverage performance with less execution time as compared to the standard genetic algorithm and some other prioritization techniques. © 2021, Kauno Technologijos Universitetas. All rights reserved.

Hammad, A.M., Ibrahim, Y.A., Khair, S.I., Hall, F.S., Alfaraj, M., Jarrar, Y., Abed, A.F.

Metformin reduces oxandrolone- induced depression-like behavior in rats via modulating the expression of IL-1 β , IL-6, IL-10 and TNF- α

(2021) Behavioural Brain Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85111003042&doi=10.1016%2fj.bbr.2021.113475&partnerID=40&md5=8368bfc273b2ee21f50edab09986daae

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States

ABSTRACT: Oxandrolone (OXA) is an androgen and anabolic steroid (AAS) that is used to reverse weight loss associated with some medical conditions. One of the side effects of OXA is its potential to induce depressive symptoms. Growing evidence suggested that neuroinflammation and cytokines play crucial roles in sickness behavioral and associated mood disturbances. Previous studies showed that metformin attenuated neuroinflammation. This study investigated the potential protective role of metformin against OXA-induced depression-like behavior and neuroinflammation. Twenty-four Wistar male rats were randomly grouped into four groups: the control group (Control) received only vehicle; the oxandrolone group (OXA) received oxandrolone (0.28 mg/kg, i.p); the metformin group (MET) received metformin (100 mg/kg, i.p); and the oxandrolone / metformin group (OXA + MET) received both oxandrolone (0.28 mg/kg, i.p) and metformin (100 mg/kg, i.p). These treatments were administered for fourteen consecutive days. Behavioral tests to measure depression-like behavior were conducted before and after treatments. qRT-PCR was used to measure the relative expression of proinflammatory and anti-inflammatory cytokines in the hippocampus and hypothalamus. The results showed that oxandrolone induced depression-like behavior and dysregulated pro-/anti-inflammatory cytokines, while metformin attenuated these effects. These findings suggest that metformin is a potential treatment to reverse the depressive effects induced by oxandrolone that involve neuroinflammatory effects. © 2021 Elsevier B.V.

Zacharczuk, W., Andruszkiewicz, A., Tatarek, A., Alahmer, A., Alsaqoor, S.

Effect of Ca-based additives on the capture of SO₂ during combustion of pulverized lignite (2021) Energy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106952323&doi=10.1016%2fj.energy.2021.120988&partnerID=40&md5=35ee3bc178b8d57b93d232fba42143d9)

85106952323&doi=10.1016%2fj.energy.2021.120988&partnerID=40&md5=35ee3bc178b8d57b93d232fba42143d9

AFFILIATIONS: Department of Thermal Science, Wrocław University of Science and Technology, Wybrzeże Wyspiańskiego 27, Wrocław, 50-370, Poland;

Department of Mechanical Engineering, Tafila Technical University, P. O. Box 179, Tafila, 66110, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P. O. Box 130, Amman, 11733, Jordan

ABSTRACT: The effect of different Ca-based additives in lignite on the sulfur removal during combustion has been examined using two Polish lignites. After demineralization, the lignite was loaded with Ca using different Ca-based compounds namely: calcium carbonate (CaCO₃), calcium hydroxide Ca(OH)₂ and calcium acetate Ca(CH₃COO)₂. Depending on the calcium compound used, the addition of Ca was by mechanical mixing or impregnation. The experiment was carried out in a laboratory scale drop-tube furnace reactor, under different O₂ concentration and temperature range of 800–1100 °C. The results showed that Ca added to the lignite strongly suppressed the emission of SO₂ under experimental conditions studied. The sulfur capture efficiency appeared to be independent of the calcium compound used and it increased along with the temperature rising up to 1100 °C. This may indicate that poorly dispersed Ca, prepared by mechanical mixing, offers as high efficiency in sulfur removal as Ca in ion-exchangeable form inserted by impregnation. The influence of mineral matter on the retention of SO₂ during combustion was also investigated. It was found that some inorganic species inherently present in lignite, particularly calcium in natural form, reduce SO₂ pollution. © 2021 Elsevier Ltd

Dajani, D., Yaseen, S., Abu Baker, D.

Investigating student-university identification

(2021) World Journal of Entrepreneurship, Management and Sustainable Development, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106052734&doi=10.1108%2fWJEMSD-11-2020-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106052734&doi=10.1108%2fWJEMSD-11-2020-0154&partnerID=40&md5=5404bcdaf109a4076f409bd26b4c17af)

0154&partnerID=40&md5=5404bcdaf109a4076f409bd26b4c17af

AFFILIATIONS: Department of Marketing, Al-Zaytoonah Private University of Jordan, Amman, Jordan;

Al-Zaytoonah Private University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The present research builds upon the social identity theory and Balaji et al.'s (2016) research model to investigate student-university identification. The purpose of this paper is to examine the antecedents of university identification, namely, university brand knowledge, university brand personality and university identity. Furthermore, consequences of university identification, such as advocacy intentions, suggestion for improvements, university affiliation and strength of attachment, are examined. Design/methodology/approach: A quantitative research design was used, collecting data from students in private and government universities in Jordan. Structural equation modeling using SmartPLS 2.0 is employed to test the proposed research hypotheses. Findings: The results revealed that all the antecedents and consequences suggested in the research model have

positive significant relationships with university identification in the Jordanian higher education sector. Originality/value: University identification has been less precisely conceptualized and empirically tested in the higher education context in developing countries. The results improve our understanding of the antecedents and consequences of university identification for students in higher education. In addition, the constructs of university identification and strength of attachment are incorporated in the research conceptual model and have not been tested before. © 2021, Emerald Publishing Limited.

Alzghoul, M., Alazzam, T.

Translation, re-translation, and the reception of Arabic literature in English: The case of Ahlam Mostaghenami's novel Chaos of the senses

(2021) Journal of Educational and Social Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114899271&doi=10.36941%2fjesr-2021-0120&partnerID=40&md5=07fecc4cd00a9fdb7089c1248d5dc528>

AFFILIATIONS: Department of English Language and Literature, Al-Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, Jordan;
Jordan

ABSTRACT: The current study compares the two translations of Ahlam Mostaghenami's second novel Fawda Al-Hawas into English as Chaos of the Senses by (Baria Ahmar Sreih, 2004) and Chaos of the Senses by (Nancy Roberts, 2015) and examines the reception of both translations in the English-speaking communities where they were circulated. The study seeks to find out answers to questions about: the reasons for retranslating Fawda Al-Hawas after a relatively short period of time after its first translation, the roles of human agents such as the author, translators, and publishers in the production and reception of the two translations of Fawda Al-Hawas, how the retranslation tried to avoid previous problems, if any, that hindered the circulation of the first translation, the role of paratexts in the reception of the two translations. The study draws on major concepts from reception theory as adopted by (Brown, 1994) in her study of Latin American novels published in West Germany. Specifically, the current study draws a close comparison of the paratexts associated with the two translations of Mostaghenami's Fawda Al-Hawas as well as the roles of stakeholders. The study concludes that despite the use of more paratextual elements as well as textual improvements in the retranslation, it has not shown better results in terms of reception and circulation. © 2021 Musa Alzghoul and Tahani Alazzam.

Al-Essa, L., Abunaja, M.H., Hamadneh, L., Abu-Sini, M.

Mapping the intensive care unit environment and health care workers for methicillin-resistant Staphylococcus aureus with mecA gene confirmation and antibacterial resistance pattern identification in a district hospital in Amman

(2021) Kuwait Medical Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127155448&partnerID=40&md5=66fd79adb20a9e460c4fdddf8d3985b0>

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Jamil Totanji Hospital, P.O. Box 20, Amman, 11511, Jordan

ABSTRACT: Objective: Methicillin-resistant Staphylococcus aureus (MRSA) represents a big challenge to the health system by causing hospital-acquired infection. It showed variation in epidemiology and anti-bacterial sensitivity with time and place. This study aimed to determine the distribution and rate of MRSA contamination of surfaces and the health care workers (HCWs) hands in the intensive care unit (ICU) and sensitivity pattern to antibiotics. Design: Cross-sectional study Setting: Faculty of Pharmacy, Al-Zaytoonah University and Jamil Totanji hospital Subjects: Samples were taken from 129 surfaces and HCWs hands. Intervention: Samples were taken with cotton swabs streaked on Mannitol Salt Agar, then on blood agar to isolate Staphylococcus aureus. Staphylococcus aureus were stained with gram stain and catalase and coagulase tests were performed. Disk diffusion and E-test were used to determine MRSA and resistance pattern. Polymerase chain reaction was used to confirm the presence of mecA gene. Main outcome measures: Prevalence and distribution of MRSA in ICU environment and HCWs hands and antibacterial susceptibility pattern Results: The prevalence of MRSA was 20% to the total number of samples and 30% of S. aureus samples. MRSA contamination of surfaces was determined. Among the 14 HCWs samples, the rate of MRSA isolates were 28%. No vancomycin-resistant MRSA could be isolated. Resistance to clindamycin and co-trimoxazole were 81% (including inducible resistance) and 29% respectively. All tested MRSA samples were positive for mecA gene. Conclusion: MRSA is prevalent significantly in the ICU and HCWs hands to represent a potential source of hospital-acquired infections in the ICU. © 2021, Kuwait Medical Association. All rights reserved.

Jarab, A., Al-Qerem, W., Mukattash, T.

Attitudes, barriers, motivators and utilization of clinical research: A cross-sectional survey of hospital pharmacists

(2021) Journal of Pharmaceutical Health Services Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118109942&doi=10.1093%2fjphsr%2frmab023&partnerID=40&md5=90fcc7269d02b236b403ec8af61bdd01)

85118109942&doi=10.1093%2fjphsr%2frmab023&partnerID=40&md5=90fcc7269d02b236b403ec8af61bdd01

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objectives: Research is crucial for improving patients' healthcare. Although pharmacists' important role in implementing research has been emphasized by different health organizations, pharmacist's participation in research is still suboptimal. This study aims to evaluate hospital pharmacists and assistant pharmacists' attitudes, barriers and motivators towards clinical research practice and research utilization in practice settings. Methods: This cross-sectional study used an online-validated questionnaire which evaluated socio-demographics, attitudes, barriers and motivators which Jordanian hospital pharmacists and assistant pharmacists have to implement clinical research and extent of its utilization in practice settings. Analysis of Covariance was modelled to evaluate the differences in the factors' scores between different groups. Multiple linear regressions were conducted to assess the effect of the attitudes and motivators scores on the research utility practice score. Key findings: A total of 316 responses were collected. The means for attitudes, motivators, and research utilization scores were 3.84, 3.84 and 3.80, respectively. The most agreed motivator was the role of research in the enhancement of the service to patients (mean = 4.19). The most reported research barriers were lack of time and support (57.6% and 44.3%, respectively). Linear regression analysis showed that attitudes (regression coefficient (b) = 0.34, P < 0.01) and motivators (b = 0.18, P < 0.01) were significant predictors of the extent of research utilization.

Conclusion: Jordanian hospital pharmacists and assistant pharmacists had a positive attitude towards research and they are willing to participate in research but they are confronting several obstacles. © 2021 The Author(s) 2021. Published by Oxford University Press on behalf of the Royal Pharmaceutical Society. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.

Al Bawab, A.Q., Al-Qerem, W., Abusara, O., Alkhatib, N., Mansour, M., Horne, R.

What are the factors associated with nonadherence to medications in patients with chronic diseases?

(2021) Healthcare (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115767497&doi=10.3390%2fhealthcare9091237&partnerID=40&md5=892b4b143b80810c72ba9cc54b35436e)

85115767497&doi=10.3390%2fhealthcare9091237&partnerID=40&md5=892b4b143b80810c72ba9cc54b35436e

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Centre for Behavioral Medicine, UCL School of Pharmacy, University College London, London, WC1H 9JP, United Kingdom

ABSTRACT: Introduction: Adherence to medications is very crucial for an optimized clinical outcome in the management of chronic diseases. Beliefs about medications and other factors can significantly affect adherence to chronic medications. The objective of the present research was to identify the associated factors of adherence to medication in Jordanian patients with chronic diseases utilizing a stepwise binary logistical regression model. Methods: A cross-sectional study was carried out between November 2018 and March 2020. The participants were reached from secondary and tertiary care setting clinics in Jordan. The recruited patients were asked to report their attitudes of adherence to medications and beliefs about medications via filling out the MARS-5 and BMQ-specific tools.

Sociodemographic data were also collected from the recruited patients and included in the regression model. A stepwise binary logistical regression model was applied to identify the associated factors of adherence to chronic medications in the tested sample. Results: A total of 485 patients who met the inclusion criteria were recruited. The mean age of the participants was 57.14 (age ranged from 22 to 82 years). Around 39% of the participants were older than 65 years. Most of the patients were either hypertensive or diabetic (35.7% and 32.2%, respectively). The logistic regression model indicated that necessity beliefs are strongly associated with adherence (OR 4.22), while concerns beliefs, dosage frequency and having medical insurance were negatively associated with adherence (OR 0.73, 0.74 and 0.26, respectively), with a p-value ≤ 0.05. Conclusions: Both the MARS-5 and BMQ-specific questionnaires were applied successfully on the tested sample. Better attention should be paid to the logistic regression model variables that were associated with adherence in order to guarantee optimal treatment outcomes in the treatment of chronic diseases. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Tarawneh, O., Alwahsh, W., Abul-futouh, H., Al-samad, L.A., Hamadneh, L., Abu Mahfouz, H., Fadhil Abed, A.

Determination of antimicrobial and antibiofilm activity of combined LVX and AMP impregnated in p(HEMA) hydrogel

(2021) Applied Sciences (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114703291&doi=10.3390%2fapp11188345&partnerID=40&md5=c96e9a51c143537714083d441659f2f1)

85114703291&doi=10.3390%2fapp11188345&partnerID=40&md5=c96e9a51c143537714083d441659f2f1

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Catheter-associated urinary tract infections (CAUTIs) are nosocomial infections, causing more than one million cases per year. CAUTIs cause serious health issues; in addition, the cost of replacement of the device constrains the employment of urological devices. Therefore, there is an urgent need to develop novel biomaterials for use in catheters. In this study, poly hydroxyethyl-methacrylate p(HEMA) and drugs-loaded p(HEMA) with ampicillin trihydrate (AMP), levofloxacin (LVX), and drug combinations were prepared using free radical polymerization. The characterization of the dried films included the determination of glass transition temperature (T_g), ultimate tensile strength, elongation percentage, and Young's modulus. Formulation toxicity, antimicrobial activity, and biofilm-formation ability were tested. Decreases in T_g value, U.T.S., and Young's modulus, and an increase in elongation percentage were observed in AMP-loaded p(HEMA). Different ratios of drug combinations increased the T_g values. The films exhibited a cell viability higher than 80% on HEK 293 cells. Antimicrobial activity increased when p(HEMA) was loaded with LVX or a combination of LVX and AMP. Biofilm-forming ability reduced after the addition of antimicrobial agents to the films. p(HEMA) impregnated with AMP, LVX, and drug combinations showed significantly increased antimicrobial activity and decreased biofilm-forming ability compared with p(HEMA), in addition to the effects on (HEMA) mechanical properties. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Abushihab, I.M., Awad, E.S., Abushihab, E.I.

Nostalgia and alienation in the poetry of arab-american mahjar poets (Emigrant poets): Literary criticism to stylistics

(2021) Theory and Practice in Language Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114367260&doi=10.17507%2ftpls.1109.17&partnerID=40&md5=1ecd3bb86d831fc9073ea2159c47682c)

[85114367260&doi=10.17507%2ftpls.1109.17&partnerID=40&md5=1ecd3bb86d831fc9073ea2159c47682c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114367260&doi=10.17507%2ftpls.1109.17&partnerID=40&md5=1ecd3bb86d831fc9073ea2159c47682c)

AFFILIATIONS: English Department, Faculty of Arts, Al-Zaytoonah University of Jordan, Jordan;

Al-Zaytoonah University of Jordan, Jordan;

Yarmouk University, Jordan

ABSTRACT: Nostalgia and Alienation are defined as the feeling that one has when he finds himself alone without connection with the people around him. He considers himself as a stranger in the society where he lives. This is due to leaving the people and homelands. This is what happened to Arab-American poets, (Emigrant poets) who leave their homelands and people. The current paper presents Arab-American poets' longing, deep love, nostalgia and feeling of homesickness for their beloved countries in East. It also shows their adherence and alienation to their homelands by remembering the years and times they lived there. It emphasizes literary criticism of describing, analyzing and evaluating some of Arab-American poems. © 2021 ACADEMY PUBLICATION.

Alhadid, I., Khwaldeh, S., Al Rawajbeh, M., Abu-Taieh, E., Masa'deh, R., Aljarah, I.

An intelligent web service composition and resource-optimization method using k-means clustering and knapsack algorithms

(2021) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113796331&doi=10.3390%2fmath9172023&partnerID=40&md5=fa16406e0609cad35571dec078985c2f)

[85113796331&doi=10.3390%2fmath9172023&partnerID=40&md5=fa16406e0609cad35571dec078985c2f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113796331&doi=10.3390%2fmath9172023&partnerID=40&md5=fa16406e0609cad35571dec078985c2f)

AFFILIATIONS: Faculty of Information Technology and Systems, University of Jordan, Aqaba, 77111, Jordan;

Faculty of Science and Information Technology, AL Zaytoonah University of Jordan, Amman, 11942, Jordan;

School of Business, University of Jordan, Amman, 11942, Jordan;

King Abdulla II School for Information Technology, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Service-oriented architecture (SOA) has emerged as a flexible software design style. SOA focuses on the development, use, and reuse of small, self-contained, independent blocks of code called web services that communicate over the network to perform a certain set of simple tasks. Web services are integrated as composite services to offer complex tasks and to provide the expected services and behavior in addition to fulfilling the clients' requests according to the service-level agreement (SLA). Web service selection and composition problems have been a significant area of research to provide the expected quality of service (QoS) and to meet the clients' expectations. This research paper presents a hybrid web service composition model to solve web service selection and composition problems and to optimize web services' resource utilization using k-means clustering and knapsack algorithms. The proposed model aims to maximize the service compositions' QoS and minimize the number of web services integrated within the service composition using the knapsack algorithm. Additionally, this paper aims to track the service compositions' QoS attributes by evaluating and tracking the web services' QoS using the reward function and, accordingly, use the k-means algorithm to decide to which cluster the web service belongs. The experimental results on a real dataset show the superiority and effectiveness of the proposed algorithm in comparison with the results of the state-action-reward-state-action (SARSA) and multistage forward search (MFS) algorithms. The experimental results show that the proposed model reduces the average time of the web service selection and composition processes to 37.02 s in comparison to 47.03 s for the SARSA algorithm and

42.72 s for the MFS algorithm. Furthermore, the average of web services' resource utilization results increased by 4.68% using the proposed model in comparison to the resource utilization by the SARSA and MFS algorithms. In addition, the experimental results showed that the average number of service compositions using the proposed model improved by 26.04% compared with the SARSA and MFS algorithms. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Maqableh, M., Alia, M.

Evaluation online learning of undergraduate students under lockdown amidst COVID-19 Pandemic: The online learning experience and students' satisfaction

(2021) Children and Youth Services Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109847951&doi=10.1016%2fj.childyouth.2021.106160&partnerID=40&md5=d172fa072fd1cbac708b8c9c7bfb1500)

[85109847951&doi=10.1016%2fj.childyouth.2021.106160&partnerID=40&md5=d172fa072fd1cbac708b8c9c7bfb1500](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109847951&doi=10.1016%2fj.childyouth.2021.106160&partnerID=40&md5=d172fa072fd1cbac708b8c9c7bfb1500)

AFFILIATIONS: Department of Management Information Systems, School of Business, The University of Jordan, Amman, 11942, Jordan;

Faculty of Sciences and Information Technology, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study evaluates the impact of shifting from traditional learning to online learning during COVID-19 Pandemic on undergraduate students. It also examines the positive and negative aspects of online learning from students' perspectives. We conducted two online surveys to evaluate online learning, students' satisfaction, and identify the positive and negative aspects of online learning. Data is collected in the first survey from 483 participants directly after the emergency shifting to online learning. The second survey data is collected from 853 after students' experienced online learning for three academic semesters. Both surveys' analysis results show that students had several problems with shifting to online learning during COVID-19 Pandemic such as technological, mental health, time management, and balance between life and education. The results also show that more than a third of the surveyed students are dissatisfied with the online learning experience. Further investigation is conducted to explore and identify the factors behind the students' dissatisfaction from the online learning experience during COVID-19 Pandemic in January 2021 using focus group technique. The analysis results reveal that the most important factors behind the students' dissatisfaction during online learning are a distraction and reduced focus, psychological issues, and management issues. This study proposes various solutions and recommendations to enhance the online learning experience and increase students' satisfaction. © 2021 Elsevier Ltd

Jarrar, Y., Musleh, R., Ghanim, M., AbuKhader, I., Jarrar, Q.

Assessment of the need for pharmacogenomics education among pharmacists in the West Bank of Palestine (2021) International Journal of Clinical Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108123239&doi=10.1111%2fijcp.14435&partnerID=40&md5=6df4809b0b964daeedb8a2b9cb221579)

[85108123239&doi=10.1111%2fijcp.14435&partnerID=40&md5=6df4809b0b964daeedb8a2b9cb221579](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108123239&doi=10.1111%2fijcp.14435&partnerID=40&md5=6df4809b0b964daeedb8a2b9cb221579)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Faculty of Nursing, Arab American University, Jenin, Palestine;

Department of Pharmaceutical Science, Al-Isra'a University, Amman, Jordan

ABSTRACT: Background: Pharmacogenomics testing aims to optimise therapy and reduce the inter-individual variation in drug response. One of the major barriers against the implementation of pharmacogenomics testing is the low level of knowledge on the topic. Aims: This study aimed to evaluate the need for pharmacogenomics education among pharmacists in the West Bank of Palestine. Methods: This study was cross-sectional and included 370 pharmacists, among different cities in the West Bank of Palestine between October and December 2020. The questionnaire consisted of 25 close-ended questions that evaluated the exposure to pharmacogenomics education, attitude toward the role of pharmacogenomics testing in clinical practice and self-capability of pharmacists in pharmacogenomics testing. Results: It was found that 60% of the respondents disagreed that pharmacogenomics was an integral part of the pharmacy school curriculum and/or experiential education. The vast majority of the respondents (94%) agreed that pharmacists should be required to have some knowledge of pharmacogenomics. The majority of the respondents (88.6%) believe that pharmacogenomics testing will improve pharmacists' ability to more effectively control drug therapy expenditures. However, only 38% of the respondents could identify medications that require pharmacogenomics testing, and only 35.1% could identify reliable sources of information regarding pharmacogenomics for healthcare providers and patients. Conclusion: It is seen from the results of this study that there is a high need to learn about pharmacogenomics testing, which can help the pharmacists make pharmacotherapy decisions. Additionally, current pharmacists have low self-confidence in making decisions depending on the results of pharmacogenomics testing. It is recommended to increase the exposure of pharmacogenomics knowledge by including the subject in

courses and workshops in pharmacy school curricula in the West Bank of Palestine. © 2021 John Wiley & Sons Ltd

Aburoomi, R.J., Malak, M.Z.

Evaluation of Social Phobia among Syrian Refugees' Youth in Jordan

(2021) *Psychiatric Quarterly*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101831982&doi=10.1007%2fs11126-021-09901-2&partnerID=40&md5=7179b67dbe77a8650e7d744f0260b1a4>

AFFILIATIONS: Department of Humanities, Faculty of Arts, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, P.O. Box: 130, Amman, 11733, Jordan

ABSTRACT: Social phobia is one of the most common anxiety disorders in youth yet still under-recognized and undertreated. This study purposed to evaluate the level of social phobia and examine correlating selected socio-demographic factors (age, gender, marital status, working status, and educational level) among Syrian refugees' youth in Jordan. A cross-sectional, descriptive correlation design was selected to carry out this study. The convenience sample composed of 290 youth aged 15-25 years were recruited from Amman and Mafraq cities. The data was collected using a questionnaire which consists of socio-demographic data and social phobia scale. The findings found that the participants had a high level of social phobia. There was a correlation between social phobia and age ($r = 0.64$; $p < 0.001$), educational level ($r = -0.23$; $p < 0.001$), and gender ($r = -0.14$; $p < 0.05$). The youth being males, elder youth (>19-25 years), and having low educational level had a higher level of social phobia. Age was the main significant predictor of social phobia. The current findings confirm the necessity of developing social and psychological strategies and interventions to minimize this problem among youth affected by social phobia. © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC part of Springer Nature.

Alhalaiqa, F.N., Khalifeh, A.H., Al Omari, O., Yehia, D.B., Khalil, M.M.H.

Psychological Problems in a Sample of Jordanian Healthcare Workers Involved in Caring for Patients With COVID-19: A Cross-Sectional Study

(2021) *Frontiers in Psychology*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114597099&doi=10.3389%2ffpsyg.2021.679785&partnerID=40&md5=cfd8ddce18b58cb0dcd2bdfdb88c373>

AFFILIATIONS: Psychiatric Mental Health, Faculty of Nursing, Philadelphia University, Amman, Jordan; Department of Nursing, Hittien College, Amman, Jordan;

Department of Nursing, Prince Hamzah Hospital, Ministry of Health, Amman, Jordan;

Collage of Nursing, Sultan Qaboos University, Muscat, Oman;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing/Psychiatric Mental Health Nursing, Zarqa Private University, Zarqa, Jordan

ABSTRACT: Purpose: To explore the psychological problems (stress, depression, and anxiety) and the level of resilience among frontline healthcare workers (HCWs) who provide care for patients with coronavirus disease 2019 (COVID-19). Additionally, the current study identified the correlation among these problems, resilience, and demographics of participants. The study explored the main predictors of stress, depression, anxiety, and resilience. Methods: Both the descriptive cross-sectional correlational design and convenience sample technique were used to collect data from active Jordanian HCWs who directly deal with patients suspected or confirmed to be infected with COVID-19 and work at healthcare facilities in Jordan. Data were collected by using online questionnaires about the demographics, stress, anxiety, depression, and resilience of the participants. Results: Data were collected from 225 HCWs. Their mean age was 31.17 years (SD = 6.8). All the participants perceived different levels of stress, with most perceiving exposure to a high level of stress (distress) (46.2% with low level and 53.8% with high level of stress); approximately half of them (52.9%; $n = 119$) reported a high level of anxiety, and more than half (66.2%; $n = 149$) had a high level of depression. Additionally, an increased anxiety and depression level was significantly associated with the decreased resilience and increased stress level. Increased age and experience of HCWs are significantly correlated with increased stress levels. The participants having personal protection equipment (PPE) reduced anxiety and depression and increased resilience ($p > 0.05$). The predictors of the main variables were varied in the study. Conclusion: Frontline HCWs involved in treating the patients with COVID-19 are liable to have a high level of stress that is associated with increased anxiety and depression levels. These high levels affect their mental well-being and resilience. Healthcare institutions in Jordan must tailor appropriate psychological interventions and support that are congruent with the needs of HCWs during and after caring for patients with COVID-19. © Copyright © 2021 Alhalaiqa, Khalifeh, Al Omari, Yehia and Khalil.

Dabbour, L.

The traditional arab Islamic city: The structure of neighborhood quarters

(2021) Journal of Architecture and Urbanism, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114243959&doi=10.3846%2fjau.2021.13055&partnerID=40&md5=3b10ccc85e8759e8176750f7627e950e)

[85114243959&doi=10.3846%2fjau.2021.13055&partnerID=40&md5=3b10ccc85e8759e8176750f7627e950e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114243959&doi=10.3846%2fjau.2021.13055&partnerID=40&md5=3b10ccc85e8759e8176750f7627e950e)

AFFILIATIONS: Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper is concerned with the structure of quarters in traditional Arab Islamic cities. Previous studies have stressed the idea of an urban structure that corresponds to social groupings, in that it is seen as a collection of neighborhood quarters. This spatial model has often provided the rationale for the design of new housing layouts. The purpose of this study is to examine this issue and to argue that the structure of these cities presents a global whole. To achieve this purpose a general and a specific question are addressed. The general question is about the physically sub-areas within the city, and the specific question is about the issue of social groupings and the kind of relation that space has to society. The proposition thus invokes the idea of a physical structure which appears to correspond to a social pattern. The city of Damascus is used as a model of analysis in which the urban structure is described and characterised. The argument is advanced that the traditional Arab Islamic city has a sub-area structure which is historically generated, but whose morphological combination is fine-tuned and adjusted so that the whole comes to dominate and unify the parts. © 2021 The Author(s).

Alhusban, A.A., Albustanji, S., Hamadneh, L.A., Shallan, A.I.

High performance liquid chromatography-tandem mass spectrometry method for correlating the metabolic changes of lactate, pyruvate and L-Glutamine with induced tamoxifen resistant MCF-7 cell line potential molecular changes

(2021) Molecules, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112507348&doi=10.3390%2fmolecules26164824&partnerID=40&md5=d3c56dd491b8e75d49002d253a640e79)

[85112507348&doi=10.3390%2fmolecules26164824&partnerID=40&md5=d3c56dd491b8e75d49002d253a640e79](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112507348&doi=10.3390%2fmolecules26164824&partnerID=40&md5=d3c56dd491b8e75d49002d253a640e79)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Analytical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, 11435, Egypt

ABSTRACT: Breast cancer is one of the most prevalent cancers worldwide usually treated with Tamoxifen. Tamoxifen resistance development is the most challenging issue in an initially responsive breast tumor, and mechanisms of resistance are still under investigation. The objective of this study is to develop and validate a selective, sensitive, and simultaneous high performance liquid chromatography-tandem mass spectrometry method to explore the changes in substrates and metabolites in supernatant media of developed Tamoxifen resistance MCF-7 cells. We focus on the determination of lactate, pyruvate, and L-glutamine which enables the tracking of changes in metabolic pathways as a result of the resistance process. Chromatographic separation was achieved within 3.5 min. using a HILIC column (4.6 × 100 mm, 3.5 µm particle size) and mobile phase of 0.05 M acetic acid-ammonium acetate buffer solution pH 3.0: Acetonitrile (40:60 v/v). The linear range was 0.11–2.25, 0.012–0.227, and 0.02–0.20 mM for lactate, pyruvate, and L-glutamine, respectively. Within-and between-run accuracy was in the range 98.94–105.50% with precision (CV, %) of ≤0.86%. The results revealed a significant increase in both lactate and pyruvate production after acquiring the resistant. An increase in L-glutamine levels was also observed and could be attributed to its over production or decline in its consumption. Therefore, further tracking of genes responsible of lactate, pyruvate, and glutamine metabolic pathways should be performed in parallel to provide in-depth explanation of resistance mechanism. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Althaher, A.R., Oran, S.A., Bustanji, Y.K.

Chemical composition, in vitro evaluation of antioxidant properties and cytotoxic activity of the essential oil from *calamintha incana* (Sm.) helder (lamiaceae)

(2021) Tropical Journal of Natural Product Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116108157&doi=10.26538%2ftjnr%2fv5i8.2&partnerID=40&md5=1e7f1702b1176225e42f92cdc9d9b317)

[85116108157&doi=10.26538%2ftjnr%2fv5i8.2&partnerID=40&md5=1e7f1702b1176225e42f92cdc9d9b317](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116108157&doi=10.26538%2ftjnr%2fv5i8.2&partnerID=40&md5=1e7f1702b1176225e42f92cdc9d9b317)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biological Sciences, Faculty of Sciences, The University of Jordan, Amman, 11942, Jordan;

Department of Basic Medical Sciences, College of Medicine, University of Sharjah, Sharjah, 27272, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Hamdi Mango Center for Academic Research, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: *Calamintha incana* (Sm.) Helder (Lamiaceae) is an aromatic herb used in folk medicine in Jordan and neighboring countries. This study aimed to isolate and characterize the chemical composition of essential oils extracted from the aerial parts of *C. incana* and to evaluate the total

phenolic and flavonoid contents, antioxidant activity, and cytotoxic potential. The essential oils from the aerial parts of *C. incana* (CIEO) were extracted by hydrodistillation, and GC/MS were performed for the chemical analysis of the oil. Total phenol and flavonoid contents were assessed using the colorimetric assay. The antioxidant activity of the oil was assessed using 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity and reducing power ability. The cytotoxic activity of CIEO against MCF-7, T47D, Caco-2 cancer cell lines, and normal fibroblast cell line (MRC-5) was investigated by 3-[4, 5-dimethylthiazol-2-yl]-2,5 diphenyl tetrazolium bromide (MTT) assay. The results demonstrated that the main constituents of CIEO were benzenamine-4-methyl-3-nitro-(34.11%), and (2S,4R)-p-mentha-6,8-diene 2-hydroperoxide (31.48%). The phenolic content of CIEO was higher than the flavonoid content. With respect to the DPPH radical scavenging activity, the IC₅₀ was 15.38 mg/mL, while for the reducing power ability the EC₅₀ was 9.79 mg/mL). Moreover, CIEO was cytotoxic against cancerous and non-cancerous cells at 200 µg/mL. In conclusion, the essential oil extract of *C. incana* is characterized by its non-terpenoid aromatic compounds. Phenols were more abundant than flavonoids, and CIEO had a good antioxidant capacity and non-selective cytotoxic activity. Therefore, additional investigations are required to understand the mechanism of the cytotoxicity of this plant. © 2021 Althaher et al.

Al-Qerem, W., Jarab, A.S., Badinjki, M., Hyassat, D., Qarqaz, R.

Exploring variables associated with medication non-adherence in patients with type 2 diabetes mellitus

(2021) PLoS ONE, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113394962&doi=10.1371%2fjournal.pone.0256666&partnerID=40&md5=b8411a4efcd07fb23000b829da57ecb0)

85113394962&doi=10.1371%2fjournal.pone.0256666&partnerID=40&md5=b8411a4efcd07fb23000b829da57ecb0

AFFILIATIONS: Department of pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Department of Clinical Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

National Center for Diabetes, Endocrinology and Genetics, Amman, Jordan

ABSTRACT: Objective This study aims to assess medication adherence and explore its predictors in outpatients with type 2 diabetes. Method This cross-sectional study collected socio-demographics, disease-related information, and different biomedical variables for type 2 diabetes patients attending a Jordanian Diabetes center. The four-item medication adherence scale (4-IMAS) and the beliefs about medications questionnaire (BMQ) which includes necessity and concerns were used. Stepwise backward quartile regression models were conducted to evaluate variables associated with the Necessity and Concerns scores. Stepwise ordinal regression was conducted to evaluate variables associated with adherence. Results 287 diabetic patients participated in the study. Almost half of the participants (46.5%) reported moderate adherence and 12.2% reported low adherence. Significant predictors of the adherence were necessity score (OR = 14.86, $p < 0.01$), concern score (OR = 0.36, $p < 0.05$), and frequency of medication administration (OR = 0.88, $p < 0.01$). Education was a significant predictor of Necessity and Concerns scores ($\beta = 0.48, -0.2$, respectively). Conclusion Simplifying the medication regimen, emphasizing medication necessity and overcoming medication concerns should be targeted in future diabetes intervention programs to improve medication adherence and hence glycemic control among diabetic patients. © 2021 Al-Qerem et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Alahmer, A., Al-Amayreh, M., Mostafa, A.O., Al-Dabbas, M., Rezk, H.

Magnetic refrigeration design technologies: State of the art and general perspectives

(2021) Energies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112001523&doi=10.3390%2fenerg14154662&partnerID=40&md5=e32e279d61d827e4a129e38731a0e3af)

85112001523&doi=10.3390%2fenerg14154662&partnerID=40&md5=e32e279d61d827e4a129e38731a0e3af

AFFILIATIONS: Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Mechanical Engineering Department, Mutah University, P.O. Box 7, Mutah, Karak, 61710, Jordan;

College of Engineering at Wadi Addawaser, Prince Sattam Bin Abdulaziz University, Wadi Addawaser, 11991, Saudi Arabia;

Electrical Engineering Department, Faculty of Engineering, Minia University, Minia, 61517, Egypt

ABSTRACT: Magnetic refrigeration is a fascinating superior choice technology as compared with traditional refrigeration that relies on a unique property of particular materials, known as the magnetocaloric effect (MCE). This paper provides a thorough understanding of different magnetic refrigeration technologies using a variety of models to evaluate the coefficient of performance (COP) and specific cooling capacity outputs. Accordingly, magnetic refrigeration models are divided into four categories: rotating, reciprocating, C-shaped magnetic refrigeration, and active magnetic regenerator. The working principles of these models were described, and their outputs were extracted

and compared. Furthermore, the influence of the magnetocaloric effect, the magnetization area, and the thermodynamic processes and cycles on the efficiency of magnetic refrigeration was investigated and discussed to achieve a maximum cooling capacity. The classes of magnetocaloric magnetic materials were summarized from previous studies and their potential magnetic characteristics are emphasized. The essential characteristics of magnetic refrigeration systems are highlighted to determine the significant advantages, difficulties, drawbacks, and feasibility analyses of these systems. Moreover, a cost analysis was provided in order to judge the feasibility of these systems for commercial use. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Ayoub, R., Jarrar, Q., Ali, D., Moshawih, S., Jarrar, Y., Hakim, M., Zakaria, Z.
Synthesis of Novel Esters of Mefenamic Acid with Pronounced Anti-nociceptive Effects and a Proposed Activity on GABA, Opioid and Glutamate Receptors
(2021) European Journal of Pharmaceutical Sciences, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106247498&doi=10.1016%2fj.ejps.2021.105865&partnerID=40&md5=518762a13cfd48a80d8e3471c3a5d01>
AFFILIATIONS: Department of applied pharmaceutical sciences and clinical pharmacy, Faculty of pharmacy, Isra University Amman, Jordan;
PAPRSB Institute of Health Sciences, Universiti Brunei Darussalam, Gadong, Brunei Darussalam;
Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan Amman, Jordan;
Department of Biomedical Science, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

ABSTRACT: Background: Mefenamic acid (MFA), a commonly prescribed non-steroidal anti-inflammatory drug (NSAID), possesses a greater risk of dose-related central nervous system (CNS) toxicity than other NSAIDs. In this study, α -tocopherol and α -tocopherol acetate were selected as prodrug moieties for MFA in an attempt to reduce the CNS toxicity and enhance the therapeutic efficacy. Method: α -tocopherol monoester of MFA (TMMA) and α -tocopherol di-ester of MFA (TDMA) were synthesized by esterification reaction and were subjected to various in vivo characterizations. Results: Masking of the carboxylate group of MFA with the proposed pro-moieties significantly ($p < 0.05$) delayed the onset of tonic-clonic seizure in mice. Besides, the intraperitoneal administration of TMMA and TDMA in mice produced significantly ($p < 0.05$) stronger anti-inflammatory effects in the carrageenan-induced paw edema test and greater anti-nociceptive effect in the acetic acid-induced writhing test than MFA at an equimolar dose of 20 mg/kg. Treatment with TMMA and TDMA caused a significant ($p < 0.05$) inhibition of pain at 1st and 2nd phases of formalin-induced licking test in mice, whereas treatment with MFA inhibited the 2nd phase only. Pretreatment with naloxone and flumazenil significantly ($p < 0.05$) reversed the anti-nociceptive effect of MFA, TMMA and TDMA in the acetic acid-induced writhing test. In addition, treatment with TMMA and TDMA caused significantly ($p < 0.05$) a higher inhibition of pain in the glutamate-induced licking response in mice than MFA. Conclusion: Masking the carboxylate moiety of MFA by α -tocopherol and α -tocopherol acetate has a great potential for reducing CNS toxicity, enhancing the therapeutic efficacy and altering the mode of anti-nociceptive action. © 2021 Elsevier B.V.

Al-Omoush, K.S., Simón-Moya, V., Al-ma'aitah, M.A., Sendra-García, J.
The determinants of social CRM entrepreneurship: An institutional perspective
(2021) Journal of Business Research, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104286455&doi=10.1016%2fj.jbusres.2021.04.017&partnerID=40&md5=3f17a0bca292b706dde0a737f3a01de3>
AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan;
IUDESCOOP, Universitat de València, Spain;
Al Balqa' Applied University, Jordan;
Universidad Complutense de Madrid, Spain
ABSTRACT: Despite a growing interest in social media adoption by corporations, there is minimal knowledge about the drivers of social customer relationship management (SCRM). This study examines the determinants of SCRM entrepreneurship from an institutional perspective and specifically from the banking sector. Data on 19 banks were obtained from 183 responses to a questionnaire. These data were analyzed using Partial Least Square (PLS) path modeling. The findings show that organizational and technological contexts have a significant positive impact on SCRM entrepreneurship. The results also reveal a significant impact of institutional normative and coercive pressures on SCRM entrepreneurship. The findings of this study provide researchers and practitioners with a deeper understanding of how external institutional pressures and internal organizational and technological contexts can interact to create SCRM entrepreneurship. Furthermore, this study contributes to knowledge about the motivations and methods of SCRM adoption and evaluation. © 2021

Abdelhafez, E., Dabbour, L., Hamdan, M.
The effect of weather data on the spread of COVID-19 in Jordan

(2021) Environmental Science and Pollution Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099205181&doi=10.1007%2fs11356-020-12338-y&partnerID=40&md5=edc158f7802c7a28d57eadd50c7b69a5>

AFFILIATIONS: Faculty of Engineering and Technology, Department of Alternative Energy Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Architecture and Design, Department of Architecture, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Engineering, Department of Mechanical Engineering, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: This study aims to analyze the correlation between the daily confirmed COVID-19 cases in Jordan and metrological parameters including the average daily temperature ($^{\circ}\text{C}$), maximum ambient temperature ($^{\circ}\text{C}$), relative humidity (%), wind speed (m/s), pressure (kPa), and average daily solar radiation (W/m^2). This covers the first and the second waves in Jordan. The data were obtained from both the Jordanian Ministry of health and the Jordan Metrological Department. In this work, the Spearman correlation test was used for data analysis, since the normality assumption was not fulfilled. It was found that the most effective weather parameters on the active cases of COVID-19 in the initial wave transmission was the average daily solar radiation ($r = -0.503$; $p = 0.000$), while all other tests for other parameters failed. In the second wave of COVID-19 transmission, it was found that the most effective weather parameter on the active cases of COVID-19 was the maximum temperature ($r = 0.394$; $p = 0.028$). This was followed by wind speed ($r = 0.477$; $p = 0.007$), pressure ($r = -0.429$; $p = 0.016$), and average daily solar radiation ($r = -0.757$; $p = 0.000$). Furthermore, the independent variable importance of multilayer perceptron showed that wind speed has a direct relationship with active cases. Conversely, areas characterized by low values of pressure and daily solar radiation exposure have a high rate of infection. Finally, a global sensitivity analysis using Sobol analysis showed that daily solar radiation has a high rate of active cases that support the virus' survival in both wave transmissions. © 2021, The Author(s), under exclusive licence to Springer-Verlag GmbH, DE part of Springer Nature.

Saleh Al-Omouh, K., Orero-Blat, M., Ribeiro-Soriano, D.

The role of sense of community in harnessing the wisdom of crowds and creating collaborative knowledge during the COVID-19 pandemic

(2021) Journal of Business Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096190225&doi=10.1016%2fj.jbusres.2020.10.056&partnerID=40&md5=0db3ea7afea6f0c3c7023ee3f51a3745)

[85096190225&doi=10.1016%2fj.jbusres.2020.10.056&partnerID=40&md5=0db3ea7afea6f0c3c7023ee3f51a3745](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096190225&doi=10.1016%2fj.jbusres.2020.10.056&partnerID=40&md5=0db3ea7afea6f0c3c7023ee3f51a3745)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Polytechnic University of Valencia, Spain;

IUDESCOOP and University of Valencia, Spain

ABSTRACT: This study investigates the role of sense of community in harnessing the wisdom of the crowd and creating collaborative knowledge during the COVID-19 pandemic. It also explores the impact of collaborative knowledge creation on the perceived value of social media crowdsourcing in such crises. PLS-SEM was used to analyze the data and test the research model. The results show that sense of community has a significant role in harnessing the wisdom of the crowd and creating collaborative knowledge. The results confirm a significant impact of sense of community, the wisdom of the crowd, and collaborative knowledge creation on the perceived value of social media crowdsourcing in responding to the COVID-19 crisis. © 2020 Elsevier Inc.

Abusukhon, A.

Toward Achieving a Balance between the User Satisfaction and the Power Conservation in the Internet of Things

(2021) IEEE Internet of Things Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099732389&doi=10.1109%2fJJIOT.2021.3051764&partnerID=40&md5=c2d88453f5526318f96e561439e8fc44)

[85099732389&doi=10.1109%2fJJIOT.2021.3051764&partnerID=40&md5=c2d88453f5526318f96e561439e8fc44](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099732389&doi=10.1109%2fJJIOT.2021.3051764&partnerID=40&md5=c2d88453f5526318f96e561439e8fc44)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In the recent era of digital revolution, life has become simple and more comfortable than it was before. Today, we are witnessing a revolution in the information technology domain where the Internet of Things is employed in various aspects of our life. The impact of this revolution is clearly seen in our homes where appliances are controlled and managed via voice commands, inspiration, hand signals, or by a command that results from analyzing the human behavior. Power conservation is one of the significant issues in smart homes and smart cities where buildings consume about 40% of the total energy. Another crucial issue is the user satisfaction. Achieving a balance between power conservation and the user satisfaction is a challenge. In this article, our contributions are: 1) a survey that sheds light on various techniques (the state of the art) used for reducing the power consumption based on monitoring the occupant's behavior; 2) a comparison between these techniques based on various factors elicited from the literature review; and 3) this study reveals the following gaps in the previous work: a) lack of integrity between the IoT systems; b)

lack of auto measuring of the user satisfaction; and c) lack of achieving a balance between the user satisfaction and the power saving. As an attempt to close the above gaps, this article proposes a smart and integrated IoT framework for automeasuring of the user satisfaction and thus, achieves a balance between the power conservation and the user satisfaction. Besides, it suggests future research directions for researchers. © 2014 IEEE.

Marashdeh, Z., Suwais, K., Alia, M.

A Survey on SQL Injection Attack: Detection and Challenges

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112244449&doi=10.1109%2fICIT52682.2021.9491117&partnerID=40&md5=21b938ba035fdf145c70e774e81dbb05)

[85112244449&doi=10.1109%2fICIT52682.2021.9491117&partnerID=40&md5=21b938ba035fdf145c70e774e81dbb05](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112244449&doi=10.1109%2fICIT52682.2021.9491117&partnerID=40&md5=21b938ba035fdf145c70e774e81dbb05)

AFFILIATIONS: Arab Open University, Faculty of Computer Studies, Riyadh, Saudi Arabia;

Al-Zaytoonah University of Jordan, Faculty of Sciences and Information Technology, Amman, Jordan

ABSTRACT: Web applications are seen to play a vital role in the individual lives and even assist in the economic development of the country. However, many security vulnerabilities have been developed which can attack the web applications. One of the most common security threats which affect the web applications is the Structured Query Language Injection (SQL Injection or SQLi) attacks. The Open Web Application Security Project (OWASP) ranked them at the top out of the 10 most effective vulnerable attacks. This attack has been used for a long time for attacking different websites and webpages, due to which the victims had to suffer severe financial loss. In this study, the researchers investigated the different methods which could be used for detecting the SQLi attacks and their limitations.

Additionally, they have also highlighted the direction of research being conducted in this area. © 2021 IEEE.

Abdallah, M., Jaber, K.M., Salah, M., Jawad, M.A., Alqbailat, N., Abdalla, A.

An E-learning Portal Quality Model: From Al-Zaytoonah University Students' Perspective

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112244447&doi=10.1109%2fICIT52682.2021.9491785&partnerID=40&md5=a0dd598d68e7d2a6b3f42c91751cc514)

[85112244447&doi=10.1109%2fICIT52682.2021.9491785&partnerID=40&md5=a0dd598d68e7d2a6b3f42c91751cc514](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112244447&doi=10.1109%2fICIT52682.2021.9491785&partnerID=40&md5=a0dd598d68e7d2a6b3f42c91751cc514)

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Arts, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Alia, College Al-Balqa Applied University, Amman, Jordan

ABSTRACT: The standard of e-learning is a compound of different quality factors quality dimensions. The researchers looked at the efficiency of e-learning from various angles and viewpoints. However, few works of literature study, specifically, the quality of e-learning portals or software. Besides, the students' or learners' opinions about this issue. In this research, we only focused on the quality of e-learning portals and technology and what factors and impact they have on e-learning in general from the students' perspectives. The results show that the students are more concerned about the usability and related factors because their learning process become depends fully on the e-learning portal as a result of the COVID-19 pandemic. © 2021 IEEE.

Dababneh, A., Hammad, M.A., Zreqat, A., Albarmawi, B., Abrikah, S.A.

Conformable Fractional of Euler Type Equation

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112241438&doi=10.1109%2fICIT52682.2021.9491675&partnerID=40&md5=d62239847356097fec53e49685b16f55)

[85112241438&doi=10.1109%2fICIT52682.2021.9491675&partnerID=40&md5=d62239847356097fec53e49685b16f55](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112241438&doi=10.1109%2fICIT52682.2021.9491675&partnerID=40&md5=d62239847356097fec53e49685b16f55)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: In this In this paper, we solve conformable fractional partial differential equations including the Euler type equation by using the new definition of conformable fractional. © 2021 IEEE.

Qawaqneh, H., Noorani, M.S., Alsamir, H.

On fixed points results in b-multiplicative metric spaces having simulation function

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112238908&doi=10.1109%2fICIT52682.2021.9491119&partnerID=40&md5=8e535200e6ddf6477da9a497bb081718)

[85112238908&doi=10.1109%2fICIT52682.2021.9491119&partnerID=40&md5=8e535200e6ddf6477da9a497bb081718](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112238908&doi=10.1109%2fICIT52682.2021.9491119&partnerID=40&md5=8e535200e6ddf6477da9a497bb081718)

AFFILIATIONS: Alzaytoonah University of Jordan, Faculty of Technology and Science, Department of Mathematics, Amman, Jordan;

Universiti Kebangsaan Malaysia, School of Mathematical Sciences, Faculty of Science and Technology, Selangor Darul Ehsan, Malaysia;

Dar Al-Uloom University, College of Business, Department of Administration-Finance, Saudi Arabia

ABSTRACT: The aim of this article is to demonstrate the existence solution as a fixed point result of $f : X \times X \rightarrow X$, where f is a mapping, within the setting of b-multiplicative metric space embedded with simulation function. In this direction, we grant a few corollaries and an example in the back of the given concepts and displayed results. © 2021 IEEE.

Alzyadat, W., Alhroob, A., Almukahel, I.H., Muhairat, M., Abdallah, M., Althunibat, A.
Big Data, Classification, Clustering and Generate Rules: An inevitably intertwined for Prediction
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112237561&doi=10.1109%2FICIT52682.2021.9491733&partnerID=40&md5=0091cfb53ab6cfee7d230b572609eb3c>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and IT, Software Engineering Department, Amman, Jordan;
Isra University, Faculty of Information Technology, Department of Software Engineering, Amman, Jordan
ABSTRACT: Big Data filed is an unsettled standard comparing with a traditional database, data mining, or data warehouse. Stability measure aims to acquire the quality dataset which encourages to use of preprocessing data method to handle instability that miniaturization missing data. Therefore, to increase the data quality in order to achieve an accurate prediction, significant rules are used to provide value and meaningful data. Through, three measures by support, confidence, and the lift to acquire frequently rules. These rules are used to conduct the objective extracting pattern, to estimate each browsing customer's likelihood of making a purchase, and to choose meaningful patterns from the discovered association rules. © 2021 IEEE.

Mohammad, Z., Alkhatib, A.A.A., Lafi, M., Abusukhon, A., Albashish, D., Atwan, J.
Cryptanalysis of a Tightly-Secure Authenticated Key Exchange without NAXOS Approach Based on Decision Linear Problem

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112230975&doi=10.1109%2FICIT52682.2021.9491743&partnerID=40&md5=7e2a17d48a8946ca89bca7913092de2f>
AFFILIATIONS: Al-Zaytoonah University of Jordan, IT Faculty, Computer Science Dept., Amman, Jordan;
Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, Jordan;
Al-Balqa Applied University, Prince Abdullah Bin Ghazi, Faculty of Information and Communication Technolgy, Computer Science Department, Sa lt, Jordan;
Al-Balqa Applied University, Prince Abdullah Bin Ghazi Faculty of ICT, CIS Department, Sa lt, Jordan
ABSTRACT: Authenticated key exchange protocols are a fundamental cryptography building block for establishing a secret shared key among participating parties over an open network model. Mohamed et al. proposed a tightly-secure authenticated key exchange without NAXOS approach based on decision linear problem in order to solve an open problem for designing an authenticated key exchange protocol without using NAXOS trick. Mohamed et al.'s protocol has tight security proof in the eCK model under the random oracle problem and its security claims verified by using the games sequence tool. However, we show that Mohamed et al.'s protocol cannot withstand the key compromise impersonation attacks and man in the middle attacks. Furthermore, Mohamed et al.'s protocol cannot provide an implicit entity authentication property since it is a basic security property for an authenticated key exchange protocol. Therefore, the protocol is not secure in the eCK model. © 2021 IEEE.

Alkhalil, S., Manasrah, A., Masoud, M.
Let's Learn with a Jigsaw! Implementing a Unique Collaborative Online Learning in an Engineering Course

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112227147&doi=10.1109%2FICIT52682.2021.9491692&partnerID=40&md5=b64e7712a0423240f11ace365f0c384a>
AFFILIATIONS: Al Zaytoonah University of Jordan, Dept. of Mechanical Engineering, Amman, Jordan;
Al Zaytoonah University of Jordan, Dept. of Electrical Engineering, Amman, Jordan
ABSTRACT: The jigsaw technique is a cooperative learning method that makes students depend on each other to understand the concepts of any topic. Many faculties in engineering schools struggle to convey the concepts of their topics to students via online learning, especially during this Pandemic. Therefore, there is a need for suitable online activities that students can perform to better understand the concepts in engineering courses. A case study was done in a mechanical engineering course to test online group learning methods. The purpose of this study is to investigate the effects of the jigsaw group learning and conventional group learning methods on students' performances in a course assessment. A total of 80 students divided into two groups participated in this study. The harvested data from students' performances in a course assessment was analyzed statistically using multiple-way ANOVA. Also, a post course survey was conducted and a satisfaction index was calculated. The results showed that students who participated in the jigsaw groups scored a slightly higher average than students from conventional groups. Further, the results of the calculated satisfaction index showed that the application of jigsaw groups can highlight areas of improvements in students' understanding of the course material. © 2021 IEEE.

Makki, Q.H., Abdalla, A.M., Tamimi, A.A.
A Survey of Image Encryption Algorithms

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-8511222243&doi=10.1109%2fICIT52682.2021.9491727&partnerID=40&md5=2764b8343e2a5c7264c905a1c1fdeb1a>
AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan
ABSTRACT: Data and image security is one of the most important aspects of information storage as well as the massive and still expanding internet. The frequent use of images of various types, especially images of documents, requires efficient encryption algorithms to ensure the security and stability of image storage and transmission. Among the various image encryption strategies proposed in the literature, this paper selected several algorithms with different characteristics to highlight the state-of-the-art attempts to meet the everincreasing demand for image protection. This paper briefly explains the cryptography algorithms and compares them in terms of usage, quality standards, security, and other metrics. © 2021 IEEE.

Hawashin, B., Mansour, A., Fotouhi, F., Alzu'Bi, S., Kanan, T.
A Novel Recommender System Using Interest Extracting Agents and User Feedback
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112219248&doi=10.1109%2fICIT52682.2021.9491654&partnerID=40&md5=1fe4eb402ddde333acff5220b9a9c824>
AFFILIATIONS: Alzaytoonah University of Jordan, Department of Computer Science, Amman, Jordan; Tafila Technical University, Department of Communication Electronics, and Computer Engineering, Tafila, Jordan;
Wayne State University, Department of Computer Science, Detroit, United States
ABSTRACT: Recommender Systems have been used widely to provide suggestions to users based on their interests. Although many works have proposed recommender systems in the literature, the majority of these works did not consider the hidden user interests. Even those that considered the user latent interests did not resolve the conflict in interests that could occur. In our previous works, we proposed the use of intelligent agents to extract the interests of user categories such as the interests of a certain gender or the interests of those who work in a certain job. However, there could be some conflicting interests as the user would belong to many categories simultaneously. In this work, we rank the agents according to their ability to extract interests that best represent the users. For this sake, this work takes the user feedback about the most representative agent. Later, it uses classification to predict the most representative agent for new users given their user information. Experimental work proved that our method is efficient in terms of accuracy and training time. © 2021 IEEE.

Abutaleb, H., Tamimi, A., Alrawashdeh, T.
Empirical Study of Most Popular PHP Framework
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112216228&doi=10.1109%2fICIT52682.2021.9491679&partnerID=40&md5=f185a9409d2de201e376cbd1503a6a7d>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: There have been several PHP frameworks for developers to pick from in the latest years. Developers face problems choosing the most relevant frameworks and appropriate support functions to include in their project. For this reason, a clear understanding of the various frameworks is now becoming an important necessity for web developers. In this paper, we collected several research papers talking about different PHP frameworks, and we compared them with each other in several ways which are: Request per second, Memory usage, Response time and, Number of files using several PHP frameworks: Laravel, CakePHP, Codeigniter, symfony2, Phalcon, Symfony, and Yii. the Laravel outperforms other MVC framework in request per second, memory usage. On the other hand, phalcon outperforms other MVC frameworks in response time and number of files. © 2021 IEEE.

Masoud, M.Z., Jaradat, Y., Manasrah, A., Jannoud, I., Alia, M.
May i Know your IBAN? Cracking the Short Message Service (SMS) as a Second Factor Authentication for Online Payments
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112215853&doi=10.1109%2fICIT52682.2021.9491754&partnerID=40&md5=a5a853cf6806986e28d3e1305ecdcaaa>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Electrical Engineering Department, Amman, Jordan; Al-Zaytoonah University of Jordan, Mechanical Engineering Department, Amman, Jordan; Al-Zaytoonah University of Jordan, Civil and Infrastructural Engineering Department, Amman, Jordan; Al-Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan
ABSTRACT: Short messages service (SMS) has been widely used for E-commerce authentications in the past years. It is utilized to authenticate users for Email password resetting process, authenticating online purchase process and even resetting the password of different E-government services. In this

work, a new simple hacking process has been implemented to show that SMS authentication can be cracked simply if smartphones users' grant permissions to any App without even reading these permissions or thinking why this App requires these permissions. An android App has been written with an underlying service to listen to SMSs and forward them to another smartphone. The application has been distributed among 20 persons as an experiment. 90% of the persons have downloaded the App and 80% of them have granted the permissions without reading it. Therefore we can Emails passwords 'phished it' simply. © 2021 IEEE.

Jebril, I., Abu Hammad, M., Nouh, E., Hamidi, R., Dalahmeh, Y., Almutlak, S.
Properties of Conformable Fractional Gamma with two Parameters Probability Distribution
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112215076&doi=10.1109%2fICIT52682.2021.9491764&partnerID=40&md5=3c1077e247de1e3a1a08b044bb9d979f>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;
Isra University, Department of Basic Pharmaceutical Science, Amman, Jordan;
Saudi Electronic University, Basic Science Department, Riyadh, Saudi Arabia
ABSTRACT: In this paper we found out some properties of conformable fractional gamma with two parameters distribution. Also we found out some of the entropy measures the conformable fractional gamma with two parameters probability distribution. © 2021 IEEE.

Jaradat, Y., Masoud, M., Jannoud, I., Manasrah, A., Alia, M.
A Tutorial on Singular Value Decomposition with Applications on Image Compression and Dimensionality Reduction
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112210827&doi=10.1109%2fICIT52682.2021.9491732&partnerID=40&md5=c9cfd5d055a028b7ecd8bfe4e45ad445>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Dept. of Electrical Engineering, Amman, Jordan;
Al-Zaytoonah University of Jordan, Dept. of Civil Engineering, Amman, Jordan;
Al-Zaytoonah University of Jordan, Dept. of Mechanical Engineering, Amman, Jordan;
Al-Zaytoonah University of Jordan, Dept. of Computer Science, Amman, Jordan
ABSTRACT: This paper introduces singular value decomposition (SVD), a major matrix decomposition technique. SVD serves as the underlining computational engine of many other techniques such as principal component analysis (PCA), eigen decomposition, matrix decomposition, Cholesky decomposition and others. SVD is utilized in many applications such as data analysis and dimensionality reduction, image compression, Google's PageRank algorithm, Netflix's recommender system and many more. This paper overviews the mathematics behind SVD in a simple way. It also applies SVD technique in image compression and in dimensionality reduction as the underlining technique of the PCA and data analysis. © 2021 IEEE.

Alkhatib, A.A.A., Mohammad, Z., Maria, E.A.
ROAD TRAFFIC Management SOLUTIONS
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112210788&doi=10.1109%2fICIT52682.2021.9491720&partnerID=40&md5=de528bd82216e960b250824f8c2505a1>
AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Computer Information Systems, Amman, Jordan;
Al Zaytoonah University of Jordan, Department of Computer Science, Amman, Jordan
ABSTRACT: Researchers have presented new ideas to effectively handle the traffic jams on the roads and junctions throughout the world, which are expected to increase manifold in the upcoming decades. They have come up with the useful mechanisms, through which, traffic signals can be controlled through active traffic management aiming to bring efficiency in flow of traffic besides enhancing road capacity. The vehicle waiting time and traffic congestion can be curtailed through the smart traffic lights. Hence, gas emissions and fuel consumption can also be reduced. This work discovers the proposed techniques to reduce traffic congestion and optimize road traffic. © 2021 IEEE.

Abdel-Fattah, F., Altamimi, F., Farhan, K.A.
Machine Learning and Data Mining in Cybersecurity
(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112204730&doi=10.1109%2fICIT52682.2021.9491749&partnerID=40&md5=a1452abafc7e46235c4cdc025f497d29>
AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science IT, Amman, Jordan
ABSTRACT: A wireless technology Mobile Ad hoc Network (MANET) that connects a group of mobile devices such as phones, laptops, and tablets suffers from critical security problems, so the traditional defense mechanism Intrusion Detection System (IDS) techniques are not sufficient to safeguard and protect MANET from malicious actions performed by intruders. Due to the MANET dynamic decentralized

structure, distributed architecture, and rapid growing of MANET over years, vulnerable MANET does not need to change its infrastructure rather than using intelligent and advance methods to secure them and prevent intrusions. This paper focuses essentially on machine learning methodologies and algorithms to solve the shortage of the first line defense IDS to overcome the security issues MANET experience. Threads such as black hole, routing loops, network partition, selfishness, sleep deprivation, and denial of service (DoS), may be easily classified and recognized using machine learning methodologies and algorithms. Also, machine learning methodologies and algorithms help find ways to reduce and solve mischievous and harmful attacks against intimidation and prying. The paper describes few machine learning algorithms in detail such as Neural Networks, Support vector machine (SVM) algorithm and K-nearest neighbors, and how these methodologies help MANET to resolve their security problems © 2021 IEEE.

Obeidat, M.A., Mansour, A.M., Hamadneh, T., Abdullah, J.

Remotely Controlled Smart Home System using GSM and IOT

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202826&doi=10.1109%2fICIT52682.2021.9491729&partnerID=40&md5=1f99933bc46a1f8549556a19d4e210a1)

[85112202826&doi=10.1109%2fICIT52682.2021.9491729&partnerID=40&md5=1f99933bc46a1f8549556a19d4e210a1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202826&doi=10.1109%2fICIT52682.2021.9491729&partnerID=40&md5=1f99933bc46a1f8549556a19d4e210a1)

AFFILIATIONS: Tafila Technical University, Department of Electrical Power and Mechatronics Engineering, Tafila, Jordan;

Tafila Technical University, Department of Communication Electronics, and Computer Engineering, Tafila, Jordan;

Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan

ABSTRACT: Smart homes provide an easier and more comfortable life by controlling lighting, entertainment, temperature, and creating a safety system that can open doors, communicate with the fire department, and light the road. It uses information technology to monitor the environment, control electrical devices, and communicate with the outside world. Now, the world become highly dependent on the Internet in order to facilitate the life in different fields. Smartphones and computers can be connected at every place with internet to control your homes, companies, factors, and markets. In this paper, A smart home system using GSM and IOT is developed. © 2021 IEEE.

Ghaith, I.H., Rawashdeh, A., Al Zubi, S.

Transfer Learning in Data Fusion at Autonomous Driving

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202097&doi=10.1109%2fICIT52682.2021.9491721&partnerID=40&md5=3430167201204c04aa1620ef72093e66)

[85112202097&doi=10.1109%2fICIT52682.2021.9491721&partnerID=40&md5=3430167201204c04aa1620ef72093e66](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202097&doi=10.1109%2fICIT52682.2021.9491721&partnerID=40&md5=3430167201204c04aa1620ef72093e66)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Amman, 11733, Jordan

ABSTRACT: one of the major challenges for Autonomous Driving (AD) system while adapting it in various environments at any time is the perception of and prediction of objects and road user behavior and their actions, A special attention is put into data and sensor fusion methods for object detection and identification and scene understanding. In addition, we highlight on the widely used deep learning network architectures in autonomous driving. In this research, we focus on different data fusion methods including early fusion and late fusion methods and how to implement the late data fusion technique from a source domain such as a reference vehicle or a stationary car with well-trained dataset and large amount of labelled data by using transfer learning at late stages of Neural Network on the target domain which has a few labelled data. In fact, the late fusion method is useful in enhancing the training rate for the target domain with assist of the well-trained source domain instead of training target domain from scratch. Also, the data fusion using transfer learning will increase the performance and accuracy level that can be achieved in the target domain while it learns the target task with assistance from the source domain. © 2021 IEEE.

Alzu'Bi, S., Aqel, D., Mughaid, A.

Recent intelligent Approaches for Managing and Optimizing smart Blood Donation process

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202041&doi=10.1109%2fICIT52682.2021.9491125&partnerID=40&md5=4592e47b0872b4bf4cc28cc8fd923600)

[85112202041&doi=10.1109%2fICIT52682.2021.9491125&partnerID=40&md5=4592e47b0872b4bf4cc28cc8fd923600](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202041&doi=10.1109%2fICIT52682.2021.9491125&partnerID=40&md5=4592e47b0872b4bf4cc28cc8fd923600)

AFFILIATIONS: Al Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

The Hashemite University, Computer Science Department, Zarqa, Jordan

ABSTRACT: The immediate availability of blood can save other lives in case of emergency needs. Blood transfusion is a continuous demand, as it is widely required for many medical surgeries and critical operations. Therefore, there is a need to manage the whole process of supplying blood from blood donors to the hospitals and transfusion centers as well as matching the blood compatibility between the donors and patients. This comparative study reviews the existing approaches for blood donation and blood assignment management systems which aim to provide a continuous supply of blood products to transfusion centers and hospitals by optimizing the process of blood donations and predicting the

future behavior of blood donation. The optimization process of blood donations is based on minimizing the wastage of blood units with regards to expiration. It also aims to reduce the additional importation of blood units from external sources by managing the critical blood shortage levels and monitoring the expiration of blood units. A discussion is proposed in this study as well, to highlight the main findings, limitations, and the unexplored issues of the existing approaches for blood donation management systems. Lastly, a set of suggestions is also presented to address the main limitations of these systems in order to point out alternative perspectives and the potential future work opportunities in the blood donation management domain. © 2021 IEEE.

Althunibat, A., Alokush, B., Dawood, R., Tarabieh, S.M.Z.A., Gil-Pechuan, I.

Modeling the factors that influence digital economy services acceptance

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202001&doi=10.1109%2fICIT52682.2021.9491686&partnerID=40&md5=87df9c5fe7dbe1abc1b1e9c927350059)

[85112202001&doi=10.1109%2fICIT52682.2021.9491686&partnerID=40&md5=87df9c5fe7dbe1abc1b1e9c927350059](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112202001&doi=10.1109%2fICIT52682.2021.9491686&partnerID=40&md5=87df9c5fe7dbe1abc1b1e9c927350059)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Software Engineering Department, Amman, 11733, Jordan;

Al-Zaytoonah University of Jordan, Computer Science Department, Amman, 11733, Jordan;

Universitat Politècnica de València, Doctoral School, Communication and Cultural Industries, Spain;

Universitat Politècnica de València, Business Administration Department, Spain

ABSTRACT: Digital technologies such as the Internet play a vital role in the organization, operation, and management of the public and private sectors. Such technologies support the implementation of effective digital business strategies. Therefore, nowadays digital economy has become a very important factor for economic growth. By reviewing the extant literature, this paper aims to propose a framework for identifying acceptance factors of the digital economy based on the currently available Technology Acceptance Model (TAM). This research contributes to the existing understanding of digital economy by focusing on end users' overall understanding of digital economy services. The proposed digital economy service user acceptance model has created a research environment from which more research can be triggered and initiated. © 2021 IEEE.

Wasmi, H., Al-Rifae, M., Thunibat, A., Al-Mahadeen, B.

Comparison between proposed Convolutional Neural Network and KNN for Finger Vein and Palm Print

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112200748&doi=10.1109%2fICIT52682.2021.9491737&partnerID=40&md5=eda3b2b955df58c1328b8c02bbab0004)

[85112200748&doi=10.1109%2fICIT52682.2021.9491737&partnerID=40&md5=eda3b2b955df58c1328b8c02bbab0004](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112200748&doi=10.1109%2fICIT52682.2021.9491737&partnerID=40&md5=eda3b2b955df58c1328b8c02bbab0004)

AFFILIATIONS: Al-Zaytoonah University, Faculty of Science and Technology, Amman, Jordan;

Mutah University, Department of Computer Science, Alkarak, Jordan

ABSTRACT: Biometrics technologies achieved an important role in facilitating the identification process of persons and accessing the secure areas in its success levels rather than the traditional methods, such cards, passwords, etc. In this research, we designed a multi biometrics recognition and authentication system using a proposed deep learning algorithm, called convolutional neural network, that depends on finger vein and palm print to treat the shortcomings like contrast of light, time complexity and accuracy. Histogram equalization was used for enhancement of image. Moreover, to extract the best feature, Linear Discriminate Analysis (LDA) method was applied by reducing the redundant features. The result of the proposed system gave 99%, which is higher than using of KNN technique. © 2021 IEEE.

Qaisi, H.A., Quba, G.Y., Althunibat, A., Abdallah, A., Alzu'Bi, S.

An Intelligent Prototype for Requirements Validation Process Using Machine Learning Algorithms

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112198972&doi=10.1109%2fICIT52682.2021.9491758&partnerID=40&md5=209e999ca0854bf10d1dfb5be73d3172)

[85112198972&doi=10.1109%2fICIT52682.2021.9491758&partnerID=40&md5=209e999ca0854bf10d1dfb5be73d3172](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112198972&doi=10.1109%2fICIT52682.2021.9491758&partnerID=40&md5=209e999ca0854bf10d1dfb5be73d3172)

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: with the advancement of technology, the world is growing and developing rapidly, and the demand for software has become greater and more, and one of the most important steps in building any program is the requirements of the programs, and checking the requirements when applying them manually, requires great effort, time, cost and accuracy. Automated requirements were not sufficient. In this study, we will propose a technique for automatically checking software requirements by using machine learning to represent textual data from software requirements specifications, an overview of prototyping-based models in machine learning is presented in this paper. The framework, notes, i.e. data, are stored in terms of typical reps. the system can be used in conjunction with an appropriate similarity scale in the context of the unsupervised analysis of high-dimensional complex datasets. Supervised learning is represented in prototyping systems in terms of vector quantization learning. In most cases, The familiar Euclidean distance serves as a measure of difference. We present framework extensions to non-standard measures give an introduction to use adaptive distances in related learning, Briefly, the prototype is less costly from any other technical for validating the

requirement because it make in the first and the prototype too can reuse and customer involvement © 2021 IEEE.

Abusukhon, A., Altamimi, F.

Water Preservation Using IoT: A proposed IoT System for Detecting Water Pipeline Leakage (2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112195228&doi=10.1109%2fICIT52682.2021.9491667&partnerID=40&md5=767d9758991eed53650cb1a573c9331c>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Computer Science Dept., Amman, Jordan
ABSTRACT: In the recent era, the Internet of Things (IoT) technology contributes in the development of many activities and aspects in our life. One of these aspects is agriculture. Agriculture is important for communities to survive. The population is extremely growing up and thus people need large quantity of food to survive. However, providing food for billions of people requires huge quantity of water. Since the world suffering from water scarce, it is very important to provide high technology for monitoring and managing the water quantity around the world. In modern agriculture, the IoT cooperates with the Artificial Intelligence (AI), Machine Learning (ML) and Deep Learning (DL) in order to save water. This paper sheds light on various techniques for water managing and controlling in agriculture domain using IoT, AI and Machine Learning. This paper concluded that a few works is carried out in the direction of detecting water pipeline leakage. Thus, it proposes an IoT system for detecting water pipeline leakage. Besides, it concluded that most of the surveyed papers do not focus on security issues such as protecting the IoT irrigation system or water management from hackers. In addition, a few works considered power conservation techniques in the agriculture domain. © 2021 IEEE.

Lafi, M., Alrawashed, T., Hammad, A.M.

Automated Test Cases Generation from Requirements Specification (2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112195196&doi=10.1109%2fICIT52682.2021.9491761&partnerID=40&md5=807d3ac8e37cccd1bde8d08849a87c83>

AFFILIATIONS: Technology AL-Zaytoonah University of Jordan, Faculty of Science and Information, Department of Software Engineering, Amman, Jordan
ABSTRACT: One of the most significant phases of software development is software testing, because of its value in identifying mistakes and gaps in the early stages of program development. In the past, software testing was done manually, and this is a tiring and inaccurate process that carries with it errors and gaps and requires time, effort, and money. At present, testers tend to perform the testing process automatically, to save time, effort, and money, and to obtain accurate results. However, there are few research works on the aspect of generating test cases from requirements specification especially generate test cases from use case description. An Approach to Generate Test Cases from Use Case description is proposed in this paper that consists of several processes. The input is the use case description of the use case diagram, which is being used as a basis for the approach. In the next step, each software summary of UML use cases is utilized to extract the necessary information for the development of the control flow graph and NLP table. A control flow graph and NLP table will be generated based on a specific algorithm after that generate test paths based on a specific algorithm. Then, the test cases will be generated from the test paths and NLP table. The proposed approach will enhance the process of generation of test cases and increase the accuracy and efficiency. © 2021 IEEE.

Ouannas, A., Batiha, I.M., Khennaoui, A.-A., Zraiqat, A., Al-Nana, A.A.

Novel Control Law for the Fractional-order Chaotic Duffing Map (2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112193149&doi=10.1109%2fICIT52682.2021.9491768&partnerID=40&md5=3ceb838893d0e275444c76231f120fbc>

AFFILIATIONS: University of Larbi Ben m'Hidi, Department of Mathematics and Computer Science, Oum El Bouaghi, Algeria;
Irbid National University, Fac. of Sci. and Tech, Department of Mathematics, Irbid, Jordan;
University of Larbi Ben m'Hidi, Laboratory of Dynamical Systems and Control, Oum El Bouaghi, Algeria;
Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;
Research and Studies (ICRS), International Center for Scientific, Irbid, Jordan;
Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates
ABSTRACT: The work reported in this paper concerns a study of chaos control of fractional-order maps, especially the two-dimensional fractional-order Duffing map, which is outlined here in the sense of the Caputo h-difference operator. For the purpose of stabilizing the dynamics of the established map, some simple linear control laws are proposed and verified numerically. The chaos control is accomplished by introducing a novel result which its proof relies on selecting a suitable Lyapunov function and proper linear control law. Several numerical simulations are performed to emphasize the

influence of the established scheme. © 2021 IEEE.

Alzu'Bi, S., Makki, Q.H., Ghani, Y.A., Ali, H.

Intelligent Distribution for COVID-19 Vaccine Based on Economical Impacts

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112193125&doi=10.1109%2FICIT52682.2021.9491787&partnerID=40&md5=93d00c73efa0bef4385adb161eae6c97)

[85112193125&doi=10.1109%2FICIT52682.2021.9491787&partnerID=40&md5=93d00c73efa0bef4385adb161eae6c97](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112193125&doi=10.1109%2FICIT52682.2021.9491787&partnerID=40&md5=93d00c73efa0bef4385adb161eae6c97)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and IT, Amman, Jordan

ABSTRACT: The Covid-19 pandemic is affecting the entire world, and its consequences have been human and economic losses. Jordan is one of the countries affected by the Covid-19 pandemic, including human and economic losses. In this paper, we will explain the vaccines used and the mechanism for distributing the vaccines in Jordan, and explain the economic impact of the Covid-19 pandemic in Jordan, especially tourism. An economic solutions is introduced in this paper by stimulating tourism through the proposed Algorithm and the idea of the program that we have proposed for protection. © 2021 IEEE.

Kanan, T., Abedalghafer, A., Kanaan, G.G., Alshalabi, R., Elbes, M., Alzubi, S.

Arabic Text Categorization: A Comparison Survey

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112192485&doi=10.1109%2FICIT52682.2021.9491640&partnerID=40&md5=ca7d0370c531abbd57dc88bf84e06893)

[85112192485&doi=10.1109%2FICIT52682.2021.9491640&partnerID=40&md5=ca7d0370c531abbd57dc88bf84e06893](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112192485&doi=10.1109%2FICIT52682.2021.9491640&partnerID=40&md5=ca7d0370c531abbd57dc88bf84e06893)

AFFILIATIONS: AlZaytoonah University, Computer Science Department, Amman, Jordan

ABSTRACT: Text categorization acquires more significance considering the plenty of text added continually on the web. The lack of huge and free Arabic datasets makes it more difficult to classify. This paper reviews some text classification papers with some comparisons between the datasets they used, the techniques they applied, and the best results they reached for the different methodologies that have been implemented. © 2021 IEEE.

Mohammad, Z., Nyangaresi, V., Abusukhon, A.

On the Security of the Standardized MQV Protocol and Its Based Evolution Protocols

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112189505&doi=10.1109%2FICIT52682.2021.9491775&partnerID=40&md5=bc497ecfdcae44582786263493d5711e)

[85112189505&doi=10.1109%2FICIT52682.2021.9491775&partnerID=40&md5=bc497ecfdcae44582786263493d5711e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112189505&doi=10.1109%2FICIT52682.2021.9491775&partnerID=40&md5=bc497ecfdcae44582786263493d5711e)

AFFILIATIONS: Al-Zaytoonah University of Jordan, IT Faculty, Computer Science Dept., Amman, Jordan; Tom Mboya University College, Faculty of Biological and Physical Sciences, Kenya

ABSTRACT: The MQV is an authenticated key agreement protocol which does not use any one-way hash functions in its block design, and it is standardized in (IEEE, ANSI, and ISO). However, its two-pass form cannot withstand an unknown key share attack. Krawczyk proposed a hashed version of MQV (HMQV) to overcome the attack on MQV, but HMQV is vulnerable to small subgroup attacks. LaMacchia et al presented a strong security definition for authenticated key exchange protocol as extended Canetti-Krawczyk (eCK) to catch new attacks from a strong adversary. Ustaoglu proposed a hashed ephemeral private key with static private key of HMQV (CMQV) to have a security proof in eCK. Sarr et al showed key compromise impersonation and man-in-the-middle attacks on HMQV under revealing a signature of Diffie-Hellman of public keys and proposed fully HMQV (FHMQV) and strengthen MQV (SMQV) to overcome those attacks. In this study, we show the known key security attack on the MQV protocol and its variants (MQV, HMQV, CMQV, FHMQV, eFHMQV and SMQV) protocols, if both ephemeral private keys and the ephemeral session key equation are revealed by an extremely adversary; the extremely adversary is able to obtain the shared static key between two-party participants. As consequence, we show the shared static-key compromise impersonation attack on the MQV protocol and its evolutions protocols. Moreover, we show that the MTI/A(0) key agreement protocol cannot withstand key compromise impersonation attacks against stronger adversary revelation attacks. © 2021 IEEE.

Quba, G.Y., Al Qaisi, H., Althunibat, A., Alzu'Bi, S.

Software Requirements Classification using Machine Learning algorithm's

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112188033&doi=10.1109%2FICIT52682.2021.9491688&partnerID=40&md5=ef0b0b2ad3d2e64aa9d93709a72923aa)

[85112188033&doi=10.1109%2FICIT52682.2021.9491688&partnerID=40&md5=ef0b0b2ad3d2e64aa9d93709a72923aa](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112188033&doi=10.1109%2FICIT52682.2021.9491688&partnerID=40&md5=ef0b0b2ad3d2e64aa9d93709a72923aa)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and IT, Amman, Jordan

ABSTRACT: The world is growing and developing rapidly, and the demand for software has been increasing speedily, any software has many steps for building a program and all the steps are important for software requirements. Requirements classification can be applied manually, which requires great effort, time, cost and the accuracy may vary. Therefore, many previous researchv has been proposed to automate the classification process, but the automation process of the classification was not sufficient. In this study, we will propose a technique to automatically classify software requirements using machine learning to represent text data from software

requirements specification and classify requirement to group Functional Requirement and Non-Functional Requirement. The experimented dataset in this study was the PROMISE_exp, which includes labeled requirements. All the documents of software from the database were changed (cleaned) with a set of steps (normalization, extractions, selection any techniques that will be used. The BoW used SVM algorithm or KNN algorithm for classification. This study used data from the PROMISE_exp to do the work, the information of the steps used to re-performed the classification, and the Measurement BoW, when using SVM and KNN algorithms the classification of requirements making can serve as a way and resources for another study. It can be seen that the use of BoW with SVM is better than use KNN algorithms with an average F-measure of all cases of 0.74. In future work we intend to improve to technique with make merge and change some algorithms as Logiest Regression to improve the Accuracy (Precision) of our model. © 2021 IEEE.

Alsamir, H., Qawaqneh, H., Aydi, H., Shatanawi, W.

Fixed point of ρ - \mathcal{J} - contraction type mapping in b-metric like spaces

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112185644&doi=10.1109%2fICIT52682.2021.9491704&partnerID=40&md5=232e8b5f1087178e021e55328d92dce0)

85112185644&doi=10.1109%2fICIT52682.2021.9491704&partnerID=40&md5=232e8b5f1087178e021e55328d92dce0

AFFILIATIONS: Dar Al-Uloom University, College of Business, Department of Administration-Finance, Saudi Arabia;

Alzaytoonah University of Jordan, Faculty of Technology and Science, Department of Mathematics, Amman, Jordan;

Institut Supérieur d'Informatique et Université de Sousse, H. Sousse, 4000, Tunisia;

Prince Sultan University, Department of General Science, Riyadh, Saudi Arabia

ABSTRACT: In this paper, we introduce a ρ - \mathcal{J} - contraction mapping and obtained some fixed point results for such class of contractions the setting of triangular ρ -admissible mapping in the framework of b-metric-like spaces. Our results generalize and extend some theorems in the literature. An example is given to support these results. © 2021 IEEE.

Kanan, T., Rathi, W., Hawashin, B.

A Comparison between Machine Learning Researches that use Arabic Text: A Case Study of Social Media Datasets

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112181240&doi=10.1109%2fICIT52682.2021.9491706&partnerID=40&md5=d07a4c8641e08d3979f470150dd1e625)

85112181240&doi=10.1109%2fICIT52682.2021.9491706&partnerID=40&md5=d07a4c8641e08d3979f470150dd1e625

AFFILIATIONS: AlZaytoonah University, Computer Science Department, Amman, Jordan

ABSTRACT: The world is directed to use the huge data and use it in a beneficial way, this allowed researchers to think about how to classify these data, which have many shapes, speeds and sizes, as it was important to study the data that are in social media, analyse and benefit from it through its classification. We used more than 20 papers to compare how the researchers use different algorithms to classify the huge data that comes through social networking sites and the most important language they used to classify the text was the Arabic language. The researchers concluded that deep learning and convolution neural networks speed up the classification process. © 2021 IEEE.

Mughaid, A., Al-Arjan, A., Rasmi, M., Alzu'Bi, S.

Intelligent security in the era of AI: The key vulnerability of RC4 algorithm

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112180673&doi=10.1109%2fICIT52682.2021.9491709&partnerID=40&md5=fee4bc34f13050c3d75928a984be2c)

85112180673&doi=10.1109%2fICIT52682.2021.9491709&partnerID=40&md5=fee4bc34f13050c3d75928a984be2c

AFFILIATIONS: The Hashemite University, Zarqa, Jordan;

Zarqa University, Zarqa, Jordan;

Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Communication methods in the world are constantly evolving, this means that the amounts of data sent through open networks are in populated quantities, so there must be means to protect that data sent, and this could be done by information protection systems by encryption and coding of the data in order to protect the content of that data sent. The main aim of encrypting and encoding data is to protect the integrity of the data, and also to ensure the confidentiality of the data source, this is done through the use of algorithms for encryption and encoding the data, with the aim of changing its content using those algorithms and returning its original content with the same algorithms used to encrypt it, through a symmetric secret key for encryption and decryption. In this paper, the researcher highlights the weakness of the basic RC4 algorithm, which lies in the stability of the key used in scheduling the key, as a prelude to generating the stream keys used in serial byte encryption, so the RC4-Pr algorithm was modified by adding an additional permutation function by performing a key permutation operation to produce a different key in each 16-bytes (128-bits) cipher round. © 2021 IEEE.

Hamad, N.A., Nabulsi, M.

Additional New Logical Identities Related to Propositional Logic

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112176149&doi=10.1109%2FICIT52682.2021.9491738&partnerID=40&md5=5356a6aba2e989fc9efdccb3ca924bcd)

[85112176149&doi=10.1109%2FICIT52682.2021.9491738&partnerID=40&md5=5356a6aba2e989fc9efdccb3ca924bcd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112176149&doi=10.1109%2FICIT52682.2021.9491738&partnerID=40&md5=5356a6aba2e989fc9efdccb3ca924bcd)

AFFILIATIONS: Alzaytoonah University of Jordan, Faculty of Information Technology, Department of Computer Science, Amman, Jordan

ABSTRACT: Logical equivalences or as commonly known logical identities have always been applied in logical reasoning and propositional simplification. Investigating additional logical identities can contribute in making the simplification of complex logical propositions easier. Consequently, this paper presents eight new logical identities that have never been presented previously and are proved to be valid by two methods: truth tables, and the simplification method (logical identities method). Additionally, three examples are presented to show how the new set of identities can be applied. © 2021 IEEE.

Ouannas, A., Batiha, I.M., Khennaoui, A.-A., Jebril, I.H.

On the θ -1 Test for Chaos Applied to the Generalized Fractional-order Arnold Map

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112172001&doi=10.1109%2FICIT52682.2021.9491633&partnerID=40&md5=343fb8d8d2d3b6ca8ef5710f68407a75)

[85112172001&doi=10.1109%2FICIT52682.2021.9491633&partnerID=40&md5=343fb8d8d2d3b6ca8ef5710f68407a75](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112172001&doi=10.1109%2FICIT52682.2021.9491633&partnerID=40&md5=343fb8d8d2d3b6ca8ef5710f68407a75)

AFFILIATIONS: University of Larbi Ben m'Hidi, Department of Mathematics and Computer Science, Oum El Bouaghi, Algeria;

Irbid National University, Department of Mathematics, Fac. of Sci. and Tech., Irbid, Jordan;

University of Larbi Ben m'Hidi, Laboratory of Dynamical Systems and Control, Oum El Bouaghi, Algeria;

Al Zaytoonah University of Jordan, Mathematics Department, Amman, Jordan;

Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates

ABSTRACT: It is well-known that fractional-order discrete-time systems have a major advantage over their integer-order counterparts, because they can better describe the memory characteristics and the historical dependence of the underlying physical phenomenon. This paper investigates chaos in the fractional-order Arnold map via θ -1 test algorithm for chaos. A number of chaotic attractors are generated from the system dynamics, indicating that the behaviour of the fractional-order map becomes unpredictable, independently of the fractional-order values. © 2021 IEEE.

Dahmani, Z., Anber, A., Gouari, Y., Kaid, M., Jebril, I.

Extension of a Method for Solving Nonlinear Evolution Equations Via Conformable Fractional Approach

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112170288&doi=10.1109%2FICIT52682.2021.9491735&partnerID=40&md5=5367381f3da6e766e8222a4785c7d272)

[85112170288&doi=10.1109%2FICIT52682.2021.9491735&partnerID=40&md5=5367381f3da6e766e8222a4785c7d272](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112170288&doi=10.1109%2FICIT52682.2021.9491735&partnerID=40&md5=5367381f3da6e766e8222a4785c7d272)

AFFILIATIONS: University of Mostaganem, Laboratory LMPA, Faculty of SEI, UMAB, Mostaganem, Algeria;

USTO University, Department of Mathematics, Oran, Algeria;

Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Department of Mathematics, Amman, Jordan

ABSTRACT: In this paper we present a method for solving nonlinear evolution equations of fractional conformable derivatives in the sense of R. Khalil. The proposed method is based on some suitable transformations combined to the extended Tanh methods presented by A. Wazwaz in "Applied Mathematics and Computations, 2004", by E. Aksoy et al, for Jumarie derivatives, in "AIP Conference Proceedings, 2016", then by Pandir and Yildirim, with modified Riemann-Louville derivatives, in "Waves in Random and Complex Media, 2017". Some applications on Klein-Gordon equation with other examples are also discussed. © 2021 IEEE.

Al-Madi, N.A., Maria, K.A., Al-Madi, M.A., Alia, M.A., Maria, E.A.

An Intelligent Arabic Chatbot System Proposed Framework

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112169458&doi=10.1109%2FICIT52682.2021.9491699&partnerID=40&md5=65564d2e80e564e338d7f0d5218085b8)

[85112169458&doi=10.1109%2FICIT52682.2021.9491699&partnerID=40&md5=65564d2e80e564e338d7f0d5218085b8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112169458&doi=10.1109%2FICIT52682.2021.9491699&partnerID=40&md5=65564d2e80e564e338d7f0d5218085b8)

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Computer Science, Amman, Jordan;

Al Zaytoonah University of Jordan, Department of Computer Information Systems, Amman, Jordan;

Arab Open University Amman, Faculty of Computer Studies, Jeddah, Saudi Arabia

ABSTRACT: Recently, several types of research in Chatbot systems have been developed in the literature by their means of having a considerable number of languages such as English, French, and other languages, which serve in various fields of a number of real-life cases. Chatbots are considered unfamiliar besides their little usage. To the best knowledge of the research, no previous research has been conducted in improving an Arabic Chatbot in Jordanian universities. With the outbreak of the COVID-19 pandemic and its global effects, the need to reduce the load on the admissions director and possibly other users became critical. Hence, this paper aims to develop an

Intelligent Arabic Chatbot System that can reduce such a load. In particular, this system supports an Arabic spoken by using a Jordanian dialect with students, particularly at the Al-Zaytoonah Private University of Jordan. Therefore, the proposed system represents a primary Jordan chatbot that uses a Jordanian dialect. © 2021 IEEE.

Manasrah, A., Masoud, M., Jaradat, Y.

Short Videos, or Long Videos? A Study on the Ideal Video Length in Online Learning

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112163976&doi=10.1109%2fICIT52682.2021.9491115&partnerID=40&md5=63e0406e7f595be39ef798de21025033)

[85112163976&doi=10.1109%2fICIT52682.2021.9491115&partnerID=40&md5=63e0406e7f595be39ef798de21025033](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112163976&doi=10.1109%2fICIT52682.2021.9491115&partnerID=40&md5=63e0406e7f595be39ef798de21025033)

AFFILIATIONS: Al Zaytoonah University of Jordan, Dept. of Mechanical Engineering, Amman, Jordan;

Al Zaytoonah University of Jordan, Dept. of Electrical Engineering, Amman, Jordan

ABSTRACT: Online video lectures and tutorials have been gaining a lot of attention especially during the year 2020. The main reason behind this massive popularity was the global transition towards E-learning and distance learning methods right after the pandemic. However, teachers and instructors have been facing the challenge of keeping students engaged through out these videos. In this study, the length and the entertainment level of video lectures are compared against the performance of students. Two groups of engineering students from one course were involved in the study. The first group were provided with relatively short lecture videos while as the second group were provided with longer lecture videos. The results showed that students in the first group had statistically significantly better performance in the course. Further, short videos were statistically significantly more entertaining than long videos. However, students who believed that the video lectures were not informative scored statistically significantly lower grades than other students. The findings also showed that the delivered information in videos, that were shorter than 3 minutes, were insufficient and incomplete. The results of the study also suggest that the optimum length for a lecture or a tutorial video is between 6 to 10 minutes for engineering students. © 2021 IEEE.

Zraiqat, A.

Welcome message

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112154925&doi=10.1109%2fICIT52682.2021.9491647&partnerID=40&md5=d719cf6bcbcfba9cdbc673d07107de41)

[85112154925&doi=10.1109%2fICIT52682.2021.9491647&partnerID=40&md5=d719cf6bcbcfba9cdbc673d07107de41](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112154925&doi=10.1109%2fICIT52682.2021.9491647&partnerID=40&md5=d719cf6bcbcfba9cdbc673d07107de41)

AFFILIATIONS: Dean of Faculty of Science and IT, Al-Zaytoonah University of Jordan, Jordan

Alshehadeh, A.R.

The Relationship between Liquidity Risk and Profitability in the Commercial Banks Listed in Amman Stock Exchange

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112147776&doi=10.1109%2fICIT52682.2021.9491702&partnerID=40&md5=da6c926c7a79fceb104b68014203b87f)

[85112147776&doi=10.1109%2fICIT52682.2021.9491702&partnerID=40&md5=da6c926c7a79fceb104b68014203b87f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112147776&doi=10.1109%2fICIT52682.2021.9491702&partnerID=40&md5=da6c926c7a79fceb104b68014203b87f)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Amman, Jordan

ABSTRACT: This study aimed to evolve the relationship between managing liquidity risk and the profitability among commercial banks (n=16) listed on the Amman Stock Exchange. The evolution was based on the annual reports from 2010 to 2019. A suitable multiple regression model was used to achieve this goal, which indicated no statistically significant relationship between the liquidity risk indicators and the majority of profitability indicators. However, the Cash Reserve Ratio (CRR) index was statistically significant with the Utilization Ratio (UR). Additionally, there was a statistically significant relationship between the return on equity and the legal reserve ratios and the funds' investment. This study recommends raising the awareness of the relationship between the indicators of liquidity risk and profitability among the financial policy planer in Jordanian commercial banks because the maintained level of liquidity will undoubtedly affect the volume of investments in banks. Thus, influencing the bank market value by increasing the share on the stock exchange. © 2021 IEEE.

Jebril, I.H., Biswas, N., Datta, S.K.

On the growth analysis of meromorphic solutions of finite logarithmic order of linear difference equations in the unit disc

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112144547&doi=10.1109%2fICIT52682.2021.9491782&partnerID=40&md5=f5affcd4fd1105ccd203356967b6229f)

[85112144547&doi=10.1109%2fICIT52682.2021.9491782&partnerID=40&md5=f5affcd4fd1105ccd203356967b6229f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112144547&doi=10.1109%2fICIT52682.2021.9491782&partnerID=40&md5=f5affcd4fd1105ccd203356967b6229f)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

Chakdaha College, Department of Mathematics, Nadia, West Bengal, Chakdaha, India;

University of Kalyani, Department of Mathematics, Nadia, West Bengal, Kalyani, India

ABSTRACT: The concept of logarithmic order in the unit disc forms a bridge between meromorphic functions of unbounded Nevanlinna characteristic and meromorphic functions of zero order of growth.

In this paper, we investigate some growth properties of meromorphic solutions of higher order linear difference $An(z)f(z + n) + A1(z)f(z + 1) + A0(z)f(z) = 0$, end where the coefficients $An(z), \dots, A1(z)$ and $A0(z)$ are meromorphic functions of finite logarithmic order in the unit disc such that $An(z)A0(z) \neq 0$. Our result improves the results obtained by Belaidi (Math. Vesnik, 66 (2014), No. 2, 213-222). © 2021 IEEE.

Abdalla, A.M., Ghaith, I.H., Tamimi, A.A.

Deep Learning Weather Forecasting Techniques: Literature Survey

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112143229&doi=10.1109%2FICIT52682.2021.9491774&partnerID=40&md5=935513a1d351d97934feeb1f4695ce)

[85112143229&doi=10.1109%2FICIT52682.2021.9491774&partnerID=40&md5=935513a1d351d97934feeb1f4695ce](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112143229&doi=10.1109%2FICIT52682.2021.9491774&partnerID=40&md5=935513a1d351d97934feeb1f4695ce)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Amman, 11733, Jordan

ABSTRACT: Different deep learning architectures have been developed to accommodate the non-linearity of time series datasets in the weather forecasting domain. This paper surveys the state-of-the-art studies of deep-learning-based weather forecasting according to the aspects of the design of Neural Network architectures, spatial and temporal scales, as well as the datasets and benchmarks. Then, it highlights the obtained results while focusing on the reported accuracy and the scale of prediction in terms of model generalization; i.e., whether the model is suitable for a local or a regional area, and also if it can be used for short-term or long-term predictions. Lastly, the paper outlines the independent and dependent variables for weather forecasting in each study and evaluates algorithms used for training the dataset based on their time efficiency. © 2021 IEEE.

Abushanap, S.A., Abdalla, A.M., Tamimi, A.A., Alzu'Bi, S.

A Survey of Human Face Recognition for Partial Face View

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112141366&doi=10.1109%2FICIT52682.2021.9491678&partnerID=40&md5=942be2881a5b73dde1f7fcc04bc9edb9)

[85112141366&doi=10.1109%2FICIT52682.2021.9491678&partnerID=40&md5=942be2881a5b73dde1f7fcc04bc9edb9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112141366&doi=10.1109%2FICIT52682.2021.9491678&partnerID=40&md5=942be2881a5b73dde1f7fcc04bc9edb9)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Face recognition technology is a modern approach with many applications. This paper reviews and compares the latest literature addressing the methods that have been adopted to recognize and identify faces using a partial face recognition view. The study covers different methods of face recognition for static images that can be classified according to three main approaches, namely the holistic, feature-based, and hybrid approaches. The different methods and approaches are examined and their limitations are identified. © 2021 IEEE.

Hattawi, W., Shaban, S., Shawabkah, A.A., Alzu'Bi, S.

Recent Quality Models in BigData Applications

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112141149&doi=10.1109%2FICIT52682.2021.9491629&partnerID=40&md5=3b53d1b1e44c21a4368397e28815db3e)

[85112141149&doi=10.1109%2FICIT52682.2021.9491629&partnerID=40&md5=3b53d1b1e44c21a4368397e28815db3e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112141149&doi=10.1109%2FICIT52682.2021.9491629&partnerID=40&md5=3b53d1b1e44c21a4368397e28815db3e)

AFFILIATIONS: Faculty of Science, IT Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this time the big data became an important part of all areas, it can be used in multiple industrials such as banking, education, government, networking, energy, health care, etc. So, because of that the huge amount of data became have problems or unnecessary data, and so that comes from the difficulty of measure the quality of these data. In this research we show the quality characteristic that can be help to increase the efficiency of quality measurement process of BDA by comparing it with other quality model of BDA and applying it on the 7V's of big data. © 2021 IEEE.

Almomani, O., Almaiah, M.A., Alsaaidah, A., Smadi, S., Mohammad, A.H., Althunibat, A.

Machine Learning Classifiers for Network Intrusion Detection System: Comparative Study

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112139498&doi=10.1109%2FICIT52682.2021.9491770&partnerID=40&md5=a8eee618561dbe70a18d0d8e6c5d053e)

[85112139498&doi=10.1109%2FICIT52682.2021.9491770&partnerID=40&md5=a8eee618561dbe70a18d0d8e6c5d053e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112139498&doi=10.1109%2FICIT52682.2021.9491770&partnerID=40&md5=a8eee618561dbe70a18d0d8e6c5d053e)

AFFILIATIONS: The World Islamic Sciences and Education University, Department of Information System and Networks, Jordan;

College of Computer Science and Information Technology, King Faisal University, Al-Ahsa, 31982, Saudi Arabia;

The World Islamic Sciences and Education University, Department of Computer Science, Amman, Jordan;

Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, 11733, Jordan

ABSTRACT: Network security risks are increasing at an exponential rate as Internet technology advances. Keeping the network protected is one of the most challenging of network security. Many security mechanisms were implemented to detect and identify any malicious activity on the network. Intrusion Detection System (IDS) one of the most used mechanisms to reduce the effects of these

risks. Machine Learning (ML) classifiers are widely begin used to classify the network traffic as normal or abnormal. In this paper a comparative evaluation of the following ML classifiers: LogisticRegression, Multinomial Naive Bayesian, Gaussian Naive Bayesian, Bernoulli Naive Bayesian, k-Nearest Neighbors, Decision Tree, Adaptive Boosting, Random Forest, Multilayer Perceptron, and GradientBoosting is performed to specify the best classifier in identifying intrusion detection. The used evaluation metrics are accuracy, precision, and F-measure. The UNSW-NB15 dataset is used to assess ML classifiers. The experimental results show that the RandomForest classifier outperforms the other classifiers in terms of accuracy at 87%, precision 98%, and F-measure 84%. © 2021 IEEE.

Alkhatib, A., Sabbagh, A.A., Maraqa, R.

Pubic Cloud Computing: Big Three Vendors

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112138520&doi=10.1109%2FICIT52682.2021.9491680&partnerID=40&md5=09c0044136a4bea58b67ecf93a20c122)

[85112138520&doi=10.1109%2FICIT52682.2021.9491680&partnerID=40&md5=09c0044136a4bea58b67ecf93a20c122](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112138520&doi=10.1109%2FICIT52682.2021.9491680&partnerID=40&md5=09c0044136a4bea58b67ecf93a20c122)

AFFILIATIONS: Al Zaytoonah University of Jordan, Dept. Computer Information System, Amman, Jordan;

Al Zaytoonah University of Jordan, Dept. Software Engineering, Amman, Jordan

ABSTRACT: There has been a significant increase in the adoption of cloud computing, and Azure, AWS and Google Cloud are striving to become the best cloud providers. Various extraordinary changes have occurred in 2020 that have played a significant role in bringing about a shift towards the cloud. Enterprises and SMBs are increasing the scope of their cloud strategies in the midst of the global pandemic, economic crisis and all-remote operations so as to ensure business continuity. Choosing an appropriate cloud provider is the issue of concern here. A taxonomy and survey of cloud services that are provided by three major cloud infrastructure vendors, with respect to their revenue, is carried out in this paper to enable you to make an educated decision. An extensive cloud comparison summary is then developed for AWS vs. Azure vs. Google cloud. The cloud ecosystem is first examined, after which an extensive discussion of cloud delivery models and services is carried out. Cloud computing at Google, Amazon and Microsoft is then discussed. The paper concludes with a comparison of the three major cloud service providers. © 2021 IEEE.

Hammad, M.A., Jebril, I., Abujudeh, D., Dalahmeh, Y., Abrikah, S.A.

Properties of Conformable Fractional Rayleigh Probability Distribution

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112137264&doi=10.1109%2FICIT52682.2021.9491658&partnerID=40&md5=21a37784c4686243097340f180840327)

[85112137264&doi=10.1109%2FICIT52682.2021.9491658&partnerID=40&md5=21a37784c4686243097340f180840327](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112137264&doi=10.1109%2FICIT52682.2021.9491658&partnerID=40&md5=21a37784c4686243097340f180840327)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

Isra University, Department of Basic Pharmaceutical Science, Amman, Jordan

ABSTRACT: In this paper Rayleigh distribution will be expanded to a new conformable fractional definition. The new definition will shrink back the old Rayleigh distribution function to a special case when $\alpha \rightarrow 1^-$. The paper will determine some of the properties and some entropy measures. © 2021 IEEE.

Qawaqneh, H., Ahmad, F.B., Zraiqat, A.

The Effect of Using Cyber Hunt Strategy on Developing the Mathematical Academic Achievement for Jordanian Universities Students

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112136504&doi=10.1109%2FICIT52682.2021.9491759&partnerID=40&md5=b14d1cff3080b71d1e43e13d68b2d190)

[85112136504&doi=10.1109%2FICIT52682.2021.9491759&partnerID=40&md5=b14d1cff3080b71d1e43e13d68b2d190](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112136504&doi=10.1109%2FICIT52682.2021.9491759&partnerID=40&md5=b14d1cff3080b71d1e43e13d68b2d190)

AFFILIATIONS: AL-Zaytoonah University of Jordan, Faculty of Science and Technology, Department of

Mathematical Sciences, Jordan;

Middle East University, Faculty of Educational Sciences, Department of Educational Technology, Jordan

ABSTRACT: The current paper aims to identify the effect of using the Cyber Hunt Strategy on the development of academic achievement and the retention of the impact of learning in mathematics among undergraduate students in Jordan. To achieve the aims of the study, a Cyber Hunt Strategy in a form of an educational website is designed and a test to measure academic achievement. The results show the effectiveness of this strategy in developing academic achievement in mathematics of students. © 2021 IEEE.

Al-Zoubi, H., Hamadneh, T., Alzaareer, H., Al-Sabbagh, M.

Tubes in the Euclidean 3-space with coordinate finite type Gauss map

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112135951&doi=10.1109%2FICIT52682.2021.9491118&partnerID=40&md5=45d4d0a46f909a870f09be48b1aa2b88)

[85112135951&doi=10.1109%2FICIT52682.2021.9491118&partnerID=40&md5=45d4d0a46f909a870f09be48b1aa2b88](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112135951&doi=10.1109%2FICIT52682.2021.9491118&partnerID=40&md5=45d4d0a46f909a870f09be48b1aa2b88)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

Imam Abdulrahman Bin Faisal University, Department of Basic Engineering, Dammam, Saudi Arabia

ABSTRACT: In this paper, we continue the classification of coordinate finite type Gauss map surfaces

in the 3-dimensional Euclidean space E^3 . To do this, we investigate an important family of surfaces, namely, tubes in E^3 of which its Gauss map N satisfies the condition $IIN = AN$, where $A \in \mathbb{R}^{3 \times 3}$ and II is the Laplace-Beltrami operator corresponding to the 2nd fundamental form II of the surface. We show that there is no such surfaces satisfying this property. © 2021 IEEE.

Staegemann, D., Volk, M., Lautenschlager, E., Pohl, M., Abdallah, M., Turowski, K.

Applying Test Driven Development in the Big Data Domain - Lessons from the Literature

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112135717&doi=10.1109%2FICIT52682.2021.9491728&partnerID=40&md5=19c5623aba32d35d57c5d1d295bf5520)

[85112135717&doi=10.1109%2FICIT52682.2021.9491728&partnerID=40&md5=19c5623aba32d35d57c5d1d295bf5520](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112135717&doi=10.1109%2FICIT52682.2021.9491728&partnerID=40&md5=19c5623aba32d35d57c5d1d295bf5520)

AFFILIATIONS: Otto-von-Guericke University, MRCC VLBA, Magdeburg, Germany;

FernUniversität in Hagen, Faculty of Economics, Hagen, Germany;

Al-Zaytoonah University of Jordan, Department of Software Engineering, Amman, Jordan

ABSTRACT: Big data has evolved to a ubiquitous part of today's society. However, despite its popularity, the development and testing of the corresponding applications are still very challenging tasks that are being actively researched in pursuit of ways for improvement. One newly introduced proposition is the application of test driven development (TDD) in the big data domain. To facilitate this concept, existing literature reviews on TDD have been analyzed to extract insights from those sources of aggregated knowledge, which can be applied to this new setting. After introducing the different studies, lessons for the application of TDD in the big data domain are deduced and discussed. Finally, avenues for future works are proposed. © 2021 IEEE.

Aldolimi, W.S., Hnaif, A.A., Alia, M.A.

Light Fidelity to Transfer Secure Data Using Advanced Encryption Standard Algorithm

(2021) 2021 International Conference on Information Technology, ICIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112134381&doi=10.1109%2FICIT52682.2021.9491769&partnerID=40&md5=f3cfab6933b6fce3db5bc8a38f7abf78)

[85112134381&doi=10.1109%2FICIT52682.2021.9491769&partnerID=40&md5=f3cfab6933b6fce3db5bc8a38f7abf78](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112134381&doi=10.1109%2FICIT52682.2021.9491769&partnerID=40&md5=f3cfab6933b6fce3db5bc8a38f7abf78)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and IT, Computer Science

Department, Amman, Jordan

ABSTRACT: Symmetric (secret) key encryption algorithms are formally used one key for encryption and decryption processes. One of the advantages of symmetric encryption is that it provides security at a much lower cost, both in term of key size and execution time. The algorithm adopted in this paper is the Advanced Encryption Standard (AES). This algorithm is considered official and secure for encryption due to the length of the encryption key. Therefore, the secret key for AES is generated by implementing Elliptic Curve Diffie Hellman (ECDH) based public key exchange protocol, while the communication process between sender and receiver is employed by using a light communication technology called light Fidelity (Li-Fi). Meanwhile, Li-Fi technology supposed to be very secure and fast much more than the Internet used in our daily life. © 2021 IEEE.

Nyangaresi, V.O., Mohammad, Z.

Privacy Preservation Protocol for Smart Grid Networks

(2021) 2021 International Telecommunications Conference, ITC-Egypt 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113974130&doi=10.1109%2FITC-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113974130&doi=10.1109%2FITC-Egypt52936.2021.9513900&partnerID=40&md5=41dca71f655c1dd5164d364df8de0fef)

[Egypt52936.2021.9513900&partnerID=40&md5=41dca71f655c1dd5164d364df8de0fef](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113974130&doi=10.1109%2FITC-Egypt52936.2021.9513900&partnerID=40&md5=41dca71f655c1dd5164d364df8de0fef)

AFFILIATIONS: Tom Mboya University College, Faculty of Biological Physical Sciences, Homabay, Kenya;

Al-Zaytoonah University of Jordan, Department of Computer Science, Amman, Jordan

ABSTRACT: Smart grids networks carry critical and private data that may be employed by adversaries in learning about services running at home or its occupancy. It is therefore vital that robust protection be accorded to these complex infrastructures to thwart cyber-physical attacks. Although numerous cryptographic protocols have been developed for smart grid systems, majority of them do not consider de-synchronization attacks among others, or they lack conditional privacy and flexible key management. In terms of performance, they have high computation and communication overheads that are not ideal for resource constrained smart meters. In this paper, a lightweight privacy preservation protocol is proposed. Simulation results showed that it experienced the lowest computation and communication overheads among its peers. In addition, security evaluation using the widely known Dolev-Yao and Canetti-Krawczyk models showed that it offers backward secrecy, forward key secrecy, anonymity and is robust against de-synchronization and traceability attacks. © 2021 IEEE.

Qader, A.A.

A new novel hybrid dynamic color segmentation model for road signs in noisy conditions

(2021) International Journal of Software Innovation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117761565&doi=10.4018%2FIJSI.2021070101&partnerID=40&md5=5c3528c2a3f45450a401f6beb77dab26)

[85117761565&doi=10.4018%2FIJSI.2021070101&partnerID=40&md5=5c3528c2a3f45450a401f6beb77dab26](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117761565&doi=10.4018%2FIJSI.2021070101&partnerID=40&md5=5c3528c2a3f45450a401f6beb77dab26)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Image segmentation is the most important process in road sign detection and classification

systems. In road sign systems, the spatial information of road signs are very important for safety issues. Road sign segmentation is a complex segmentation task because of the different road sign colors and shapes that make it difficult to use specific threshold. Most road sign segmentation studies do good in ideal situations, but many problems need to be solved when the road signs are in poor lighting and noisy conditions. This paper proposes a hybrid dynamic threshold color segmentation technique for road sign images. In a pre-processing step, the authors use the histogram analysis, noise reduction with a Gaussian filter, adaptive histogram equalization, and conversion from RGB space to YCbCr or HSV color spaces. Next, a segmentation threshold is selected dynamically and used to segment the preprocessed image. The method was tested on outdoor images under noisy conditions and was able to accurately segment road signs with different colors (red, blue, and yellow) and shapes. Copyright © 2021, IGI Global.

Hammad, M.A., Awad, A.M., Jebril, I.

Optimality of bayesian estimators: A comparative study based on exponential progressive type ii censored data

(2021) Journal of Statistics Applications and Probability, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115383397&doi=10.18576%2fjfsap%2f100215&partnerID=40&md5=3468757cafb7aa43a4d2cb1432e5ed48)

[85115383397&doi=10.18576%2fjfsap%2f100215&partnerID=40&md5=3468757cafb7aa43a4d2cb1432e5ed48](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115383397&doi=10.18576%2fjfsap%2f100215&partnerID=40&md5=3468757cafb7aa43a4d2cb1432e5ed48)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

University of Jordan, Amman, 11942, Jordan

ABSTRACT: The paper investigates estimation problem of the parameter of exponential distribution. The maximum likelihood (ML) estimator and Bayesian estimators are obtained based on eight sampling schemes, six families of prior distributions, and seven classes of loss functions. The estimators are compared based on absolute relative error, standard deviation, mean square error, relative error, and loss, risk, and Pitman closeness. The main objective is to select the loss function that yields an optimal estimator and optimal sampling scheme within a given class of estimators. © 2021 Natural Sciences Publishing. All rights reserved.

Farhat, J., Pandey, I., Al-wahsh, M.

Transcending toward advanced 3d-cell culture modalities: A review about an emerging paradigm in translational oncology

(2021) Cells, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114077735&doi=10.3390%2fcells10071657&partnerID=40&md5=9853c3c7d48c881f4c4fe8eb297f3acd)

[85114077735&doi=10.3390%2fcells10071657&partnerID=40&md5=9853c3c7d48c881f4c4fe8eb297f3acd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114077735&doi=10.3390%2fcells10071657&partnerID=40&md5=9853c3c7d48c881f4c4fe8eb297f3acd)

AFFILIATIONS: College of Pharmacy, Al Ain University, Abu Dhabi, 112612, United Arab Emirates;

Department of Pathology, Motilal Nehru Medical College, Prayagraj, 211001, India;

Leibniz-Institut für Analytische Wissenschaften-ISAS-e.V, Dortmund, 44139, Germany;

Institute of Pathology and Medical Research Center (ZMF), University Medical Center Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Cancer is a disorder characterized by an uncontrollable overgrowth and a fast-moving spread of cells from a localized tissue to multiple organs of the body, reaching a metastatic state. Throughout years, complexity of cancer progression and invasion, high prevalence and incidence, as well as the high rise in treatment failure cases leading to a poor patient prognosis accounted for continuous experimental investigations on animals and cellular models, mainly with 2D- and 3D-cell culture. Nowadays, these research models are considered a main asset to reflect the physiological events in many cancer types in terms of cellular characteristics and features, replication and metastatic mechanisms, metabolic pathways, biomarkers expression, and chemotherapeutic agent resistance. In practice, based on research perspective and hypothesis, scientists aim to choose the best model to approach their understanding and to prove their hypothesis. Recently, 3D-cell models are seen to be highly incorporated as a crucial tool for reflecting the true cancer cell microenvironment in pharmacokinetic and pharmacodynamics studies, in addition to the intensity of anticancer drug response in pharmacogenomics trials. Hence, in this review, we shed light on the unique characteristics of 3D cells favoring its promising usage through a comparative approach with other research models, specifically 2D-cell culture. Plus, we will discuss the importance of 3D models as a direct reflector of the intrinsic cancer cell environment with the newest multiple methods and types available for 3D-cells implementation. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Al-Samydai, A., Hajleh, M.A., Akour, A., Alabdallah, N., Yousef, M., Baqa'in, G., Al-Saadi, A., Al-Halaseh, L.K., Aburjai, T.

Phytotherapeutic approaches and ethnopharmacological responses against covid-19

(2021) Tropical Journal of Natural Product Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85113253259&doi=10.26538%2ftjnpr%2fv5i7.7&partnerID=40&md5=f61a9634e23cb01e04cce3c3f9085c69

AFFILIATIONS: Pharmacological and Diagnostic Research Centre, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Department of Cosmetic Science, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan;

Faculty of Medicine, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Chemistry, Faculty of pharmacy, Mutah University, Al-Karak, 61710, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: The coronavirus disease 2019 (COVID-19) pandemic, the most important public health problem in 2020, poses severe health and socioeconomic impact. Many people turn to herbal therapy to prevent infection with the virus or alleviate the symptoms caused by it. This study evaluates the patterns of phytotherapy-based product utilization in the prevention against SARS-COV-2 and their reported effectiveness. This cross-sectional survey used a convenience sample of 287 adults who had used any form of phytotherapeutics to help fight and/or treat COVID-19 infection. The majority (n = 194, 67.6%) of participants had used plants from the Rutaceae family (like lemon and oranges), followed by those of Amaryllidaceous (namely, Garlic and Onion). Participants said that physicians and pharmacists were the primary sources of information about phytotherapy (n=107, 37.3%), and their decision was driven by their positive attitude towards herbal medicine or plant-based products (n=133, 46.3%). Many participants did not notice any side effects of these remedies (n=270, 94%) and believed they were effective (n = 184, 64%). This study provides an overview of the many phytotherapeutic remedies used in the era of COVID-19 by Jordanian society, which could prompt the conduction of interventional trials to assess the effectiveness and safety of this modality of therapy, either as a stand-alone or adjuvant treatment. © 2021 the authors.

Qatawneh, A.M., Alqtish, A.

THE IMPACT OF TAXATION AND ACCOUNTING AUDIT SYSTEMS ON THE TAX REVENUES - CASE STUDY OF INCOME AND SALES TAX DEPARTMENT IN JORDAN

(2021) Academy of Accounting and Financial Studies Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112251113&partnerID=40&md5=eb3f7eb24c4aa48c8d8a7f05e2855136)

[85112251113&partnerID=40&md5=eb3f7eb24c4aa48c8d8a7f05e2855136](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112251113&partnerID=40&md5=eb3f7eb24c4aa48c8d8a7f05e2855136)

AFFILIATIONS: Al-Zaytoonah University of Jordan

ABSTRACT: This study aims to identify the impact of tax and accounting auditing systems on tax revenues at the Income and Sales Tax Department in Jordan. To achieve the objectives of the study and test hypotheses, the researcher used the descriptive and analytical approach, by designing a questionnaire and distributing it to the members of the study community, where the study population consists of a sample of the tax auditors accredited by the Jordanian Income and Sales Tax Department, who are the auditors of the following directorates, the Directorate of Large Taxpayer Office (LTO), the Directorate of Industrial Activity, the First Commercial Activity Tax Directorate, the Second Commercial Activity Tax Directorate, the Service Activity Tax Directorate. Where (150) questionnaires were distributed and (127) questionnaires were retrieved from them, it was found that (119) questionnaires were valid for statistical analysis; the statistical analysis program (SPSS) was used and analyzing them statistically through appropriate statistical methods. The study found a statistically significant effect of the tax audit on tax revenues at the Income and Sales Tax Department, in addition to the existence of a statistically significant effect of the accounting audit on tax revenues at the Income and Sales Tax Department. One of the most important recommendations that came out of the study is the necessity of having legal materials that stimulate the payment of tax, and the need to expand the application of electronic services, develop tax department's policies to collect the largest possible amount of taxes, and focus on conducting accounting auditing tests extensively, in addition to developing the auditor's enhanced tax skills and attains moral responsibility. © 2021. All Rights Reserved.

Hussein, T., Hammad, M.H., Fung, P.L., Al-Kloub, M., Odeh, I., Zaidan, M.A., Wraith, D.

Covid-19 pandemic development in Jordan—short-term and long-term forecasting

(2021) Vaccines, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109846331&doi=10.3390%2fvaccines9070728&partnerID=40&md5=61950cd3f5dfef103777a38bf7afde40)

[85109846331&doi=10.3390%2fvaccines9070728&partnerID=40&md5=61950cd3f5dfef103777a38bf7afde40](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109846331&doi=10.3390%2fvaccines9070728&partnerID=40&md5=61950cd3f5dfef103777a38bf7afde40)

AFFILIATIONS: Department of Physics, The University of Jordan, Amman, 11942, Jordan;

Institute for Atmospheric and Earth System Research (INAR/Physics), University of Helsinki, Helsinki, FI-00014, Finland;

Department of Physics, Prince Faisal Technical College, Amman, 11134, Jordan;

Department of Basic Sciences, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;
Joint International Research Laboratory of Atmospheric and Earth System Sciences, School of Atmospheric Sciences, Nanjing University, Nanjing, 210023, China;
School of Public Health and Social Work, Queensland University of Technology, Brisbane, QLD 4000, Australia

ABSTRACT: In this study, we proposed three simple approaches to forecast COVID-19 reported cases in a Middle Eastern society (Jordan). The first approach was a short-term forecast (STF) model based on a linear forecast model using the previous days as a learning data-base for forecasting. The second approach was a long-term forecast (LTF) model based on a mathematical formula that best described the current pandemic situation in Jordan. Both approaches can be seen as complementary: the STF can cope with sudden daily changes in the pandemic whereas the LTF can be utilized to predict the upcoming waves' occurrence and strength. As such, the third approach was a hybrid forecast (HF) model merging both the STF and the LTF models. The HF was shown to be an efficient forecast model with excellent accuracy. It is evident that the decision to enforce the curfew at an early stage followed by the planned lockdown has been effective in eliminating a serious wave in April 2020. Vaccination has been effective in combating COVID-19 by reducing infection rates. Based on the forecasting results, there is some possibility that Jordan may face a third wave of the pandemic during the Summer of 2021. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Al Soub, T.F., Alsarayreh, R.S., Amarin, N.Z.

Students' satisfaction with using e-learning to learn chemistry in light of the COVID-19 Pandemic in Jordanian Universities

(2021) International Journal of Instruction, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109641834&doi=10.29333%2fiji.2021.14359a&partnerID=40&md5=ea4639a29c93a69bb849b263589bcf7e)

[85109641834&doi=10.29333%2fiji.2021.14359a&partnerID=40&md5=ea4639a29c93a69bb849b263589bcf7e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109641834&doi=10.29333%2fiji.2021.14359a&partnerID=40&md5=ea4639a29c93a69bb849b263589bcf7e)

AFFILIATIONS: Aqaba University of Technology, Jordan;

Al-Balqa Applied University, Karak College, Jordan;

Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: University Education in Jordan has adapted completely to Distance Education due to the corona virus (COVID-19) pandemic. The study aimed to assess students' satisfaction with distance education of chemistry courses during the COVID-19 pandemic at Aqaba University of Technology (AUT). The students' satisfaction was assessed by a survey consisting of 4 items as follows: interaction with e-learning, techniques, instruction, and website improvement. The statistical analyses have been done using descriptive and inferential analytical approaches by the Statistical Package for Social Sciences. The results indicated that students' satisfaction with using e-learning to learn chemistry in light of the COVID-19 pandemic at AUT was high. The interaction with e-learning and techniques reflected a high level of satisfaction while instruction and website improvement reflected a medium level of satisfaction. There was a significant difference ($\alpha \leq 0.05$) in students' satisfaction in terms of gender. Females were more significantly satisfied with the four items and overall satisfaction. © 2021 Eskisehir Osmangazi University. All rights reserved.

Alefishat, E., Jarab, A.S., Al-Qerem, W., Abu-Zaytoun, L.

Factors associated with medication non-adherence in patients with dyslipidemia

(2021) Healthcare (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109410319&doi=10.3390%2fhealthcare9070813&partnerID=40&md5=6ff9225846f2424be74557911697c1db)

[85109410319&doi=10.3390%2fhealthcare9070813&partnerID=40&md5=6ff9225846f2424be74557911697c1db](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109410319&doi=10.3390%2fhealthcare9070813&partnerID=40&md5=6ff9225846f2424be74557911697c1db)

AFFILIATIONS: Department of Pharmacology, College of Medicine and Health Science, Khalifa University of Science and Technology, Abu Dhabi, 127788, United Arab Emirates;

Center for Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, 127788, United Arab Emirates;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Lack of medication adherence among patients with dyslipidemia negatively affects health-related outcomes. This study aims to evaluate medication adherence; we also aim to investigate the predictors of non-adherence among patients with dyslipidemia in Jordan. Medication adherence was evaluated in a total of 228 dyslipidemia patients. The Beliefs about Medicines Questionnaire was also used to assess patients' beliefs about medications. The majority of the current study participants (73.2%) reported non-adherence to the prescribed medications. There were significant negative associations between medication adherence and concerns of prescription drug use ($B = -0.41$, p -value < 0.01), duration of dyslipidemia ($B = -0.22$, p -value < 0.01), and the number of medications ($B = -0.64$, p -value < 0.01). Positive associations were found between medication adherence and the necessity of prescription drug use ($B = 0.43$, p -value < 0.01), taking statin and fibrate ($B = 2.04$,

p-value < 0.01), and moderate-intensity statin (B = 2.34, p-value < 0.01). As for patients' beliefs about medications, the item "My medicine to lower my cholesterol disrupted my life" had the highest mean (3.50 ± 0.99). This study revealed a low adherence rate to medication among patients with dyslipidemia. It also demonstrates modifiable factors such as beliefs regarding perceived risk, medication harms, treatment duration, and the number of medications associated with poor adherence in patients with dyslipidemia. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Hailat, M., Al-Ani, I., Hamad, M., Zakareia, Z., Abu Dayyih, W.

Development and validation of a method for quantification of favipiravir as covid-19 management in spiked human plasma

(2021) *Molecules*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109103872&doi=10.3390%2fmolecules26133789&partnerID=40&md5=03b0039463b6127bc2ee3cea7abc1e19)

85109103872&doi=10.3390%2fmolecules26133789&partnerID=40&md5=03b0039463b6127bc2ee3cea7abc1e19

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

College of Science and Health Professions, King Saud Bin Abdulaziz University for Health Sciences, Jeddah, 21423, Saudi Arabia;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan

ABSTRACT: In the current work, a simple, economical, accurate, and precise HPLC method with UV detection was developed to quantify Favipiravir (FVIR) in spiked human plasma using acyclovir (ACVR) as an internal standard in the COVID-19 pandemic time. Both FVIR and ACVR were well separated and resolved on the C18 column using the mobile phase blend of methanol:acetonitrile:20 mM phosphate buffer (pH 3.1) in an isocratic mode flow rate of 1 mL/min with a proportion of 30:10:60 %, v/v/v. The detector wavelength was set at 242 nm. Maximum recovery of FVIR and ACVR from plasma was obtained with dichloromethane (DCM) as extracting solvent. The calibration curve was found to be linear in the range of 3.1–60.0 µg/mL with regression coefficient (r^2) = 0.9976. However, with acceptable r^2 , the calibration data's heteroscedasticity was observed, which was further reduced using weighted linear regression with weighting factor 1/x. Finally, the method was validated concerning sensitivity, accuracy (Inter and Intraday's % RE and RSD were 0.28, 0.65 and 1.00, 0.12 respectively), precision, recovery (89.99%, 89.09%, and 90.81% for LQC, MQC, and HQC, respectively), stability (% RSD for 30-day were 3.04 and 1.71 for LQC and HQC, respectively at -20° C), and carry-over US-FDA guidance for Bioanalytical Method Validation for researchers in the COVID-19 pandemic crisis. Furthermore, there was no significant difference for selectivity when evaluated at LLOQ concentration of 3 µg/mL of FVIR and relative to the blank. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Hemmo, S.I., Naser, A.Y., Alwafi, H., Mansour, M.M., Alanazi, A.F.R., Jalal, Z., Alsairafi, Z.K., Paudyal, V., Alomari, E., Al-Momani, H., Salawati, E.M., Samannodi, M., Dairi, M.S., Bawab, A.Q.A., Ali, M.M., Alkharabsheh, S.

Hospital admissions due to ischemic heart diseases and prescriptions of cardiovascular diseases medications in England and Wales in the past two decades

(2021) *International Journal of Environmental Research and Public Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108979147&doi=10.3390%2fijerph18137041&partnerID=40&md5=7c2a064aa10fff2734ef8338ebd26b73)

85108979147&doi=10.3390%2fijerph18137041&partnerID=40&md5=7c2a064aa10fff2734ef8338ebd26b73

AFFILIATIONS: Department of Applied Pharmaceutical Sciences and Clinical Pharmacy, Faculty of Pharmacy, Isra University, Amman, 11622, Jordan;

Faculty of Medicine, Umm Alqura University, Mecca, 21514, Saudi Arabia;

Department of Internal Medicine, University of Arkansas for Medical Center, Little Rock, AR 72205, United States;

Department of Pharmaceutical and Biological Sciences, UCL School of Pharmacy, London, WC1E 6BT, United Kingdom;

School of Pharmacy, Institute of Clinical Sciences, University of Birmingham, Birmingham, B15 2TT, United Kingdom;

Department of Pharmacy Practice, Kuwait University, Kuwait, 12037, Kuwait;

Department of Pediatric, School of Medicine, Hashemite University, Zarqa, 13133, Jordan;

Family Medicine Department, Faculty of Medicine, King Abdulaziz University, Jeddah, 22254, Saudi Arabia;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Greenebaum Comprehensive Cancer Center, University of Maryland, Baltimore, MD 20742, United States;

Heart and Vascular Institute, Cleveland Clinic, Cleveland, OH 44195, United States

ABSTRACT: Objectives: The aim of this study was to explore the trend of ischemic heart disease (IHD) admission and the prescriptions of IHD medications in England and Wales. Methods: A secular trends study was conducted during the period of 1999 to 2019. We extracted hospital admission data for patients from all age groups from the Hospital Episode Statistics database in England and the Patient Episode Database for Wales. Prescriptions of IHD medications were extracted from the Prescription Cost Analysis database from 2004 to 2019. The chi-squared test was used to assess the difference

between the admission rates and the difference between IHD medication prescription rates. The trends in IHD-related hospital admission and IHD-related medication prescription were assessed using a Poisson model. The correlation between hospital admissions for IHD and its IHD medication-related prescriptions was assessed using the Pearson correlation coefficient. Results: Our study detected a significant increase in the rate of cardiovascular disease (CVD) medication prescriptions in England and Wales, representing a rise in the CVD medications prescription rate of 41.8% (from 539,334.95 (95% CI = 539,286.30–539,383.59) in 2004 to 764,584.55 (95% CI = 764,545.55–764,623.56) in 2019 prescriptions per 100,000 persons), with a mean increase of 2.8% per year during the past 15 years. This increase was connected with a reduction in the IHD hospital admission rate by 15.4% (from 838.50 (95% CI = 836.05–840.94) in 2004 to 709.78 (95% CI = 707.65–711.92) in 2019 per 100,000 persons, trend test, $p < 0.01$), with a mean decrease of 1.02% per year during the past 15 years and by 5% (from 747.43 (95% CI = 745.09–749.77) in 1999 to 709.78 (95% CI = 707.65–711.92) in 2019 per 100,000 persons, trend test, $p < 0.01$) with a mean decrease of 0.25% per year during the past two decades in England and Wales. Conclusion: The rate of hospitalisation due to IHD has decreased in England and Wales during the past two decades. Hospitalisation due to IHD was strongly and negatively correlated with the increase in the rates of dispensing of IHD-related medications. Other factors contributing to this decline could be the increase in controlling IHD risk factors during the past few years. Future studies exploring other risk factors that are associated with IHD hospitalisation are warranted. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Hanaysha, J.R., Saleh, I., Hussain, S., Lee, K.L., Bakar, Z.A.

Determinants of firm performance in automotive industry: Empirical Insights from Malaysia

(2021) International Journal of Service Science, Management, Engineering, and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108959455&doi=10.4018%2fIJSSMET.2021070108&partnerID=40&md5=de16c9b764f8683d305b7513101d3bfc)

[85108959455&doi=10.4018%2fIJSSMET.2021070108&partnerID=40&md5=de16c9b764f8683d305b7513101d3bfc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108959455&doi=10.4018%2fIJSSMET.2021070108&partnerID=40&md5=de16c9b764f8683d305b7513101d3bfc)

AFFILIATIONS: School of Business, Skyline University College, Sharjah, United Arab Emirates;

Al-Zaytoonah University of Jordan, Jordan;

Faculty of Industrial Management, Universiti Malaysia Pahang, Malaysia;

Faculty of Industrial Management, Universiti Malaysia Pahang, Malaysia;

Faculty of Business and Management, DRB-HICOM University of Automotive Malaysia, Malaysia

ABSTRACT: This paper is centered towards examining whether innovation, social media marketing, and corporate social responsibility have any associations with firm performance in automotive sector. By reviewing the prior literature, it can be concluded that there are limited studies which focused on investigating the direct impacts of the above factors collectively on firm performance, particularly in automotive industry. Moreover, the performance of automotive industry in Malaysia has recently experienced slow growth. Therefore, a quantitative research method was employed for data collection and fulfilling the research objectives. In particular, the data were collected via survey instrument from many employees of automotive companies at the state of Pahang in Malaysia. The data was then analyzed by SPSS Version 19 to verify and test the hypotheses. Overall, the outcomes revealed that innovation has a significant positive impact on firm performance. But the influence of social media marketing on firm performance was found insignificant. Finally, the outcomes showed that the practice of corporate social responsibility has a positive impact on firm performance. Copyright © 2021, IGI Global.

Abu Helal, A.-R.

Definite description of episodic free relatives in Jordanian Arabic: A choice function analysis

(2021) *Lingua*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107625886&doi=10.1016%2fj.lingua.2021.103096&partnerID=40&md5=93208d7b4b97a378fa84d9bf06c7d332)

[85107625886&doi=10.1016%2fj.lingua.2021.103096&partnerID=40&md5=93208d7b4b97a378fa84d9bf06c7d332](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107625886&doi=10.1016%2fj.lingua.2021.103096&partnerID=40&md5=93208d7b4b97a378fa84d9bf06c7d332)

AFFILIATIONS: Department of English Language & Literature, Al-Zaytoonah University of Jordan, Faculty of Arts, 399, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: This paper addresses a puzzle in the semantics of episodic free yalli relative clauses in Jordanian Arabic (henceforth, Y-FR). Despite the fact that the Y-FR functions as referential definite descriptions, especially when occupying the syntactic position of DP or PP argument, it can be interpreted non-referentially on a variety of other occasions. We resolve the puzzle by proposing a unified analysis of Y-FR based on the following assumptions: (i) the FY definite description is inherently a predicative structure. (ii) Such a predicate is interpreted via choice function. (ii) The function is represented by an epsilon term ϵ which is a function from sets of individuals into singleton sets. (iii) The output of the epsilon function undergoes further compositional operations to derive the referential and non-referential readings of the Y-FR definite description. © 2021 Elsevier B.V.

Khdaire, S.I., Al-Qerem, W., Jarrar, W.

Knowledge and attitudes regarding genetic testing among Jordanians: An approach towards genomic medicine

(2021) Saudi Journal of Biological Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106310512&doi=10.1016%2fj.sjbs.2021.04.004&partnerID=40&md5=83d1284b603072f3d3a32c532a7512e3)

[85106310512&doi=10.1016%2fj.sjbs.2021.04.004&partnerID=40&md5=83d1284b603072f3d3a32c532a7512e3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106310512&doi=10.1016%2fj.sjbs.2021.04.004&partnerID=40&md5=83d1284b603072f3d3a32c532a7512e3)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Background: The twenty first century can be called the genomic era referring to the rapid development of genetics, and the beginning of genomic medicine. An initial step towards genomic medicine is to evaluate the knowledge and attitude towards genetic testing among different populations. The aims of this study were to assess the genetic knowledge and attitude towards genetic testing among the Jordanian population and patients with immune diseases. In addition, we evaluated the association between knowledge, attitude and several demographic factors of the population. Methods: This study was performed using an online questionnaire that was distributed to respondents from different regions of Jordan. Results: A total of 1149 participants were recruited from the Jordanian population. Overall factual genetic knowledge of the participants was good (65.4%), with education level, working or studying in a health-related field and household average monthly income being significant predictors of factual knowledge scores ($P = 0.03$, $P < 0.001$ and $P < 0.001$, respectively). However, factual knowledge results revealed that scores of questions related to diseases were significantly higher than scores of gene-related scientific facts ($P < 0.01$). Participants of our study reported to have low perceived knowledge on medical uses (39.5%) and social consequences (23.9%) of genetic testing. Regarding the participants' attitudes, favorable attitudes towards genetic testing were prevailing (91.5%). Favorable attitudes were more prominent among higher educated participants, and participants with higher scores of factual knowledge. Conclusion: Despite the fact that our Jordanian-based study revealed a good level of genetic knowledge as well as a favorable attitude towards genetic testing, we realized an imbalance of knowledge between gene-related scientific facts and disease-related concepts as well as between factual and perceived genetic knowledge, which indicates the necessity of increasing the awareness about genetic testing in order to ensure that individuals can take informed decisions that help in the employment of personalized medicine. © 2021 The Author(s)

Ayed, A., Malak, M.Z., Al-amer, R.M., Batran, A., Salameh, B.

Effect of High Fidelity Simulation on Perceptions of Self-Awareness, Empathy, and Patient-Centered Care Among University Pediatric Nursing Classes

(2021) Clinical Simulation in Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106276761&doi=10.1016%2fj.ecns.2021.04.005&partnerID=40&md5=109021422ee9cd16bb72ca88468d1c5a)

[85106276761&doi=10.1016%2fj.ecns.2021.04.005&partnerID=40&md5=109021422ee9cd16bb72ca88468d1c5a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106276761&doi=10.1016%2fj.ecns.2021.04.005&partnerID=40&md5=109021422ee9cd16bb72ca88468d1c5a)

AFFILIATIONS: Pediatric Health Nursing, Faculty of Nursing, Arab American University, Palestine;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra University Amman, Jordan;

Western Sydney University, School of Nursing and Midwifery Sydney, Australia;

Pediatric Health Nursing, Faculty of Nursing, American Arab University, Palestine

ABSTRACT: Introduction: Improvement in nurses' features such as self-awareness, empathy, and patient-centered care leads to positive patient outcomes. High fidelity simulation is one of the interventions which was used to enhance the mentioned nursing students' features. This study aimed to evaluate the effect of high-fidelity simulation on students' perception of self-awareness, empathy, and patient-centered care at pre and post-intervention in undergraduates' pediatric nursing students at Arab American University in Palestine. Methods: A group of pretest-posttest design was used. The accessible sample of all undergraduate pediatric nursing students ($N = 83$) who enrolled in the pediatric classes in the Faculty of Nursing was recruited. Results: The findings showed a significant difference between students' perceptions pre and post high-fidelity simulation intervention for self-awareness ($t = -31.74$, $p < 0.001$), empathy ($t = -18.24$, $p < 0.001$), and patient-centered care ($t = -17.36$, $p < 0.001$). There was a statistically significant improvement in self-awareness, empathy, and patient-centered care as a result of simulation. Conclusion: The findings of this study suggest infusing the nursing curriculum, particularly, pediatric course with simulation based-teaching intervention to increase self-awareness, empathy, and patient-centered care is a critical issue to fill gaps in these areas and to supplement traditional clinical learning. © 2021

Allswey, A., Al-Samarraie, H., Bervell, B.

mHealth technology utilization in the Arab world : a systematic review of systems, usage, and challenges

(2021) Health and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105957296&doi=10.1007%2fs12553-021-00549-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105957296&doi=10.1007%2fs12553-021-00549-3&partnerID=40&md5=0d19fc86bce1c964e6796aadd798b135)

[3&partnerID=40&md5=0d19fc86bce1c964e6796aadd798b135](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105957296&doi=10.1007%2fs12553-021-00549-3&partnerID=40&md5=0d19fc86bce1c964e6796aadd798b135)

AFFILIATIONS: School of Architecture and Design, Department of Multimedia Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Media and Performing Arts, Coventry University, Coventry, United Kingdom;

College of Distance Education(CoDE), University of Cape Coast, Cape Coast, Ghana

ABSTRACT: The rapid growth in mobile technology has provided an opportunity for the design and development of mobile health technologies in the Arab region. Nonetheless, available literature has not been able to provide information on the types of systems, use patterns and challenges faced during the implementation of mobile Health (mHealth) systems in the Arab countries. This lack of evidence-based study to classify mHealth technologies, use and possible obstacles has an important role in the continuous development, implementation and future research trends of mHealth technologies in the Arab world. This study filled the gap by way of a systematic review of previous studies conducted within a decade from seven online databases to explore the current evidence on the use of mHealth in the Arab countries. The findings from a systematic review of 31 studies classified the main mHealth systems into four categories: self-healthcare management systems, assisted healthcare systems, supervised healthcare systems and continuous monitoring systems. Self-healthcare management systems were the dominant mHealth solutions while continuous monitoring systems were the least utilized. Generally, there was a low usage level of m-health systems in the Arab world underpinned by challenges such as User interface (UI), cloud storage, platforms, quality of service (QoS), security and data acquisition. © 2021, IUPESM and Springer-Verlag GmbH Germany, part of Springer Nature.

Younis, M.C., Abuhammad, H.

A hybrid fusion framework to multi-modal bio metric identification

(2021) Multimedia Tools and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105204132&doi=10.1007%2fs11042-021-10818-y&partnerID=40&md5=b8fc2965ad6bf88e667d358d7dee9c9b>

AFFILIATIONS: University of Mosul, College of Computer Sciences and Mathematics, Computer Sciences Department, Mosul, Iraq;

University of Exeter, College of Engineering, Mathematics, and Physical Sciences, Computer Science Department, Exeter, United Kingdom;

Al Zaytoonah University of Jordan, Faculty of Science and Information Technology, Department of Computer Science, Amman, Jordan

ABSTRACT: In the recent decade, comprehensive research efforts have been carried out as the promising modality of bio metrics on humans' physical features for person recognition. Despite this, the main issue encountered in identifying individuals is obtaining rich representation for multi-modal data that is invariant to diverse physical traits. The shortcomings of uni-modal bio metric systems can be tackled by combining derived knowledge from several modalities of bio metric systems embedded with several physical characteristics like Ear, Face, Iris, and Gait. This paper proposes a novel multi-modal bio metric identification framework based on a hybrid multi-phase feature fusion to render compact knowledge from multiple model traits. We employed transfer learning through several pertained networks such as Resnet101, Resnet-Inceptionv2, Densenet201, AlexNet, and Inceptionv2 to fuse with handcrafted feature vectors extracted via Hog feature descriptor. The fusion is performed using Discriminant Correlation Analysis (DCA) and Canonical Correlation Analysis (CCA) at each single and hybrid phase. Three state of the art bio metric databases, namely Face, Gait, and Ear, was utilized to evaluate the proposed framework. The proposed framework based on multi-phase hybrid fusion achieved up to 96.6% of identification accuracy using multi traits. Experimental results confirm the superior results over other recent multi-modal bio metric variants. © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Massadeh, A.M., Alhusban, A.A.

A developing method for preconcentration and determination of Pb, Cd, Al and As in different herbal pharmaceutical dosage forms using chelex-100

(2021) Chemical Papers, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102785782&doi=10.1007%2fs11696-021-01592-0&partnerID=40&md5=1d2a2695d13abcf555f410ad4d6a6b2>

AFFILIATIONS: Department of Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy, Jordan University of Science and Technology, P. O. Box 3030, Irbid, 22110, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: A simple, rapid and efficient method of preconcentration and determination of selected toxic heavy metals from herbal phytopharmaceutical product matrices using inductively coupled plasma and flame atomic absorption spectrometry after preconcentration with chelating resin (chelex-100) was developed. In this study, 24 samples representing phytopharmaceutical remedies in different dosage forms such as tablet, capsule, suppository, syrup and tea bag that are available in Pharmaceutical Jordanian companies were investigated for the presence of Pb, Cd, Al and As to establish their normal concentrations range and consider their levels according to some worldwide permissible limit guidelines. The %relative standard deviation was < 5%. Pb, Cd, and Al concentrations were ranged (0.01-30.84 µg/g), (0.001-0.85 µg/g) and (1.81-215.19 µg/g), respectively, whereas As level was below the detection limit. The percent contribution of raw material heavy metal content for tablet dosage forms was in the average of 88.39%, 79.85% and 83.13% for Pb, Cd and Al, respectively. Graphic

abstract: [Figure not available: see fulltext.] © 2021, Institute of Chemistry, Slovak Academy of Sciences.

Bani Salameh, A.K., Malak, M.Z., Al-Amer, R.M., Al Omari, O.S.H., El-Hneiti, M., Abu Sharour, L.M. Assessment of Temper Tantrums Behaviour Among Preschool Children in Jordan

(2021) Journal of Pediatric Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101569129&doi=10.1016%2fj.pedn.2021.02.008&partnerID=40&md5=bcda1b1c56ff0056f1a670946279e2b0)

[85101569129&doi=10.1016%2fj.pedn.2021.02.008&partnerID=40&md5=bcda1b1c56ff0056f1a670946279e2b0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101569129&doi=10.1016%2fj.pedn.2021.02.008&partnerID=40&md5=bcda1b1c56ff0056f1a670946279e2b0)

AFFILIATIONS: Pediatric Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Isra University, Jordan;

Pediatric Health Nursing, College of Nursing, Sultan Qaboos University, Muscat, Oman;

Community Health Nursing, Faculty of Nursing, Jordan University, Amman, Jordan;

Oncology Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Adjunct fellow, Western Sydney University, School of Nursing and Midwifery, Australia

ABSTRACT: Purpose: A good understanding of children's emotions, activities, and needs should be promoted. This study assessed temper tantrum behaviour, including frequency, severity, duration, common behaviours, reasons, locations, contexts, and parent's strategies, among Jordanian children aged 24–48 months. Design and methods: A cross-sectional design was used to conduct this study. A non-probability convenience sample was adopted to recruit 213 parents of children aged between 24 months to 48 months. All parents completed the Parents' Experience of Temper Tantrums in Children's questionnaire. Results: Findings showed that about half of the children experienced weekly tantrums, however, half of the parents reported that mild tantrums were exhibited by their youngsters, with an average duration of minutes. The most frequently reported tantrum behaviour was 'screaming or shouting'. "Seeking attention" was the most frequent reason and most tantrums occurred when visiting someone else's home. Unfamiliar situations were the most commonly associated with tantrum episodes. The main strategies used by parents to lessen their child's tantrums were first, stating a consequence (e.g., timeout), and secondly, ignoring the behaviour. Conclusions: The results draw attention to significant aspects of tantrums, such as the duration, where children managed to maintain a tantrum episode for more than seven minutes on average. Tantrum behaviours, reasons, locations, context, and parents' strategies to control tantrums were significant in developing proper interventions. Practice implications: The findings of this study are of practical use in equipping parents and caregivers with the appropriate strategies to enable them to halt tantrums among children. © 2021 Elsevier Inc.

Bani Salameh, A.K., Malak, M.Z., Abu Adas, M.H.

Factors Associating Vaccination Delay among Jordanian Children under Two Years of Age

(2021) Journal of Pediatric Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099843743&doi=10.1016%2fj.pedn.2021.01.005&partnerID=40&md5=fca420fab54f6febea4340a9d2c58432)

[85099843743&doi=10.1016%2fj.pedn.2021.01.005&partnerID=40&md5=fca420fab54f6febea4340a9d2c58432](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099843743&doi=10.1016%2fj.pedn.2021.01.005&partnerID=40&md5=fca420fab54f6febea4340a9d2c58432)

AFFILIATIONS: Pediatric Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, College of Nursing-Khamis Mushait, King Khalid University, Ahba, Saudi Arabia

ABSTRACT: Purpose: This study examines the association between selected socio-demographic factors (gender, birth order, parents' educational levels, and parents' employment status) and reasons for vaccination delay among Jordanian children under two years of age. Design & methods: A cross-sectional, prospective study was conducted in the three comprehensive public health centres in Amman Governorate in Jordan from January–June, 2019. The electronic vaccination record was designed to collect socio-demographic information and reasons for vaccination delay in children. This data was collected from the medical records of those children. Results: The findings revealed that 150 (8.3%) children under two years of age were registered as vaccination-delayed cases. The factors associated with vaccination delay were age (Chi-square test [χ^2] [6150] = 15.02, p-value [p] < 0.01), birth order (χ^2 [6150] = 15.02, p < 0.01), mother's educational level (χ^2 [2150] = 9.27, p < 0.05), and father's and mother's employment (χ^2 [2150] = 7.89, p < 0.05; χ^2 [2150] = 10.54, p < 0.01, respectively). Conclusion: Timeliness of vaccination should be promoted to prevent illness outbreaks and provide specific protection for children, taking into consideration the significance of age and birth order. Practice implications: Interventions and strategies need to implementation to reduce vaccination delay and improve timeliness. © 2021 Elsevier Inc.

Mizher, M.A.A.-J.A., Sulaiman, R., Abdalla, A.M.A., Mizher, M.A.A.

A simple flexible cryptosystem for meshed 3D objects and images

(2021) Journal of King Saud University - Computer and Information Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063513557&doi=10.1016%2fj.jksuci.2019.03.008&partnerID=40&md5=2a83f0f147469e3523695499575aa9eb)

85063513557&doi=10.1016%2fj.jksuci.2019.03.008&partnerID=40&md5=2a83f0f147469e3523695499575aa9eb
AFFILIATIONS: Institute of Visual Informatics, Universiti Kebangsaan Malaysia, UKM Bangi, Selangor 43600, Malaysia;

Faculty of Science & I.T, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In cryptography, the previous research generally appears ambiguous and complex to the novice researcher due to the use of complex mathematical equations and rules of cryptography. Moreover, many research approaches lack flexibility in their key length or in their level of encryption. Consequently, combining simplicity, flexibility, and reliability is not easily obtainable in a cryptosystem, especially for larger and more complex data items. Therefore, a new system, called Flexible cryptosystem based on Cellular Automata (FcCA), is proposed here as a novel simplified flexible cryptosystem based on cellular automata (CA). FcCA presents simplified techniques for making CA reversible while creating a robust flexible cryptosystem that performs lossless encryption of three-dimensional (3D) objects and images of different types. It uses pure random CA as a diffusion technique, and it employs a modified existing confusion technique by substituting the static start point with proposed multi-dynamic intersected start points. In addition, FcCA novelty includes using a combination of aspects: random configuration with open boundary conditions, g-th order memory independent-cell technique, and classification of two parts of the encryption key into subkeys. The length and complexity of FcCA subkeys can be controlled easily because the subkeys depend on flexible parameters. Testing and validation of FcCA scrambling level were performed with several criteria including correlation, entropy, peak signal to noise ratio, and value difference degree. Experimental results showed that FcCA has high flexibility, a high level of scrambling, and higher robustness of keys compared to other methods of encryption. In addition, sensitivity analysis showed FcCA to be highly sensitive to changes in the encryption key and encrypted images and objects. Overall, the properties of FcCA demonstrated its effectiveness as a cryptosystem for images and 3D objects. © 2019 The Authors

Abu-Dahab, R., Mahmoud, N.N., Abdallah, M., Hamadneh, L., Hikmat, S., Zaza, R., Abuarqoub, D., Khalil, E.A.

Cytotoxicity and Cellular Death Modality of Surface-Decorated Gold Nanorods against a Panel of Breast Cancer Cell Lines

(2021) ACS Omega, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85110540652&doi=10.1021%2facscomega.1c01386&partnerID=40&md5=c9ae12b90500c43fa3300d2f8f888362)

85110540652&doi=10.1021%2facscomega.1c01386&partnerID=40&md5=c9ae12b90500c43fa3300d2f8f888362

AFFILIATIONS: School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Cell Therapy Center, University of Jordan, Amman, 11942, Jordan;

Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan

ABSTRACT: Herein, the antiproliferative effect of surface-decorated gold nanorods (GNRs) was investigated against three different breast cancer cell lines. The results indicate that the cell lines exhibited different biological responses and death modalities toward the treatment. The cell lines exhibited similar cellular uptake of the nanoparticles; however, MDA-MB-231 demonstrated the highest cytotoxicity compared to other cell lines upon treatment with GNRs. The expression of the CDH1 gene, which is involved in cell adhesion and metastasis, was dramatically increased in treated MDA-MB-231 cells compared to other cell lines. Early apoptosis and late apoptosis are the dominant cellular death modalities of MDA-MB-231 cells upon treatment with GNRs. © 2021 The Authors. Published by American Chemical Society.

Almazahreh, L.R., Arrigoni, F., Abul-Futouh, H., El-Khateeb, M., Görls, H., Elleouet, C.,

Schollhammer, P., Bertini, L., De Gioia, L., Rudolph, M., Zampella, G., Weigand, W.

Proton Shuttle Mediated by (SCH₂)₂P=O Moiety in [FeFe]-Hydrogenase Mimics: Electrochemical and DFT Studies

(2021) ACS Catalysis, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108661268&doi=10.1021%2facscatal.0c05563&partnerID=40&md5=c6d34e94beec319330c51de499f33998)

85108661268&doi=10.1021%2facscatal.0c05563&partnerID=40&md5=c6d34e94beec319330c51de499f33998

AFFILIATIONS: ERCOSPLAN Ingenieurbüro Anlagentechnik GmbH Arnstädter Straße 28, Erfurt, 99096, Germany;

Department of Biotechnology and Biosciences, University of Milano - Bicocca, Piazza della Scienza 2, Milan, 20126, Italy;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany;

UMR CNRS 6521, Chimie, Electrochimie Moléculaires et Chimie Analytique, Université de Bretagne

Occidentale, UFR Sciences et Techniques, Cs 93837, Brest, 29238 CEDEX 3, France

ABSTRACT: The synthesis, characterization, and protonation of $[\text{Fe}_2(\text{CO})_6\{\mu\text{-SCH}_2\}_2(\text{Et})\text{P}=\text{O}]$ (1) using the moderately strong acid $\text{CF}_3\text{CO}_2\text{H}$ ($\text{pK}_a\text{MeCN} = 12.7$) are reported. Digital simulations of the cyclic voltammetry of 1 in the presence of $\text{CF}_3\text{CO}_2\text{H}$ and DFT calculations have allowed us to obtain a detailed mechanistic picture of the processes underlying the catalytic hydrogen evolution reaction (HER) that 1 can mediate. Moreover, DFT has shed light on the role of the $\text{P}=\text{O}$ functionality in the whole catalytic cycle of proton reduction. The reductive behavior of 1 features a double electron transfer with potential inversion, which is associated with deep structural rearrangement of the catalyst. The double reduction appears also functional to the intramolecular proton transfer from the $\text{P}=\text{O}$ group to the diiron core, a crucial process for the H^+/H -heterocoupling yielding H_2 . The key intermediate for the H_2 formation and release is predicted to be a $3\text{H}^+/3\text{e}^-$ species, in which $\text{P}=\text{O}$ is perfectly poised to shuttle protons from solution to the Fe-H-Fe moiety. Therefore, the R-P=O bridgehead installed in a dithiolato linker of a diiron core proves a valid and versatile alternative to the natural nitrogen-based Fe_2strap . © 2021 American Chemical Society

Mahmoud, N.N., Qabooq, H., Alstotari, S., Tarawneh, O.A., Aboalhaija, N.H., Shraim, S., Alkilany, A.M., Khalil, E.A., Abu-Dahab, R.

Quercetin-gold nanorods incorporated into nanofibers: development, optimization and cytotoxicity (2021) RSC Advances, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108380520&doi=10.1039%2fd1ra02004h&partnerID=40&md5=4cb42a9936b1fb4847228f992e77b830)

[85108380520&doi=10.1039%2fd1ra02004h&partnerID=40&md5=4cb42a9936b1fb4847228f992e77b830](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108380520&doi=10.1039%2fd1ra02004h&partnerID=40&md5=4cb42a9936b1fb4847228f992e77b830)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Cell Therapy Center, University of Jordan, Amman, 11942, Jordan;

School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Herein, a polymeric nanofiber scaffold loaded with Quercetin (Quer)-gold nanorods (GNR) was developed and characterized. Several parameters related to loading Quer into GNR, incorporating the GNR-Quer into polymeric solutions, and fabricating the nanofibers by electrospinning were optimized. GNR-Quer loaded into a polymeric mixture of poly(lactic-co-glycolic acid) (PLGA) (21%) and poloxamer 407 (23%) has produced intact GNR-Quer-nanofibers with enhanced physical and mechanical properties. GNR-Quer-nanofibers demonstrated a slow pattern of Quer release over time compared to nanofibers free of GNR-Quer. Dynamic mechanical thermal analysis (DMTA) revealed enhanced uniformity and homogeneity of the GNR-Quer-nanofibers. GNR-Quer-nanofibers demonstrated a high ability to retain water upon incubation in phosphate buffer saline (PBS) for 24 h compared to nanofibers free of GNR-Quer. A cellular toxicity study indicated that the average cellular viability of human dermal fibroblasts was 76% after 24 h of exposure to the nanofibers containing a low concentration of GNR-Quer. © The Royal Society of Chemistry 2021.

Mukattash, T.L., Jarab, A.S., Al-Qerem, W., Abu Farha, R.K., Itani, R., Karout, S., Mukattash, I.L., Bashedi, I.

Providing pharmaceutical care during the COVID-19 pandemic: attitudes and experiences of home-treated patients in Jordan

(2021) Journal of Pharmaceutical Health Services Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111119689&doi=10.1093%2fjphrs%2frmb010&partnerID=40&md5=bbbcf9b37a5002647367d791ae48f0e8)

[85111119689&doi=10.1093%2fjphrs%2frmb010&partnerID=40&md5=bbbcf9b37a5002647367d791ae48f0e8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111119689&doi=10.1093%2fjphrs%2frmb010&partnerID=40&md5=bbbcf9b37a5002647367d791ae48f0e8)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Therapeutics and Clinical Pharmacy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Pharmacy Practice Department, Faculty of Pharmacy, Beirut Arab University, Beirut, Lebanon;

Department of Marketing, Faculty of Business, Applied Science Private University, Amman, Jordan

ABSTRACT: Objectives This study aims to explore home-treated COVID-19 patients' experiences and perceptions of pharmaceutical care services offered during their sickness. Methods This is a cross-sectional online questionnaire study, where a 30-item questionnaire was texted via a link to COVID-19 patients who were tested positive previously. A list of anonymised numbers was obtained from different COVID-19 testing centres. The study received ethical approval from the Institutional Review Board at the King Abdulla University Hospital/Jordan University of Science and Technology. Key findings A total of 268 patients who were previously diagnosed with COVID-19 agreed to participate in this study. Only 22.9% of patients reported taking medications regularly. Almost one-third of respondents (28.7%) indicated that pharmacists were involved in prescribing medicine to patients. Almost half the respondents (49.6%) stated that they or their caregivers obtained information and advice about their medicine from the pharmacists. Only 54.9% of the respondents agreed/strongly agreed that pharmacists have enough scientific information to provide the necessary medical assistance to COVID-19 patients. Patients who work in the medical field, and who always get their medication from the same pharmacy, showed better perception towards pharmaceutical care services that

might be provided to COVID-19 patients ($P < 0.01$). Conclusions Pharmacists had an unsatisfactory contribution to the management of the disease in outpatient settings. Moreover, there was a poor perception of the pharmacists' role including their knowledge, communication skills and counselling skills. Thus, it is essential to improve pharmacists' knowledge and practices about infectious diseases. © The Author(s) 2021. Published by Oxford University Press on behalf of the Royal Pharmaceutical Society. All rights reserved.

Jarrar, Y., Lee, S.-J.

The functionality of udp-glucuronosyltransferase genetic variants and their association with drug responses and human diseases

(2021) Journal of Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108841396&doi=10.3390%2fjpm11060554&partnerID=40&md5=f960a80303fb2206ff45766d73bf86b0)

[85108841396&doi=10.3390%2fjpm11060554&partnerID=40&md5=f960a80303fb2206ff45766d73bf86b0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108841396&doi=10.3390%2fjpm11060554&partnerID=40&md5=f960a80303fb2206ff45766d73bf86b0)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacology and Pharmacogenomics Research Center, Inje University College of Medicine, Inje University, Busan, 50834, South Korea

ABSTRACT: UDP-glucuronosyltransferases (UGTs) are phase II drug-metabolizing enzymes that metabolize endogenous fatty acids such as arachidonic acid metabolites, as well as many prescription drugs, such as opioids, antiepileptics, and antiviral drugs. The UGT1A and 2B genes are highly polymorphic, and their genetic variants may affect the pharmacokinetics and hence the responses of many drugs and fatty acids. This study collected data and updated the current view of the molecular functionality of genetic variants on UGT genes that impact drug responses and the susceptibility to human diseases. The functional information of UGT genetic variants with clinical associations are essential to understand the inter-individual variation in drug responses and susceptibility to toxicity. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Mohamed, N.A.E., Al Qerem, W., Gassar, E.S., Hailat, M., Elhamdy, F.A.M., Ling, J.

A need for improvement in the knowledge, attitudes and practice toward vitamin d among university students

(2021) Bahrain Medical Bulletin, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108644391&partnerID=40&md5=a50b2d2527e25f8631e3acae1b163536)

[85108644391&partnerID=40&md5=a50b2d2527e25f8631e3acae1b163536](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108644391&partnerID=40&md5=a50b2d2527e25f8631e3acae1b163536)

AFFILIATIONS: Al-Zaytoonah University of Jordan College of Pharmacy, Jordan;

University of Benghazi, Faculty of Medicine, Biochemistry department, State of Libya;

University of Benghazi, Faculty of Medicine, Physiology department, State of Libya;

School of Health Sciences & Wellbeing, University of Sunderland, United Kingdom

ABSTRACT: Objective: The message delivered to the public regarding vitamin D is unclear, and contradictory; particularly regarding sun exposure; previous studies in Jordan have revealed high prevalence of low vitamin D among university students. The aim of this study was to investigate university students' knowledge, attitudes and practice regarding vitamin D. Design: A web-based cross-sectional survey Setting: The survey was completed by students at a Jordanian university in 2019. Method: The survey collected sample characteristics data and information about university students' knowledge, attitudes, and practice toward vitamin D. The χ^2 test was used to assess the associations between the sample characteristics and their vitamin D knowledge and practices and to evaluate the association between participants' knowledge and practices. Binary logistic regression analysis was used to predict supplement use. Results: 496 students completed the questionnaire. The mean knowledge score was 31.3 (± 11.3) out of 100. Women had significantly higher beliefs that vitamin D deficiency is an escalating health issue ($p < 0.01$). Negative practices regarding sun exposure were significantly higher in women than men ($p < 0.01$). The majority of participants recognized that insufficient sun exposure was a cause of vitamin D deficiency, but 50.7 % avoid sun exposure, and 67.6% expose only their face and hands. The consumption of fortified foods (OR 3.59; $p < 0.001$) was the only studied variable associated with vitamin D consumption. Conclusion: There is a gap between knowledge, attitude, and practice regarding vitamin D which can be bridged by promoting Vitamin D related awareness. © 2021, Bahrain Medical Bulletin. All rights reserved.

Mahmoud, N.N., Al-Kharabsheh, L.M., Khalil, E.A., Abu-Dahab, R.

Correction to: Mahmoud et al. interaction of gold nanorods with human dermal fibroblasts:

Cytotoxicity, cellular uptake, and wound healing. nanomaterials 2019, 9, 1131

(2021) Nanomaterials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106323764&doi=10.3390%2fnano11061364&partnerID=40&md5=8cd66b1f35574e3eb20623ab5a194669)

[85106323764&doi=10.3390%2fnano11061364&partnerID=40&md5=8cd66b1f35574e3eb20623ab5a194669](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106323764&doi=10.3390%2fnano11061364&partnerID=40&md5=8cd66b1f35574e3eb20623ab5a194669)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The authors wish to make the following correction to Figure 1 D in this paper [1]. Replace

Figure 1 with: The authors would like to apologize for any inconvenience caused to the readers by this change. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Hamed, R., Mohamed, E.M., Sediri, K., Khan, M.A., Rahman, Z.

Development of stable amorphous solid dispersion and quantification of crystalline fraction of lopinavir by spectroscopic-chemometric methods

(2021) International Journal of Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105246896&doi=10.1016%2Fj.ijpharm.2021.120657&partnerID=40&md5=ec40bebec915cba0c437cecee627d892)

[85105246896&doi=10.1016%2Fj.ijpharm.2021.120657&partnerID=40&md5=ec40bebec915cba0c437cecee627d892](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105246896&doi=10.1016%2Fj.ijpharm.2021.120657&partnerID=40&md5=ec40bebec915cba0c437cecee627d892)

AFFILIATIONS: Irma Lerma Rangel College of Pharmacy, Texas A&M Health Science Center, Texas A&M University, College Station, TX 77843, United States;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutics, Faculty of Pharmacy, Beni-Suef University, Beni-Suef, 62514, Egypt;

Laboratory of Applied Chemistry, ACTR univ. Ain Temouchent DGRCT, BP 248, Ain Temouchent, 46000, Algeria

ABSTRACT: This study aimed to improve the dissolution of the poorly soluble drug lopinavir (LPV) by preparing amorphous solid dispersions (ASDs) using solvent evaporation method. The ASD formulations were prepared with ternary mixtures of LPV, Eudragit® E100, and microcrystalline cellulose (MCC) at various weight ratios. The ASDs were subjected to solid-state characterization and in vitro drug dissolution testing. Chemometric models based on near infrared spectroscopy (NIR) and NIR-hyperspectroscopy (NIR-H) data were developed using the partial least squares (PLS) regression and externally validated to estimate the percent of the crystalline LPV in the ASD. Initially, the solid-state characterization data of ASDs showed transformation of the drug from crystalline to amorphous. Negligible fraction of crystalline LPV was present in the ASD (3%). Compared to pure LPV, ASDs showed faster and higher drug dissolution (<2% vs. 60.3–73.5%) in the first 15 min of testing. The ASD was stable against crystallization during stability testing at 40 °C/75% for a month. In conclusion, the prepared ASD was stable against devitrification and enhance the dissolution of LPV. © 2021 Elsevier B.V.

Al-Qerem, W.A., Jarab, A.S.

Applicability of GLI 2012 spirometry equation among preschool aged Jordanian

(2021) Respiratory Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104380790&doi=10.1016%2Fj.rmed.2021.106397&partnerID=40&md5=b63b535bd2598a2b5144606234f677cf)

[85104380790&doi=10.1016%2Fj.rmed.2021.106397&partnerID=40&md5=b63b535bd2598a2b5144606234f677cf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104380790&doi=10.1016%2Fj.rmed.2021.106397&partnerID=40&md5=b63b535bd2598a2b5144606234f677cf)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Pharmacy, Airport Road, Amman, 11733, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan

ABSTRACT: Objectives: The Validation of Global Lung Initiative (GLI 2012) equations is required prior to their application in clinical practice in different regions. This study validated the GLI 2012 equations in Middle Eastern preschool aged children, which was not previously conducted. Study design: Spirometry measures were collected from 765 (54% males) healthy 3 to 5-year-old Jordanian children. z scores, percent predicted values, and frequency of measures below lower limit than normal (LLN) were calculated using GLI 2012 equations for Caucasians and Other or Mixed. Results: The mean of z-scores produced by GLI 2012 equation for Caucasians in FEV_{0.75}, FEV₁, FVC, FEV₁/FVC% and FEF₂₅₋₇₅ in boys were 0.03, 0.02, -0.13, 0.26 and -0.08 respectively, while in girls it was -0.03, 0.01, 0.02, -0.01 and -0.04 respectively, and the mean of z-scores produced by GLI-2012 Other or Mixed equations in FEV₁, FVC, FEV₁/FVC% and FEF₂₅₋₇₅ in boys were 0.56, 0.51, 0.09 and 0.12 respectively, and in girls it was 0.56, 0.67, -0.22 and 0.18 respectively. The frequency of measures below LLN as produced by Caucasians equation were not significantly different from the expected 5% in any of the spirometry parameters. Conclusion: The GLI 2012 for Caucasians is a reasonable fit for Jordanian preschool aged children. © 2021 Elsevier Ltd

Bardaweel, S.K., Hajjo, R., Sabbah, D.A.

Sitagliptin: A potential drug for the treatment of COVID-19?

(2021) Acta Pharmaceutica, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092734033&doi=10.2478%2Ffacph-2021-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092734033&doi=10.2478%2Ffacph-2021-0013&partnerID=40&md5=5066fdf419bbf62b690cb12674916648)

[0013&partnerID=40&md5=5066fdf419bbf62b690cb12674916648](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092734033&doi=10.2478%2Ffacph-2021-0013&partnerID=40&md5=5066fdf419bbf62b690cb12674916648)

AFFILIATIONS: Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Recently, an outbreak of a fatal coronavirus, SARS-CoV-2, has emerged from China and is rapidly spreading worldwide. Possible interaction of SARS-CoV-2 with DPP4 peptidase may partly contribute to the viral pathogenesis. An integrative bioinformatics approach starting with mining the

biomedical literature for high confidence DPP4-protein/gene associations followed by functional analysis using network analysis and pathway enrichment was adopted. The results indicate that the identified DPP4 networks are highly enriched in viral processes required for viral entry and infection, and as a result, we propose DPP4 as an important putative target for the treatment of COVID-19. Additionally, our protein-chemical interaction networks identified important interactions between DPP4 and sitagliptin. We conclude that sitagliptin may be beneficial for the treatment of COVID-19 disease, either as monotherapy or in combination with other therapies, especially for diabetic patients and patients with pre-existing cardiovascular conditions who are already at higher risk of COVID-19 mortality. © 2021 Sciendo. All rights reserved.

Al Omari, O., Abu Sharour, L., Heslop, K., Wynaden, D., Alkhalwaldeh, A., Al Qadire, M., Khalaf, A. Knowledge, Attitudes, Prevalence and Associated Factors of Cigarette Smoking Among University Students: A Cross Sectional Study (2021) Journal of Community Health, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087637404&doi=10.1007%2fs10900-020-00874-0&partnerID=40&md5=a954477543d499a66f52fa8acaa9fe5d>

AFFILIATIONS: College of Nursing, Sultan Qaboos University, 123 Al-Khoud, Muscat, Oman;

College of Nursing, ALZaytoonah University of Jordan, Amman, 11733, Jordan;

School of Nursing, Midwifery and Paramedicine, Curtin University, Perth, WA U1987, Australia;

College of Nursing, Jerash University, Jerash, 26150, Jordan;

College of Nursing, Al Al-Bayt University, Mafraq, 25113, Jordan;

Faculty of Health Science, Kristianstad University, Kristianstad, 291 88, Sweden

ABSTRACT: This study aimed to assess the prevalence of smoking and associated sociodemographic and economic factors as well as students' knowledge about and attitudes towards smoking among university students in Oman. A proportionate random sampling technique recruited 401 students from three universities in a cross-sectional study. The prevalence of smoking was 9.0%. Significant differences in gender, place of residence, if participants had received medical advice, years spent at the university, student income/day, family members who smoked, knowledge and attitude scores were identified. Universities in collaboration with health care providers should be leading the development of strategies to reduce the prevalence of smoking and to sustain the current knowledge and attitude towards smoking. Gender-specific approaches to smoking interventions need to be developed. © 2020, The Author(s).

Masoud, M.Z., Jaradat, Y., Manasrah, A., Jannoud, I., Zerek, A.

HidSave: An Image Steganography Technique based on Sudoku Method for Smartphones

(2021) 2021 IEEE 1st International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, MI-STA 2021 - Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113682782&doi=10.1109%2fMI-STA52233.2021.9464512&partnerID=40&md5=056fc30dacdfda54c4518ec7963f7661>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Electrical Engineering Department, Amman, Jordan;

Al-Zaytoonah University of Jordan, Civil and Infrastructural Engineering Department, Amman, Jordan

ABSTRACT: In Internet of things (IoT) era, every device in the world is generating and uploading data. These data has to reach end devices for analysis, analytics and visualization. Smartphones are part of IoT era where they can generate and manipulate data. However, the processing power and the storage capacity is limited for this devices to reduce their sizes and their power usage. However, the data generated from these devices have to be secured before transmitted to other end point. In this work, a new steganography image data hiding is proposed, named HidSave. The algorithm is proposed to increase the privacy of the data in one hand and to reduce the storage capacity of the data on the other hand. HidSave adopts Sudoku game in embedding the data in the cover images. HidSave has been implemented and compared to lest significant bit (LSB) and turtle shell hiding algorithm. HidSave has higher embedding capacity and higher PSNR. © 2021 IEEE.

Jaradat, Y., Masoud, M., Jannoud, I., Manasrah, A., Zerek, A.

Popularity of Current Technology Trends in Arab Countries

(2021) 2021 IEEE 1st International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, MI-STA 2021 - Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113655169&doi=10.1109%2fMI-STA52233.2021.9464437&partnerID=40&md5=79cd9c0da3dab9b035e8e382a02dc5d8>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Dept. of Electrical Engineering, Amman, Jordan;

University of Zawia, Dept. of Communication Engineering, Tripolli, State of Libya

ABSTRACT: This paper provides an overview of the popularity of some state-of-the-art technology trends in Arab countries. Technology trends include artificial intelligence, internet of things, 5G mobile networks, edge computing, quantum computing, and blockchain. The study is done utilizing Google trends search data for these technologies over a period of five years. Data are gathered as time series. The study shows that most of the current technology trends are not popular in most of

the Arab countries which leads to a technological gap with the rest of the world. The United Arab Emirates shows that the current technology trends are popular among their people compared to other Arab countries. © 2021 IEEE.

Jannoud, I., Masoud, M., Jaradat, Y., Zerek, A.

Genetic Algorithm for Image Recognition in Smart Systems Applications

(2021) 2021 IEEE 1st International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering, MI-STA 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113649009&doi=10.1109%2fMI-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113649009&doi=10.1109%2fMI-STA52233.2021.9464406&partnerID=40&md5=469c907823abc5b5b0c87d3cb004f19b)

[STA52233.2021.9464406&partnerID=40&md5=469c907823abc5b5b0c87d3cb004f19b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113649009&doi=10.1109%2fMI-STA52233.2021.9464406&partnerID=40&md5=469c907823abc5b5b0c87d3cb004f19b)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Engineering and Technology, Amman, Jordan;

University of Zawia, Dept. of Electrical and Electronic Engineering, Tripolli, State of Libya

ABSTRACT: Image recognition in smart systems and internet of things applications is rapidly developing. Significant advances in mobile computing technology and machine learning are expanding horizons to use image recognition in smart systems and IoT applications. This paper use the smart system based image matching system utilizing genetic algorithm to design an integrated service to improve the management of image recognition. An efficient genetic algorithm used to match an unknown pattern which represents a partial image with original image. This technique uses a parameter, namely, chromosome. It transformed the spatial coordinates position into a sequence of bits of small length depending on the dimension of the original image, whereby the matching will be obtained in a short time. The system was tested on a sample images showed high matching rate (97%). © 2021 IEEE.

Hammad, A.M., Swiss, G.M.S., Hall, F.S., Hikmat, S., Sari, Y., Al-Qirim, T.M., Amawi, H.A.

Ceftriaxone Reduces Waterpipe Tobacco Smoke Withdrawal-induced Anxiety in rats via Modulating the Expression of TNF- α /NF κ B, Nrf2, and GLT-1

(2021) Neuroscience, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-851044405204&doi=10.1016%2fj.neuroscience.2021.03.030&partnerID=40&md5=fc4696335c9a8a729cd72575d200a145)

[851044405204&doi=10.1016%2fj.neuroscience.2021.03.030&partnerID=40&md5=fc4696335c9a8a729cd72575d200a145](https://www.scopus.com/inward/record.uri?eid=2-s2.0-851044405204&doi=10.1016%2fj.neuroscience.2021.03.030&partnerID=40&md5=fc4696335c9a8a729cd72575d200a145)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States;

Faculty of Pharmacy, Yarmouk University, Irbid, 21110, Jordan

ABSTRACT: Tobacco exposure has been linked to neuroinflammation and adaptive/maladaptive changes in neurotransmitter systems, including in glutamatergic systems. We examined the effects of waterpipe tobacco smoke (WTS) on inflammatory mediators and astroglial glutamate transporters in mesocorticolimbic brain regions including the prefrontal cortex (PFC), nucleus accumbens (NAc) and ventral tegmental area (VTA). The behavioral consequences of WTS exposure on withdrawal-induced anxiety-like behavior were assessed using elevated plus maze (EPM) and open field (OF) tests. Male Sprague-Dawley rats were randomly assigned to 3 experimental groups: a control group exposed only to standard room air, a WTS exposed group treated with saline vehicle, and a WTS exposed group treated with ceftriaxone. WTS exposure was performed for 2 h/day, 5 days/week, for 4 weeks. Behavioral tests (EPM and OF) were conducted weekly 24 h after WTS exposure, during acute withdrawal. During week 4, rats were given either saline or ceftriaxone (200 mg/kg i.p.) 30 min before WTS exposure. WTS increased withdrawal-induced anxiety, and ceftriaxone attenuated this effect. WTS exposure increased the relative mRNA levels for nuclear factor κ B (NF κ B), tumor necrosis factor- α (TNF- α), and brain-derived neurotrophic factor (BDNF) in the PFC, NAc and VTA, and ceftriaxone treatment reversed these effects. In addition, WTS decreased the relative mRNA of nuclear factor erythroid 2 related factor 2 (Nrf2), glutamate transporter 1 (GLT-1) and cystine-glutamate transporter (xCT) in PFC, NAc and VTA, and ceftriaxone treatment normalized their expression. WTS caused neuroinflammation, alteration in relative mRNA glutamate transport expression, and increased anxiety-like behavior, and these effects were attenuated by ceftriaxone treatment. © 2021 IBRO

Al Bakri, H., Abu Elhaija, W., Al Zyoud, A.

Solar photovoltaic panels performance improvement using active self-cleaning nanotechnology of SurfaShield G

(2021) Energy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100744645&doi=10.1016%2fj.energy.2021.119908&partnerID=40&md5=bfa70189012e9aff24e052ff6028dd54)

[85100744645&doi=10.1016%2fj.energy.2021.119908&partnerID=40&md5=bfa70189012e9aff24e052ff6028dd54](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100744645&doi=10.1016%2fj.energy.2021.119908&partnerID=40&md5=bfa70189012e9aff24e052ff6028dd54)

AFFILIATIONS: Electrical Engineering Department, King Abdullah II School of Engineering at Princess Sumaya University for Technology, Amman, Jordan;

Alternative Energy Technology Department, Faculty of Engineering and Technology at Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Solar cleaning techniques were used to improve the performance of photovoltaic panels. A new nanomaterial SurfaShield G, TiO₂ based, was used as innovative solution for effective photovoltaic panel surface cleaning by spraying onto the 150 W photovoltaic panel, the results were compared to the uncoated panel with the same features. The properties of the material were tested in a specialized laboratory and showed excellent photocatalytic and resistivity for dust and super-hydrophilicity, the transmittance of the coated surface was improved even without any dust accumulation. In the harsh climate conditions at the Levant area, the Kingdom of Jordan, the output of the coated and uncoated panels was monitored for three months to show the performance improvement by calculate the additional power produced from the coating, the findings showed a 20% and 2.3% improvement in the maximum power and efficiency, respectively. © 2021 Elsevier Ltd

Hammad, A.M., Hamed, R., Al-Qerem, W., Bandar, A., Hall, F.S.

Optimism bias, pessimism bias, magical beliefs, and conspiracy theory beliefs related to COVID-19 among the Jordanian population

(2021) American Journal of Tropical Medicine and Hygiene, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105590542&doi=10.4269%2fajtmh.20-1412&partnerID=40&md5=8906d733dea405cdd62565a887f4ccb8>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, University of Jordan, Amman, Jordan;

Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States

ABSTRACT: The outbreak of the novel SARS-CoV-2 virus has an enormous impact on health. People's views about the virus impact public health efforts to mitigate the pandemic. In this study, we measured misconceptions toward coronavirus in the Jordanian population; 2,544 participants from the Jordanian population completed an online survey. Questions in the survey addressed misconceptions divided into four categories: optimism bias, pessimism bias, magical beliefs, and conspiracy theory beliefs. Questions were evaluated on a Likert scale, and average/median scores for each category were evaluated ("one"high misconception to "five"low misconception). Overall, the most common misconceptions involved conspiracy theory beliefs (2.68 ± 0.83), whereas the least common involved magical beliefs (2.25 ± 0.75). Females had more misconceptions than males (2.52 versus 2.47, P = 0.04). Participants who had attended a lecture on coronavirus, had a higher level of education, worked in a medical field, lived in urban area, or resided in Amman or northern Jordan had fewer misconceptions about SARS-CoV-2/COVID-19 (2.64, 2.34, 2.33, 2.50 and 2.50 versus 2.53, 2.73, 2.72, 2.64, and 2.66, respectively, P < 0.001). The use of social media appeared to be an important factor influencing the likelihood of false beliefs (2.61 versus 2.38, P < 0.001). Understanding of the factors influencing public perceptions surrounding the SARS-CoV-2/COVID-19 pandemic will help public health authorities improve public understanding and compliance with public health recommendations directed at combatting the virus, including the use of surgical masks, thorough handwashing, and avoiding close contact. These messages will be better received by the public through correcting misconceptions surrounding COVID-19. Copyright © 2021 by The American Society of Tropical Medicine and Hygiene.

Ata, S.A., Tarawneh, O.A., Sejare, R.H., Sunoqrot, S.Z., Al-Qirim, R.A.

Impact of solvent selection and absorptivity on dissolution testing of acetylsalicylic acid enteric-coated tablets

(2021) Dissolution Technologies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112122842&doi=10.14227%2fDT280221P22&partnerID=40&md5=e4df830d83e38288bff4a623f04c23bd>

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Middle East University, Amman, Jordan

ABSTRACT: The objective of this study was to investigate the effect of physiological conditions on the dissolution rate of acetylsalicylic acid (ASA) from two commercial brands compared against compendial tests. All parameters of the analysis were chosen according to ICH (Q2(R1)) guidelines and were validated statistically. The maximum wavelength (λ_{max}) and absorptivity (ϵ) for ASA were determined in different solvents at different pH values (6.8 and 4.9) by a validated UV-Vis spectrophotometric method. When ethanol (EtOH) was used as co-solvent, ϵ was found to be 3.15, and when 0.1 N NaOH was used, ϵ was 18.50. Dissolution tests were conducted according to pharmacopeia specifications; however, the lack of a direct specification in determining ϵ in the pharmacopeia has permitted enormous probabilities of employing different solvents. Herein, when NaOH was used to dissolve ASA, ϵ was calculated to be 18.50, and upon conducting compendial dissolution tests for enteric-coated tablets, only 20% of ASA was released after 4 h. When analyzing the same data using ϵ of 3.15 (calculated from dissolving ASA in EtOH), the amount of released ASA was found to be 95% after 2 h. Furthermore, the effect of a fed and fasted state pH was not significant on the dissolution rate, and both brands met the compendial requirements. © 2021, Dissolution Technologies

Inc. All rights reserved.

Hamadneh, L., Al-Lakkis, L., Alhusban, A.A., Tarawneh, S., Abu-Irmaileh, B., Albustanji, S., Qader Al-Bawab, A.

Changes in lactate production, lactate dehydrogenase genes expression and dna methylation in response to tamoxifen resistance development in mcf-7 cell line (2021) Genes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107442930&doi=10.3390%2fgenes12050777&partnerID=40&md5=2a79fec019e27c9adad27dea34bdd355)

[85107442930&doi=10.3390%2fgenes12050777&partnerID=40&md5=2a79fec019e27c9adad27dea34bdd355](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107442930&doi=10.3390%2fgenes12050777&partnerID=40&md5=2a79fec019e27c9adad27dea34bdd355)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Science, Mutah University, Karak, 61710, Jordan;

Hamdi Mango Center for Scientific Research, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Lactate dehydrogenase (LDH) is a key enzyme in the last step of glycolysis, playing a role in the pyruvate-to-lactate reaction. It is associated with the prognosis and metastasis of many cancers, including breast cancer. In this study, we investigated the changes in LDH gene expression and lactate concentrations in the culture media during tamoxifen resistance development in the MCF-7 cell line, and examined LDHB promoter methylation levels. An upregulation of 2.9 times of LDHB gene expression was observed around the IC50 concentration of tamoxifen in treated cells, while fluctuation in LDHA gene expression levels was found. Furthermore, morphological changes in the cell shape accompanied the changes in gene expression. Bisulfate treatment followed by sequencing of the LDHB promoter was performed to track any change in methylation levels; hypomethylation of CpG areas was found, suggesting that gene expression upregulation could be due to methylation level changes. Changes in LDHA and LDHB gene expression were correlated with the increase in lactate concentration in the culture media of treated MCF-7 cells. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Al-Qerem, W., Hammad, A., Amawi, H.A., Jarab, A.S., Ling, J.

Anxiety and depression among pharmacy students before and during COVID-19 pandemic

(2021) Tropical Journal of Pharmaceutical Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107404964&doi=10.4314%2ftjpr.v20i5.22&partnerID=40&md5=fe3d480813cb5aeac96a3fa61a3865ec)

[85107404964&doi=10.4314%2ftjpr.v20i5.22&partnerID=40&md5=fe3d480813cb5aeac96a3fa61a3865ec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107404964&doi=10.4314%2ftjpr.v20i5.22&partnerID=40&md5=fe3d480813cb5aeac96a3fa61a3865ec)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice, Yarmouk University, Irbid, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

School of Health Sciences and Wellbeing, University of Sunderland, Edinburgh Building, Chester Rd, Sunderland, SR1 3SD, United Kingdom

ABSTRACT: Purpose: To evaluate factors associated with anxiety and depression among pharmacy students before and during COVID-19 pandemic. Methods: The Beck Depression Inventory-II (BDI-II) and the State-Trait Anxiety Inventory (STAI) questionnaires were translated into Arabic and placed on the e-learning platforms of two Jordanian universities after conducting cognitive interviews. Validity and reliability of the two translated questionnaires were evaluated by conducting Exploratory Factor Analysis (EFA) and calculating Cronbach's alpha. T-tests and binary regression were conducted to evaluate factors associated with anxiety and depression among pharmacy students. Results: Several factors were associated with depression and anxiety including being an international student ($p < 0.05$), living alone and away from their primary country of residence ($p < 0.05$), female gender ($p < 0.01$), and being a fifth-year student ($p < 0.01$). Conclusion: A tool to evaluate anxiety and depression among pharmacy students in Jordan has been successfully validated. Also, the results show that pharmacy students suffered from high levels of anxiety and depression, particularly during the COVID-19 pandemic. © 2021 University of Benin. All rights reserved.

Mahmoud, I.S., Jarrar, Y.B.

Targeting the intestinal TMPRSS2 protease to prevent SARS-CoV-2 entry into enterocytes-prospects and challenges

(2021) Molecular Biology Reports, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106342747&doi=10.1007%2fs11033-021-06390-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106342747&doi=10.1007%2fs11033-021-06390-1&partnerID=40&md5=d08687b54e47ae2a2ee9944556fae536)

[1&partnerID=40&md5=d08687b54e47ae2a2ee9944556fae536](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106342747&doi=10.1007%2fs11033-021-06390-1&partnerID=40&md5=d08687b54e47ae2a2ee9944556fae536)

AFFILIATIONS: Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, The Hashemite University, Zarqa, 13133, Jordan;

Department of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The transmembrane protease serine 2 (TMPRSS2) is a membrane anchored protease that primarily expressed by epithelial cells of respiratory and gastrointestinal systems and has been linked to multiple pathological processes in humans including tumor growth, metastasis and viral infections. Recent studies have shown that TMPRSS2 expressed on cell surface of host cells could play a crucial role in activation of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike

protein which facilitates the rapid early entry of the virus into host cells. In addition, direct suppression of TMPRSS2 using small drug inhibitors has been demonstrated to be effective in decreasing SARS-CoV-2 infection in vitro, which presents TMPRSS2 protease as a potential therapeutic strategy for SARS-CoV-2 infection. Recently, SARS-CoV-2 has been shown to be capable of infecting gastrointestinal enterocytes and to provoke gastrointestinal disorders in patients with COVID-19 disease, which is considered as a new transmission route and target organ of SARS-CoV-2. In this review, we highlight the biochemical properties of TMPRSS2 protease and discuss the potential targeting of TMPRSS2 by inhibitors to prevent the SARS-CoV-2 spreading through gastro-intestinal tract system as well as the hurdles that need to be overcome. © 2021, The Author(s), under exclusive licence to Springer Nature B.V.

Barakat, M., Al-Qudah, R., Akou, A., Abu-Asal, M., Thiab, S., Bashi, Y.H.D.

Knowledge and beliefs about the use/abuse of oral contraceptive pills among males: A mixed-method explanatory sequential study in community pharmacy settings (2021) PLoS ONE, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105475743&doi=10.1371%2fjournal.pone.0251302&partnerID=40&md5=3a5b7bc1cbd292728c4f72b6a1ae09bf)

[85105475743&doi=10.1371%2fjournal.pone.0251302&partnerID=40&md5=3a5b7bc1cbd292728c4f72b6a1ae09bf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105475743&doi=10.1371%2fjournal.pone.0251302&partnerID=40&md5=3a5b7bc1cbd292728c4f72b6a1ae09bf)

AFFILIATIONS: Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, University of Jordan, Amman, Jordan

ABSTRACT: School of Pharmacy, Queen's University Belfast, Belfast, United Kingdom Background Oral contraceptive pills (OCPs) are considered one of the most important birth control methods globally. However, these pills were designed for female administration rather than males. This study was designed to investigate patterns of OCPs use and abuse among Jordanian males, according to the community pharmacists' observations. Method A mixed-method explanatory sequential study was conducted using an online self-administered survey, followed by semi-structured in-depth interviews for registered pharmacists, assistant pharmacists and pharmacy interns. The interviews were utilized using a conceptual framework. Inductive thematic analysis and descriptive/regression analyses were completed using Nvivo and SPSS, respectively. Results A total of 158 questionnaire responses and 22 interviews were included in our analysis. Around half (48.4%) of the questionnaire responses confirmed that males could use OCPs for hair growth enhancement, muscle gain and acne treatment 12.7%, 31.7% and 4.4%, respectively. Through the interviews, the participating pharmacists highlighted that males use OCPs mostly for bodybuilding purposes, according to recommendations by their coaches at the gym. The most abused OCPs containing estrogen (Ethinyl estradiol) and progestins (Drospirenone or Levonorgestrel Conclusion This study provided insight into unexpected uses of OCPs by males in Jordan. Community pharmacists have a crucial role in the management of OCPs use and abuse. However, restricted regulations and monitoring must be released and implemented on the community to limit such practices. © 2021 Barakat et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Al-Tammemi, A.B., Tarhini, Z., Akour, A.

A swaying between successive pandemic waves and pandemic fatigue: Where does Jordan stand?

(2021) Annals of Medicine and Surgery, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104346565&doi=10.1016%2fj.amsu.2021.102298&partnerID=40&md5=39dc9f195c3f345109b27ba4b440af51)

[85104346565&doi=10.1016%2fj.amsu.2021.102298&partnerID=40&md5=39dc9f195c3f345109b27ba4b440af51](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104346565&doi=10.1016%2fj.amsu.2021.102298&partnerID=40&md5=39dc9f195c3f345109b27ba4b440af51)

AFFILIATIONS: Department of Family and Occupational Medicine, Faculty of Medicine, University of Debrecen, Debrecen, H-4032, Hungary;

Doctoral School of Health Sciences, University of Debrecen, Debrecen, H-4032, Hungary;

Faculty of Medicine, University of Limoges, Limoges, 87025, France;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This article highlights the main aspects of Jordan's public health response in combating the COVID-19 pandemic. Also, it briefly describes the main characteristics of the pandemic waves. Although Jordan has successfully implemented various stringent control measures at the early stage of the pandemic which resulted in a slow pace of COVID-19 spread in the country, the dramatic and sudden surge in COVID-19 cases and deaths since September 2020 raises many concerns and questionable debates regarding the effectiveness of Jordan's COVID-19 mitigation strategies, the earlier epidemiological surveillance process, decision-making and decisions' execution at various sectors, as well as the degree of commitment to precautionary measures among the general population. Jordan has passed through three distinct pandemic stages so far, and each stage provides lessons that can be used to improve the national preparedness and response plan in the future. This pandemic has afflicted most life domains; thus, sharing the responsibility and efforts between the government and people in

combating it, is expected to be more efficient and effective than a one-sided response. Pandemic fatigue can act as a major risk factor for losing such a battle. The people of Jordan have been already through an unforgettable 2020 year that impacted them physically, emotionally, and even financially. Therefore, reliable actions should be considered by the decision-makers to provide sufficient support for the society. Also, strengthening the government-public partnership is a cornerstone for a successful, solid, and effective public health response, especially in times of an exhaustive pandemic crisis like the COVID-19. © 2021 The Authors

Khamees, M., Jarrar, Y., Al-Qirim, T., Mahmoud, I.S., Hatmal, M.M., Alshaer, W., Lee, S.-J. No impact of soluble epoxide hydrolase rs4149243, rs2234914 and rs751142 genetic variants on the development of type II diabetes and its hypertensive complication among Jordanian patients (2021) International Journal of Clinical Practice, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100539743&doi=10.1111%2fijcp.14036&partnerID=40&md5=b7561d983cc3c919c688be02d88d0605>
AFFILIATIONS: Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Medical Laboratory Sciences, Faculty of Applied Health Sciences, The Hashemite University, Zarqa, Jordan;
Cell Therapy Centre, The University of Jordan, Amman, Jordan;
Department of Pharmacology and Pharmacogenomics Research Center, Inje University College of Medicine, Inje University, Busan, South Korea

ABSTRACT: Background: Human soluble epoxide hydrolase plays a major role in cardiovascular homeostasis. Genetic variants in the EPHX2 gene among different ethnic groups are associated with cardiovascular complications, such as hypertension. However, no reports regarding the association of EPHX2 genotype with hypertension among type II diabetic (T2D) patients of Middle Eastern Jordanian origin exist. Objective: The current study aimed to elucidate the association of the EPHX2 allele, genotype and haplotype with T2D, hypertension and parameters of lipid profile parameters among Jordanian T2D patients. Methods: Ninety-three genomic DNA samples of non-diabetic controls and 97 samples from T2D patients were genotyped for EPHX2 rs4149243, rs2234914 and rs751142 genetic variants. The DNA samples were amplified using polymerase chain reaction (PCR) and then sequenced using Applied Biosystems Model (ABI3730x1). The functionality of intronic EPHX2 variants was predicted using the in silico Berkely Drosophila Genome Project software. Results: We found no significant ($P > .05$) association between the EPHX2 rs4149243, rs2234914 and rs751142 allele, genotype and haplotype and the incidence of T2D and hypertension. Additionally, no association ($P > .05$) between these EPHX2 genetic variants with the baseline total cholesterol, low- and high-density lipoproteins and triglycerides among both non-diabetic and diabetic volunteers was found. However, we found an inter-ethnic variation (χ^2 -test, P value $< .05$) in the allele frequency of the EPHX2 rs4149243 and rs2234914 variants between Jordanians and other ethnic populations. Also, the in silico Berkely Drosophila Genome Project software predicted that the intronic EPHX2 rs4149243 could alter the splicing of intron 7. Conclusions: It can be concluded from this study that EPHX2 rs4149243, rs2234914 and rs751142 genetic variants do not play a role in the development of T2D and hypertension among Jordanian T2D patients. Further genetic studies with larger sample sizes are needed to find out the association of other functional EPHX2 variants with cardiovascular diseases among T2D patients in Jordan. © 2021 John Wiley & Sons Ltd

Akour, A., Abuloha, S., Mulakhudair, A.R., Kasabri, V., Al-Tammemi, A.B. Complementary and alternative medicine for urinary tract illnesses: A cross-sectional survey in Jordan (2021) Complementary Therapies in Clinical Practice, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100266639&doi=10.1016%2fj.ctcp.2021.101321&partnerID=40&md5=8ce9c6549d19e0ce8dec084efad38cdc>
AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan;
Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah Univeristy of Jordan, Amman, Jordan;
Department of Food Health and Nutrition, College of Food Science, Al-Qasim Green University, Babylon, Iraq;

Department of Epidemiology and Global Health, Faculty of Medicine, Umeå University, Umeå, Sweden;
Doctoral School of Health Sciences, University of Debrecen, Debrecen, Hungary
ABSTRACT: The aim of this study was to assess the extent of Complementary and Alternative Medicine (CAM) usage, especially herbal preparations, in treating urinary tract illnesses, and their perceived efficacy. This was a cross-sectional survey that used a convenience sample of 278 adults who reported having any form of urinary tract illness. During the last 3 months, 105 (37.8%) of participants had used CAM for various urinary tract conditions, of which, 87 (82.9%) used herbal remedies. Urinary tract infections (UTIs) were the most reported urinary condition ($n = 77$, 73.3%) among CAM users. The most commonly used herbs were, parsley ($n = 54$, 19.2%), followed by chamomile ($n = 29$, 10.4%), barley

(n = 20, 7.4%) and ginger (n = 18, 6.7%). The study provides an overview of various CAM remedies used to treat urinary tract illnesses in the Jordanian society, which would draw attention to the necessity of conducting interventional studies to evaluate the efficacy and safety of CAMs in treating urinary tract illnesses, either as stand-alone or adjuvant treatment. © 2021 Elsevier Ltd

Jarab, A.S., Alefishat, E.A., Al-Qerem, W., Mukattash, T.L., Al-Hajjeh, D.M.

Lipid control and its associated factors among patients with dyslipidaemia in Jordan

(2021) International Journal of Clinical Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100206766&doi=10.1111%2fijcp.14000&partnerID=40&md5=aa0399673792ef15da97380142efe430)

[85100206766&doi=10.1111%2fijcp.14000&partnerID=40&md5=aa0399673792ef15da97380142efe430](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100206766&doi=10.1111%2fijcp.14000&partnerID=40&md5=aa0399673792ef15da97380142efe430)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmacology, College of Medicine and Health Science, Khalifa University, Abu Dhabi, United Arab Emirates;

Center for Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Lipid control represents a cornerstone in the management of atherosclerotic cardiovascular disease (ASCVD). Nevertheless, little research has explored the factors associated with poor lipid control in patients with dyslipidaemia. Objective: The study aim was to investigate the variables associated with poor lipid control among patients with dyslipidaemia in Jordan. Method: In addition to socio-demographics, disease and medication-related variables, lipid profile including total cholesterol, LDL-C, HDL-C and triglyceride and other biomedical variables were collected for patients diagnosed with dyslipidaemia using hospital medical charts at three major outpatient clinics in Jordan. The validated 4-item medication adherence scale and the beliefs about medications questionnaire were used to evaluate medication adherence and medication beliefs among the study participants. The participants were classified to have controlled and uncontrolled dyslipidaemia using recent AHA guidelines. A stepwise forward conditional binary regression was conducted to explore the variables significantly and independently associated with dyslipidaemia control. A P-value of <.05 was considered statistically significant. Results: A total of 228 patients participated in the study. Most of the study participants (61%) were classified to have uncontrolled lipid profile and 60.1% of them were found to have ASCVD. Regression analysis revealed that increased necessity for dyslipidaemia medications increased the odds of dyslipidaemia control (OR = 1.14), whereas active smoking (OR = 0.42), low medication adherence (OR = 0.08) and the presence of ASCVD (odd ratio = 0.24) were significantly associated with poor dyslipidaemia control. Conclusion: Lipid profile has considerable scope for improvement in patients with dyslipidaemia in Jordan. Improving medication adherence by emphasising on medication necessity and simplifying the prescribed dosage regimen, particularly in smoking patients and those who have ASCVD, should be particularly considered in future clinical pharmacy service programmes aim at improving lipid control and health outcomes in patients with dyslipidaemia. © 2021 John Wiley & Sons Ltd

Al-Qerem, W., Alassi, A., Jarab, A.S., Ling, J.

The applicability of the global lung initiative equations and other regional equations on a sample of healthy Middle Eastern adolescents

(2021) Clinical Respiratory Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100093044&doi=10.1111%2fcrj.13329&partnerID=40&md5=a876d18508a8ee5b03c07d72b6413629)

[85100093044&doi=10.1111%2fcrj.13329&partnerID=40&md5=a876d18508a8ee5b03c07d72b6413629](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100093044&doi=10.1111%2fcrj.13329&partnerID=40&md5=a876d18508a8ee5b03c07d72b6413629)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Sciences Complex, Sunderland, United Kingdom

ABSTRACT: Background: The Global Lung Initiative 2012 (GLI-2012) spirometry equations are multi-ethnic equations that cover all ages between 3 and 95. However, there is a need to evaluate the suitability of these equations to a sample of Middle Eastern adolescents prior to being applied in clinical practice. The aim of this study is to evaluate the suitability of GLI-2012 equations and two regional equations to a sample of Jordanian adolescents. Methods: Spirometric measures were collected from 1036 healthy 14 to 17-year-old Jordanian children. z-scores, predicted values, percent predicted values, and frequency of measures below lower limit of normal (LLN) were calculated for each adolescent using the studied equations. Results: The means of z-scores produced by GLI-2012 equations for Caucasians in forced expiratory volume in the first second (FEV1), forced vital capacity (FVC), FEV1/FVC% and mid forced expiratory flow (FEF25-75) for boys were 0.12, -0.06, 0.34 and 0.09,

respectively, while for girls they were -0.09 , -0.16 , 0.19 and -0.05 , respectively. The mean of z-scores produced by GLI-2012 Other or Mixed equations in FEV1, FVC, FEV1/FVC% and FEF25-75 for boys were 0.74 , 0.72 , 0.21 and 0.33 , respectively, and for girls were 0.53 , 0.56 , 0.02 and 0.2 , respectively. The frequency of measures below LLN as produced by GLI 2012 for Caucasians were significantly different from the expected 5% in FEV1 and FEF25-75 in boys only, whereas Other or Mixed produced frequencies significantly different from the expected 5% in most of the parameters. Conclusion: Spirometry reference equations formulated for Jordanian adolescents may improve the diagnosis and treatment of asthma in Jordan. © 2021 John Wiley & Sons Ltd

Jarab, A.S., Alefishat, E.A., Al-Qerem, W., Mukattash, T.L., Abu-Zaytoun, L.

Variables associated with poor health-related quality of life among patients with dyslipidemia in Jordan

(2021) Quality of Life Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098487240&doi=10.1007%2fs11136-020-02726-9&partnerID=40&md5=2bb4e54e8f5c962fe4cabec99613303e>

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmacology, College of Medicine and Health Science, Khalifa University, Abu Dhabi, United Arab Emirates;

Center for Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Purpose: The study aim was to evaluate HRQOL and to explore the variables associated with poor HRQOL among patients with dyslipidemia in Jordan. Methods: The present study utilized the EQ-5D questionnaire which evaluates HRQOL in terms of mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Responses to the five dimensions were presented using the value set, which ranges from 1 for full health to -0.594 for severe problems in all five dimensions. Multiple linear regression analysis was implemented to identify the variables that best predicted the total EQ-5D score and hence HRQOL in the study population. Results: The mean age of the 228 participants was 60.23 (SD = 10.64). The mean of the total EQ-5D score was 0.675 (SD = 0.14). Regression analysis identified necessity for dyslipidemia medication (B = 0.18 , P < 0.01) and patients with controlled lipid profile (B = 0.28 , P < 0.01) were positively associated with HRQOL, while having concerns about dyslipidemia medications (B = -0.16 , P < 0.01), number of medication (B = -0.13 , P = 0.02), duration of dyslipidemia (B = -0.22 , P < 0.01), receiving high-intensity statin (B = -0.18 , P < 0.01) or statin in combination with fibrate (B = -0.15 , P < 0.01) were associated with lower HRQOL. Conclusion: HRQOL has considerable scope for improvement in patients with dyslipidemia in Jordan. Improving dyslipidemia medications' beliefs and simplifying medication regimen by prescribing less medications, particularly for patients with longer disease duration and those on statin therapy, should be considered in future management programs aim at improving HRQOL in patients with dyslipidemia. © 2021, The Author(s), under exclusive licence to Springer Nature Switzerland AG part of Springer Nature.

Al-Zu'bi, S., Hawashin, B., Mughaid, A., Baker, T.

Efficient 3D medical image segmentation algorithm over a secured multimedia network

(2021) Multimedia Tools and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086783469&doi=10.1007%2fs11042-020-09160-6&partnerID=40&md5=3203d0c95679766cb46e1de4271602f2>

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Science Department, The Hashemite University, Zarqa, Jordan;

Liverpool John Moores University, Liverpool, United Kingdom

ABSTRACT: Image segmentation has proved its importance and plays an important role in various domains such as health systems and satellite-oriented military applications. In this context, accuracy, image quality, and execution time deem to be the major issues to always consider. Although many techniques have been applied, and their experimental results have shown appealing achievements for 2D images in real-time environments, however, there is a lack of works about 3D image segmentation despite its importance in improving segmentation accuracy. Specifically, HMM was used in this domain. However, it suffers from the time complexity, which was updated using different accelerators. As it is important to have efficient 3D image segmentation, we propose in this paper a novel system for partitioning the 3D segmentation process across several distributed machines. The concepts behind distributed multimedia network segmentation were employed to accelerate the segmentation computational time of training Hidden Markov Model (HMMs). Furthermore, a secure transmission has been considered in this distributed environment and various bidirectional multimedia security algorithms have been applied.

The contribution of this work lies in providing an efficient and secure algorithm for 3D image segmentation. Through a number of extensive experiments, it was proved that our proposed system is of comparable efficiency to the state of art methods in terms of segmentation accuracy, security and execution time. © 2020, Springer Science+Business Media, LLC, part of Springer Nature.

Daraosheh, A.Q., Abul-Futouh, H., Abdel-Rahem, R.A., Görls, H., Stachel, H.-D., Weigand, W. Synthesis and Electrochemical Investigations of the [FeFe]-Hydrogenase H-Cluster Mimics Mediated by Bicyclic Dithiols Derivative

(2021) Zeitschrift für Anorganische und Allgemeine Chemie, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102988216&doi=10.1002%2fzaac.202000439&partnerID=40&md5=d5d4c40629d6443f0fc6253c727d09ed)

[85102988216&doi=10.1002%2fzaac.202000439&partnerID=40&md5=d5d4c40629d6443f0fc6253c727d09ed](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102988216&doi=10.1002%2fzaac.202000439&partnerID=40&md5=d5d4c40629d6443f0fc6253c727d09ed)

AFFILIATIONS: Department of Chemistry, College of Arts and Sciences, University of Petra, P.O. Box: 961343, Amman, 11196, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany;

Zentrum für Arzneimittelforschung, Department Pharmazie, Ludwig-Maximilians-Universität München, Butenandtstr. 7, Haus C, München, 81377, Germany

ABSTRACT: Biomimic of the active site of [FeFe]-hydrogenase containing bicyclic dithiols as bridging linker has been synthesized and characterized using different spectroscopic methods. The influence of this linker on the redox properties and the catalytic behavior of the resulted binuclear complex was investigated using cyclic voltammetry, showing that it can catalyze the reduction of protons to H₂ in the presence of acetic acid (AcOH). Moreover, the results revealed that the bicyclic dithiolene linker has improved the chemical stability of the reduced species and caused a shift to less negative potential in comparison to the synthetic models that mimic the active site of [FeFe]-hydrogenase reported in the literature. In addition, the structure of the resulted binuclear complex mediated by bicyclic dithiols as bridging linker was confirmed by X-ray diffraction analysis. © 2021 The Authors. Zeitschrift für anorganische und allgemeine Chemie published by Wiley-VCH GmbH

Hajjo, R., Sabbah, D.A., Bardaweel, S.K., Tropsha, A.

Identification of tumor-specific mri biomarkers using machine learning (ml)

(2021) Diagnostics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106479613&doi=10.3390%2fdiagnostics11050742&partnerID=40&md5=fa17750729b48ad7ae4a5a0207aafe49)

[85106479613&doi=10.3390%2fdiagnostics11050742&partnerID=40&md5=fa17750729b48ad7ae4a5a0207aafe49](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106479613&doi=10.3390%2fdiagnostics11050742&partnerID=40&md5=fa17750729b48ad7ae4a5a0207aafe49)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, United States;

National Center for Epidemics and Communicable Disease Control, Amman, 11118, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: The identification of reliable and non-invasive oncology biomarkers remains a main priority in healthcare. There are only a few biomarkers that have been approved as diagnostic for cancer. The most frequently used cancer biomarkers are derived from either biological materials or imaging data. Most cancer biomarkers suffer from a lack of high specificity. However, the latest advancements in machine learning (ML) and artificial intelligence (AI) have enabled the identification of highly predictive, disease-specific biomarkers. Such biomarkers can be used to diagnose cancer patients, to predict cancer prognosis, or even to predict treatment efficacy. Herein, we provide a summary of the current status of developing and applying Magnetic resonance imaging (MRI) biomarkers in cancer care. We focus on all aspects of MRI biomarkers, starting from MRI data collection, preprocessing and machine learning methods, and ending with summarizing the types of existing biomarkers and their clinical applications in different cancer types. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Al-Shdefat, R., Hailat, M., Kharshid, A.M., Saadh, M.J., Hamed, M.F., Anwer, M.K., Abdel-Halim, H., Dayyih, W.A.

Evidence of human metabolites of omeprazole and its structure elucidation by using HPLC-MS

(2021) Journal of Molecular Structure, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099508776&doi=10.1016%2fj.molstruc.2021.129902&partnerID=40&md5=8abb88c5660054b520ec53520052ba1b)

[85099508776&doi=10.1016%2fj.molstruc.2021.129902&partnerID=40&md5=8abb88c5660054b520ec53520052ba1b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099508776&doi=10.1016%2fj.molstruc.2021.129902&partnerID=40&md5=8abb88c5660054b520ec53520052ba1b)

AFFILIATIONS: Department of Pharmaceutical Sciences, Faculty of Pharmacy, Jadara University Irbid, Jordan;

College of Pharmacy, Al-Zaytoonah University of Jordan;

School of Pharmaceutical Sciences, Mutah University, Al-Karak, Jordan;

Faculty of Pharmacy, Middle East University, Amman, Jordan;

College of Science and Health Professions, King Saud Bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia;
Department of Pharmaceutics, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia;
Faculty of Pharmacy and Medical Sciences, University of Petra, 317; Queen Alia International Airport Rd, P.O. Box: 961343, Amman, 11196, Jordan

ABSTRACT: The aim of current study was to identify human phase I metabolites of omeprazole using mass spectrometry. An in-vitro assay was performed to generate metabolites by human liver enzymes. Fragmentation pathway of omeprazole was studied for the structure elucidation of metabolite by MS/MS and MS3 method using previously detected fragments. The base peak of omeprazole with m/z 198 was used for a precursor ion scan to detect possible metabolites containing m/z 198 as a fragment. Additional metabolites should be detected by the loss of a typical neutral group using m/z 148 for the offset of a neutral loss scan. The detected precursor ions (m/z 316, 330, 332, 346, 362) were analyzed by enhanced product ion scan in order to receive a mass spectrum for the comparison with the fragmentation of omeprazole. The three reactions (oxidation, reduction of the Sulphur and demethylation) were observed as phase I reactions. © 2021 Elsevier B.V.

Shaban, N.A., Abdelhafez, E., Hamdan, M., Saber, M., Al Aboushi, A.

Estimation of Power Produced by PV Generator Using Weather Data
(2021) 2021 12th International Renewable Engineering Conference, IREC 2021, .
[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106657568&doi=10.1109%2fIREC51415.2021.9427800&partnerID=40&md5=d8a0791f3a3cbbb193c800aa11db5d8f)

85106657568&doi=10.1109%2fIREC51415.2021.9427800&partnerID=40&md5=d8a0791f3a3cbbb193c800aa11db5d8f

AFFILIATIONS: Al-Zaytoonah University of Jordan, Mechanical Engineering Department, Amman, Jordan;
Al-Zaytoonah University of Jordan, Alternative Energy Technology Department, Amman, Jordan;
The University of Jordan, Mechanical Engineering Department, Amman, Jordan;
Al Sawan for Scientific Laboratory Equipment, Amman, Jordan

ABSTRACT: In this study, neural network models, SVM, LSVM and multiple linear regression techniques were used to estimate the relation between PV power generated and the inputs variables of PV. Two Techniques were used to achieve this. The first technique is classical with multiple linear regression model, while the second one is neural network with two types of neural network (Multilayer Perceptron and Radial Basis Function (RBF)), Support Vector Machines (SVM) and Linear Support Vector Machines (LSVM). The work was conducted using SPSS software. The obtained estimated results were verified against measured data and it was found that using Multilayer Perceptron Network (MLP) model has good ability to recognize the relation between inputs and output variables, while the statistical error analysis showed the accuracy of data mining by using MLP model is acceptable. On the other hand, the obtained results indicate that SVM, RBF, LSVM and multiple linear regression, have the least ability for the estimation of the PV power generated respectively. © 2021 IEEE.

ALHUSBAN, A.A., ATA, S.A.

Simple HPLC method for rapid quantification of nicotine content in e-cigarettes liquids
(2021) Acta Chromatographica, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106654464&doi=10.1556%2f1326.2020.00832&partnerID=40&md5=c07a4a184c0f14942454b9ca40316e94)

85106654464&doi=10.1556%2f1326.2020.00832&partnerID=40&md5=c07a4a184c0f14942454b9ca40316e94

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Electronic nicotine delivery systems (ENDs) are gaining popularity in Jordan as alternatives to tobacco cigarettes with an estimation of 10% of tobacco smokers switching to ENDs. Since nicotine is toxic and highly addictive substance, it is important to develop and validate an easy and rapid analytical method to accurately measure nicotine level in e-liquids. A simple high performance liquid chromatography- photodiode array detection (HPLC-PDA) method was developed and validated for rapid determination of the actual nicotine content in 11 of the most popular e-liquids brands available in the Jordanian market and compared to the nicotine levels appeared in the labeled packaging. The new method of analysis showed an excellent linearity with correlation factor equal to 0.9994 with analytical range between 100 and 1,000 µg/mL, and Limit of detection (LOD) and Limit of quantification (LOQ) of 32.6 µg/mL and 98.9 µg/mL, respectively. The results showed that the actual measured nicotine concentrations ranged from 0 to 25.81 mg/mL with percent deviation ranged from 63.1% less than to 3.24% more than the labeled concentration on packaging. And more than 10% deviation difference in actual nicotine concentrations versus labeled were found in 9 of the 11 e-liquid products (82%). In conclusion, nicotine labelling among e-liquids products have not accurately reflect the actual content which may have potential negative impact on users. © 2020 The Authors.

Jarrar, Y., Lee, S.-J.

Effect of rosiglitazone on 20-hydroxyeicosatetraenoic acid levels and CYP4F2 expression in HepG2 cells

(2021) Tropical Journal of Pharmaceutical Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105599145&doi=10.4314%2ftjpr.v20i4.6&partnerID=40&md5=3f4537123be6061714bf9611eec85a5c)

85105599145&doi=10.4314%2ftjpr.v20i4.6&partnerID=40&md5=3f4537123be6061714bf9611eec85a5c

AFFILIATIONS: Department of Pharmacology and Pharmacogenomics Research Center, College of Medicine, Inje University, Busan, South Korea;

Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: To determine the effect of rosiglitazone on the levels of the cardiotoxic arachidonic acid metabolite, 20-hydroxyeicosatetraenoic acid (20-HETE), in the human liver hepatocellular carcinoma cell line, HepG2. Methods: HepG2 cells were treated with thiazolidinedione rosiglitazone and the mRNA and protein expressions of cytochrome P450 4F2 (CYP4F2) responsible for synthesizing 20-HETE were measured using quantitative real-time polymerase chain reaction (qRT-PCR) and western blotting. The levels of 20-HETE were evaluated using liquid chromatography/mass spectrometry (LC-MS). Results: Rosiglitazone significantly increased the levels of CYP4F2 mRNA and protein when compared with the control group ($p < 0.05$). This was correlated with significantly increased 20-HETE levels in the culture medium of rosiglitazone-treated cells in a dose-dependent manner ($p < 0.05$). The PPAR γ antagonist, GW9662, significantly repressed the increased production of 20-HETE and CYP4F2 mRNA protein ($p < 0.05$). Conclusion: Rosiglitazone increases the synthesis of 20-HETE via activation of PPAR γ receptor and upregulation of CYP4F2. These findings may provide an additional explanation, at least in part, for the unwanted side effects of rosiglitazone on the cardiovascular system. © 2021 The authors.

Abendeh, R.M., AbuSalem, Z.T., Bani Baker, M.I., Khedaywi, T.S.

Concrete containing recycled waste glass: Strength and resistance to freeze-thaw action

(2021) Proceedings of Institution of Civil Engineers: Construction Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104841189&doi=10.1680%2fjcoma.17.00065&partnerID=40&md5=c0edc93b9e2f10023d5b280ea688149d)

85104841189&doi=10.1680%2fjcoma.17.00065&partnerID=40&md5=c0edc93b9e2f10023d5b280ea688149d

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: The mechanical strength, mass loss and dynamic elastic modulus of Portland cement concrete incorporating recycled glass powder (GP) as a cement replacement material or crushed glass aggregate (GA) as a fine aggregate replacement material subjected to different cycles of freezing and thawing were investigated. A series of 11 concrete mixing proportions was designed with a constant water/cement ratio of 0.5 including fractions of GP or GA. Tests were conducted on 100 x 100 x 100 mm cubes, 100 x 200 mm cylinders and 100 x 100 x 500 mm prisms. The tests of compressive strength, flexural strength and indirect tension were used to examine the impact of the inclusion of different percentages of glass (GP or GA) on the mechanical properties of concrete cured for 7, 28 and 60 d. Two non-destructive testing approaches (ultrasonic pulse velocity and resonance frequency) were used in the freezing and thawing test. The test results indicated that, compared with conventional concrete, the mechanical strength characteristics of concrete containing GP or GA were more enhanced. The use of GP decreased the deterioration of the concrete under the effect of frost action, whereas the use of GA had an adverse influence on the frost resistance of the concrete. © 2021 ICE Publishing. All rights reserved.

Jaradat, Y., Masoud, M., Al-Jazzar, S., Alia, M.

Optimal network dimensions for energy conservation in clustered 3D WSN

(2021) Wireless Networks, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099567255&doi=10.1007%2fs11276-020-02527-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099567255&doi=10.1007%2fs11276-020-02527-5&partnerID=40&md5=0f09f6f5e8895bd5995a87fa75065e6d)

5&partnerID=40&md5=0f09f6f5e8895bd5995a87fa75065e6d

AFFILIATIONS: Electrical Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this paper, the optimal network dimensions of clustered-routing three-dimensional (3D) wireless sensor networks is provided. The derivation for such dimensions is based upon the minimum energy consumption cost function in the network. Two 3D network geometries are considered, namely, cuboid and cylinder networks. Analysis and simulations have shown that the minimum energy consumption of the two 3D geometries occurs in special dimensions setup. First, for the cuboid network the optimal network dimensions occur at equal length width and height. We refer to this network as cube network. Second, for the cylinder network the optimal case occurs when the radius of the network is around 68.4% of its height. The results are verified using simulations. Low energy adaptive clustering hierarchy protocol has been used as the underlining routing protocol in 3D environment. Total network remaining energy, stable region and network throughput are utilized for performance evaluation of the results. It is shown that networks with optimal dimensions achieve maximum network lifetime and throughput with minimum energy consumption. Moreover, in the optimal network dimensions settings the cylinder network utilizes energy more efficiently and outperforms the cube network in terms of network lifetime and throughput. © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC part of Springer Nature.

Sharrab, Y.O., Alsmirat, M., Hawashin, B., Sarhan, N.

Machine learning-based energy consumption modeling and comparing of H.264 and Google VP8 encoders (2021) International Journal of Electrical and Computer Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097824167&doi=10.11591%2fijece.v11i2.pp1303-1310&partnerID=40&md5=1a2a6d4dcb7033d5bfb2ecc5f6414129>

AFFILIATIONS: Wayne State Multimedia Systems and Deep Learning Research Laboratory, ECE Department, Detroit, United States;

Department of Computer Science, Jordan University of Science and Technology, Jordan;

Department of Computer Information Systems, Al Zaytoonah University of Jordan, Jordan

ABSTRACT: Advancement of the prediction models used in a variety of fields is a result of the contribution of machine learning approaches. Utilizing such modeling in feature engineering is exceptionally imperative and required. In this research, we show how to utilize machine learning to save time in research experiments, where we save more than five thousand hours of measuring the energy consumption of encoding recordings. Since measuring the energy consumption has got to be done by humans and since we require more than eleven thousand experiments to cover all the combinations of video sequences, video bit rate, and video encoding settings, we utilize machine learning to model the energy consumption utilizing linear regression. VP8 codec has been offered by Google as a free video encoder in an effort to replace the popular H.264 video encoder standard. This research model energy consumption and describes the major differences between H.264/AVC and VP8 encoders based on of energy consumption and performance through experiments that are machine learning-based modeling. Twenty-nine uncompressed video segments from a standard data-set are used, with several sizes, details, and dynamics, where the frame sizes ranging from QCIF(176x144) to 2160p(3840x2160). For fairness in comparison analysis, we use seven settings in VP8 encoder and fifteen types of tuning in H.264/AVC. The settings cover various video qualities. The performance metrics include video qualities, encoding time, and encoding energy consumption. © 2021 Institute of Advanced Engineering and Science. All rights reserved.

Hnaif, A., Tamimi, A., Abdalla, A., Jebril, I.

A Fault-Handling Method for the Hamiltonian Cycle in the Hypercube Topology

(2021) Computers, Materials and Continua, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103635866&doi=10.32604%2fcmc.2021.016123&partnerID=40&md5=1d45271fdbad77fd1eac3b6778a11726)

[85103635866&doi=10.32604%2fcmc.2021.016123&partnerID=40&md5=1d45271fdbad77fd1eac3b6778a11726](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103635866&doi=10.32604%2fcmc.2021.016123&partnerID=40&md5=1d45271fdbad77fd1eac3b6778a11726)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Many routing protocols, such as distance vector and link-state protocols are used for finding the best paths in a network. To find the path between the source and destination nodes where every node is visited once with no repeats, Hamiltonian and Hypercube routing protocols are often used. Nonetheless, these algorithms are not designed to solve the problem of a node failure, where one or more nodes become faulty. This paper proposes an efficient modified Fault-free Hamiltonian Cycle based on the Hypercube Topology (FHCHT) to perform a connection between nodes when one or more nodes become faulty. FHCHT can be applied in a different environment to transmit data with a high-reliability connection by finding an alternative path between the source and destination nodes when some nodes fail. Moreover, a proposed Hamiltonian Near Cycle (HNC) scheme has been developed and implemented. HNC implementation results indicated that FHCHT produces alternative cycles relatively similar to a Hamiltonian Cycle for the Hypercube, complete, and random graphs. The implementation of the proposed algorithm in a Hypercube achieved a 31% and 76% reduction in cost compared to the complete and random graphs, respectively. © 2021 Tech Science Press. All rights reserved.

Althunibat, A., Binsawad, M., Almaiah, M.A., Almomani, O., Alsaaidah, A., Al-Rahmi, W., Seliaman, M.E.

Sustainable applications of smart-government services: A model to understand smart-government adoption

(2021) Sustainability (Switzerland), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103032046&doi=10.3390%2fisu13063028&partnerID=40&md5=08bd8d0b386eae4b5b9aecdc219d8696)

[85103032046&doi=10.3390%2fisu13063028&partnerID=40&md5=08bd8d0b386eae4b5b9aecdc219d8696](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103032046&doi=10.3390%2fisu13063028&partnerID=40&md5=08bd8d0b386eae4b5b9aecdc219d8696)

AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Faculty of Computing and Information Technology, King Abdulaziz University, Jeddah, 21589, Saudi Arabia;

College of Computer Science and Information Technology, King Faisal University, Al-Ahsa, 31982, Saudi Arabia;

Computer Network and Information Systems Department, The World Islamic Sciences and Education University, Amman, 11947, Jordan;

Department of Information System, Universiti Teknologi Malaysia, Johor Bahru, 81310, Malaysia

ABSTRACT: Despite the fact that several studies have been conducted to study the adoption of

smartgovernment services, little consideration has been paid to exploring the main factors that influence the adoption of smart-government services at the three main stages of smart-government services (the static, interaction, and transaction stages). Based on the results of this study, each of these three stages has different requirements in terms of system compatibility, security, information quality, awareness, perceived functional benefit, self-efficacy, perceived image, perceived uncertainty, availability of resources, and perceived trust. In addition, the results demonstrate that the requirements and perceptions of users towards the adoption and use of smart-government services in the three stages significantly differ. This study makes a unique contribution to the existing research by examining the perceptions and needs of consumers, in terms of adoption throughout the three stages. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Aboalhaja, N., Afifi, F., Al-Hussaini, M., Al-Najjar, M., Abu-Dahab, R., Hasen, E., Rashed, M., Haq, S.A., Khalil, E.

In vitro and in vivo evaluation of the wound healing potential of the extracts of *Schinus molle* L. (anacardiaceae) grown in Jordan

(2021) Indian Journal of Pharmaceutical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105453006&doi=10.36468%2fpharmaceutical-sciences.771&partnerID=40&md5=8438f3855f9a3521a98ff35d14fb1c3f>

AFFILIATIONS: Department of Pharmaceutical Sciences, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

King Hussein Cancer Centre, Amman, Jordan;

Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, Jordan

ABSTRACT: The aim of this study was to assess the wound healing potential of *Schinus molle* L. aqueous and ethanol extracts. First, the antimicrobial activity of *Schinus molle* extracts was tested against six microorganisms (*Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus epidermidis*, *Enterococcus faecalis* and *Citrobacter freundii*). The growth of *Citrobacter freundii* and *Enterococcus faecalis* was totally inhibited by the aqueous extract at the lowest tested concentration (1.56 mg/mL). Next, in vitro wound healing assays were performed using human fibroblast cells' proliferation and scratch tests. Based on the obtained promising results, the aqueous extracts were further tested in an in vivo excision wound model in rats. Animals were treated with a hydrogel formula enriched with the plant aqueous extract in two different concentrations (2 % and 5 %). Re-epithelialization, fibrosis and neovascularization of the epidermis and sub-epidermal cells in the regenerated tissue was observed, accompanied by an increase in the tensile strength of the skin of the rats treated with the plant aqueous extract when compared to the negative control group. Our results strongly support the use of *Schinus molle* aqueous extracts in topical formulations to promote wound healing. © 2021 Indian Pharmaceutical Association. All rights reserved.

Alkhatib, A.A.A., Abdelal, Q., Kanan, T.

Wireless Sensor Network for Forest Fire Detection and behavior Analysis

(2021) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103617064&partnerID=40&md5=108d26d67a55a17a7539b62345372de3)

[85103617064&partnerID=40&md5=108d26d67a55a17a7539b62345372de3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103617064&partnerID=40&md5=108d26d67a55a17a7539b62345372de3)

AFFILIATIONS: Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Forests are considered an essential part from the nature and the environmental system since it forms the key ecological contributor in the balance of the nature. Unfortunately, this balance is greatly affected by forest fires that regularly happen in all forest all over the world. These fires have a long-term effect on money, environmental and social aspects. There is usually a loss in human lives besides properties' destruction and hence uninterrupted effect on individual or collective level occur. A great deal of attention was recently given for developing the suitable systems that can reactively and proactively act against these fires. In fact, WSNs is considered one of the promising solution to be used in detecting and mentoring the forest fires efficiently. Different schemes for forests fire detection based on WSNs was proposed in the literature. our proposed system has a distinctive benefit since it gathers between detection and fire behavior prediction analysis. The early detection before its too late using novel designed system for sensor coverage and fire detection with a reduced faulty alarm and distinguishing ability between argnet alarm and no action required alarms. Our techniques extended the network life time almost 3 times in comparison with other techniques. © Al-Zaytoonah University of Jordan (ZUJ)

Althunibat, A., Alokush, B., Tarabieh, S.M., Dawood, R.

Mobile Government and Digital Economy Relationship and Challenges

(2021) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103514803&partnerID=40&md5=5ba40630662d499d000d51c38fe5dcde)

85103514803&partnerID=40&md5=5ba40630662d499d000d51c38fe5dcde

AFFILIATIONS: Software Engineering Department, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Marketing Department, School of Business, Mu'tah University, Al Karak, Jordan

ABSTRACT: The rapid development of information and communication technologies (ICT) helps governments to enhance the communications between their agencies through gaining speed, capacity, simplicity, and precision, which improve the productivity and effectiveness. Digitalization of the services make a new insurmountable prospect for world economy which affecting different sectors such as energy, banking, retail, publishing, transportation, education, health and media. This study aims to construct a theoretical framework describe the relationships between different factors impacting the m-government services and digital economy. Through review the updated and available literature about m-government and digital economy implementation stages and its challenges. The results of this study provide more accurate and comprehensive understanding of the association between m-government development and digital economy, also this study offers a set of recommendations as well as suggestions for the digital economy and m-government services improvements. Copyright © Al-Zaytoonah University of Jordan (ZUJ)

Abusukhon, A., Hawashin, B., Lafi, M.

An Efficient System for Reducing the Power Consumption in Offices Using the Internet of Things (2021) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103491974&partnerID=40&md5=5e59c1a3723237d390312c53adf85a00)

85103491974&partnerID=40&md5=5e59c1a3723237d390312c53adf85a00

AFFILIATIONS: Computer Science Dept., Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Information System Dept., Al-Zaytoonah University of Jordan, Amman, Jordan;

Software Engineering Dept., Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Nowadays, Electricity energy is considered the lifeblood of many companies and industrial institutions. Most of these companies and industrial institutions are suffering from the high cost of the electricity bills because of the large amount of power they consumed per day. Thus, many of the researches are now focusing on how to eliminate the power usage in order to reduce the cost of electricity bills. This issue become significant in the current era. Fortunately, in this era, we are witnessing a revolution in the Internet of Things field, which can provide various solutions for reducing the power consumption. These solutions are based on sensing modules, Artificial Intelligence, and Deep Learning. Any IOT system that attempts to reduce the power wastage must take in consideration achieving a balance between the power conservation and the user satisfaction. This paper contributes the following; first, it proposes an intelligent IOT system for offices that reduces the total power cost by 40% based on the Lecture Time-Table (LTT). The LTT is the instructor's weekly load (i.e. the LTT shows how many classes does the instructor have per week and the number of hours for each class). Second, it achieves a balance between the power conservation and the user satisfaction by allowing manual controlling of appliances (via voice commands) and auto controlling of appliances (based on the LTT). Third, it achieves a balance between the user satisfaction and the power conservation based on the percentage of the overlapped time intervals of the LTTs. Fourth; it eliminates the use of sound sensors by developing a java program that is capable of capturing and handling the human voice. We built the baseline system, and then we compared the results from the baseline system with the results from our proposed IOT system. Our results showed that the proposed system saved about 40% of the power cost. © 2021

Masoud, M., Jaradat, Y., Rababa, E., Manasrah, A.

Turnover Prediction using Machine Learning: Empirical Study

(2021) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103486806&partnerID=40&md5=4c4e3f4b2b1c44f60741a58f0fe82e46)

85103486806&partnerID=40&md5=4c4e3f4b2b1c44f60741a58f0fe82e46

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan

ABSTRACT: In this work we attempt to study the turnover aspect in an organization located in a country in the Middle East, namely, Jordan. This organization consists of 1000 employees and it works in the service sector. A questionnaire was harvested from 280 employees in this organization throughout an entire year. Afterwards, a statistical study has been conducted. In addition, a soft clustering (SC) algorithm has been leveraged to construct a turnover prediction model. The model divides the employees into three clusters depending on the survey results. At the end of the year, the predicted clusters and the actual results from the company's records have been compared. 84% of the employees clustered in the mobile cluster voluntarily turned over. Moreover, our results showed that public sector and abroad contracts are the main criteria of turnover. This statistical study, also, indicated that the HR department should take serious steps to improve the quality of the work environment in order to reduce the turnover rate in this company. These steps vary from small

management gratitude to employees to financial incentives. Copyright © Al-Zaytoonah University of Jordan (ZUJ)

Alshawabkeh, F., Almajali, M.H.

The influence of the jurisprudence administrative on the Cancellation Case; "Analytical study" (2021) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102998012&doi=10.1016%2fj.heliyon.2021.e06471&partnerID=40&md5=8efba70a31eb17a10078a01b4bc56c67)

85102998012&doi=10.1016%2fj.heliyon.2021.e06471&partnerID=40&md5=8efba70a31eb17a10078a01b4bc56c67

AFFILIATIONS: Al Ain University, College of Law, United Arab Emirates;

College of Law, Al Zaytoonah University of Jordan, Jordan

ABSTRACT: The present study tackles the influence of jurisprudence of the administrative judiciary on the cancellation lawsuit in order to highlight the great burden on the administrative judiciary in comparison with the criminal and civil courts. The topic is discussed by examining the effect of judicial jurisprudence on the external legitimacy of the administrative decision. Lack of jurisdiction, form, and procedures in the administrative decision show the effect of jurisprudence on the internal legitimacy of the decision. The prominent results of the present study are that the comparative administrative judiciary requires commensurate legislation with the administrative judge's tasks and judicial staffs whose qualifications, competence, and capabilities of those in charge of the administrative judiciary. © 2021

Jarab, A.S., Al-Qerem, W., Mukattash, T.L.

Career choices of Pharmacy and Pharm D undergraduates: attitudes and preferences

(2021) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102442383&doi=10.1016%2fj.heliyon.2021.e06448&partnerID=40&md5=a73dedc077ce92181150ee6311c26820)

85102442383&doi=10.1016%2fj.heliyon.2021.e06448&partnerID=40&md5=a73dedc077ce92181150ee6311c26820

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Background: The remarkably increasing number of graduated pharmacists necessitates exploring the current Pharmacy and Pharm D students' future career choices in order to help the health policy makers to enhance effective health and education workforce planning. Objective: To identify Pharmacy and Pharm D undergraduates' attitudes and preferences toward different career choices and the factors that influence their career choice. Methods: Across sectional study using the online survey web Question Pro was conducted on undergraduate Pharmacy and Pharm D students through the fall semester of the academic year 2019/2020 at four Colleges of Pharmacy in Jordan. In addition to demographics, the survey evaluated students' attitudes toward different career choices, career choices preferences and how different factors could influence this choice. Mann Whitney U test, Chi-square test, Friedman test, Wilcoxon and Multivariable linear regression were applied to analyze the data. Results: A total of 354 undergraduate Pharmacy and Pharm D students completed the survey. Medical coverage and insurance was the most important variable affecting the students' career choice. The total sample favorite career choice was Academic and Research Centers (mean = 2.57), followed by Pharmaceutical companies (mean = 2.38), Hospital Pharmacy (mean = 2.36), Industry (mean = 1.79), and lastly Retail or Community Pharmacy (mean = 1.78). Males were significantly more tended to have a higher favorability scores for the Pharmaceutical Companies career choice than females. PharmD students had a significantly more favorable attitudes towards Hospital Pharmacy than Pharmacy students, who had a significantly more favorable attitude towards Retail or Community Pharmacy and Industry than Pharm D students. Conclusion: The current study provides baseline data necessary to formulate strategies in the educational institutions by incorporating different programs and lectures to expand the capabilities of pharmacy students to meet the requirements of different market sectors and change their mindset about the different pharmacy sectors. © 2021 The Authors
Career Choices; attitudes; Preferences; pharmacy; impact; Jordan © 2021 The Authors

Hammad, A.M., Alasmari, F., Sari, Y.

Effect of Modulation of the Astrocytic Glutamate Transporters' Expression on Cocaine-Induced Reinstatement in Male P Rats Exposed to Ethanol

(2021) Alcohol and Alcoholism, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102322286&doi=10.1093%2falcalc%2fagaa104&partnerID=40&md5=e15e646e2647ec71bfcc7be31396e6d0)

85102322286&doi=10.1093%2falcalc%2fagaa104&partnerID=40&md5=e15e646e2647ec71bfcc7be31396e6d0

AFFILIATIONS: Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

ABSTRACT: Aim: Reinforcing properties of ethanol and cocaine are mediated in part through the

glutamatergic system. Extracellular glutamate concentration is strictly maintained through several glutamate transporters, such as glutamate transporter 1 (GLT-1), cystine/glutamate transporter (xCT) and glutamate aspartate transporter (GLAST). Previous findings revealed that cocaine and ethanol exposure downregulated GLT-1 and xCT, and that β -lactam antibiotics restored their expression. Methods: In this study, we investigated the effect of ampicillin/sulbactam (AMP/SUL) (200 mg/kg, i.p.), a β -lactam antibiotic, on cocaine-induced reinstatement and locomotor activity in male alcohol preferring (P) rats using free choice ethanol (15 and 30%, v/v) and water. We also investigated the effect of co-exposure to ethanol and cocaine (20 mg/kg, i.p.) on GLT-1, xCT and GLAST expression in the nucleus accumbens (NAc) core, NAc shell and dorsomedial prefrontal cortex (dmPFC). Results: Cocaine exposure decreased ethanol intake and preference. Cocaine and ethanol co-exposure acquired place preference and increased locomotor activity compared to ethanol-exposed rats. GLT-1 and xCT expression were downregulated after cocaine and ethanol co-exposure in the NAc core and shell, but not in dmPFC. AMP/SUL attenuated reinstatement to cocaine as well as attenuated the decrease in locomotor activity and ethanol intake and preference. These effects were associated with upregulation of GLT-1 and xCT expression in the NAc core/shell and dmPFC. GLAST expression was not affected after ethanol and cocaine co-exposure or AMP/SUL treatment. Conclusion: Our findings demonstrate that astrocytic glutamate transporters within the mesocorticolimbic area are critical targets in modulating cocaine-seeking behavior while being consuming ethanol. © 2020 The Author(s) 2020. Medical Council on Alcohol and Oxford University Press. All rights reserved.

Hamed, R., Kamal, A.

Strength-Dependent and Strength-Independent Dissolution Patterns of Poorly-Soluble Drugs. Case Example: Valsartan

(2021) Pharmaceutical Chemistry Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102203679&doi=10.1007%2fs11094-021-02347-7&partnerID=40&md5=c3277c6a041e1d7bcc7b0cf3ac3ad02e>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study aims to investigate the strength-dependent dissolution pattern of two-dose strengths of valsartan: the low-dose strength of 80 mg and high-dose strength of 320 mg. For this purpose, the dissolution testing was carried out in media of buffer solutions that resemble physiological characteristics of the gastrointestinal fluid (GIF). The influence of various physiological GIF characteristics (pH, buffer capacity β , and ionic strength I) on the dissolution of a weakly acidic biopharmaceutical classification system (BCS) class II drug valsartan present in two-dose strengths was investigated. The strength-dependent and strength-independent dissolution pattern was determined based on the similarity/dissimilarity of the dissolution profiles of valsartan 80 and 320 tablets using the f2 similarity test. Valsartan dissolution showed either strength-dependent or strength-independent behavior for various values of pH, buffer capacity β , ionic strength I, and sink condition S of the tested media. Results of this study shed light on the importance of studying physiological characteristics of the GIF for multiple-strength drug products for better predicting the dissolution pattern of weak acids in vivo. © 2021, Springer Science+Business Media, LLC, part of Springer Nature.

Abu Sharour, L.

Translation and Validation of the Arabic Version of the Caring Nurse-Patient Interaction Scale-Patient Version (CNPI-23P)

(2021) Cancer Nursing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102153317&doi=10.1097%2fNCC.0000000000000755&partnerID=40&md5=a1fd306a4844aeadc4ba5a6f8bb17f8a>

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background Importantly, little is known about the cancer patients' perceptions about nurses' caring behaviors in Arab countries (Jordan specifically). This is mainly related to a lack of short Arabic instruments that measure nurse-patient interaction from a caring perspective. Objective To translate and validate an Arabic version of the Caring Nurse-Patient Interaction Scale-Patient Version (CNPI-23P). Methods The CNPI-23 was translated into Arabic using Brislin's model of translation. A cross-cultural adaptation and psychometric testing were used to collect the data from patients with cancer through a self-administered questionnaire, which included the Arabic version of CNPI-23P and demographic characteristics. Descriptive statistics, inferential statistics, and exploratory factor analysis were used. Results One hundred fifty patients were recruited. A content validity involving experts and 20 patients indicated that the statements were clear, understandable, and in logical and easy order. Reliability analysis of CNPI-23P subscales ranged between 0.71 to 0.91 and 0.95 for the total Arabic version of CNPI-23P. Results of the exploratory factor analysis showed that the 23-item scale score reflecting 4 caring domains with Kaiser-Meyer-Olkin was 0.896, and Bartlett test of sphericity was significant ($P < .001$). Conclusion The Arabic version of CNPI-23P is reliable and valid and can be used in research, clinical, and educational settings in Arabic

countries. Implications for Practice The Arabic version of CNPI-23P may increase our understanding of cancer patients' perceptions about nurses' caring behaviors in Arab countries. © Wolters Kluwer Health, Inc. All rights reserved.

Dahabiyeh, L.A., Mahmoud, N.N., Al-Natour, M.A., Safo, L., Kim, D.-H., Khalil, E.A., Abu-Dahab, R. Phospholipid-gold nanorods induce energy crisis in mcf-7 cells: Cytotoxicity evaluation using lc-ms-based metabolomics approach (2021) *Biomolecules*, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101687369&doi=10.3390%2fbiom11030364&partnerID=40&md5=9ea09e0402d6235c313c9237f3187566>
AFFILIATIONS: Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;
Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
Department of Pharmaceutics and Pharmaceutical Technology, The Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;
Centre for Analytical Bioscience, Advanced Materials and Healthcare Technologies Division, School of Pharmacy, University of Nottingham, Nottingham, NG7 2RD, United Kingdom;
Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;
Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Phospholipid-modified gold nanorods (phospholipid-GNRs) have demonstrated drastic cytotoxicity towards MCF-7 breast cancer cells compared to polyethylene glycol-coated GNRs (PEG-GNRs). In this study, the mechanism of cytotoxicity of phospholipid-GNRs towards MCF-7 cells was investigated using mass spectrometry-based global metabolic profiling and compared to PEGylated counterparts. The results showed that when compared to PEG-GNRs, phospholipid-GNRs induced significant and more pronounced impact on the metabolic profile of MCF-7 cells. Phospholipid-GNRs significantly decreased the levels of metabolic intermediates and end-products associated with cellular energy metabolisms resulting in dysfunction in TCA cycle, a reduction in glycolytic activity, and imbalance of the redox state. Additionally, phospholipid-GNRs disrupted several metabolism pathways essential for the normal growth and proliferation of cancer cells including impairment in purine, pyrimidine, and glutathione metabolisms accompanied by lower amino acid pools. On the other hand, the effects of PEG-GNRs were limited to alteration of glycolysis and pyrimidine metabolism. The current work shed light on the importance of metabolomics as a valuable analytical approach to explore the molecular effects of GNRs with different surface chemistry on cancer cell and highlights metabolic targets that might serve as promising treatment strategy in cancer. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Abu Sharour, L., Subih, M., Bani Salameh, A., Malak, M. Predictors of Chemotherapy Safe-Handling Precautions and Knowledge Among a Sample of Jordanian Oncology Nurses: A Model-Building Approach (2021) *Workplace Health and Safety*, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100190199&doi=10.1177%2f2165079920959991&partnerID=40&md5=08cbd23cfe366d5b5e388633b931bc8b>
AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan, Jordan
ABSTRACT: Background: There are adverse side effects associated with handling chemotherapy; however, using safe-handling precautions can minimize or prevent these potential effects. Despite availability of international guidelines for chemotherapy handling, adherence to precautions is below expectations. This study examined knowledge of safe-handling precautions among a sample of oncology nurses in Jordan. Methods: A cross-sectional study was employed that included a convenience sample of 153 oncology nurses. Oncology nurses from two hospitals completed the Chemotherapy Handling Questionnaire. Descriptive analysis, Spearman rank correlation coefficients, and regression analyses were performed to determine the predictors of precaution use when handling hazardous drugs among participants. Findings: We observed that age, number of patients for whom the worker administered chemotherapy per day, the number of patients receiving chemotherapy per day in the participant's work unit, nurses' knowledge about safe-handling precautions, perceived risk, perceived barriers, self-efficacy, organization influence/workplace safety climate, conflict of interest, and interpersonal influences were predictors of use of safe-handling precautions (adjusted R² =.66, p <.001). Conclusion/Application for Practice: Several predictors for using safe-handling precautions were identified. Clinically, chemotherapy handling procedures should be evaluated frequently to identify barriers to safe practices and to improve worker safety. © 2021 The Author(s).

Dabbour, L.M. Morphology of quarters in traditional Arab Islamic city: A case of the traditional city of Damascus (2021) *Frontiers of Architectural Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096995842&doi=10.1016%2fj.foar.2020.11.004&partnerID=40&md5=8408e531c6b982afc6a520f64e16bf69)

85096995842&doi=10.1016%2fj.foar.2020.11.004&partnerID=40&md5=8408e531c6b982afc6a520f64e16bf69

AFFILIATIONS: Department of Architecture, Faculty of Architecture and Design, AlZaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Studies on the quarters of traditional Arab Islamic cities have stressed the idea of an urban structure that corresponds to social groupings and to a collection of local regions or even of "inchoate" neighborhood units. This spatial model has often provided the rationale for the intervention in these cities and in the design of new housing layouts. This study aims to examine this issue through syntactic measures and observations to describe and analyze the structure and morphology of quarters through connectivity and visibility analysis of pedestrian movement through space syntax. Whether the structure of these cities presents a global whole in contrast to the assumptions of physical subareas of social groupings is discussed. The city of Damascus is used as a model of analysis in which the urban morphology of quarters is described and characterized. This study reports several findings that are potentially relevant to the understanding of traditional laws that relate the physical layout of quarters to the social structure and their local subareas to the global whole that dominate and unify the parts. On this basis, the design approach in these cities may be better understood. © 2020 The Author

Jarab, A.S., Al-Qerem, W., Mukattash, T.L., Al-Hajjeh, D.M.

Pharmacy and Pharm.D students' knowledge and information needs about COVID-19

(2021) International Journal of Clinical Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092351282&doi=10.1111%2fijcp.13696&partnerID=40&md5=c9c31da98444223e9684148e39be6a9a)

85092351282&doi=10.1111%2fijcp.13696&partnerID=40&md5=c9c31da98444223e9684148e39be6a9a

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: The COVID-19 pandemic necessitates collaborative teamwork by all healthcare providers including pharmacists. Since Pharmacy and Pharm. D students represent the future pharmacists, it is necessary to ensure that they have a good awareness about COVID-19 or any other pandemic that could happen in the future. Objective: The study aim was to evaluate Pharmacy and Pharm.D students' knowledge and information needs about COVID-19. Method: A cross-sectional web-based design survey was used to assess socio-demographics and knowledge about COVID-19 amongst Pharmacy and Pharm. D students. After being validated, the questionnaire was formatted into Google forms and distributed amongst undergraduate Pharmacy and Pharm. D students in accredited Universities in Jordan. Results: A total of 860 Pharmacy and Pharm.D students completed the questionnaire. Results revealed moderate students' knowledge about COVID-19 (mean knowledge score was 5.6 out of 10). Students had high correct response rates in questions asking about transmission method, treatment, zoonotic transmission and medications to be avoided. However, the students demonstrated low knowledge in questions asking about the incubation period and degree of contagion scores. Several factors were associated with students' level of knowledge including the field of study and academic year. Few students relied on their faculty as the main source of information about the infection and most of them relied on self-reading and social network. Conclusion: The results of this study clearly demonstrate unsatisfactory level of knowledge and a lot of information needs about COVID-19 amongst Pharmacy and Pharm. D students. More efforts should be deployed to educate pharmacy students about COVID-19, with an emphasis on the need for more active role by the universities to achieve this goal. © 2020 John Wiley & Sons Ltd

Shaheen, A.M., Al- Hniti, M., Bani Salameh, A., Alkaid-Albqoor, M., Ahmad, M.

Predictors of job satisfaction of registered nurses providing care for older adults

(2021) Journal of Nursing Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091772361&doi=10.1111%2fjonm.13147&partnerID=40&md5=ac7f3d3f61303198b7302091ec5dd7a7)

85091772361&doi=10.1111%2fjonm.13147&partnerID=40&md5=ac7f3d3f61303198b7302091ec5dd7a7

AFFILIATIONS: The University of Jordan, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: The population worldwide is ageing. This has required the nursing profession to respond to the growing demands of providing nursing care to this population. Purpose: To identify predictors of job satisfaction among registered nurses providing care for older adults. Methods: A cross-sectional correlational design was used with a convenience sample of nurses. The Quality Work Competence Questionnaire, Job Satisfaction Scale and Nurses' Occupational Stress Scale were used to measure study variables. Descriptive statistics and multiple regressions were used to analyse the data. Results: The study included 500 nurses; and 68% dissatisfied with their job. Nurses were mostly dissatisfied with the physical conditions in which they work (55.2%) and the rate of payment (50.2%). Physical strain demonstrated the highest positive correlation with nurses' satisfaction ($r = .36$). More years of experience, skills and employee development, high nurses' competence, and more physical strain predicted high job satisfaction. Conclusion: Job dissatisfaction among nurses providing care

for older adults is high and is influenced by nurses' experience, professional development, competency and physical strain. Implications: Health care organisations should apply strategies that enhance the development of the professional competency of their nursing staff. © 2020 John Wiley & Sons Ltd

Alkhatib, N., Sweitzer, N.K., Lee, C.S., Erstad, B., Slack, M., Gharaibeh, M., Karnes, J., Klimecki, W., Ramos, K., Abraham, I.

Ex Ante Economic Evaluation of Arg389 Genetically Targeted Treatment with Bucindolol versus Empirical Treatment with Carvedilol in NYHA III/IV Heart Failure

(2021) American Journal of Cardiovascular Drugs, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088586487&doi=10.1007%2fs40256-020-00425-x&partnerID=40&md5=81294a7de649438372ef6ebecf54b199>

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Drachman Hall B-306, 1295 N. Martin Ave, Tucson, AZ 85721, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Sarver Heart Center, University of Arizona, Tucson, AZ, United States;

College of Medicine, University of Arizona, Tucson, AZ, United States;

Connell School of Nursing, Boston College, Chestnut Hill, MA, United States;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Institute of BioSciences and Technology, Texas A&M University, Houston, TX, United States

ABSTRACT: Objective: The Beta-Blocker Evaluation Survival Trial showed no survival benefit for bucindolol in New York Heart Association (NYHA) class III/IV heart failure (HF) with reduced ejection fraction, but subanalyses suggested survival benefits for non-Black subjects and Arg389 homozygotes.

We conducted an ex ante economic evaluation of Arg389 targeted treatment with bucindolol versus carvedilol, complementing a previous ex ante economic evaluation of bucindolol preceded by genetic testing for the Arg389 polymorphism, in which genetic testing prevailed economically over no testing.

Methods: A decision tree analysis with an 18-month time horizon was performed to estimate the cost effectiveness/cost utility of trajectories of 100%, 50%, and 0% of patients genetically tested for Arg389 and comparing bucindolol with empirical carvedilol treatment as per prior BEST subanalyses.

Incremental cost-effectiveness/cost-utility ratios (ICERs/ICURs) were estimated. Results: Race-based analyses for non-White subjects at 100% testing showed a loss of (0.04) life-years and (0.03)

quality-adjusted life-years (QALYs) at an incremental cost of \$2185, yielding a negative ICER of (\$54,625)/life-year and ICUR of (\$72,833)/QALY lost; at 50%, the analyses showed a loss of (0.27)

life-years and (0.16) QALYs at an incremental cost of \$1843, yielding a negative ICER of

(\$6826)/life-year and ICUR of (\$11,519)/QALY lost; at 0%, the analyses showed a loss of (0.33) life-years and (0.30) QALYs at an incremental cost of \$1459, yielding a negative ICER of (\$4421)/life-year

and ICUR of (\$4863)/QALY lost. Arg389 homozygote analyses at 100% testing showed incremental gains of 0.02 life-years and 0.02 QALYs at an incremental cost of \$378, yielding an ICER of 18,900/life-year

and ICUR of \$18,900/QALY gained; at 50%, the analyses showed a loss of (0.24) life-years and (0.09) QALYs at an incremental cost of \$1039, yielding a negative ICER of (\$4329)/life-year and ICUR of

(\$9336)/QALY lost; at 0%, the analyses showed a loss of (0.33) life-years and (0.30) QALYs at an incremental cost of \$1459, yielding a negative ICER of (\$4421)/life-year and ICUR of (\$4863)/QALY

lost. Conclusion: This independent ex ante economic evaluation suggests that genetically targeted treatment with bucindolol is unlikely to yield clinicoeconomic benefits over empirical treatment with carvedilol in NYHA III/IV HF. © 2020, Springer Nature Switzerland AG.

Al-Ajlouni, M.I.

Can high-performance work systems (HPWS) promote organisational innovation? Employee perspective-taking, engagement and creativity in a moderated mediation model

(2021) Employee Relations, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084546682&doi=10.1108%2fER-09-2019-0369&partnerID=40&md5=e3140b8c2a9a111cfda3a1404be1be85>

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: Reviewing Human Resource Management (HRM) and innovation literature, an identified gap exists in the mechanism in which the association between HRM and innovation is happen. To

respond, the current study has suggested a moderated mediated mechanism to explain the link between HRM, through its new High Performance Work Systems (HPWS) and organisational innovation, as employee

engagement mediates the relationship between HPWS and employee creativity. Then later one has subsequent influence on organisational innovation; moreover, the model also considers the moderating

role of employee perspective-taking between HPWS and employee engagement.

Design/methodology/approach: A quantitative-deductive causal method, along with a cross-sectional approach was adopted, and SMEs in Jordan were the focus for the present study, through targeting

employees in Research and Development centres. Data were collected through a self-administered questionnaire answered by 272 employees and Structural Equation Modelling using SMART-PLS was used for the statistical analysis. Findings: The results confirmed that employee engagement fully mediated the relationship between HPWS and employee creativity and accounted for 69.5% of the variance; additionally, perspective-taking as a moderator of the relationship between HPWS and employee engagement was confirmed. Moreover, employee creativity significantly predicted organisational innovation to moderate levels. Originality/value: The study suggested a unique mechanism for the link between HPWS and organisational innovation, contributing to the suggested gap that could have numerous variables acting as mediators or moderators which require further investigation to explore other possible mechanisms. © 2020, Emerald Publishing Limited.

Al-Qerem, W.A., Jarab, A.S.

COVID-19 Vaccination Acceptance and Its Associated Factors Among a Middle Eastern Population (2021) *Frontiers in Public Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101652242&doi=10.3389%2ffpubh.2021.632914&partnerID=40&md5=11538e346ed538f975afcb9bf35629b9)

[85101652242&doi=10.3389%2ffpubh.2021.632914&partnerID=40&md5=11538e346ed538f975afcb9bf35629b9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101652242&doi=10.3389%2ffpubh.2021.632914&partnerID=40&md5=11538e346ed538f975afcb9bf35629b9)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Background: The Coronavirus disease 2019 (COVID-19) pandemic is a major threat to public health and has had a significant impact on all aspects of life. An effective vaccine is the most anticipated resolution. This study aims to evaluate Jordanian intent to be vaccinated. Methods: This is a cross-sectional web-based study. Sample characteristics were gathered, and the participants were classified according to the degree of COVID-19 risk based on the categories of the Centers for Disease Control and Prevention (CDC). Participants' KAP toward COVID-19 were assessed, and two scores were calculated: knowledge score and practice score. The association between different sample characteristics and these scores was identified using binary logistical regressions. The participants' vaccination intention was evaluated and multinomial logistic regression was applied to identify the predictors of vaccination intention. Finally, the reasons behind the participants' vaccination refusal/hesitation were determined and categorized into different groups. Results: 1,144 participants were enrolled in the study (females = 66.5%). 30.4% of the participants were at high risk of COVID-19 complications, and 27.5% were at medium risk. Overall, participants' knowledge of COVID-19 symptoms, transmission methods, protective measures, and availability of cure were high (median of knowledge score = 17 out of 21). High protective practices were followed by many participants (median of practice score = 7 out of 10). 3.7% of participants were infected, and 6.4% suspected they were infected with the COVID-19 virus. 36.8% of the participants answered "No" when asked if they would take the vaccine once it becomes available, and 26.4% answered, "Not sure." The main reasons for the participants' vaccination refusal or hesitancy were concerns regarding the use of vaccines and a lack of trust in them. Conclusion: Participants reported high refusal/hesitancy. Several barriers were identified, and efforts should be intensified to overcome these barriers. © Copyright © 2021 Al-Qerem and Jarab.

Sunoqrot, S., Al-Shalabi, E., Al-Bakri, A.G., Zalloum, H., Abu-Irmaileh, B., Ibrahim, L.H., Zeno, H. Coffee Bean Polyphenols Can Form Biocompatible Template-free Antioxidant Nanoparticles with Various Sizes and Distinct Colors

(2021) *ACS Omega*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100209894&doi=10.1021%2ffacsomega.0c05061&partnerID=40&md5=318fd28bbcc76d5593c6853f9e5771f9)

[85100209894&doi=10.1021%2ffacsomega.0c05061&partnerID=40&md5=318fd28bbcc76d5593c6853f9e5771f9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100209894&doi=10.1021%2ffacsomega.0c05061&partnerID=40&md5=318fd28bbcc76d5593c6853f9e5771f9)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Hamdi Mango Scientific Research Center, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Plant polyphenols have attracted attention in recent years due to their ability to undergo oxidative coupling reactions enabled by the presence of multiple phenolic hydroxyl groups, forming chemically versatile coatings and biocompatible nanoparticles (NPs) for various applications. The aim of this study was to investigate whether coffee bean aqueous extracts, which are known to be rich in polyphenols, could serve as a natural source of NP building blocks. Extracts were prepared by heating ground Arabica beans of varying roasting degrees in water with or without the addition of sodium metaperiodate or copper sulfate as an oxidizing agent, followed by filtration. NP formation was verified by dynamic light scattering and transmission electron microscopy, which revealed the presence of nano-sized particles with varying sizes and polydispersities as a function of the coffee type and oxidizing agent used. NP colors ranged from light to medium to dark brown, and particle sizes were between 44 and 250 nm with relatively low polydispersity indices. In vitro antioxidant assays showed that oxidizing agent-treated coffee NPs had lower antioxidant potency compared to air-

oxidized NPs, but the free-radical scavenging activity was still retained. Coffee NPs exhibited no antimicrobial activity against common bacterial and fungal strains. Cell viability assays demonstrated that the NPs were biocompatible in human dermal fibroblasts, while exhibiting antiproliferative activity against MCF7 breast cancer cells, particularly copper sulfate-oxidized NPs. This study presents a facile and economical method to produce template-free antioxidant NPs that may be explored for various applications such as drug delivery and cosmetics. © 2021 The Authors. Published by American Chemical Society.

Allswey, A., Al-Samarraie, H.

The role of Hofstede's cultural dimensions in the design of user interface: The case of Arabic (2021) Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101717232&doi=10.1017%2fS089006042100019&partnerID=40&md5=f09bd6ac61584760567bdc003bffc2c7)

[85101717232&doi=10.1017%2fS089006042100019&partnerID=40&md5=f09bd6ac61584760567bdc003bffc2c7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101717232&doi=10.1017%2fS089006042100019&partnerID=40&md5=f09bd6ac61584760567bdc003bffc2c7)

AFFILIATIONS: School of Architecture and Design, Department of Multimedia Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Media and Performing Arts, Coventry University, Coventry, United Kingdom

ABSTRACT: A user interface (UI) design that meets the preferences, differences, and needs of the group of users can potentially increase the usability of a system. Users, in general, feel more familiar with the context that reflects their cultural values and practices. The Arabic culture plays a significant role in how Arab users interact and communicate with technologies. The customs, artifacts, and traditions of the Arab world are different in nature from the Western cultures. Thus, it is essential to consider these differences when designing the UI prototype. This study investigated the role of certain cultural preferences in the design of UI for Arab users. A think-aloud approach and Hofstede's cultural dimensions were used on 23 Arab users to generate the necessary design guidelines for the UI of mobile health application. Then, 78 participants were recruited to evaluate the proposed UI design. The usability results showed high satisfaction among Arab users about the role of culture in the design of the UI. Findings from this study can be used by designers and developers to aid their design of UI for group-specific cultural preferences and values. Copyright © The Author(s), 2021. Published by Cambridge University Press.

Abed, E., Jarrar, Y., Alhawari, H., Abdullah, S., Zihlif, M.

How the cytochrome 7a1 (CYP7A1) and ATP-binding cassette G8 (ABCG8) genetic variants affect atorvastatin response among type 2 diabetic patients attending the University of Jordan Hospital (2021) International Journal of Clinical Pharmacology and Therapeutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101522610&doi=10.5414%2fCP203779&partnerID=40&md5=96b70b39dec8cd1e85261ec54e060ace)

[85101522610&doi=10.5414%2fCP203779&partnerID=40&md5=96b70b39dec8cd1e85261ec54e060ace](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101522610&doi=10.5414%2fCP203779&partnerID=40&md5=96b70b39dec8cd1e85261ec54e060ace)

AFFILIATIONS: Department of Pharmacology, Faculty of Medicine, University of Jordan, Jordan;

Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Department of Internal Medicine, Faculty of Medicine, University of Jordan, Amman, Jordan

ABSTRACT: Objective: There is a high inter-individual variation in atorvastatin response. This study aimed to identify the influences of the CYP7A1 rs3808607, ABCG8 rs11887534, and ABCG8 rs4148217 genetic variants on the lipid profile and atorvastatin response among Arab Jordanian patients with type 2 II diabetes mellitus (T2DM). Materials and methods: 117 patients with T2DM and on atorvastatin therapy, the most common statin used at the University of Jordan Hospital, were genotyped for the CYP7A1 rs3808607, ABCG8 rs11887534, and ABCG8 rs4148217 genetic variants using PCR-restriction fragment length polymorphism. The baseline blood lipid and glycemic parameters were analyzed in the University of Jordan Hospital's laboratory before and after 3 months of atorvastatin administration. Results: Patients carrying the homozygote ABCG8 rs4148217 genotype have less total cholesterol (TC) (157.7 mg/dL) and low-density lipoprotein (LDL) (95.5 mg/dL) than the wild genotype (TC (192.4 mg/dL) and LDL (138.3 mg/dL)). Although these differences did not reach statistical significance (ANOVA, p-value > 0.17). There were no significant associations between the CYP7A1 rs3808607 and ABCG8 rs11887534 polymorphisms and baseline lipid and glycemic parameters (p > 0.12). Overall, no significant association was found between these polymorphisms and atorvastatin response (p > 0.13). Conclusion: It seems that the CYP7A1 rs3808607, ABCG8 rs11887534, and ABCG8 rs4148217 genetic variants do not explain the inter-individual variation in atorvastatin response and lipid baseline profile among Jordanian T2DM patients of Arabic origin. © 2021 Dustri-Verlag Dr. Karl Feistle. All rights reserved.

Al Awaida, W., Ahmed, A.A., Hamza, A.A., Amber, K.I., Al-Ameer, H.J., Jarrar, Y., Fatima, G., Maslat, A.O., Gushchina, Y., Al bawareed, O., Hadi, N.R.

Association of KDR rs1870377 genotype with clopidogrel resistance in patients with post percutaneous coronary intervention (2021) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100956297&doi=10.1016%2fj.heliyon.2021.e06251&partnerID=40&md5=3f375c2d8fcb6e8c90313b8b4f949a0b)

[85100956297&doi=10.1016%2fj.heliyon.2021.e06251&partnerID=40&md5=3f375c2d8fcb6e8c90313b8b4f949a0b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100956297&doi=10.1016%2fj.heliyon.2021.e06251&partnerID=40&md5=3f375c2d8fcb6e8c90313b8b4f949a0b)

AFFILIATIONS: Department of Biology and Biotechnology, American University of Madaba, Madaba, 11821, Jordan;
 Department of Pharmacology and Therapeutics, College of Medicine, University of Kufa, Iraq;
 Department of Biochemistry, College of Medicine, University of Kufa, Iraq;
 Al Najaf Center for Cardiovascular Surgery and Cardiac Catheterization in AL-Sadder Teaching Hospital in Al Najaf Al-Ashraf Governorate, Iraq;
 Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Amman, 11734, Jordan;
 Era's Medical College, Era University, Lucknow, India;
 Department of Biological Sciences, Yarmouk University, Irbid, Jordan;
 Department of General and Clinical Pharmacology, Peoples' Friendship University of Russia (RUDN University), 6 Miklukho-Maklaya Street, Moscow, 117198, Russian Federation;
 Department of Normal Physiology, Peoples' Friendship University of Russia (RUDN University), 6 Miklukho-Maklaya Street, Moscow, 117198, Russian Federation

ABSTRACT: Background: Clopidogrel is an antiplatelet therapy that is widely used in pre and post percutaneous (PCI) coronary intervention procedures to prevent platelet aggregation and stent restenosis. However, there is a wide inter-individual variation in clopidogrel response and some patients showed resistance against the activity of Clopidogrel. Kinase insert domain receptor (KDR) gene is responsible for the transcription of vascular endothelial growth factor receptor 2 (VEGFR2) that plays a major role in the cardiovascular diseases (CVDs) and platelet aggregation. The aim of this study was to find out the association of KDR rs1870377 genotype with clopidogrel resistance (CR) in CVD patients, of Iraqi Arabic origin, hospitalized for elective PCI. Materials and methods: This study was a case-control study with a total of 324 PCI patients. Those patients were classified into 213 patients with non-clopidogrel resistant and 111 patients with CR, depending on the analysis of platelet activity phenotype after clopidogrel administration. KDR rs1870377 was genotyped for all patients using polymerase chain reaction-restriction fragment length polymorphism technique and confirmed by DNA Sanger sequencing through applying Biosystems Model (ABI3730x1). Results: KDR rs1870377 SNP is strongly associated (Chi-square, p value < 0.05) with CR under dominant, co-dominant and recessive models. Additionally, A allele in the rs1870377 SNP may have an impact on the serum levels of VEGFR2 and low density lipoprotein. Conclusions: KDR rs1870377 SNP is a potential genetic biomarker of CR among CVD patients of Iraqi Arabic origin. Further clinical studies, with larger sample, are required to confirm the findings of this study. KDR; clopidogrel resistance; VEGFR2; Post Percutaneous Coronary Intervention; SNP. © 2021 The Author(s)

Alamayreh, M.I., Fenocchi, A., Petaccia, G., Sibilla, S., Persi, E.

Numerical analysis of fluid flow dynamics around a yawed half-submerged cylinder inside an open channel

(2021) Journal of Hydrodynamics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100787895&doi=10.1007%2fs42241-021-0005-0&partnerID=40&md5=f64b04780960027c8bd3308dec923c62>

AFFILIATIONS: Alternative Energy Department, Al-Zaytoonah University of Jordan, Amman, Jordan;
 Department of Civil Engineering and Architecture, University of Pavia, Pavia, Italy

ABSTRACT: The drag and side force coefficients of a half-submerged cylinder in a free-surface flow were calculated through numerical simulations, with the aim of supporting the numerical modelling of log transport in rivers. The variability of these coefficients with the yaw angle with respect to the flow direction and with the ratio between the flow depth and the diameter of the cylinder were investigated. Simulations were performed with the three-dimensional code ANSYS/CFX, employing the volume of fluid multiphase technique to reproduce the critical interaction between the free surface and the cylinder. The numerical tests, showing the rise of the drag force coefficient for increasing yaw angles passing from flow-parallel to flow-perpendicular cylinder and the peak of the side force coefficient for flow-oblique cylinder, were validated by comparison with the results of laboratory experiments. The simulations were then extended to conditions with significant blockage in the vertical direction which had not been previously experimented, revealing a strong increase in the force coefficients for decreasing ratios between the flow depth and the cylinder diameter. A detailed description of the reproduced flow features in the proximity of the cylinder for the different cases was furthermore obtained. Such report, in addition to the analysis of the force coefficients, could serve a much wider range than that of log transport, i.e., any case in which a floating cylinder interacts with free-surface flow. © 2021, China Ship Scientific Research Center.

Al-Dabbas, M., Alahmer, A., Mamkagh, A., Gomaa, M.R.

Productivity enhancement of the solar still by using water cooled finned condensing pipe

(2021) Desalination and Water Treatment, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100704014&doi=10.5004%2fdwt.2021.26711&partnerID=40&md5=089efbbc77ffbee0addc3ca8888a6f5a>

AFFILIATIONS: Mechanical Engineering Department, Mutah University, P.O. Box: 7, Mutah, Karak, 61710,

Jordan;

Faculty of Engineering and Technology, Department of Alternative Energy Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;
Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box: 179, Tafila, 66110, Jordan;
Department of Plant Production, Mutah University, P.O. Box 7, Mutah, Karak, 61710, Jordan;
Benha Faculty of Engineering, Mechanical Engineering Department, Benha University, Benha Z. C, 13512, Egypt;
Faculty of Engineering, Mechanical Engineering Department, Al-Hussein Bin Talal University, Ma'an, 71111, Jordan

ABSTRACT: An innovative solar desalination system was designed, constructed, and tested to produce more freshwater than a conventional solar still system. The new system consists of a basin type solar still and an external condenser. The condenser itself contains finned condensing pipes and a reservoir for the cooling water. The effects number of the fins, volume of cooling water, and flow rate in the condenser on the distilled output of the proposed solar desalination system were studied. As compared to the conventional basin type solar still system, the proposed system significantly produced more freshwater when cooling water volume, cooling water flow rate, numbers of fins in the condenser were increased. Furthermore, the number of fins exerted the most significant effect on freshwater productivity. The maximum daily freshwater produced was 12,350 mL when 250 L cooling water, 400 L/h flow rate, and 80 fins on the outer surface of the condensing pipe were used, which is about 300% more than the productivity of the conventional solar still. To use this solar desalination system efficiently, it was concluded that the optimum rate of cooling water must be about 50 L/h. Moreover, the remaining water volume in the condenser must be about 79 L. © 2021 Desalination Publications. All rights reserved.

Al Omari, D., Alhabahbeh, A., Subih, M., Aljabery, A.
Pain management in the older adult: The relationship between nurses' knowledge, attitudes and nurses' practice in Ireland and Jordan
(2021) Applied Nursing Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85099254303&doi=10.1016%2fj.apnr.2020.151388&partnerID=40&md5=4e31e935f53ff3b4e46d3ecb3a9dbf31

AFFILIATIONS: Alghad International Colleges for Applied Medical Science, Tabuk, Saudi Arabia;

School of Nursing, Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan

ABSTRACT: Background: Research studies regarding nurses' knowledge attitudes and practice in the older adult are limited. Furthermore, none of these studies attempted to investigate the relationship between knowledge attitudes and practice. Furthermore, little studies compared nurses' knowledge, attitudes and practice between Eastern and Western countries. Aim: To describe the factors associated with nurses' acute pain management practice in the context of caring for older adult patients. Method: A quantitative, correlational, comparative and cross-sectional survey approach. Data collection: Data were collected using survey questionnaire. Sample: A sample of 267 registered nurses from Ireland and Jordan (one private hospital in each country). Results: A multiple linear regression analysis revealed that nurses' general knowledge and attitude towards pain management was associated with their pain management practice, with a regression coefficient of 0.14 ($p = 0.002$). However, knowledge of pain in the elderly failed to reach a statistically significant relationship with pain management practice. In regards to country and gender, Irish nurses had an average score that was 2.61 points higher than Jordanian nurses ($p < 0.001$), female nurses had an average score that was 0.67 points higher than male nurses ($p = 0.025$). The overall regression model was significant ($p < 0.001$) with an R^2 value of 43.2%, indicating that 43.2% of the variation in scores was explained by knowledge, attitude and practice. Conclusion: More research studies combining the three concepts (knowledge, attitude and practice) are recommended in the area of pain management. © 2020 Elsevier Inc.

Malak, M.Z., Al-amer, R.M., Khalifeh, A.H., Jacoub, S.M.

Evaluation of psychological reactions among teenage married girls in Palestinian refugee camps in Jordan

(2021) Social Psychiatry and Psychiatric Epidemiology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087639487&doi=10.1007%2fs00127-020-01917-6&partnerID=40&md5=267d00fc19fd750f3c580140ca31f735>

AFFILIATIONS: Community Health Nursing, Al-Zaytoonah University of Jordan, P.O.Box: 130, Amman, 11733, Jordan;

Adjunct fellow, Western Sydney University, School of Nursing and Midwifery, Isra' University, Amman, Jordan;

Psychiatric and Mental Health, Department of Nursing-Prince, School of Nursing, Hamza Hospital, Ministry of Health, The University of Jordan, Amman, Jordan;

Mental Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Introduction: Girls married at an early age are more likely to be victims of violence from

their husbands or their in-laws. This may lead them to experience mental problems such as post-traumatic stress, depression, and/or anxiety. There are a lack of data related to the psychological reactions among teenage married girls living at the Palestinians refugee camps. Aim: This study aimed to evaluate depression, anxiety, and stress symptoms among teenage married girls in Palestinian refugee camps in Jordan. It also aimed to identify factors correlating with the study selected psychological reactions. Methods: A cross-sectional, descriptive correlational design was used. The participants were recruited using non-probability sampling methods. The mental health symptoms were measured using the Depression, Anxiety, and Stress Scale (DASS). Results: A total of 205 participants were included in the study. Their mean age was 16.90 (SD \pm 0.96) years. Of the participants, 39.6%, 35.6%, and 9.8% experienced moderate to extremely severe levels of depression, anxiety, and stress symptoms, respectively. There were significant relationships between all the mental health symptoms and participant age, parent's educational level, and exposure to previous trauma. Conclusion: A high proportion of females living in Palestinian refugee camps married in their teenage years experienced moderate to severe mental health symptoms, particularly anxiety and depression. These results inform the need for psychological support to girls who are affected by teenage marriage. © 2020, Springer-Verlag GmbH Germany, part of Springer Nature.

Al-Ghalith, A., Shalabi, A.

Umm Zakiyyah's If I Should speak and Updike's Terrorist: Two different views of Islam (2021) International Journal of Literary Humanities, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113971950&doi=10.18848%2f2327-7912%2fCGP%2fv19i01%2f23-33&partnerID=40&md5=12a50fb589dbaf6f486cc4c55cf6921b>

AFFILIATIONS: Al-Zaytoonah University, Amman, Jordan;

Al-Ahliyya Amman University, Amman, Jordan

ABSTRACT: Politics and social agendas have in many ways molded a variety of literary works and imposed their views either implicitly or explicitly on them. Updike's Terrorist and Umm Zakiyyah's If I Should Speak exemplify this tendency and fit snugly onto the cultural and political stage as they both tackle the issue of Islam's image in American society. In reading the two novels, we see that both writers attempt to prove their points of view using characters and sources of evidence that properly serve their respective agendas. This article explores both writers' points of view by evaluating the reliability of each writer's narrator based on the sources that both writers relied on. In so doing, we reveal how Updike upholds the Western stereotypical image of Muslims and presents his work in a political and religious framework that supports this image. By contrast, Umm Zakiyyah embodies the counterargument as she presents a moderate Islamic figure that corrects Updike's (and, by extension, American society's) misconceptions about Islam. The present article compares and contrasts the two novels to assess the reliability of each author's view and help reveal the gap between the real and misconceived Islam. A close reading of both texts shows that Updike relies mainly on vague sources about Islam to fabricate a plot grounded in a prejudicial tendency to frame Islam in its Westernized stereotypical image. Umm Zakiyyah's text, on the other hand, serves as a counterargument that manifests Islam in its authentic image. We believe that such exposition is critically needed to establish cultural bridges and mutual understanding between the East and the West. © 2021 Common Ground Research Networks. All rights reserved.

Flor, J.-F., Aburas, M., Abd-AlHamid, F., Wu, Y.

Virtual reality as a tool for evaluating user acceptance of view clarity through ETFE double-skin façades

(2021) Energy and Buildings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85094829143&doi=10.1016%2fj.enbuild.2020.110554&partnerID=40&md5=f0590f85209dd25b0eb397c8063dadbb>

AFFILIATIONS: Department of Architecture and Built Environment, Faculty of Engineering, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom;

School of Architecture and Built Environment, University of Adelaide, Adelaide, South Australia 5005, Australia;

Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Equipping building envelopes with an additional layer is an effective measure for improving the overall thermal and daylighting performance and reducing the energy consumption of buildings. This study investigated the user acceptance of energy-saving retrofitting measures in office buildings, reporting on the view perception and emotional response towards ETFE double-skin façades (DSF). Virtual Reality (VR) and physics-based imaging techniques were used to evaluate the user experience of a window view in an office space equipped with a pneumatic ETFE cushion as a second building skin. Three DSF scenarios with different ETFE cushions, including a clear, fritted and switchable sample, were evaluated and compared to the original single-skin façade with double-glazed windows. The physical and luminous conditions of the office space were replicated in a virtual environment with a validated physically-based imaging technique and presented to a group of

volunteers (N = 22) using a virtual reality headset. While immersed in the virtual environment, participants responded to a questionnaire enquiring into their view perception and emotional states. The results revealed a preference for view clarity of clear ETFE in double-skin façades (Mdn = 5) and less satisfaction for fritted (Mdn = 4) and switchable foil cushions (Mdn = 1.75), yet double glazing was preferred in all measured parameters (Mdn = 6). Statistical significance was found for fritted in comparison to switchable ETFE in terms of spatial pleasure and control. The highest ratings were given to clear glazing across all investigated parameters of view perception and emotional response. The lowest ranking in all questions was given to the sample with the switchable ETFE cushion. The study concluded that view clarity is a major aspect for the user acceptance of ETFE double-skin façades. Overall, this study provides a better understanding of the visual and emotional implications of viewing through ETFE foil and contributes to forming criteria for the design of next-generation ETFE building envelopes. © 2020 The Authors

Almomani, E.Y., Qablan, A.M., Atrooz, F.Y., Almomany, A.M., Hajjo, R.M., Almomani, H.Y.
The Influence of Coronavirus Diseases 2019 (COVID-19) Pandemic and the Quarantine Practices on University Students' Beliefs About the Online Learning Experience in Jordan
(2021) *Frontiers in Public Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100048487&doi=10.3389%2ffpubh.2020.595874&partnerID=40&md5=b52d98ef2c917843cdda49f1fc49ff9b)

[85100048487&doi=10.3389%2ffpubh.2020.595874&partnerID=40&md5=b52d98ef2c917843cdda49f1fc49ff9b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100048487&doi=10.3389%2ffpubh.2020.595874&partnerID=40&md5=b52d98ef2c917843cdda49f1fc49ff9b)

AFFILIATIONS: Department of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Secondary Education, University of Alberta, EdmontonAB, Canada;

Department of Pharmacological and Pharmaceutical Sciences, College of Pharmacy, University of Houston, Houston, TX, United States;

Department of Pharmacy, University of Lincoln, Lincoln, United Kingdom

ABSTRACT: Coronavirus Disease 2019 (COVID-19) is a contagious disease that affects the respiratory system. In addition to the severe effects of the disease on health, the pandemic caused a negative impact on basic needs and services, employment, education, and economy worldwide. In Jordan, the whole country locked down, and quarantine was enforced by the military forces, which successfully controlled the spread of the disease. This research aims to study the influence of the COVID-19 pandemic and its associated quarantine on university students' beliefs about online learning practice in Jordan. An online descriptive survey involved questions that covered students' demographic information, student's basic and advanced knowledge about COVID-19, students' online learning experience during the quarantine, and finally students' views on the enforced quarantine practice in Jordan. Results showed that students have a good knowledge (>50%) about the COVID-19 basic information and a moderate knowledge (<50%) regarding COVID-19 advanced information. In general, students were pessimistic about the future of COVID-19 both locally and worldwide. Although some students acknowledged that they learned new skills in the fields of electronics, informatics, and computer software during the pandemic, most of them were unsatisfied about the quality and quantity of the given material, online exams, and the evaluation processes. Unfortunately, most of the students faced internet technical problems or challenges to electronic accessibility. The majority of the participants (>90%) supported the military-enforced quarantine implemented in the country despite the hard time the students had during the quarantine. We conclude that university students were able to protect themselves from COVID-19 through their good knowledge about the infectious disease and their commitment to follow the rules imposed by the Government of Jordan. Nevertheless, the challenges caused by the pandemic and its associated quarantine, combined with the sudden unprecedented online experience, negatively impacted students' thoughts and beliefs about the online learning experience during the quarantine. Further studies need to be performed in this context. We hope our results will help decision-makers better understand the students' attitudes and motivation toward online learning and how this will affect their future plans and decisions. © Copyright © 2021 Almomani, Qablan, Atrooz, Almomany, Hajjo and Almomani.

Abul-Futouh, H., Almazahreh, L.R., Abaalkhail, S.J., Gorls, H., Stripp, S.T., Weigand, W.
Ligand effects on structural, protophilic and reductive features of stannylated dinuclear iron dithiolato complexes
(2021) *New Journal of Chemistry*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098915325&doi=10.1039%2fd0nj04790b&partnerID=40&md5=db2298eeae8292792789dc0ffaf0c359)

[85098915325&doi=10.1039%2fd0nj04790b&partnerID=40&md5=db2298eeae8292792789dc0ffaf0c359](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098915325&doi=10.1039%2fd0nj04790b&partnerID=40&md5=db2298eeae8292792789dc0ffaf0c359)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

ERCOSPLAN Ingenieurburo Anlagentechnik GmbH, Arnstadter Strae 28, Erfurt, 99096, Germany;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität, Jena Humboldt Str. 8, Jena, 07743, Germany;

Bioinorganic Spectroscopy, Department of Physics, Freie Universität Berlin, Arnimallee 14, Berlin, 1495, Germany

ABSTRACT: The synthesis and characterization of Fe₂(CO)₅(L){μ-(SCH₂)₂SnMe₂} (L = PPh₃ (2) and P(OMe)₃

(3)) derived from the parent hexacarbonyl complex $\text{Fe}_2(\text{CO})_6\{\mu-(\text{SCH}_2)_2\}\text{SnMe}_2$ (1) are reported. Whereas 1 exhibits a unique planar structure, X-ray crystallography showed that the apical orientation of L in complexes 2 and 3 results in a chair/boat conformation of the $\text{Fe}_2\text{S}_2\text{C}_2\text{Sn}$ fused six-membered rings, which is typical for diiron dithiolato complexes. In solution, NMR and FTIR spectroscopic techniques provide evidence for a dynamic process of apical-basal site exchange of the ligand L in 2 and 3. Protonation experiments on 2 and 3 in MeCN using $\text{CF}_3\text{CO}_2\text{H}$, HCl or $\text{HBF}_4 \cdot \text{Et}_2\text{O}$ suggest enhanced protophilicity of the Fe-Fe bond due to the presence of the electron donor ligands L as well as the stannylation effect. While the carbonyl ligands in 2 stretch at lower wavenumbers $\nu(\text{CO})$ than those in 3, the cyclic voltammetric reduction of 2 unpredictably occurs at less negative potential than that of 3. In contrast to 1, the presence of PPh_3 and $\text{P}(\text{OMe})_3$ in 2 and 3, respectively, allows protonation prior to reduction as shown by FTIR spectroscopy and cyclic voltammetry. This journal is © The Royal Society of Chemistry and the Centre National de la Recherche Scientifique.

Alasmari, F., Crotty Alexander, L.E., Hammad, A.M., Horton, A., Alhaddad, H., Schiefer, I.T., Shin, J., Moshensky, A., Sari, Y.

E-cigarette aerosols containing nicotine modulate nicotinic acetylcholine receptors and astroglial glutamate transporters in mesocorticolimbic brain regions of chronically exposed mice

(2021) *Chemico-Biological Interactions*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097060523&doi=10.1016%2Fj.cbi.2020.109308&partnerID=40&md5=46298801eb924113039af86d00cc7539)

[85097060523&doi=10.1016%2Fj.cbi.2020.109308&partnerID=40&md5=46298801eb924113039af86d00cc7539](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097060523&doi=10.1016%2Fj.cbi.2020.109308&partnerID=40&md5=46298801eb924113039af86d00cc7539)

AFFILIATIONS: Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, The University of Toledo, Toledo, OH 43614, United States;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia;

Pulmonary and Critical Care Section, VA San Diego Healthcare System, 3350 La Jolla Village Dr, MC 111J, San Diego, CA 92161, United States;

Department of Medicine, Division of Pulmonary and Critical Care, University of California at San Diego (UCSD), La Jolla, CA 92093, United States;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Medicinal and Biological Chemistry, College of Pharmacy and Pharmaceutical Sciences, The University of Toledo, Toledo, OH 43614, United States

ABSTRACT: Nicotine exposure increases the release of glutamate in part through stimulatory effects on pre-synaptic nicotinic acetylcholine receptors (nAChRs). To assess the impact of chronic electronic (e)-cigarette use on these drug dependence pathways, we exposed C57BL/6 mice to three types of inhalant exposures for 3 months; 1) e-cigarette aerosol generated from liquids containing nicotine (ECN), 2) e-cigarette aerosol generated from liquids containing vehicle chemicals without nicotine (Veh), and 3) air only (AC). We investigated the effects of daily e-cigarette exposure on protein levels of $\alpha 7$ nAChR and $\alpha 4/\beta 2$ nAChR, gene expression and protein levels of astroglial glutamate transporters, including glutamate transporter-1 (GLT-1) and cystine/glutamate antiporter (xCT), in the frontal cortex (FC), striatum (STR) and hippocampus (HIP). We found that chronic inhalation of ECN increased $\alpha 4/\beta 2$ nAChR in all brain regions, and increased $\alpha 7$ nAChR expression in the FC and STR. The total GLT-1 relative mRNA and protein expression were decreased in the STR. Moreover, GLT-1 isoforms (GLT-1a and GLT-1b) were downregulated in the STR in ECN group. However, inhalation of e-cigarette aerosol downregulated xCT expression in STR and HIP compared to AC and Veh groups. ECN group had increased brain-derived neurotrophic factor in the STR compared to control groups. Finally, mass spectrometry detected high concentrations of the nicotine metabolite, cotinine, in the FC and STR in ECN group. This work demonstrates that chronic inhalation of nicotine within e-cigarette aerosols significantly alters the expression of nAChRs and astroglial glutamate transporters in specific mesocorticolimbic brain regions. © 2020 Elsevier B.V.

Hamed, R., Mohamed, E.M., Rahman, Z., Khan, M.A.

3D-printing of lopinavir printlets by selective laser sintering and quantification of crystalline fraction by XRPD-chemometric models

(2021) *International Journal of Pharmaceutics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095827674&doi=10.1016%2Fj.ijpharm.2020.120059&partnerID=40&md5=a60770f1e7be19b703bfbb933174fab6)

[85095827674&doi=10.1016%2Fj.ijpharm.2020.120059&partnerID=40&md5=a60770f1e7be19b703bfbb933174fab6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095827674&doi=10.1016%2Fj.ijpharm.2020.120059&partnerID=40&md5=a60770f1e7be19b703bfbb933174fab6)

AFFILIATIONS: Irma Lerma Rangel College of Pharmacy, Texas A&M Health Science Center, Texas A&M University, College Station, TX 77843, United States;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutics, Faculty of Pharmacy, Beni-Suef University, Beni-Suef, 62514, Egypt

ABSTRACT: The objectives of this study were to develop and characterize amorphous lopinavir (LPV) printlets and to quantify crystalline fraction of LPV in the printlets by X-ray powder diffraction (XRPD)-chemometric models. Amorphous printlets (4.5 mm diameter × 3 mm height) of various LPV concentrations were fabricated by selective laser sintering (SLS) 3D technique. The printlets were characterized for physicochemical properties. The XRPD data in conjunction with chemometric

method were used to quantify the crystalline fraction of the drug. The LPV content in the printlets was 95.2-100.9%, disintegration time was < 2 min, and dissolution was fast (>90% of LPV was dissolved in < 30 min). The porosity of the printlets increased with an increase in the LPV percentage. The differential scanning calorimetry (DSC) and XRPD data of the printlets demonstrated that the majority of LPV was present in amorphous form. The XRPD-chemometric models showed good linearity and low root mean squared error, standard error, and bias. Models validation showed that the actual values of crystalline and amorphous fractions of the drug were close to the predicted values. These results demonstrated the feasibility of fabricating amorphous printlets by SLS method, and the application of the XRPD-chemometric models to quantify low fractions of crystalline drug in the 3D formulations if they are formed due to process or environment related variables. © 2020

Abu Afifa, M.M.

Impact of Information Governance and Management As Well As the Associated Technology According to COBIT Framework on the Characteristics of Primary Accounting Information in Jordanian Commercial Banks

(2021) Jordan Journal of Business Administration, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85185762378&partnerID=40&md5=69a2e6388afb921b615c272d8131fdb)

[85185762378&partnerID=40&md5=69a2e6388afb921b615c272d8131fdb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85185762378&partnerID=40&md5=69a2e6388afb921b615c272d8131fdb)

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The increasing technological investments in companies, specifically in commercial banks, leads to the adoption of important frameworks in the information governance and management as well as the associated technology, which are issued by international organizations, such as COBIT. COBIT approach preserves information technology, maximizes its benefits, improves its outputs and ensures that the company's strategic goals are achieved. In this regard, the present study aimed at investigating the impact of information governance and management as well as the associated technology according to COBIT framework on the characteristics of primary accounting information in Jordanian commercial banks. The study used a questionnaire as a research tool and the study population consisted of all Jordanian commercial banks (13 banks). The study used the purposeful sample (managers, heads of departments and heads of units, who are working at the financial department, internal control and audit department, risk management department and information technology department in banks). Two hundred and eighty-six questionnaires were distributed, of which one hundred and seventy-four questionnaires were collected and finally one hundred and seventy-one questionnaires are used for hypothesis testing. The study concluded that information governance and management as well as the associated technology according to COBIT framework affect the characteristics of primary accounting information (relevance and reliability) in Jordanian commercial banks. The study recommended defining organizational relationships and separating jobs in Jordanian commercial banks. © 2021 University of Jordan, Deanship of Scientific Research. All rights reserved.

Al-Qerem, W., Hailat, M.M., Gassar, E.S., Jarab, A.S.

Development and validation of medication storage and disposal questionnaire

(2021) Journal of Pharmaceutical Health Services Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140929991&doi=10.1093%2Fjphsr%2Ffmaa024&partnerID=40&md5=9d851cc417bf6afafc2cdd744cd9c528)

[85140929991&doi=10.1093%2Fjphsr%2Ffmaa024&partnerID=40&md5=9d851cc417bf6afafc2cdd744cd9c528](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85140929991&doi=10.1093%2Fjphsr%2Ffmaa024&partnerID=40&md5=9d851cc417bf6afafc2cdd744cd9c528)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Physiology Department, Faculty of Medicine, University of Benghazi, Benghazi, State of Libya;

Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Objectives Inappropriate medication storage and disposal is a global problem and has a negative impact on public health, economy and the environment. One of the main causes of this problem is the lack of knowledge among the population about medication storage and disposal. This study aimed to develop a tool to measure knowledge and practice about medication storage and disposal and measure it among the Jordanian population. Methods This web-based cross-sectional study developed a tool to evaluate medication storage and disposal knowledge attitude and practice. Exploratory factor analysis, analysis of variance and t-test were conducted to analyze the data. Key findings 1132 responses were collected. The exploratory factor analysis suggested a three-factor model, the three models are knowledge-need, patient-related, and medication-related factors. Knowledge-need factor evaluates the participants' perceptions of the need for awareness and regulations regarding medication storage and disposal. The patient-related factor evaluates medication discontinuation behaviours. Medication-related factor evaluates the handling of damaged or expired medication practices. The highest mean of all three factors was for the knowledge-need factor (mean = 4.13), while the lowest was for the patient-related factor (mean = 3.22). The education level was negatively associated with patient-related factor indicating good behaviours. The means of the three factors were significantly associated with the respondents reporting that they know the correct medication storage and disposal behaviours, and the respondents believing that there are consequences of keeping medication at home. Conclusion The questionnaire was a valid and reliable tool to assess the

knowledge and practice of medication storage and disposal. This study's findings suggest that the lack of knowledge is the main reason behind the inappropriate medication storage and disposal practice. There is a need for awareness-improvement, which should involve healthcare awareness campaigns and governmental regulations. © The Author(s) 2021. Published by Oxford University Press on behalf of the Royal Pharmaceutical Society. All rights reserved.

Al-Mterin, M.A., Aboalhaija, N.H., Abaza, I.F., Kailani, M.H., Zihlif, M.A., Afifi, F.U.
Chromatographic Analysis (LC-MS and GC-MS), Antioxidant Activity, Total Phenol and Total Flavonoid Determination of *Ononis natrix* L. Grown in Jordan

(2021) *Jordan Journal of Chemistry*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138718558&doi=10.47014%2f16.1.4&partnerID=40&md5=fcc8f078986200de7a499b08d7aae2e7)

[85138718558&doi=10.47014%2f16.1.4&partnerID=40&md5=fcc8f078986200de7a499b08d7aae2e7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85138718558&doi=10.47014%2f16.1.4&partnerID=40&md5=fcc8f078986200de7a499b08d7aae2e7)

AFFILIATIONS: Department of Pharmacology, School of Medicine, The University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Chemistry, School of Science, The University of Jordan, Amman, Jordan;

Department of Pharmaceutical Chemistry and Pharmacognosy, Applied Science Private University, Amman, Jordan

ABSTRACT: The purpose of the present study was to identify, by gas chromatography (GC) and GC-mass spectrometry (GC-MS), the components of the spontaneously emitted volatile organic compounds (VOCs), obtained by Solid-Phase-Micro-Extraction (SPME) and that of the hydrodistilled oil of the fresh flowers and leaves of *Ononis natrix*, as well as to compare them. The hydrodistilled leaf oil was rich in non-terpenoid aldehydes, whereas its aroma profile contained mainly sesquiterpene hydrocarbons with α -copaene and germacrene D as their major components. The hydrodistilled oil of the fresh flowers, however, revealed nearly equal amounts of terpenoid and non-terpenoid compounds; 51.00% and 46.54%, respectively. The aroma profile of the fresh flowers was dominated by monoterpene hydrocarbons with α -pinene (42.96%) and α -thujene (20.17%) as the predominant two monoterpenes. Based on the high total phenol and flavonoid contents of the water and ethanol extracts, LC-MS analysis was carried out to identify the major compounds from each sample. From the water extract, eleven compounds were identified, whereas the ethanol extract contained eight, whereby luteolin (from the water extract) and apigenin (from the ethanol one) were named as the major flavonoids, respectively. © 2021, Yarmouk University. All rights reserved.

Staegemann, D., Volk, M., Saxena, A., Pohl, M., Nahhas, A., Häusler, R., Abdallah, M., Bosse, S., Jamous, N., Turowski, K.

Challenges in Data Acquisition and Management in Big Data Environments

(2021) *International Conference on Internet of Things, Big Data and Security, IoTBDS - Proceedings*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132038068&partnerID=40&md5=b3425ca62903eab3f71b563b1315eba8)

[85132038068&partnerID=40&md5=b3425ca62903eab3f71b563b1315eba8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132038068&partnerID=40&md5=b3425ca62903eab3f71b563b1315eba8)

AFFILIATIONS: Magdeburg Research and Competence Cluster Very Large Business Applications, Faculty of Computer Science, Otto-von-Guericke University Magdeburg, Magdeburg, Germany;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In the recent years, the term big data has attracted a lot of attention. It refers to the processing of data that is characterized mainly by 4Vs, namely volume, velocity, variety and veracity. The need for collecting and analysing big data has increased manifolds these days as organizations want to derive meaningful information out of any data that is available and create value for the business. A challenge that comes with big data is inferior data quality due to which a lot of time is spent on data cleaning. One prerequisite for solving data quality issues is to understand the reasons for their occurrence. In this paper, we discuss various issues that cause reduced quality of the data during the acquisition and management. Furthermore, we extend the research to categorize the quality of data with respect to the identified issues. © 2021 by SCITEPRESS - Science and Technology Publications, Lda.

Al Bataineh, M.T., Alzaatreh, A., Hajjo, R., Banimfreg, B.H., Dash, N.R.

Compositional changes in human gut microbiota reveal a putative role of intestinal mycobacteria in metabolic and biological decline during aging

(2021) *Nutrition and Healthy Aging*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130217071&doi=10.3233%2fNHA-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130217071&doi=10.3233%2fNHA-210130&partnerID=40&md5=7b92c6ac738cd68b5de092fc423d4019)

[210130&partnerID=40&md5=7b92c6ac738cd68b5de092fc423d4019](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85130217071&doi=10.3233%2fNHA-210130&partnerID=40&md5=7b92c6ac738cd68b5de092fc423d4019)

AFFILIATIONS: Clinical Sciences Department, College of Medicine, University of Sharjah, Post Code -27272, Sharjah, United Arab Emirates;

Center for Biotechnology, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;

Department of Genetics and Molecular Biology, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates;
College of Arts and Sciences, American University of Sharjah, Sharjah, United Arab Emirates;
Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Laboratory for Molecular Modeling, Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy, University of North Carolina, Chapel Hill, NC, United States;
National Center for Epidemics and Communicable Disease Control, Amman, Jordan;
College of Engineering, American University of Sharjah, Sharjah, United Arab Emirates

ABSTRACT: BACKGROUND: Age-related alterations in the composition and function of gut microbiota may influence human health and disease mechanisms. However, connections between compositional changes in gut bacterial and fungal communities, and their role in the aging process, remain poorly understood. **OBJECTIVE:** Compare the gut microbiota and mycobiota composition in different age groups and evaluate the functionality. **METHODS:** In this study, we performed 16S rRNA and ITS2 gene-based microbial profiling analysis and shotgun metagenomics using the NextSeq platform. **RESULTS:** We observed a shift in compositional changes of human gut microbiota with age. Older individuals revealed a significantly different gut microbiota profile compared to younger individuals. For example, gut microbiota composition of the older individuals showed increase in genera Bacteroides, Blautia, Ruminococcaceae, and Escherichia coli. Additionally, older individuals had significant reduction in fungi belonging to saccharomyces cerevisiae and candida albicans in comparison to their younger counterparts. Moreover, metagenomics functional profiling analysis using shotgun metagenomics sequencing data showed substantial differences in the enrichment of 48 pathways between the young and older age groups. Metabolic pathways such as amino acid biosynthesis, carbohydrate metabolism, cell structure biosynthesis and vitamin biosynthesis were declined in the older age group, in comparison with the younger individuals. **CONCLUSIONS:** The identified differences provide a new insight to enrich our understanding of age-related changes in gut microbiota, their metabolic capabilities, and potential impact on health and disease conditions. © 2021 - The authors. Published by IOS Press.

Jebril, I.H., Jablawi, A., Abu Hammad, M., Ibrahim Khalaf, O.

Equivalences between fuzzy quantum logic complication and fuzzy coimplications classes

(2021) Materials Today: Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129603625&doi=10.1016%2fj.matpr.2020.10.363&partnerID=40&md5=1f24df87afac34d42cff7c8f2f48c640)

[85129603625&doi=10.1016%2fj.matpr.2020.10.363&partnerID=40&md5=1f24df87afac34d42cff7c8f2f48c640](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129603625&doi=10.1016%2fj.matpr.2020.10.363&partnerID=40&md5=1f24df87afac34d42cff7c8f2f48c640)

AFFILIATIONS: Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Department of Mathematics, Science Faculty, Taibah University, P.O. Box 30097, Zip Code 41477, Saudi Arabia;

Al-Nahrain Nano Renewable Energy Research Centre, Al-Nahrain University, Baghdad, 10072, Iraq

ABSTRACT: A systematic study of Quantum logic coimplications and D- coimplications generated by t-norm, t-conorm, and negation has been conducted. In this paper, will be study new characteristics related to Quantum logic coimplication and D- coimplication in addition study the equivalences between Quantum logic coimplication fuzzy coimplications classes ((T,N) coimplication, residual coimplication, and D- coimplication). Also, some examples as well as application are discussed as well. © 2020

Khleifat, K.M., Qaralleh, H., Al-Kafaween, M.A., Al-Limoun, M.O., Alqaraleh, M., Sabha, A.E.A.,

Shadid, K.A., Alqaisi, K., Buqain, R.A., Karamah, N., Nagi Al-Jama, H.A., Amonov, M., Abed, A.

Different optimization conditions required to enhance the reduction potential of silver nanoparticle biosynthesis via the Mycelia-free filtrate step using the fungus Aspergillus flavus

(2021) Applied Environmental Biotechnology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129123712&doi=10.26789%2fAEB.2021.01.005&partnerID=40&md5=8b1d6f9310437b86934e99ffe66e12fd)

[85129123712&doi=10.26789%2fAEB.2021.01.005&partnerID=40&md5=8b1d6f9310437b86934e99ffe66e12fd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129123712&doi=10.26789%2fAEB.2021.01.005&partnerID=40&md5=8b1d6f9310437b86934e99ffe66e12fd)

AFFILIATIONS: Department of Medical Laboratory Sciences, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Department of Biological Sciences, Mutah University, Al-Karak, Jordan;

Department of Medical Laboratory Analysis, College of Science, Mutah University, Al-Karak, Jordan;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pharmacological and Diagnostic Research Center (PDRC), Faculty of Pharmacy, Al-Ahliyya Amman

University, Amman, Jordan;

Cell Therapy Center-University of Jordan, Amman, Jordan;

Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia;

Faculty of Medicine, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Introduction: Fungi are one of the main approaches for synthesis of metallic nanoparticles (NPs), which can have medical and biotechnological applications such as their role in anti-bacterial, anti-cancer and various industrial activities. Objective: The current research focused on the biosynthesis of silver nanoparticles (AgNPs) using airborne fungi isolated from Al-karak general

hospital operation rooms. Materials and Methods: The fungal isolate was identified at the species level by sequencing ITS as *Aspergillus flavus*. The confirmation and characterization of biosynthesized AgNPs were conducted using UV-Vis spectrophotometer, Zeta potential, Zeta sizer, FT-IR, XRD and transmission electron microscope (TEM) analyses. Results: The average diameter of the resulting AgNPs was 499.3 nm with a PDI value of 0.28. The zeta potential was -34.9mV which reflects the ability of these nanoparticles to have a sufficient charge, because it is electrostatically stable and therefore resists self-assembly. TEM revealed that these biosynthesized AgNPs were regular and spherical in shape. The images of TEM showed that the size of AgNPs were smaller than those that were observed by DLS examination due the drying process that caused particle shrinkage. The average size of AgNPs were less than 40 nm. AgNPs exhibit different minimal inhibitory concentrations (MIC) against seven different bacteria (*K. pneumonia*, *E. coli*, *E. cloacae*, *S. aureus*, *S. epidermidis*, and *Shigella sp.*). The MICs ranged between 0.025 and 0.075 mg/mL with *P. aeruginosa* an exception which was the most resistant one, showing its MIC as > 0.125 mg/mL. Discussion and Conclusion: The results indicate that these molecules can be used as an important source for the treatment of many diseases caused by bacteria, in addition to testing these molecules in various fields such as cancer treatment and even in various biotechnological applications. © 2021 Khaled M Khleifat et al.

Staegemann, D., Volk, M., Pohl, M., Häusler, R., Nahhas, A., Abdallah, M., Turowski, K.
A Preliminary Overview of the Situation in Big Data Testing
(2021) International Conference on Internet of Things, Big Data and Security, IoTBDs - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85128721786&partnerID=40&md5=06811ad2bcb5e70874850c6c440c2d21>
AFFILIATIONS: Magdeburg Research and Competence Cluster Very Large Business Applications, Faculty of Computer Science, Otto-von-Guericke University Magdeburg, Magdeburg, Germany;
Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Due to the constantly increasing amount and variety of data produced, big data and the corresponding technologies have become an integral part of daily life, influencing numerous domains and organizations. However, because of its diversity and complexity, the necessary testing of the corresponding applications is a highly challenging task that lacks maturity and is still being explored. While there are numerous publications dealing with this topic, there is no sufficiently comprehensive overview to conflate those isolated pieces of information to a coherent knowledgebase. The publication at hand highlights this grievance by means of an unstructured literature review, proposes a starting point for a corresponding taxonomy to bridge this gap and highlights future avenues for research. © 2021 by SCITEPRESS - Science and Technology Publications, Lda.

Qasim, A., Refae, G.A.E., Eletter, S., Al-Chahadah, A.R.
Harnessing the Power of the Internet of Things (IoT) to Achieve an Agile Business Education Model: A Visionary Paper
(2021) 2021 8th International Conference on Internet of Things: Systems, Management and Security, IOTSMS 2021, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125636345&doi=10.1109%2fIOTSMS53705.2021.9704939&partnerID=40&md5=47080f4ea9660b459b8753a0b3b677b3>
AFFILIATIONS: Al Ain University, College of Business, Abu Dhabi, United Arab Emirates;
Alzaytoonah University, College of Business, Amman, Jordan
ABSTRACT: The emergence of artificial intelligence, big data, and the Internet of Things (IoT) has shifted human-human, human-machine, and machine-machine interaction to a new level. This shift is affecting all aspects of society's behavior toward the adoption of technology. One important pillar of society that is especially impacted by this radical change is that of education. The advancement of new technologies as well as the occurrence of unexpected global events has forced education systems in many countries to look differently at traditional educational issues and work toward becoming a more agile education system. This means being responsive to any unpredicted changes that may occur in the education environment. Indeed, the agility of business schools and technological adaptability is one of the standards required by program accreditation organizations (i.e., AACSB). This paper discusses the application of IoT in business education, focusing on the opportunities, challenges, and paths forward this presents. © 2021 IEEE.

Mallouh, M.A., Abdelhafez, E., Alajlouni, S., Salah, M.
Battery Electric Vehicle Powertrain Modeling, Simulation, and Performance Analysis
(2021) International Review on Modelling and Simulations, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125177755&doi=10.15866%2firemos.v14i6.21088&partnerID=40&md5=1120422cda085806bc835b43d9ff836a>
AFFILIATIONS: Mechatronics Engineering Department, The Hashemite University, Zarqa, Jordan;
Alternative Energy Technology Department, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Battery Electric Vehicles (BEVs) have been receiving a great attention among the many different powertrain configurations of electrified vehicles. There is intense competition among

automakers in terms of optimizing the BEVs' powertrain and improving their fuel economy, range, and other performance criteria. It is essential to conduct extensive simulations and model tuning before prototyping and testing. Hence, in this study, a detailed comprehensive model is developed and tuned to simulate the BEV powertrain. The model is tuned to closely match a common commercial BEV, the 2019 Nissan Leaf, in terms of powertrain specifications and driving performance. The validity of the developed model is established by testing it using three US Environmental Protection Agency drive cycles. The simulation results show a close similarity between the performance of the simulated model and the performance of the selected commercial BEV, which supports the usefulness of the developed model for future powertrain improvements. Furthermore, the effect of energy losses on driving performance is highlighted. The simulation results of the developed BEV model show a superior performance in terms of fuel economy when compared with the conventional, hybrid fuel cell/ battery, hybrid series electric, and hybrid parallel electric vehicle models. Copyright © 2021 Praise Worthy Prize S.r.l.-All rights reserved. © 2021 Praise Worthy Prize S.r.l.-All rights reserved.

Al-Kafaween, M.A., Hilmi, A.B.M.

Evaluation of the effect of different growth media and incubation time on the suitability of biofilm formation by *Pseudomonas aeruginosa* and *Streptococcus pyogenes*

(2021) Applied Environmental Biotechnology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85125039924&doi=10.26789/2FAEB.2021.02.003&partnerID=40&md5=3c0b21cefe5d8bc3af5139d278728826

AFFILIATIONS: Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Introduction: Biofilm formation has different stages and can be classified based on the bacterial strain, culture vessel, and the method employed. Biofilm formation is carried out in culture vessels to represent mode of infection in humans. Microbial concentration, growth medium, supplement, and incubation time are key factors to successfully form biofilm in a culture vessel. Objective: This study aimed to identify the optimum conditions for biofilm formation in a 96-well plate by culturing *Pseudomonas aeruginosa* and *Streptococcus pyogenes*. Materials and Methods: We utilized the infectious and pathogenic bacteria, *P. aeruginosa* and *S. pyogenes* strains. These bacteria were cultured in Mueller-Hinton Broth (MHB) and Tryptic Soy Broth (TSB) at two different optical densities (OD 0.05 and OD 0.1). After a certain incubation time, the formed biofilm was stained by using 0.1% crystal violet. The stained bacteria were disaggregated and measured using a microplate reader. Biofilm was then classified based on bacterial adherence to the plate. Results: Our results showed that *P. aeruginosa* and *S. pyogenes* biofilms were strongly formed on days 3 and 5 in MHB and TSB, respectively. However, the strongest biofilm formation was seen on day 3 after *P. aeruginosa* being incubated in MHB at OD 0.1 and after *S. pyogenes* being incubated in MHB at OD 0.05. Discussion: Biofilm formation is ranged between weak, moderate, and strong in accordance with the density of bacterial adhesion. Conclusion: *P. aeruginosa* and *S. pyogenes* biofilms were optimized at specific OD (0.1 and 0.05, respectively) for 3 days cultivation in MHB. © 2021 Mohammad A. Al-kafaween and Abu Bakar Mohd Hilmi.

Mohammad, B., Alzyadat, W., Al-Fayoumi, M., El Hawi, R., Ayshalhroob

An Improve the Quality of Data Considering Big Data Aspect Based on Sensitive of Cost Time

(2021) 7th International Conference on Engineering and Emerging Technologies, ICEET 2021, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85124658654&doi=10.1109/2FICEET53442.2021.9659660&partnerID=40&md5=46b390a5fd81c8b6fc240a46fd98bc86

AFFILIATIONS: Faculty of Information Technology Isra University, Department of Software Engineering, Amman, Jordan;

Faculty of Information Technology Al-Zaytoonah University, Department of Software Engineering, Amman, Jordan;

Faculty of Business Isra University, Department of Business Administration, Amman, Jordan

ABSTRACT: Big data is term of dataset with characteristic volume, value and veracity that lead to confrontation unable proceed using traditional techniques to extract value, project management perspective is dynamic processing that utilizes the suitable resources of organization in many stages by measuring in four-factor scope, time, cost and quality. In this research aim improve data quality from big data via project management scope consist on high trust which is bring high accuracy from confidence level in volume of data, confidence get with context and value of data which lead to determine accuracy deeply in it and finally select from data depending on veracity of it, the experiment using three main factors time, cost and scope, strongest relation organizing between them start by project scope as strongest one then cost, product and Last one time is weakest between them, in the final when select best quality use two sides mostly from quality degree and be center of quality interval and in particular from closest distance with the strongest factor. © 2021 IEEE.

Al Dahoud, A., Fezari, M., Al Dahoud, A.

Automatic solar panel cleaning system Design

(2021) 2021 29th Telecommunications Forum, TELFOR 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124616978&doi=10.1109%2fTELFOR52709.2021.9653215&partnerID=40&md5=cc0520ae36f5645fff99e8ce3ac02204)

[85124616978&doi=10.1109%2fTELFOR52709.2021.9653215&partnerID=40&md5=cc0520ae36f5645fff99e8ce3ac02204](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124616978&doi=10.1109%2fTELFOR52709.2021.9653215&partnerID=40&md5=cc0520ae36f5645fff99e8ce3ac02204)

AFFILIATIONS: Al Zaytoonah University of Jordan, IT Faculty, Amman, Jordan;

University Badji Mokhtar, Faculty of Engineering, Annaba, Algeria;

University of Jordan, Architecture and Design Faculty, Amman, Jordan

ABSTRACT: This paper aims to develop an automatic cleaning system for Photovoltaic (PV) solar panels installed on the roof of University Al-Zaytoonah faculty of IT in Jordan. The experiments were done at University Badji Mokhtar Annaba Algeria. We designed a dust detector and perform tests on it for calibration. The brain of the system is an Arduino Uno microcontroller, which gets data from the dust sensor then makes treatment and sends instructions to the system to perform the cleaning process. The cleaning process is based on-power circuit that controls the speed and direction of a motor to scan all surface of the PV panel. GUI was developed to monitor the system and sensor status. The collected data is transmitted to the central unit. Finally, the primary results obtained to meet our expatiations for optimizing the efficiency of the solar panels. © 2021 IEEE.

Abu Helal, A.-R.

A Puzzle Related to Negated Approximative Kaada in Standard Arabic

(2021) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123867841&partnerID=40&md5=8396aa47b5ee28ce73166f7db01b801b)

[85123867841&partnerID=40&md5=8396aa47b5ee28ce73166f7db01b801b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123867841&partnerID=40&md5=8396aa47b5ee28ce73166f7db01b801b)

AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan

ABSTRACT: We analyze a semantic ambiguity that arises when negating approximative kaada in Standard Arabic. We show that the ambiguity is derived by having different mappings of the negative relative to the exhaustive operator that quantifies over the subtraction of kaada operator. © 2021 DSR Publishers/The University of Jordan. All Rights Reserved.

Aldalahmeh, S.A., Alsakarnah, R., Al-Jazzar, S.O., Nurellari, E.

Distributed Localization in Censored Wireless Sensor Networks with Binary Data

(2021) 2021 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123771311&doi=10.1109%2fJEEIT53412.2021.9634100&partnerID=40&md5=611c6d0b3709e1ec845f4399a8470a99)

[85123771311&doi=10.1109%2fJEEIT53412.2021.9634100&partnerID=40&md5=611c6d0b3709e1ec845f4399a8470a99](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123771311&doi=10.1109%2fJEEIT53412.2021.9634100&partnerID=40&md5=611c6d0b3709e1ec845f4399a8470a99)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Communication And Computer Engineering, Amman, Jordan;

School of Engineering University of Lincoln, College of Science, Lincoln, United Kingdom

ABSTRACT: In this paper we investigate distributed localization of an intruder in wireless sensor networks (WSNs), in which the sensor nodes (SNs) censor their transmission to the fusion center (FC). The SNs locally detect the intruder and send their decision only if it is positive. The FC, on the other hand, uses those binary data to localize the intruder. We present the censored maximum likelihood (cML) localization algorithm, Furthermore, we derive two computationally simple localization algorithms, the quadratic approximate ML (QAML) and the linear approximate ML (LAML). The performance of the ML-based algorithms significantly outperforms the heuristics-based algorithms, such as the centroid method (CM) and the center of maximum enclosing rectangle (CMER), as the simulation results show. © 2021 IEEE.

Aldalahmeh, S.A., Al-Jazzar, S.O., Alsakarnah, R., Ciuonzo, D.

Optimal Linear Fusion Rule for Distributed Detection in Clustered Wireless Sensor Networks

(2021) 2021 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2021 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123749762&doi=10.1109%2fJEEIT53412.2021.9634157&partnerID=40&md5=e5cdb207e59c7fd5deff5bff6d8dd2ec)

[85123749762&doi=10.1109%2fJEEIT53412.2021.9634157&partnerID=40&md5=e5cdb207e59c7fd5deff5bff6d8dd2ec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123749762&doi=10.1109%2fJEEIT53412.2021.9634157&partnerID=40&md5=e5cdb207e59c7fd5deff5bff6d8dd2ec)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department Communication And Computer Engineering, Amman, Jordan;

University of Napoli 'Federico II', Department of Electrical Engineering And Information Technology, Naples, Italy

ABSTRACT: In this paper we consider the distributed detection of intruders in clustered wireless sensor networks (WSNs). The WSN is modelled by a homogeneous Poisson point process (PPP). The sensor nodes (SNs) compute local decisions about the intruder's presence and send them to the cluster heads (CHs). Hence, the CHs collect the number of detecting SNs in the cluster. The fusion center (FC), on the other hand, combines the the CH's data in order to reach a global detection decision. We propose an optimal cluster-based linear fusion (OCLR), in which the CHs' data are linearly fused. Interestingly, the OCLR performance is very close to the optimal clustered fusion rule (OCR) previously proposed in literature. Furthermore, the OCLR performance approaches the optimal Chair-

Varshney fusion rule as the number of SNs increases. © 2021 IEEE.

Abdalrahman, O., Suleiman, K.

Insomnia in Post-Hematopoietic Stem-Cell Transplant Patients in Jordan: Prevalence and Associated Factors

(2021) Sleep Medicine Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85123585678&doi=10.17241%2fSMR.2021.00962&partnerID=40&md5=fa647217d235143578f0f6eb18effab6)

85123585678&doi=10.17241%2fSMR.2021.00962&partnerID=40&md5=fa647217d235143578f0f6eb18effab6

AFFILIATIONS: Nursing Department, King Hussein Cancer Center, Amman, Jordan;

School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background and ObjectiveaaInsomnia is a common symptom that is experienced by the patientspost hematopoietic stem cell transplant that interfere with recovery outcomes and patients'quality of life. Little is known about insomnia among post hematopoietic stem cell transplant inJordan and in other Arab countries. The purpose of the current study was to identify the levels ofinsomnia and the related factors in post hematopoietic stem cell transplant.MethodsaaA descriptive cross-sectional correlational design was used to guide this study. Datawas collected from 163 patients by the Arabic version of the Insomnia Severity Index (ISI).ResultsaaThe participant's average ISI was 14.06 ± 7.71 indicating sub-threshold insomnia. Regardingthe insomnia levels, 23.9% of the participants reported no insomnia, 27.6% had subthresholdinsomnia, 31.3% had moderate clinical insomnia, and 17.2% had severe clinical insomnia.A significant difference in insomnia levels in some related factors was reported including thehigher educated patients ($t = 2.40$, $p = 0.018$), patients who received allogeneic transplants ($t = -2.932$, $p = 0.004$), and patients within a 30 days' post-transplant ($F(160, 2) = 61.03$, $p < 0.001$).ConclusionsaaIn conclusion, the overall prevalence of insomnia among post HSCT patients was48.5% ($n = 79$) that suggested clinical insomnia, and it was affected by several clinical variables.Further studies are needed to provide appropriate interventions to decrease insomnia levels amongpatients. © 2021 The Korean Society of Sleep Medicine

Hong, Y.N.T., McLernon, D., Ghogho, M., Tam, L.H.D., Zaidi, S.A.R., Aldalahmeh, S.A.

A Chirp-based, Adaptive, Signal-dependent Reduced Interference Distribution for Limited Data

(2021) International Conference on Advanced Technologies for Communications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122926709&doi=10.1109%2fATC52653.2021.9598230&partnerID=40&md5=5480c371f3948807fb05d14993483238)

85122926709&doi=10.1109%2fATC52653.2021.9598230&partnerID=40&md5=5480c371f3948807fb05d14993483238

AFFILIATIONS: The University of Danang, University of Science and Technology, Viet Nam;

The University of Leeds, School of Electronic and Electrical Engineering, Leeds, United Kingdom;

International University of Rabat, School of Computer Science, Rabat, Morocco;

Hue University, University of Sciences, Hue, Viet Nam;

Al-Zaytoonah University of Jordan, Faculty of Engineering and Technology, Amman, Jordan

ABSTRACT: Noise-like artifacts, which are caused by incomplete and randomly sampled data, spread over the whole ambiguity domain, and thus seriously obscure the true time-frequency signature of the data. In this paper, a new design for the signal-dependent adaptive kernel is proposed, which is robust with missing data. The method relies on the properties of chirps whose auto-terms only reside in a fixed half of the ambiguity domain. The important thing is that this half excludes the Doppler axis, where the chirps' noise-like artifacts concentrate. By cutting out this region when performing the optimization problem, a better signal-dependent kernel for chirps is obtained, which efficiently suppresses not only the cross-terms but also the missing sample artifacts. Moreover, since any windowed non-stationary signals can be approximated as a sum of chirps, the proposed approach can be applied to other types of non-stationary signals. It is shown in the simulation that our method outperforms other reduced interference time-frequency distributions of incomplete observations. © 2021 IEEE.

Al-Zoubi, H., Abdel-Fattah, F., Al-Sabbagh, M.

Surfaces of Finite III-type in the Euclidean 3-Space

(2021) WSEAS Transactions on Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122793826&doi=10.37394%2f23206.2021.20.77&partnerID=40&md5=cd03fa74145997d8787be7e1a85f54a2)

85122793826&doi=10.37394%2f23206.2021.20.77&partnerID=40&md5=cd03fa74145997d8787be7e1a85f54a2

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Cyber Security, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Basic Engineering, Imam Abdulrahman bin Faisal University, Saudi Arabia

ABSTRACT: In this paper, we firstly investigate some relations regarding the first and the second Laplace operators corresponding to the third fundamental form III of a surface in the Euclidean space E^3 . Then, we introduce the finite Chen type surfaces of revolution with respect to the third fundamental form which Gauss curvature never vanishes. © 2021 World Scientific and Engineering Academy and Society. All rights reserved.

Al-Ajlouni, M.I., Alghusin, N.

Antecedents of investor sentiment in Jordan market: exploratory study via the structural equation modelling approach

(2021) International Journal of Services and Operations Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122147918&doi=10.1504%2fIJSOM.2021.119801&partnerID=40&md5=3b3e539d9f4f159cf9a05e6bd0fbce7d)

85122147918&doi=10.1504%2fIJSOM.2021.119801&partnerID=40&md5=3b3e539d9f4f159cf9a05e6bd0fbce7d

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Banking and Finance, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The concept of investor sentiment deals with the psychological attitudes the investor has toward the security of the fiscal market or a related certain situation; accordingly, different antecedents and determinants make-off that attitudes. The current paper explores antecedents for investor sentiment (IS) in Amman Stock Exchange (ASE) using investor sentiment index (ISI) utilising SEM approach. Data was collected through surveying 401 current and potential investors in ASE through no probability purposive sampling using a self-administrated questionnaire. SEM using AMOS was employed and the result reported that the suggested ISI sufficiently predicted IS in Jordan setting as explained 62% of the achieved variance; moreover, IC was identified as the strongest antecedent along with PC, whereas SC and MC were identified as negative antecedents, and accordingly, the implication was discussed. Copyright © 2021 Inderscience Enterprises Ltd.

Althunibat, A., Alzyadat, W., Muhairat, M., Alhroob, A., Almukahel, I.H.

An Approach to Acquire the Constraints Using Panel Big Data Hybrid Association Rule and Discretization Process for Breast Cancer Prediction

(2021) Journal of Healthcare Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121960760&doi=10.1155%2f2021%2f3870147&partnerID=40&md5=a06547410e2f43a5b66a6bf7c64e4090)

85121960760&doi=10.1155%2f2021%2f3870147&partnerID=40&md5=a06547410e2f43a5b66a6bf7c64e4090

AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Software Engineering Department, Faculty of Information Technology, Isra University, Amman, Jordan

ABSTRACT: In recent years, big data has become an important branch of computer science. However, without AI, it is difficult to dive into the context of data as a prediction term, relying on a large feature of improving the process of prediction is connected with big data modelling, which appears to be a significant aspect of improving the process of prediction. Accordingly, one of the basic constructions of the big data model is the rule-based method. Rule-based method is used to discover and utilize a set of association rules that collectively represent the relationships identified by the system. This work focused on the use of the Apriori algorithm for the investigations of constraints from panel data using the discretization preprocess technique. The statistical outcomes are associated with the improved preprocess that can be applied over the transaction and it can illustrate interesting rules with confidence approximately equal to one. The minimum support provided to the present rule considers constraint as a milestone for the prediction model. The model makes an effective and accurate decision. In nowadays business, several guidelines have been produced. Moreover, the generation method was upgraded because of an association data algorithm that works for dissimilar principles of the structures compared with fewer breaks that are delivered by the discretization technique. Copyright © 2021 Ahmad Althunibat et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Khalil, R., Al-Awaida, W.J., Al-Ameer, H.J., Jarrar, Y., Imraish, A., Al Bawareed, O., Qawadri, R., Al Madhoun, F., Obeidat, L.

Investigation of ace rs4646994, mthfr rs1801133 and vdr rs2228570 genotypes in jordanian patients with fibromyalgia syndrome

(2021) Endocrine, Metabolic and Immune Disorders - Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121389786&doi=10.2174%2f1871530321666201223104622&partnerID=40&md5=1d2be64b930277a66fa7996a6ed110a8)

85121389786&doi=10.2174%2f1871530321666201223104622&partnerID=40&md5=1d2be64b930277a66fa7996a6ed110a8

AFFILIATIONS: Department of Biotechnology and Genetic Engineering, Faculty of Science, Philadelphia University, Amman, Jordan;

Department of Biology and Biotechnology, American University of Madaba, Madaba, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Science, Department of Biology, The University of Jordan, Amman, 11942, Jordan;

Department of Normal Physiology, Peoples` Friendship, University of Russia (RUDN University), Moscow, Russian Federation

ABSTRACT: Background:: Fibromyalgia syndrome (FMS) is a chronic disease characterized by widespread body pain, weakness in certain parts of the body (critical points), low pain tolerance, sleep disturbances, and fatigue. This syndrome is considered rare in Jordan. Objectives: The research aimed to find out the association of the angiotensin converting enzyme, methylenetetrahydrofolate

reductase, and vitamin D receptor (ACE, MTHFR, and VDR, respectively) genotypes with FMS among Jordanian patients. Methods: This work included 22 FM patients and 22 healthy individuals of Jordanian Arabic origin. The ACE rs4646994, MTHFR rs1801133, and VDR rs2228570 genotypes were determined using polymerase chain reaction (PCR) followed by restriction fragment length polymorphism. Results: No associations between ACE rs4646994, MTHFR rs1801133, and VDR rs2228570 with the vulnerability of a person for the development of FMS were found. However, we found an association between the ACE rs4646994 genotype and restless leg among FM patients. Conclusion: Based on the result from this study, it appears that the ACE rs4646994 genotype is associated with restless leg among FMS patients of Jordanian origin. Further clinical investigations with larger sample sizes are required to confirm these findings and understand the molecular mechanism of ACE rs4646994 genetic variant in the restless leg syndrome among FM patients. © 2021 Bentham Science Publishers.

Alqatawneh, S., Jaber, K.M., Salah, M., Yehia, D.B., Alqatawneh, O., Abulahoum, A.
Employing of object tracking system in public surveillance cameras to enforce quarantine and social distancing using parallel machine learning techniques

(2021) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121327529&partnerID=40&md5=7b424452f200e4f2809f73cab704433e)

[85121327529&partnerID=40&md5=7b424452f200e4f2809f73cab704433e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121327529&partnerID=40&md5=7b424452f200e4f2809f73cab704433e)

AFFILIATIONS: Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Science and IT, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Jordan;

University of Huddersfield, West Yorkshire, United Kingdom

ABSTRACT: Like many countries, Jordan has resorted to lockdown in an attempt to contain the outbreak of Coronavirus (Covid-19). A set of precautions such as quarantines, isolations, and social distancing were taken in order to tackle its rapid spread of Covid-19. However, the authorities were facing a serious issue with enforcing quarantine instructions and social distancing among its people. In this paper, a social distancing mentoring system has been designed to alert the authorities if any of the citizens violated the quarantine instructions and to detect the crowds and measure their social distancing using an object tracking technique that works in real-time base. This system utilises the widespread surveillance cameras that already exist in public places and outside many residential buildings. To ensure the effectiveness of this approach, the system uses cameras deployed on the campus of Al-Zaytoonah University of Jordan. The results showed the efficiency of this system in tracking people and determining the distances between them in accordance with public safety instructions. This work is the first approach to handle the classification challenges for moving objects using a shared-memory model of multicore techniques. © Al-Zaytoonah University of Jordan (ZUJ).

Jaber, K.M., Abduljawad, M., Ahmad, A., Abdallah, M., Salah, M., Alhindawi, N.

E-learning mobile application evaluation: Al-zaytoonah university as a case study

(2021) International Journal of Advances in Soft Computing and its Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121322962&partnerID=40&md5=9edac8e394ef16b0dd9e1893616e7f3e)

[85121322962&partnerID=40&md5=9edac8e394ef16b0dd9e1893616e7f3e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121322962&partnerID=40&md5=9edac8e394ef16b0dd9e1893616e7f3e)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Arts, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Science and Information Technology, Jadara University, Jordan

ABSTRACT: The E-learning standard is made up of several different quality elements and characteristics. Scholars examined the effectiveness of E-learning from a variety of perspectives. However, studies concerning the quality of E-learning mobile applications in particular are limited. Hence, the present study looks at the factors that influence the use of the E-learning mobile application by students and instructors of the Al-Zaytoonah University in Jordan throughout the academic year 2020-2021. The research instrument was initially validated. Subsequently, several quality factors were adopted to anticipate the factors affecting the adoption of the Elearning.ZUJ mobile application of nine hundred thirty-one students and one hundred nine instructors in this study. Regarding the actual usage of the E-learning mobile application for academic activities, in different proportions, the findings of this investigation were compatible with the adopted quality factors. Results revealed a significant positive relationship between the perceived reliability and demand for using E-learning applications. In addition to a significant positive relationship between the perceived benefit and behavioral intention to use E-learning mobile applications, the results show the following perceived quality factors: reliability, efficiency, integrity, usability, satisfaction, and supportability. The findings should be valuable to educational officials at the Al-Zaytoonah University of Jordan and elsewhere as existing technology could be improved or they could

embrace new technology for academic purposes. © Al-Zaytoonah University of Jordan (ZUJ).

Salah, M.I., Mazhar, A.A., Mizher, M.A.

Optimization of video cloud gaming using fast HEVC video compression technique
(2021) International Journal of Advances in Soft Computing and its Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121313797&partnerID=40&md5=07c08ec11c2a982ff1ca64f5c15fd31f>

AFFILIATIONS: Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Jordan;
SAE, School of Creative Media, Department of Multimedia, Amman Institute, Jordan;
Faculty of Computer Sciences and Informatics, Amman Arab University, Jordan

ABSTRACT: Cloud computing is a model of technology that offers access to system resources with advanced level of services ability. These resources are measured reliable, flexible and affordable for several kinds of applications and users. Gaming manufacturing is one field that expands the profits of cloud computing as numerous new cloud gaming designs have been presented. Many advantages of cloud gaming have exaggerated the success of gaming based on the improvements on traditional online gaming. Though, cloud gaming grieves from several downsides such as the massive amount of needed video processing and the computational complexity required for that. This paper displays the original system drawbacks and develops a new and original algorithm to speed up the encoding process by reduces the computational complexity by exploiting the block type and location. Enhancements on the video codec led to 12.2% speeding up on the over-all encoding time with slight loss of users' satisfactions. © Al-Zaytoonah University of Jordan (ZUJ).

Hashem, T.N., Alnsour, M.S., Ali, N.N., Hashem, F.N., Hashem, A.N., Abu Hamideh, O.S.M.

The impact of 'shockvertising' on consumer behavior: Investigating its influence on the "why buy" aspect

(2021) WSEAS Transactions on Business and Economics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121140301&doi=10.37394%2f23207.2021.18.123&partnerID=40&md5=550fe051d4b94f3d544c6a6078508765>

AFFILIATIONS: Marketing Department, Isra University, Amman, Jordan;
Al-Balqa Applied University, Jordan;

Marketing Department, Business College, AL Zaytoonh University of Jordan, Jordan;
College of Business, Tafila Technical University, Jordan;

Faculty of Administrative and Financial Sciences, Isra University, Amman, Jordan;
Marketing Department, Business College, AL Zaytoonh University of Jordan, Jordan

ABSTRACT: -Current study focused on highlighting the influence of shockvertising (Disgusting Images, Sexual References, Profanity/Obscenity, Vulgarity, Impropriety, Moral Offensiveness and Religious Taboos) on consumer behavior in its two dimensions of repurchase intention and word of mouth. Through depending on quantitative approach and utilizing a questionnaire as a tool; researcher distributed on (431) Jordanian consumers within the online social platforms due to COVID 19 lockdown and quarantine. Through SPSS, results of study indicated that shockvertising - along with its variables - plays a role in negatively influencing consumer behavior, analysis also revealed that using religious taboos as advertisement material was the most influential aspect of shockvertising as people tend to act emotionally in reference to their religion, also, results indicated that shockvertising an influence consumer behavior variables and mostly repurchase intention as a consumer is willing to boycott a brand if it presented any offending ad. © 2021, World Scientific and Engineering Academy and Society. All rights reserved.

Al-Ajlouni, M.I.

Predicting entrepreneurial intentions among postgraduate students using the theory of planned behaviour: Jordan case

(2021) International Journal of Entrepreneurship and Small Business, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120943941&doi=10.1504%2fIJESB.2021.119229&partnerID=40&md5=c337f19d063bb09b550cf1ca7abfdb47>

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The current study used the theory of planned behaviour (TPB) to predict the intentions toward the entrepreneurship and identify insignificant antecedents for these intentions. The study targeted postgraduate students majoring in business and finance schools in the two top universities in Jordan. Through purposive sampling and completion of a self-administrated questionnaire, (308) respondents were included in the sample. Adopting a quantitative descriptive approach and structural equation modelling (SEM) with the use of partial least squares, results reported that TPB predicted (41%) of variance in respondents' intentions: Attitudes toward behaviour and subjective norms (SN) were seen to be moderate-level significant antecedents, while perceived behavioural control (PBC) was seen to be an insignificant antecedent; moreover, the entrepreneurship education programs (EEP) significantly influenced the three antecedents. Following the results, implications and suggestions are discussed; directions for further research are suggested. © 2021 Inderscience Enterprises Ltd..

All rights reserved.

Choi, B.M., Abraham, R.B., Halawah, H., Calamia, M., Obeng-Kusi, M., Alrawashdh, N., Arku, D., Abraham, I.

Comparing jurisdiction-specific pharmaco-economic evaluations using medical purchasing power parities (2021) *Journal of Medical Economics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120851450&doi=10.1080%2f13696998.2021.2007705&partnerID=40&md5=fb0aa00fc677eacbdba2bcbeb2a20b671)

[85120851450&doi=10.1080%2f13696998.2021.2007705&partnerID=40&md5=fb0aa00fc677eacbdba2bcbeb2a20b671](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120851450&doi=10.1080%2f13696998.2021.2007705&partnerID=40&md5=fb0aa00fc677eacbdba2bcbeb2a20b671)

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, University of Arizona, Tucson, AZ, United States;

Department of Community, Environment and Policy, Mel and Enid Zuckerman College of Public Health, University of Arizona, Tucson, AZ, United States;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Utrecht University, Utrecht, Netherlands;

University of Arizona Cancer Center, Tucson, AZ, United States

ABSTRACT: Objectives: To demonstrate how medical purchasing power parities (mPPP) may harmonize economic evaluations from different jurisdictions and enable comparisons across jurisdictions.

Methods: We describe the use of mPPPs and illustrate this with an example of economic evaluations of nab-paclitaxel with gemcitabine (Nab-P + Gem) versus gemcitabine monotherapy in the setting of metastatic pancreatic cancer. Following a literature search, we extracted data from cost-effectiveness studies on these treatments performed in various countries. mPPPs from the Organization for Economic Co-operation and Development were used to convert reported costs in the jurisdiction of origins to US dollars for the most current year using two possible pathways: (1) reported costs first adjusted by mPPP then adjusted by exchange index; and (2) reported costs first adjusted by exchange index then adjusted by mPPP. Results: Despite many of the pharmaco-economic evaluations sharing similar assumptions and inputs, even after mPPP conversion, residual heterogeneity was attributable to perspectives, discount rate, outcomes, and costs, among others; including in studies conducted in the same jurisdiction. Conclusion: Despite the methodological challenges and heterogeneity within and across jurisdictions, we demonstrated that mPPP offers a way to compare economic evaluations across jurisdictions. © 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Hamdallah, M.E., Srouji, A.F., Mahadin, B.K.

Intrinsic and extrinsic motivations on business school students' aspirations: The gender role models perspective

(2021) *Journal of Governance and Regulation*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120713795&doi=10.22495%2fJGRV10I4ART15&partnerID=40&md5=ccd930860ddd7f00c6b696f2f227e)

[85120713795&doi=10.22495%2fJGRV10I4ART15&partnerID=40&md5=ccd930860ddd7f00c6b696f2f227e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120713795&doi=10.22495%2fJGRV10I4ART15&partnerID=40&md5=ccd930860ddd7f00c6b696f2f227e)

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University, Amman, Jordan;

Accounting Department, King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, Jordan;

Marketing Department, Faculty of Business and Finance, American University of Madaba, Madaba, Jordan

ABSTRACT: This study aims to explore the effect of intrinsic and extrinsic motivation on business school students' aspirations to become entrepreneurial managers in the future and whether the gender of their university instructor affects such a relationship. Gender equivalence proved to devour an instructive advantage over students (Aragonés-González, Rosser-Limiñana, & Gil-González, 2020), in addition to the idea that gender competence is a key element in the educational field (Palmén et al., 2020). The hypothesized paradigm is tested through multiple regression and univariate tests based on the responses of 321 Jordanian university students who finished entrepreneurship courses to pursue nexuses between the endogenous and exogenous variables. Results indicated that both intrinsic and extrinsic motivations affect students' aspirations to become entrepreneurial managers in the future in favor of their role models. Additionally, both intrinsic and extrinsic motivations are affected by female instructors. However, male instructors only inspired the intrinsic motivation of the students. As female academic instructors face challenges attributed to gender bias, especially in the Arab and Middle Eastern countries, the results of the study hope to help change the discerning negative perceptions of female instructors in Jordanian and Arab universities. Such problems in gender inspiration affect the prospect of the outcomes required and may have an indirect effect on the educational field in general. The study recommends focusing more on the effect of motivation and innovation efficiency based on gender type in addition to converging entrepreneurship educational research due to the COVID-19 pandemic (Ratten & Jones, 2021). © 2021 The Authors.

Magharbeh, M.K., Khleifat, K.M., Al-Kafaween, M.A., Saraireh, R., Alqaraleh, M., Qaralleh, H., Al-Tarawneh, A., Al-Limoun, M.O., El-Hasan, T., Hujran, T., Ajbour, S.H., Jarrah, N., Amonov, M., Al-Jamal, H.A.N.

Biodegradation of phenol by bacillus simplex: Characterization and kinetics study

(2021) Applied Environmental Biotechnology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120320468&doi=10.26789%2fAEB.2021.02.001&partnerID=40&md5=ecb7cad862cec7df82fa329a2096a6f2)

85120320468&doi=10.26789%2fAEB.2021.02.001&partnerID=40&md5=ecb7cad862cec7df82fa329a2096a6f2

AFFILIATIONS: Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Mu'tah University, Al-Karak, Jordan;

Biology Department, College of Science, Mutah University, Al-Karak, Jordan;

Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Pharmacological and Diagnostic Research Center, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Department of Medical Laboratory Analysis, College of Science, Mutah University, Al-Karak, Jordan;

Prince Faisal Center for Dead Sea, Environmental and Energy Research, Mutah University, Al-Karak, Jordan;

Department of Chemistry, College of Science, Mutah University, Al-Karak, Jordan;

Department of Chemical Engineering, College of Engineering, Mutah University, Al-Karak, Jordan;

Faculty of Medicine, Universiti Sultan Zainal Abidin, Terengganu, Malaysia;

Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

ABSTRACT: Phenol is one of the main pollutants that have a serious impact on the environment and can even be very critical to human health. The biodegradation of phenol can be considered an increasingly important pollution control process. In this study, the degradation of phenol by *Bacillus simplex* was investigated for the first time under different growth conditions. Six different initial concentrations of phenol were used as the primary substrate. Culture conditions had an important effect on these cells' ability to biodegrade phenol. The best growth of this organism and its highest biodegradation level of phenol were noticed at pH 7, temperature 28° C, and periods of 36 and 96 h, respectively. The GC-MS analysis of the bacterial culture sample revealed that further degradation of the catechol by 1,2-dioxygenase produce a cis, cis-mucconic acid via ortho-pathway and/or by 2,3-dioxygenase into 2-hydroxymucconic semialdehyde via meta-pathway. The highest biodegradation rate was perceived at 700 mg/L initial phenol concentration. Approximately 90% of the phenol (700 mg / L) was removed in less than 96 hours of incubation time. It was found that the Haldane model best fitted the relationship between the specific growth rate and the initial phenol concentration, whereas the phenol biodegradation profiles with time could be adequately described by the modified Gompertz model. The obtained parameters from the Haldane equation are: 1.05 h⁻¹, 9.14 ppm, and 329 ppm for Haldane's maximum specific growth rate, the half-saturation coefficient, and the Haldane's growth kinetics inhibition coefficient, respectively. The Haldane equation fitted the experimental data by minimizing the sum of squared error (SSR) to 1.36×10⁻³. © 2021 Mousa K. Magharbeh et al.

Al Rawajbeh, M., Sayenko, V.I., Alhadid, I.H., Al-Turjman, F., Ramasamy, L.K.

Evaluation of functional maturity for a network information service - Design and case analysis

(2021) International Journal of Ad Hoc and Ubiquitous Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85120050889&partnerID=40&md5=aeb51520f4f32420d0363fe184805e3f)

85120050889&partnerID=40&md5=aeb51520f4f32420d0363fe184805e3f

AFFILIATIONS: Computer Science Department, Faculty of Science and Information Technology, Al

Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Information Control Systems Department, Kharkov National University of Radio Electronics, Kharkov, Ukraine;

Information Technology Department, Faculty of Computer Information Systems, University of Jordan, Aqaba Branch, Jordan;

Research Center for AI and IoT, Near East University, Mersin 10, Nicosia, Turkey;

Department of Computer Applications, Hindusthan College of Engineering and Technology, India

ABSTRACT: The current study discusses methodological issues for monitoring process to control the state of developing information system. The main goal of this evolutionary process is to achieve the optimal value for some criteria. The proposed approach is considered as a conception for the evolution of properties for system (object) at the planning phase. The study has proposed the evolution conception of system properties for planning (development) phase, concept of improving the system properties, the indicators of the functional maturity, and the technique of evaluation of functional maturity. The planning phase, the quality indicators named 'functional maturity' is a concept of the evaluation of functional maturity in which estimates of the functional maturity indicators and a technique for functional maturity evaluation monitoring conception are done. The implementation of this technique has developed a tier-based procedure. The results have demonstrated that network planning should follow integrated work practices along with the implementations of solid system design. Copyright © 2021 Inderscience Enterprises Ltd.

Alhorani, R.A.M., Abu Elhaija, W., Bazlamit, S.M., Ahmad, H.S.

ABET accreditation requirements and preparation: Lessons learned from a case study of Civil Engineering Program

(2021) Cogent Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119863833&doi=10.1080%2f23311916.2021.1995109&partnerID=40&md5=4ad8cb5024d8403cee3290660c030479)

85119863833&doi=10.1080%2f23311916.2021.1995109&partnerID=40&md5=4ad8cb5024d8403cee3290660c030479

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Electrical Engineering, Princess Sumaya University for Technology, Amman, 11941, Jordan

ABSTRACT: With the need for specialized civil engineers rising in local and regional markets, Al-Zaytoonah University of Jordan (ZUJ) had launched the Civil and Infrastructure Engineering (CIE) program in 2009. The CIE program has aspired to be among renowned universities worldwide through the recognition of the Accreditation Board for Engineering and Technology (ABET). The CIE curriculum was adapted to meet the requirements of ABET. As a consequence of preparing for the first-time accreditation of the CIE program, the authors have learned several valuable lessons. This article constitutes a roadmap to those seeking first-time ABET (or other) engineering accreditation for their programs by reviewing the work of other successful first-time accreditation efforts and analyzing similar processes that were necessitated at ZUJ in preparation for the accreditation. In particular, the article describes the processes used and corresponding results of the ABET Site Visit completed in November and provides a good resource for conducting a sustainable continuous improvement process. Throughout the self-assessment process, feedback was gathered and information was solicited from internal and external formal/informal sources. Periodic collections of specific inputs regarding the program educational objectives, curriculum, and outcomes were requested through meetings, discussions, questionnaires and archives of the CIE Department in the period from 2016 to 2019. Data analysis was performed using Likert scale, statistical analysis, qualitative analysis and judgment to evaluate and perform the necessary reviews and revisions in the accreditation process. © 2021 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

Alzoubi, M., Kasasbeh, H.A.

The investment-saving puzzle in mena countries: Disentangling gross saving [Odnos investicija i štednje u mena zemljama: Razdvajanje bruto štednje]

(2021) Ekonomski Pregled, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117736830&doi=10.32910%2fep.72.5.6&partnerID=40&md5=f838864a89386a33ebf4609c4ecf597d)

85117736830&doi=10.32910%2fep.72.5.6&partnerID=40&md5=f838864a89386a33ebf4609c4ecf597d

AFFILIATIONS: AlZaytoonah University of Jordan, Jordan

ABSTRACT: The paper disentangles gross savings into government and private savings and investigate their impact on gross investment. Our methodology is based on a balanced panel of four MENA countries (Tunisia, Jordan, Egypt and Lebanon) for the period 2000-2017 by employing the Panel Vector Autoregressive Model (PVAR). Our findings show that government savings as a ratio of GDP does not have any impact on investment while private savings as a ratio of GDP does. Both variables exhibit the correct signs. The results also show that mobility of private saving is high and seemingly statistically inconsistent with the Fielstein and Horioka (1980) puzzle. Our paper also reveals that even though OECD countries are more open than our sample countries, the higher capital mobility of our sample is driven by the economic and political instability in the region. © 2021, Hrvatsko Drustvo Ekonomista. All rights reserved.

Khdaire, S.I., Jarrar, Y.B., Jarrar, W.

Immunogenetic prediction of VDR gene SNPs: Lack of association with susceptibility to type 1 diabetes in Jordanian patients

(2021) Diabetes, Metabolic Syndrome and Obesity, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85117722599&doi=10.2147%2fDMSO.S333005&partnerID=40&md5=1c75225a1f64c233a78f2f87d64c2fb7)

85117722599&doi=10.2147%2fDMSO.S333005&partnerID=40&md5=1c75225a1f64c233a78f2f87d64c2fb7

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Purpose: The interaction of Vitamin D and its receptor plays a crucial role in immune modulation. Therefore, the relationship between the pathogenesis of type 1 diabetes and the genetic variants of Vitamin D receptor, which is involved in the activity of Vitamin D, was studied extensively in different populations. The association of Vitamin D receptor gene polymorphisms with predisposition to type 1 diabetes revealed controversial and inconclusive results. The aim of this study was to examine the association of four Vitamin D receptor polymorphisms with type 1 diabetes in Jordanian patients. Patients and Methods: Analysis of the single nucleotide polymorphisms FokI (rs2228570), ApaI (rs7975232), TaqI (rs731236) and BsmI (rs1544410) in 100 Jordanian volunteers (50 control and 50 Type 1 diabetes patients) was performed using the highly specific New Generation Sequencing technology. Results: The distribution of allele, genotype as well as haplotype frequencies exhibited no significant ($P > 0.05$) differences between type 1 diabetes patients and controls. Furthermore, no differences ($P > 0.05$) in the frequency of the genotypes of the Vitamin D receptor genetic variants were found in relation to the age of disease onset. Conclusion: These findings

suggest these four single nucleotide polymorphisms of the Vitamin D receptor gene seem not to be associated with type 1 diabetes predisposition in Jordanian patients. Further wide genome studies are recommended to detect other genetic variant associations with type 1 diabetes among Jordanians. © 2021 Khdair et al.

Doumbia, M.O., Awudu, I., Yakubu, M., Al Ganideh, S.F.

The impact of information sharing on organisational performance: A supply chain perspective (2021) International Journal of Business Performance and Supply Chain Modelling, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116661499&doi=10.1504%2fIJBPSCM.2021.117907&partnerID=40&md5=7a672e330542d9f638bba37d584d135e)

[85116661499&doi=10.1504%2fIJBPSCM.2021.117907&partnerID=40&md5=7a672e330542d9f638bba37d584d135e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116661499&doi=10.1504%2fIJBPSCM.2021.117907&partnerID=40&md5=7a672e330542d9f638bba37d584d135e)

AFFILIATIONS: Department of Procurement and Supply Chain Management, Accra Technical University, P.O. Box GP 561, Barnes Road, Accra, Ghana;

Quinnipiac University, 275 Mt. Carmel Avenue, Hamden, CT 06518, United States;

Fire Science and Emergency Management Department, University of New Haven, 300 Boston Post Rd., West Haven, CT 06516, United States;

Faculty of Business, Al Zaytoonh University of Jordan, Amman, Jordan

ABSTRACT: This study investigates the effects of supply chain management (SCM) practices on organisational performance in pharmaceutical industries. The relationship between SCM practices and organisational performance based on performance metrics such as productivity, efficiency, profitability, market share, return on investment and sales are examined. We developed a novel methodology based on structural equation model by combining a qualitative and quantitative approach. We also considered 119 pharmaceutical companies as we formulated set of hypotheses based on the positive influence of supply chain management practices on organisational performance and SCM practices and supply chain performance. The results show that strategic purchasing, customer relationship management, strategic supplier relationship, information sharing and internal lean practices are significant predictors of organisational performance. In addition, we find that information sharing, although relevant in the supply chain, does not impact organisational performance. © 2021 Inderscience Enterprises Ltd.

Abendeh, R.M., Alhorani, R.A.M., Ahmad, H.S., Baker, M.I.B.

Effect of steel slag as fine and coarse aggregate on pore structure and freeze-thaw resistance of high-strength concrete

(2021) Jordan Journal of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116657454&partnerID=40&md5=8eb9ee69a9903b51c86b1a19c581a0c1)

[85116657454&partnerID=40&md5=8eb9ee69a9903b51c86b1a19c581a0c1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116657454&partnerID=40&md5=8eb9ee69a9903b51c86b1a19c581a0c1)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Steel slag usage in concrete can be a promising and sustainable approach to reduce natural resources shortages, landfill costs and potential pollution. In this work, the behavior of concrete prepared with varying replacements of recycled Steel Slag Aggregate (SSA) of natural aggregate ranging from 0% to 75% was investigated. Concrete behavior was evaluated using different tests; namely, compressive and flexural strengths, mass loss, water absorption, permeability and freezing/thawing (F/T) effect. The incorporation of SSA into concrete improved the strength and durability of mixtures prepared with high replacement ratios of SSA. The compressive strength was increased at about 12% for the 75% replacement ratio of fine aggregate compared to the control specimens, while concrete containing SSA as coarse aggregate showed the highest compressive strength at about 49.2 MPa. The flexural strength of the present mixtures was increased by about 13% and 15% for concrete with substitutions of 75% SSA of fine and coarse aggregate, respectively. The replacement of SSA for natural coarse aggregate at 75% was fundamental in enhancing the resistance to F/T noticeably as indicated by ultrasonic pulse velocity measurements. © 2021 JUST. All Rights Reserved.

Dayyih, W.A., Manaysa, M.H., Hailat, M.M., Zakareia, Z., Hajji, F.E.

Influence of castor oil on glycated hemoglobin (HbA1c) on induced type 2 diabetes mellitus in rats (2021) Jordan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116563633&partnerID=40&md5=eab43a693a046ff258ab77cb05fcd318)

[85116563633&partnerID=40&md5=eab43a693a046ff258ab77cb05fcd318](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116563633&partnerID=40&md5=eab43a693a046ff258ab77cb05fcd318)

AFFILIATIONS: College of Pharmacy and Pharmaceutical Sciences, Mutah University, Alkarak, Jordan;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Faculty of the Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, the Applied Science Private University, Amman, Jordan

ABSTRACT: Many T2D use CAO as a laxative. We did not find sufficient research to explain CAO's potential effect on the levels of HbA1c in T2D patients. This study will study this effect. Rats (n=80) were divided into eight groups (n=10). Five groups (n=50) were injected with streptozotocin intravenously to induce T2D. One group was given CAO with empagliflozin, and the second was assigned

CAO only daily. The third was assigned CAO every two days, with empagliflozin, which was given daily. A fourth was assigned CAO alone daily. Also, the fifth was given empagliflozin alone. In the healthy groups, one group was given CAO, and the other was given empagliflozin. Also, the last healthy group was not assigned any drug. CAO's result on HbA1c in healthy rats was noted to decrease when delivered alone for eight weeks. HbA1c of the diabetic groups showed no significant difference (P -value <0.05) when comparing the rats given CAO with empagliflozin, and the rats were given CAO only. There was also no noticeable effect among the groups of rats given CAO daily and every two days. This study explains that CAO does not lead to a significant difference in HbA1c levels in diabetic rats, even it did for healthy rats, and if given alone, CAO could affect HbA1c levels if given over a long period. Also, CAO has a noticeable impact on experimental rats that co-administered Empagliflozin on HbA1c levels, and that Empagliflozin effect is not significantly affected if taken with CAO. © 2021 DSR Publishers/The University of Jordan. All Rights Reserved.

Al-Diabat, A.M., Algadri, N.A., Ahmed, N.M., Abuelsamen, A., Bidier, S.A.

A high-sensitivity hydrogen gas sensor based on carbon nanotubes fabricated on SiO₂ substrate (2021) Nanocomposites, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116438423&doi=10.1080%2f20550324.2021.1977063&partnerID=40&md5=90bb1171c8b17ee1a2dcb6e8a80f6bc5)

85116438423&doi=10.1080%2f20550324.2021.1977063&partnerID=40&md5=90bb1171c8b17ee1a2dcb6e8a80f6bc5

AFFILIATIONS: Department of Physics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Physics, Isra University, Amman, Jordan;

School of Physics, Universiti Sains Malaysia, Penang, Malaysia;

Medical Imaging and Radiography Department, Aqaba University of Technology, Aqaba, Jordan

ABSTRACT: In this study, an inexpensive simple method for the fabrication of efficient hydrogen (H₂) gas sensor based on carbon nanotubes (CNTs) was presented. The CNTs were synthesized using microwave oven and deposited onto SiO₂ substrate by a dielectrophoretic method. The as-grown CNTs showed an n-type behavior because CNTs possess the characters of both metallic and semiconductor when placed between the two electrodes, meanwhile, the current was directed mostly by metallic tubes. Upon exposure to H₂ gas at room temperature, the CNTs exhibited high sensitivity up to 315% at 140 ppm H₂, and relatively good sensitivity of 40% at a very low H₂ gas concentration of 20 ppm. To the best of our knowledge, this is the first work involving the fabrication of CNTs for detecting a low H₂ gas concentration of 20 ppm at RT with high sensitivity comparing with other previous studies. © 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Tarawneh, O., Hamadneh, I., Huwaitat, R., Al-Assi, A.R., El Madani, A.

Characterization of Chlorhexidine-Impregnated Cellulose-Based Hydrogel Films Intended for the Treatment of Periodontitis

(2021) BioMed Research International, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116366090&doi=10.1155%2f2021%2f9853977&partnerID=40&md5=68768d9175c129668309678271ed9dc4)

85116366090&doi=10.1155%2f2021%2f9853977&partnerID=40&md5=68768d9175c129668309678271ed9dc4

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Chemistry Department, Faculty of Science, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Periodontitis comprises a chronic inflammation that is initiated by microbiota biofilm. If left untreated, periodontitis may lead to permanent tooth loss. Herein, we propose to design and improve a localized form of therapy comprising a chlorhexidine-impregnated hydrogel. Hydrogel films were prepared by varying the ratio between cellulose (MCC) and carboxymethylcellulose sodium (CMC) using the crosslinker epichlorohydrin (ECH). The hydrogel was loaded with chlorhexidine. Increasing the CMC ratio led to a reduction in the number of pores, an increase in their size, lower glass transition temperature (T_g), decreased Young's modulus, and increased film stretching and affected the time of release. Bacterial and fungal zones of inhibition showed similar activity and were not affected by the CMC and MCC ratio. Hydrogels loaded with chlorhexidine prevented the growth of *S. oralis* and *C. albicans* microorganisms and may provide a promising local delivery system for treating periodontitis. © 2021 Ola Tarawneh et al.

Naser, W.

New advances regarding skin anti-aging botanicals: A review

(2021) Pharmacologyonline, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116356696&partnerID=40&md5=92c7bc5b180424aec4b672f154388c8f)

85116356696&partnerID=40&md5=92c7bc5b180424aec4b672f154388c8f

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Decreased levels of collagen is a primary cause for skin aging. Collagen is produced from dermal fibroblasts. During photo aging, matrix metalloproteinases (MMPs) break down collagen fibers resulting in severe loss of skin elasticity. This manuscript lists the different types of botanicals that have been shown to provide dermatological benefits for skin regeneration. The literature of the last twenty years—with special attention for the last five years—concerning the different antiaging

medicinal plants was reviewed. © 2021, SILAE (Italo-Latin American Society of Ethnomedicine). All rights reserved.

Al-Sayyed, H.F., Abu-Qatouseh, L.F., Malkawy, M., Al-Wawi, S., Alkafaween, M.

Extracts of Jordanian date palm fruit (*Phoenix dactylifera* L.) inhibit human mammary adenocarcinoma (MCF-7) cells in vitro by inducing cell viability

(2021) *Current Research in Nutrition and Food Science*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116025690&doi=10.12944%2fCRNFSJ.9.2.06&partnerID=40&md5=81559bde4de4c20ab9cf1d7ab273123b)

[85116025690&doi=10.12944%2fCRNFSJ.9.2.06&partnerID=40&md5=81559bde4de4c20ab9cf1d7ab273123b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85116025690&doi=10.12944%2fCRNFSJ.9.2.06&partnerID=40&md5=81559bde4de4c20ab9cf1d7ab273123b)

AFFILIATIONS: Department of Nutrition, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Department of Pharmacology and Biomedical Sciences, University of Petra, Amman, Jordan;

Faculty of Pharmacy, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: World wide, and in Jordan specifically, date palm fruit production has been steadily increasing. Recently, various dates extracts have been used functionally as antioxidants or anticancer agents. In addition, Jordanian date palm fruit of Barhi variety at two maturity stages (Rutab) and (Tamr) inhibited chemically-induced mammary cancer in animal model. The aim of this study is to strengthen the scientific evidence on the effect of dates on mammary cancer via assessing the effect of different concentrations of water extracts of three varieties of dates grown in Jordan (Barhi, Belle Huwaimil, and Medjool) at two maturity stages (Rutab and Tamr) on the viability of MCF-7 breast cancer cell line. The effects of different extracts on MCF7 inhibition/proliferation was analyzed using MTT assay. Percentage of inhibition was calculated. The most effective concentration was 100 mg/ml for all varieties. At this concentration, Medjool variety at the Tamr stage exhibited the highest inhibition. At the 12.5 and 25 mg/ml concentrations of the extracts, the most effective date palm fruit varieties were Belle Huwaimil and Barhi at the Tamr stage respectively. At lower concentrations (3.125 and 6.25 mg/ml), Medjool at the Tamr stage and Belle Huwaimil respectively were the most effective extracts were Barhi at the Tamr and Rutab stages were the least effective ($P=0.000^{**}$). It is concluded that water extract of palm fruit reduced MCF-7 cell viability. © 2021, Enviro Research Publishers. All rights reserved.

Alqtish, A., Abdulal, M.B.

The Effect Of Accounting Of Exchange Rate Fluctuations In The Light Of Syrian Crisis On The Results Of Financial Statements Of Private Banks In Syria

(2021) *Academy of Accounting and Financial Studies Journal*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115792326&partnerID=40&md5=0fbf6a6a612e1ddc7d5a4155b56861ad)

[85115792326&partnerID=40&md5=0fbf6a6a612e1ddc7d5a4155b56861ad](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115792326&partnerID=40&md5=0fbf6a6a612e1ddc7d5a4155b56861ad)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

The Elite Home Accounting Consulting Company, Jordan

ABSTRACT: The main objective of this study was to investigate the impact of the exchange rates fluctuation of foreign currencies in the official and black markets on the results of financial statements of the private banks in Syria, through using the ratios of Liquidity and Profitability and the gains on foreign currencies revaluation as independent variables during the period from 2010 to 2017. For the purposes of achieving the objectives of this study, the descriptive research approach was adopted, and the researcher analyzed the financial statements data via E-Views software ninth edition, and the normal distribution was tested through the coefficient of Skewness and a Multicollinearity test, in addition to the Pearson correlation matrix and unit root tests. The conclusions of the study clarified that it was a statistically significant effect of exchange rates fluctuation in the official market on the profitability and the revaluation gains, while it was no effect on the liquidity, and also showed that there was no statistically significant effect of exchange rates fluctuation in the black market on the liquidity and the revaluation gains, while it was an effect on the profitability. The researcher recommends to study other sectors than banks, such as financial brokerage companies and exchange companies, to determine the effect of fluctuations in exchange rates on their performance, and to conduct this study in other countries suffering from conflicts and wars, and extend the study through comparative studies before 2011 and current years © 2021, Academy of Accounting and Financial Studies Journal. All Rights Reserved.

Ayoush, M.D., Toumeh, A.A., Shabaneh, K.I.

Liquidity, leverage, and solvency: what affects profitability of industrial enterprises the most?

(2021) *Investment Management and Financial Innovations*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115426069&doi=10.21511%2fifimfi.18%283%29.2021.22&partnerID=40&md5=e31d0563e5ff6af677726a8e1269f36b)

[85115426069&doi=10.21511%2fifimfi.18%283%29.2021.22&partnerID=40&md5=e31d0563e5ff6af677726a8e1269f36b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115426069&doi=10.21511%2fifimfi.18%283%29.2021.22&partnerID=40&md5=e31d0563e5ff6af677726a8e1269f36b)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The purpose of this paper is to show the relative impact of liquidity, leverage, and solvency on profitability of industrial enterprises listed on the Amman Stock Exchange to ascertain which of them has the most effect on profitability. To reach the objectives of this study, 44

Jordanian industrial companies are examined from 2012 to 2018. Return on assets (ROA) and return on equity (ROE) are examined as measures of performance, current ratio and quick ratio as measures of liquidity, debt ratio and debt to equity ratio as measures of leverage, and the interest coverage ratio as a measure of financial solvency. Multiple regression analysis was used to check the hypotheses. A negative and statistically significant impact was found at the 1% level between financial leverage and profitability. At the same time, findings did not show the same for the effect of liquidity and solvency on profitability. In addition, leverage has the highest relative impact among independent variables on profitability, followed by solvency and then liquidity. Moreover, it is indicated that company size is a control variable of the effect between liquidity, leverage, and solvency on performance. Thus, it is concluded that management of industrial companies should reduce dependence on debt to finance companies to achieve the highest possible returns; it is recommended to maintain an acceptable level of liquidity to ensure the continuity of companies and attention to the level of solvency within companies to maintain a high financial performance. © 2021 LLC CPC Business Perspectives. All rights reserved.

Khalaf, R.A., Jarad, H.A., Al-Qirim, T., Sabbah, D.

Synthesis, biological evaluation, and qpld studies of piperazine derivatives as potential dpp-iv inhibitors

(2021) Medicinal Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115300833&doi=10.2174%2f1573406416666200917105401&partnerID=40&md5=98e1c5d7589bebdffdaf67583ead3cc1)

85115300833&doi=10.2174%2f1573406416666200917105401&partnerID=40&md5=98e1c5d7589bebdffdaf67583ead3cc1

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Diabetes mellitus is a serious global health issue, currently affecting 425 million people and is set to affect over 690 million people by 2045. It is a chronic disease characterized by hyperglycemia due to relative or absolute insulin hormone deficiency. Dipeptidyl peptidaseIV (DPP-IV) inhibitors are hypoglycemic agents augmenting the action of the incretin hormones that stimulate insulin secretion from the pancreatic beta cells. Objective: In this study, synthesis and biological evaluation of seven piperazine derivatives 3a-g was carried out. Methods: The synthesized molecules were characterized using proton-nuclear magnetic resonance, carbon-nuclear magnetic resonance, infrared spectroscopy and mass spectrometry. Results: In vitro biological evaluation study showed comparable DPP-IV inhibitory activity for the targeted compounds ranging from 19%-30% at 100 µM concentration. Furthermore, the in vivo hypoglycemic activity of 3d was evaluated using streptozotocin-induced diabetic mice. It was found that compound 3d significantly decreased the blood glucose level when the diabetic group treated with 3d was compared to the control diabetic group. Quantum-Polarized Ligand Docking (QPLD) studies demonstrate that 3a-g fit the binding site of DPP-IV enzyme and form H-bonding with the backbones of R125, E205, E206, K554, W629, Y631, Y662, R669, and Y752. Conclusion: Piperazine derivatives were successfully found to be new scaffolds as potential DPP-IV inhibitors. © 2021 Bentham Science Publishers.

Alkherret, A.J., Abuaddous, M.Y., Al-Btoosh, J.A., Baker, M.I.B.

Modeling operating speed on multilane highways using global positioning system data

(2021) International Review of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85115049792&doi=10.15866%2firece.v12i4.19743&partnerID=40&md5=994f4bd04eeaded139e871ac809433de)

85115049792&doi=10.15866%2firece.v12i4.19743&partnerID=40&md5=994f4bd04eeaded139e871ac809433de

AFFILIATIONS: Department of Civil Engineering, Jerash University, Jerash, Jordan;

Department of Civil Engineering, Hijjawi Faculty for Engineering Technology, Yarmouk University, Irbid, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study aims at developing models to predict the operating speeds of passenger cars on horizontal curves of rural multi-lane highways. A total of 16 compound curves and 35 simple curves located on two major rural multi-lane divided highways in Jordan were selected for the study. Continuous speed data were collected using an affordable (low cost) speedometer application loaded on smartphones equipped with Global Positioning System (GPS) technology. A stepwise multiple linear regression analysis at a 95% confidence interval has been performed to develop the speed prediction models. The obtained model at the beginning of the compound curve indicated that the 85th percentile speed at the midpoint of approach independent tangent and the deflection angle of the first curve is found to be statistically significant to predict operating speed. At both points of the compound curve and end of the curve, the significant variables were the radius of the first curve and the total length of the compound curve. For simple curves, the obtained models indicated that the curve radius and the 85th percentile speed at the midpoint of approach independent tangents were positively correlated with the operating speed at beginning of curve, while the degree of curvature was negatively correlated with the operating speed at both middle and end of the curve. © 2021 Praise Worthy Prize S.r.l.-All rights reserved.

Alzoubi, O., Awad, M.A., Abdalla, A.M.

Automatic Segmentation and Detection System for Varicocele in Supine Position

(2021) IEEE Access, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114733106&doi=10.1109%2FACCESS.2021.3111021&partnerID=40&md5=a268987ad498d3c4b8f749565d5c7348)

[85114733106&doi=10.1109%2FACCESS.2021.3111021&partnerID=40&md5=a268987ad498d3c4b8f749565d5c7348](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114733106&doi=10.1109%2FACCESS.2021.3111021&partnerID=40&md5=a268987ad498d3c4b8f749565d5c7348)

AFFILIATIONS: Department of Computer Science, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Image analysis is an important technique that can help specialists localize, detect, and segment objects in different types of medical images such as MRI, CTs, and ultrasounds (US). In this research, we use US images to identify and segment the enlarged veins in the pampiniform venous plexus, which is called varicocele. The proposed method aims to determine whether a potential patient is affected or not. This method was evaluated using 90 US images that were taken of the left testicles of 90 patients in the Supine position. This system analyzes US images in three stages which are; preprocessing, processing, and edge detection. The Region Of Interest (ROI) of the pampiniform plexus area was extracted using Otsu segmentation with different parameters (0.1, 0.2, 0.17) and different color modes (Grayscale, YCbCr, RGB). In the processing stage, different denoising filters were used. Eventually, in the edge detection stage, four edge detectors were applied which are Canny, Sobel, Prewitt, and Roberts. Results showed that the best accuracy in detecting varicocele was 78% when the YCbCr color mode yellow (y) channel was used with 0.1 Otsu segmentation and the Canny edge detector. The system also showed a Sensitivity of 91%, as the test was able to detect 91% of the people with Varicocele, and the Specificity value was 39%. © 2013 IEEE.

Ahmad, R.A., Hailat, M.M., Jaber, M.A., Alkhawaja, B.A., Rasras, A.A., Al-Shdefat, R., Mallah, E., Dayyih, W.A.

RP-HPLC method development for simultaneous estimation of empagliflozin, pioglitazone, and metformin in bulk and tablet dosage forms

(2021) Acta Poloniae Pharmaceutica - Drug Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114662547&doi=10.32383%2FAPPDR%2F139635&partnerID=40&md5=f055b8a3f54b1f122f41fb91e40d2cb8)

[85114662547&doi=10.32383%2FAPPDR%2F139635&partnerID=40&md5=f055b8a3f54b1f122f41fb91e40d2cb8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114662547&doi=10.32383%2FAPPDR%2F139635&partnerID=40&md5=f055b8a3f54b1f122f41fb91e40d2cb8)

AFFILIATIONS: Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy, Jadara University, Irbid, Jordan

ABSTRACT: Empagliflozin, pioglitazone, and metformin are antidiabetic drugs used alone or together to treat diabetes. An economical, simple, precise, selective, and stability-indicating RP-HPLC method has been established and validated to evaluate these drugs in bulk and tablet dosage forms. ICH guidelines were followed, where the separation of the drugs using a mobile phase prepared by mixing orthophosphoric acid buffer and acetonitrile (30: 70 v/v) adjusted to pH 2.7 was followed. An ACE C18 - (250 mm x 4.6 mm), 5 µm column at a flow rate of 0.5 mL/min at 25°C, and detection monitored at 230 nm were used. The R² was not < 0.9998 in the range of 20-250 ppm. For stability study, drugs were studied using variant stress conditions such as base, acid, neutral, oxidation, and thermal degradation. Results were validated for the limit of detection, the limit of quantification, precision, accuracy, and linearity. The method also proved robust concerning variations in pH of the mobile phase, detector-wavelength, temperature, and mobile phase composition. The retention time of empagliflozin, metformin, and pioglitazone was 3.2 min, 2 min, and 2.6 min, respectively, with a runtime of 7 min. Detector linearity was obtained at 10-100 ppm, with the correlation coefficient for empagliflozin, pioglitazone, and metformin being 0.9994, 0.9993, and 0.9998, respectively. The low relative standard deviation, i.e., <2%, validated results, and high recovery% affirm the suitability of this method for being employed for the routine analysis of bulk and tablets containing these drugs in pharmaceutical formulation. © 2021 by Polish Pharmaceutical Society. This is an open-access article under the CC BY NC license (<http://creativecommons.org/licenses/by/4.0/>).

Al-Zoubi, H., Hamadneh, T., Hammad, M.A., Al-Sabbagh, M.

Tubular surfaces of finite type Gauss map

(2021) Journal for Geometry and Graphics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114595948&partnerID=40&md5=7a1b1c97cfce31680c2d297ee112d465)

[85114595948&partnerID=40&md5=7a1b1c97cfce31680c2d297ee112d465](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114595948&partnerID=40&md5=7a1b1c97cfce31680c2d297ee112d465)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Basic Engineering, Imam Abdulrahman bin Faisal University

ABSTRACT: In this study, we continue the classification of finite type Gauss map surfaces in the 3-dimensional Euclidean space E³. To do this, we investigate an important family of surfaces, namely, tubular surfaces in E³. We show that the Gauss map of a tubular surface is of an infinite type regarding the second fundamental form. © 2021 Helder Mann Verlag.

Jebreel, M., ALDweiri, M., AL-Hakim, M., AL-Hamad, A.A.-S.

The effect of top management support and non-accounting ownership on (ABC) adoption among Jordanian manufacturing companies

(2021) Academy of Strategic Management Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112840365&partnerID=40&md5=b7f0713c88cf50bc8049bb8d2af62b1f>

AFFILIATIONS: Applied Science Private University, Jordan;
AL-Zaytoonah University of Jordan, Jordan;

Zarqa University, Jordan

ABSTRACT: This paper seeks to investigate the effect of top management support and none accounting ownership on organisational performance, based on a literature review showed shortage in effect adoption of ABC for many of manufacturing companies are weak. The scope of the study encompasses the manufacturing companies in Jordan, and the financial managers were identified as the respondents for the questionnaire survey. Therefore, the managers and decision-makers should take these factors into consideration when making their decisions. Equally, the findings could facilitate policies formulation among the relevant bodies in developing countries, particularly those policies concerning manufacturing. In addition enriching the knowledge of organizational performance for manufacturing organizations', this study can become a starting point for further investigation and analysis of organisational performance among Jordanian manufacturing companies. © 2021

Toume, A.A., Yahya, S., Yassin, M.M., Ayoush, M.D.

The moderating effect of audit quality on the links between stock market segmentations, surplus free cash flow, and income-increasing discretionary accruals

(2021) Australasian Accounting, Business and Finance Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112714827&doi=10.14453%2faabfj.v15i4.9&partnerID=40&md5=4e717de7ccd9a13fd1c2c1ab362acf00>

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Graduate School of Business, Universiti Sains Malaysia, Malaysia

ABSTRACT: The objective of this paper is to examine the impacts of stock market segmentations (SMS) and surplus free cash flow (SFCF) on income-increasing discretionary accruals. The study also provides the initial evidence regarding the influence of audit quality (AQ) as a moderating variable on those relationships. A sample of non-financial firms was taken from the list of Amman Stock Exchange over the period 2013-2019. Using Huber-White's sandwich estimator for pooled OLS regression, the current research presents empirical evidence harmonious with the prediction in all hypotheses. Further, the findings documents that a Big 4 auditor weakens the SMS-DAC and SFCF-DAC associations, which suggests that the role of Big 4 audit firms is effective in mitigating management's opportunistic behaviour. However, the reported results provide beneficial information to investors, regulators, external auditors, policymakers, shareholders, and other countries with similar institutional environment. © 2021, University of Wollongong. All rights reserved.

Hmadan, M.A., Abdelhafez, E., Shawabkeh, R.

Forecasting air pollution with sulfur dioxide emitted from burning desulfurized diesel using artificial neural network

(2021) Ecological Engineering and Environmental Technology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112593998&doi=10.12912%2f27197050%2f139337&partnerID=40&md5=ad99e1bdd36ba7aa55fecc21850eeal1c>

AFFILIATIONS: Department of Mechanical Engineering, School of Engineering, The University of Jordan, Amman, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Engineering and Technology, Department of Alternative Energy Technology, Amman, 11733, Jordan;

Department of Chemical Engineering, School of Engineering, The University of Jordan, Amman, Jordan

ABSTRACT: Concentrations of emitted pollutants in the atmosphere are influenced by the emission sources and metrological data. In Jordan, diesel fuel is considered to be a main source of SO₂, which has a negative impact on the air quality. In this work, the SO₂ emitted during the burning of desulfurized diesel fuel using activated carbon is conducted using three types of Artificial Neural Network (Elman, NARX and Feedforward models). In order to accomplish this, the previous experimental work on desulfurization of diesel fuel using two types of activated carbon was adopted. The metrological data involved the average daily temperature (T), relative humidity (RH), wind speed (WS), pressure (P), concentration of Particulate Matter (PM₁₀) and average daily solar radiation (SR) over the period from 2/1/2020 to 30/12/2020. It was found that NARX is the most accurate model in the forecasting process of SO₂, followed by Elman and feedforward, which was found to be the least capable model in predicting the SO₂ emitted concentration. © 2021, Polish Society of Ecological Engineering (PTIE). All rights reserved.

Batiha, I.M., Oudetallah, J., Ouannas, A., Al-Nana, A.A., Jebiril, I.H.

Tuning the fractional-order pid-controller for blood glucose level of diabetic patients

(2021) International Journal of Advances in Soft Computing and its Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112217883&partnerID=40&md5=3d34ac7bad6d27745ae6398548a7350a>

AFFILIATIONS: Department of Mathematics, Irbid National University, Irbid, 2600, Jordan;
Nonlinear Dynamics Research Center (NDRC), Ajman University, Ajman, United Arab Emirates;
Department of Mathematics and Computer Science, University of Larbi Ben M'hidi, Oum El Bouaghi, Algeria;

International Center for Scientific Research and Studies (ICSRS), Irbid, Jordan;
Mathematics Department, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The conducted research aims to attain the optimal approach for a certain control unit, namely the Proportional-Integral-Derivative-controller (or simply PID-controller), which typically monitors the blood sugar level of a diabetic patient. This would be implemented through introducing a fractional-order PID-controller (or PIyDP-controller) instead of the already classical one. Two optimization algorithms, Particle Swarm Optimization (PSO) and Bacteria Foraging Optimization (BFO) algorithms, together with two different approximations, the Continued Fraction Expansion (CFE) and the Outstaloup's approaches, will be used to complete the design process. Several numerical comparisons will be performed to reach the best approach to meet the optimal needs of this industrial application. © Al-Zaytoonah University of Jordan (ZUJ).

Jebril, I.H., Dutta, H., Cho, I.

Concise Introduction to Logic and Set Theory

(2021) Concise Introduction to Logic and Set Theory, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112191726&doi=10.1201%2f9780429022838&partnerID=40&md5=bf7aa773a2907c43808e408c439e668f>

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Mathematics, Gauhati University, India;

Department of Mathematics & Statistics, Saint Ambrose University, United States

ABSTRACT: This book deals with two important branches of mathematics, namely, logic and set theory. Logic and set theory are closely related and play very crucial roles in the foundation of mathematics, and together produce several results in all of mathematics. The topics of logic and set theory are required in many areas of physical sciences, engineering, and technology. The book offers solved examples and exercises, and provides reasonable details to each topic discussed, for easy understanding. The book is designed for readers from various disciplines where mathematical logic and set theory play a crucial role. The book will be of interested to students and instructors in engineering, mathematics, computer science, and technology. © 2022 Taylor & Francis Group, LLC.

Kanan, T., Kanaan, G.G., Al-Shalabi, R., Aldaaja, A.

Offensive language detection in social networks for arabic language using clustering techniques

(2021) International Journal of Advances in Soft Computing and its Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111557293&partnerID=40&md5=2a0349f9b5c88f8ee0e12710b3c08531>

AFFILIATIONS: Computer Science Department, AlZaytoonah University, Amman, Jordan;
International Center for Scientific Research and Studies, Amman, Jordan

ABSTRACT: With the advent of social networks, the users have obtained a golden opportunity to express their opinions using text and multimedia. However, some users abused these platforms by introducing acts such as Cyber-Bullying and Cyber-Harassment. Despite the various negative health and social effects, the works proposed toward the detection of these acts are still limited, especially in non-English languages. In Arabic, few works studied this phenomenon. These works had limited datasets. As the number of available training datasets are limited, it is still hard to train classifiers to detect these acts. Therefore, clustering has posed as an alternative solution to tackle this difficulty. In this work, we propose the use of clustering to detect Cyber-Bullying and Cyber-Harassment. We adopted various clustering algorithms including K-Means and Expectation Maximization (EM). Moreover, we used various natural language processing (NLP) tools for this objective. The results illustrate that the training time of K-Means is significantly smaller than that of EM in all the conducted experiments. As for the accuracy, the two clustering methods showed different performance based on the variance in the used NLP settings. © Al-Zaytoonah University of Jordan (ZUJ).

JEBRIL, I.H., DATTA, S.K., SARKAR, R., BISWAS, N.

Common Fixed Point Theorems Under Rational Contractions Using Two Mappings and Six Mappings and Coupled Fixed Point Theorem in Bicomplex Valued B-Metric Space

(2021) Turkish World Mathematical Society Journal of Applied and Engineering Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85110711934&partnerID=40&md5=b6e4ebb27f74c9d0fdb75a2cc76fab1>

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mathematics, University of Kalyani, Kalyani, Nadia, West Bengal 741235, India;
Gour Mahavidyalaya, P.O. Mangalbari, Malda, West Bengal, India;

Department of Mathematics, Chakdaha College, Chakdaha, Nadia, West Bengal 741222, India

ABSTRACT: Abstract. During the past decades, enormous works by different researchers have been carried out in fixed point theory on metric spaces. In this paper, we prove some common fixed point theorems in bicomplex valued metric space for two mappings and for six mappings. Also, we have introduced the concept of bicomplex valued b-metric space and coupled fixed point theorem in bicomplex valued b-metric space. © 2021, Turkish World Mathematical Society Journal of Applied and Engineering Mathematics. All Rights Reserved.

Baker, M.B., Abdel-Rahman, M., Hanna, A., Al-Shorman, B.

Passive earth pressure of normally and over-consolidated cohesionless soil retaining horizontal and inclined backfills overlaying natural deposit

(2021) Jordan Journal of Civil Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85110233879&partnerID=40&md5=ef2181a349b221a95a5e49d8b6406711

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Building, Civil and Environmental Engineering, Concordia University, Montreal, Canada;
Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Passive earth pressures play an important role in soil-structure interaction problems. They provide stabilizing forces for anchor blocks, laterally loaded pile foundations and retaining walls. Quite often, passive earth pressures are used to resist lateral movement of structures. The passive earth pressure behind retaining walls depends on the strength of the backfill material, the wall-soil frictional angle and the stress history of the soil. The stress history, which is represented by the so-called over-consolidation ratio (OCR), is a major governing parameter in the determination of passive earth pressure on the wall. The present paper presents a theoretical model to predict the coefficient of passive earth pressure for the case of normally consolidated or over-consolidated cohesionless backfill overlaying deep deposit. The theory utilizes the method of slices and the limit equilibrium method of analysis. Design theory, design charts and design examples are presented. Coefficients of passive earth pressure as deduced by the present study and Yong and Qian (2000) method were very close for example at low friction angles, such as ϕ of 10° and δ of 10° . The present study estimates K_p at 1.67, while it was estimated by Yong and Qian to be 1.66. At higher values of friction as ϕ of 30° and δ of 15° , the present study estimates K_p at 4.29, while it was estimated by Yong and Qian to be 4.61. © 2021 JUST. All Rights Reserved.

Abuhamdah, A., Alzaqebah, M., Jawarneh, S., Althunibat, A., Banikhalaf, M.

Moth optimisation algorithm with local search for the permutation flow shop scheduling problem

(2021) International Journal of Computer Applications in Technology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85109756643&doi=10.1504%2fijcat.2021.116008&partnerID=40&md5=83b4993ccc66141bc701ffc3086720f9

AFFILIATIONS: Department of Management Information Systems, College of Business Administration, Taibah University Madina, Saudi Arabia;

Department of Mathematics, College of Science, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia;

Basic and Applied Scientific Research Centre, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia;

Computer Science Department, Community College Dammam, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia;

Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Yarmouk University, Irbid, Jordan

ABSTRACT: This work investigates the use of the Moth-Flame Optimisation (MFO) algorithm in solving the Permutation Flow Shop Scheduling Problem and proposes further optimisations. MFO is a population-based approach that simulates the behaviour of real moths by exploiting the search space randomly without employing any local searches that may stick in local optima. Therefore, we propose a Hybrid Moth Optimisation Algorithm (HMOA) that is embedded within a local search to better exploit the search space. HMOA entails employing three search procedures to intensify and diversify the search space in order to prevent the algorithm's becoming trapped in local optima. Furthermore, HMOA adaptively selects the search procedure based on improvement ranks. In order to evaluate the performances of MFO and HMOA, we perform a comparison against other approaches drawn from the literature. Experimental results demonstrate that HMOA is able to produce better-quality solutions and outperforms many other approaches on the Taillard benchmark Copyright 2021 Inderscience Enterprises Ltd.

Qatawneh, A., Bader, A.

The mediating role of accounting disclosure in the influence of ais on decision-making: A structural equation model

(2021) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109047694&doi=10.22495%2fJGRV10I2SIART2&partnerID=40&md5=d6529453581072213da604b09a74963b)

[85109047694&doi=10.22495%2fJGRV10I2SIART2&partnerID=40&md5=d6529453581072213da604b09a74963b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85109047694&doi=10.22495%2fJGRV10I2SIART2&partnerID=40&md5=d6529453581072213da604b09a74963b)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Al-Zaytoonah, University of Jordan, Amman, Jordan

ABSTRACT: The current study aims to investigate the influence of accounting information system (AIS) elements, including human resources, physical resources, and financial data, in delivering the organization to a suitable decision-making process through the mediating role of well-built accounting disclosure. The study applies its model to the commercial banks listed in the Jordanian market at the end of 2019. A quantitative approach was adopted and a questionnaire was applied on 171 financial managers and accounting department heads within 21 commercial banks in Jordan. Based on the results of a structural equation model, the main hypothesis was accepted referring to the positive influence of AIS elements of human resource, physical resource, and financial data on organizational decision-making that is attributed to accounting disclosure within commercial banks in Jordan. These results show the importance of AIS in decision-making and encourage companies to adopt modern AIS in order to help them improve the quality of accounting information. The study recommended focusing on increasing skills and knowledge of accounting and financial managers within banks on the multiple ways of benefitting from AIS applications, this can include holding conferences, seminars, and workshops. © 2021 The Authors.

Abu Helal, A.-R.

The (ya)illi relative clause in Levantine Arabic: A case for head-external structure

(2021) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108561675&partnerID=40&md5=5b1fa9912b427774208c4757c8f12337)

[85108561675&partnerID=40&md5=5b1fa9912b427774208c4757c8f12337](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108561675&partnerID=40&md5=5b1fa9912b427774208c4757c8f12337)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In this article, we present an argument based on empirical evidence from Levantine Arabic in favor of the fact that the (ya)illi relative clause (YRC) has a head-external structure (e.g., a matching). A set of state-of-the-art diagnoses that speak against the head NP raising in YRCs is fully demonstrated and analyzed in the context of some grammatical structures. As confirmed by the evidence, if the possibility of raising syntax in YRCs is ruled out in such restricted contexts, it follows that some variant of head external analysis for the YRC is in order; at least as another structure that characterizes this type of relative clauses in addition to head NP raising structure that was approved in the representative literature such as Ouhalla (2004) and Aoun, Benmamoun and Choueiri (2010). © 2021 DSR Publishers/The University of Jordan. All Rights Reserved.

Qutishat, M., Abu Sharour, L., Al-Damery, K., Al Harthy, I., Al-Sabei, S.

COVID-19-Related Posttraumatic Stress Disorder among Jordanian Nurses during the pandemic

(2021) Disaster Medicine and Public Health Preparedness, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108536456&doi=10.1017%2fdmp.2021.199&partnerID=40&md5=136472cd3d03b74e2249a369b5bbb056)

[85108536456&doi=10.1017%2fdmp.2021.199&partnerID=40&md5=136472cd3d03b74e2249a369b5bbb056](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108536456&doi=10.1017%2fdmp.2021.199&partnerID=40&md5=136472cd3d03b74e2249a369b5bbb056)

AFFILIATIONS: Community and Mental Health Department, College of Nursing, Sultan Qaboos University (SQU), Al-Seeb, Muscat, Oman;

Faculty of Nursing, Al-Zaytoonah University of Jordan, PO Box 130, Amman, 11733, Jordan;

Fundamentals and Administration Department, College of Nursing, Sultan Qaboos University (SQU), Oman

ABSTRACT: Background: The 2019 coronavirus outbreak (COVID-19) has been declared a pandemic and has greatly affected both patients and healthcare workers. This study was conducted to explore the extent of posttraumatic stress disorder (PTSD) experiences among nurses as a result of the COVID-19 pandemic in Jordan. Method: This study used a cross-sectional study design with a convenience sampling approach. A sample of 259 participants completed the study questionnaires, including a socio-demographic questionnaire and the Posttraumatic Stress Disorder Checklist for DSM-5, between May and July 2020. Result: The prevalence of PTSD among the study participants was 37.1%. The majority of study participants who exhibited PTSD symptoms presented the lowest level of PTSD (17%). The results indicated significant differences in overall COVID-19-related PTSD according to the participant's age ($F = 14.750$, $P = .000$), gender ($F = 30.340$, $P = .000$), level of education ($F = 51.983$, $P = .000$), years of experience ($F = 52.33$, $P = .000$), place of work ($F = 19.593$, $P = .000$), and working position ($F = 11.597$, $P = .000$), as determined by one-way ANOVA. Conclusion: Nurses must be qualified and accredited to cope with reported PTSD cases and their consequences in relation to COVID-19 outbreaks. A close collaboration with a multidisciplinary team is required to recognise, manage, and encourage safety literacy among health care professionals and individuals diagnosed with or suspected of PTSD due to COVID-19 outbreaks or any other viral outbreaks. © 2021 Society for Disaster Medicine and Public

Health, Inc.

Sharour, L.

Translation and Validation of the Arabic Version of the Cancer Needs Questionnaire-Short Form (2021) *Asia-Pacific Journal of Oncology Nursing*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108346383&doi=10.4103%2fapjon.apjon_33_20&partnerID=40&md5=2843dfeced0aa3de0794ebcc85d1b48d)

[85108346383&doi=10.4103%2fapjon.apjon_33_20&partnerID=40&md5=2843dfeced0aa3de0794ebcc85d1b48d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108346383&doi=10.4103%2fapjon.apjon_33_20&partnerID=40&md5=2843dfeced0aa3de0794ebcc85d1b48d)

AFFILIATIONS: Nursing Department, Faculty of Nursing and Midwifery, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objective: Care needs among Arabic cancer patients have not been assessed previously due to the lack of translated instrument that can determine the care needs among the cancer patients in Arab countries. The aim of this study was to translate and validate an Arabic version of the Cancer Needs Questionnaire-Short Form (CNQ-SF). Methods: A cross-cultural adaptation and psychometric testing was used. Brislin's model of translation was used to translate the CNQ-SF from English to Arabic. A cross-cultural adaptation and psychometric testing was used. A sample of 113 participants with different types of cancer completed the study surveys including the CNQ-SF (Arabic version) and Functional Assessment of Cancer Therapy-General (FACT-G). Descriptive, bivariate statistics and exploratory factor analysis (EFA) were performed. Results: Content validity was evaluated by a panel of experts and 20 participants and showed that translated scale was clear, understandable, and logical in order. Reliability analysis of CNQ-SF domains ranged from 0.85 to 0.93 and 0.94 for the total Arabic version of CNQ-SF. Convergent analysis showed a significant relationship between CNQ-SF (Arabic version) and FACT-G. Results of EFA indicated that the CNQ-SF scale has 32-items. It consists of five domains, the results indicated that Kaiser-Meyer-Olkin was 0.851, and Bartlett's Test of Sphericity was significant (significant ($P < 0.001$)). Conclusions: The current study indicates that the Arabic version of CNQ-SF is valid, reliable, and applicable. It can be used by researchers, clinical practitioners, and health educators in Arab countries. © 2021 Wolters Kluwer Medknow Publications. All rights reserved.

Jarrar, Y., Musleh, R., Hamdan, A., Ghanim, M.

Evaluation of the need for pharmacogenomics testing among physicians in the West Bank of Palestine (2021) *Drug Metabolism and Personalized Therapy*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108074676&doi=10.1515%2fdmdi-2021-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108074676&doi=10.1515%2fdmdi-2021-0121&partnerID=40&md5=fbbd31ed92febab7c611b0d0ea7620b6)

[0121&partnerID=40&md5=fbbd31ed92febab7c611b0d0ea7620b6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85108074676&doi=10.1515%2fdmdi-2021-0121&partnerID=40&md5=fbbd31ed92febab7c611b0d0ea7620b6)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Department of Allied and Applied Medical Sciences, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine

ABSTRACT: Pharmacogenomics (PGx) testing optimizes pharmacotherapy and reduces interindividual variation in drug responses. However, it is still not implemented in clinical practice in the West Bank of Palestine (WBP). The aim of this study was to determine the need for PGx education and testing among physicians from different specialties in WBP. This study used a cross-sectional survey that was administered to 381 physicians from different cities in WBP. The questionnaire consisted of 27 closed-ended questions that evaluate the exposure and attitude toward PGx education, the role of PGx testing in clinical practice, and the capabilities of physicians in PGx testing. It was found that exposure to PGx education is low, with most of the respondents (81.1%) answering that PGx was not an integral part of their medical education. The majority (>90%) of the participants agreed that PGx should be included in the medical school curriculum. It was also found that 58.5% of the participants agreed that PGx testing is relevant to their current clinical practice. In addition, most of the participant physicians (>60%) think that they are currently not capable of prescribing and making decisions for pharmacotherapy based on PGx testing. It is concluded that there is a high need for PGx education and implementation in clinical practice in WBP. We recommend adding PGx courses to the curricula of medical schools and going forward with the implementation of PGx testing in clinical practice in WBP. © 2021

Al-Lozi, E.M., Al-Qirem, R.M.

Towards the adoption of enterprise resource planning systems (ERP) as an effective teaching tool in higher education institutions

(2021) *Academy of Strategic Management Journal*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107747797&partnerID=40&md5=1dc3434d71ce91cf5d60020977817d22)

[85107747797&partnerID=40&md5=1dc3434d71ce91cf5d60020977817d22](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107747797&partnerID=40&md5=1dc3434d71ce91cf5d60020977817d22)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Enterprise resource planning systems are considered as a key to gain competitive advantage and excellence. The purpose of this study is to find out the effect of enterprise resource planning systems as a teaching tool on the quality of teaching process. For the said purpose the available literature over ERP in general and its impact on higher educational institutions has been reviewed. Based on literature four variables have been identified which are supposed to be critical for gaining advantages from the implementation of enterprise resource planning systems as a teaching tool. For the said purpose, the questionnaire was developed, and the data was collected randomly. A sample of 100 was utilized for conducting the analysis. Smart PLS was used for structural equation modelling and the model has been analyzed. The findings of the study revealed that all the independent variables namely, perceived usefulness, awareness, ease flow of data, and facilitating conditions have a significant impact over the teaching quality. The calculated value of Construct Cross Validated Redundancy showed that model has a significant predictive relevance. The findings are significant for teaching staff, top management and for the policy makers in higher educational institutions. The future researchers are guided to identify the pre- and post-impact of enterprise resource planning systems as a teaching tool over the teaching process and quality of learning outcomes within higher educational institutes. © 2021

Alsswey, A., Ali El-Qirem, F., Al Tarawneh, M.H.

Dyslexic Arabic Students in the Arab Countries: A Systematic Review of Assistive Technology Progress and Recommendations

(2021) International Journal of Early Childhood Special Education, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107700085&doi=10.9756%2fINT-JECSE%2fv13i1.211014&partnerID=40&md5=b222ad2e1264359f2111567973827b4b>

AFFILIATIONS: Department of Multimedia Technology, Al-Zaytoonah University of Jordan, Amman, Jordan; Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Dyslexia is quite possibly the most widely recognized learning troubles. Literacy is a critical life skill; low literacy skills inhibit educational advancement. Even a few dyslexic students may affect the broad educational experience of all students. Unfortunately, dyslexia is a relatively unknown phenomenon in Arabic academic communities. Arab countries are experiencing a rapid increase in dyslexic students; consequently, there is an urgent need to investigate dyslexia and its associated student assistive technology (AT). A systematic review was conducted on AT developed for dyslexic Arabic students to understand AT's benefits and challenges. Our research found that in addition to learning strategies, several other factors contributed to the adoption (or lack thereof) of AT in Arab classrooms, including environmental, social and cultural factors. This study's findings can assist AT developers and educational policymakers in efficiently designing and implementing AT. © 2021. All Rights Reserved.

Al Hashmi, I., Abu Sharour, L.M., Arulappan, J., Al Hadid, L., Nandy, K.

Development and validation of the nursing clinical assessment tool (NCAT): A psychometric research study

(2021) International Journal of Nursing Education Scholarship, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107656716&doi=10.1515%2fijnes-2020-0091&partnerID=40&md5=9e0927b65a10a124d420a95814324659>

AFFILIATIONS: College of Nursing, Sultan Qaboos University, Al kodh 66, Muscat, 123, Oman; Al Hussein Bin Talal University, Ma'an, Jordan;

Department of Population and Data Sciences, UT Southwestern Medical Center, Dallas, TX, United States;

AL-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of this pilot psychometric study was to develop and assess the reliability, validity, and applicability of a nursing clinical assessment tool (NCAT) to assess students' clinical performance in the clinical training. Total of 325 forms were completed by 36 clinical raters for undergraduate nursing students who were selected using convenience sampling. International quality and safety education for nurses (QSEN) and Benson and Clark's (Benson, J., & Clark, F. (1982). A guide for instrument development and validation. The American Journal of Occupational Therapy, 36(12), 789-800) model guided the construction of the NCAT. Following literature review, a cross-cultural adaptation and psychometric testing were used. This newly developed tool showed substantial overall internal consistency reliability (Cronbach's alpha = 0.74). Three factors (i.e. Care Provider, Leadership & Team Work and Professionalism and Ethical Considerations) were identified for construct validity using exploratory factor analysis (EFA). This study suggests that the NCAT is a reliable, valid and applicable tool. It can be used in clinical and educational settings. Further testing of the tool in similar and different cultures is recommended. © 2021 2021 Walter de Gruyter GmbH, Berlin/Boston.

Najm, N.A., Alfaqih, A.A.H.

Organizational intelligence and market expansion in jordanian pharmaceutical companies

(2021) Organizations and Markets in Emerging Economies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107278115&doi=10.15388%2fOME.2021.12.55&partnerID=40&md5=da6684c83d9ddf73318abd2f8dc1e4cd)

[85107278115&doi=10.15388%2fOME.2021.12.55&partnerID=40&md5=da6684c83d9ddf73318abd2f8dc1e4cd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107278115&doi=10.15388%2fOME.2021.12.55&partnerID=40&md5=da6684c83d9ddf73318abd2f8dc1e4cd)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: There are many studies that have focused on the Albrecht model of organizational intelligence (OI) and its seven dimensions (strategic vision, shared fate, appetite for change, heart, alignment and congruence, knowledge deployment, and performance pressure), but the current study presents a new attempt to study OI using the Yolles model in its three dimensions (self-reference, self-regulation, and self-organization) (2005). This study sought to determine the effect of organizational intelligence on market expansion (new markets and new product) in the Jordanian pharmaceutical industry, and it examined the effect of transformational leadership as a mediating variable on the relationship between organizational intelligence and market expansion. The study sample consisted of 231 respondents taken from six pharmaceutical companies divided into three categories according to their size as small, medium and large companies. The results confirmed that there is a significant positive effect of the two dimensions (self-regulation and self-organization) on new markets, while three dimensions of OI have a significant effect on new products in the pharmaceutical companies. © 2021 Najim Abood, Amany A. H. Alfaqih.

Saadh, M.J., Almaaytah, A.M., Alaraj, M., Dababneh, M.F., Sa'Adeh, I., Aldalaen, S.M., Kharshid, A.M., Alboghdadly, A., Hailat, M., Khaleel, A., Al-Hamaideh, K.D., Abu Dayyih, W.

Punicalagin and zinc (II) ions inhibit the activity of SARS-CoV-2 3CL-protease in vitro

(2021) European Review for Medical and Pharmacological Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107222088&doi=10.26355%2feurev_202105_25958&partnerID=40&md5=6be09cc950b9ff8e0308640c1250f55c)

[85107222088&doi=10.26355%2feurev_202105_25958&partnerID=40&md5=6be09cc950b9ff8e0308640c1250f55c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107222088&doi=10.26355%2feurev_202105_25958&partnerID=40&md5=6be09cc950b9ff8e0308640c1250f55c)

AFFILIATIONS: Faculty of Pharmacy, Middle East University, Amman, Jordan;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Radiology, King Abdulaziz Medical City, National Guard Hospital, Riyadh, Saudi Arabia;

Faculty of Pharmacy, Mutah University, Amman, Jordan;

Department of Pharmacy Practice, Pharmacy Program, Batterjee Medical College, Jeddah, Saudi Arabia;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Department of Basic Medical Sciences, Faculty of Medicine, Al-Balqa Applied University, Amman, Jordan

ABSTRACT: OBJECTIVE: Coronavirus 2019 (COVID-19) has now been declared as a worldwide pandemic.

Currently, no drugs have been endorsed for its treatment; in this manner, a pressing need has been developed for any antiviral drugs that will treat COVID-19. Corona-viruses require the SARS-CoV-2 3CL-Protease (3CL-protease) for cleavage of its polyprotein to yield a single useful protein and assume a basic role in the disease progression. In this study, we demonstrated that punicalagin, the fundamental active element of pomegranate in addition to the combination of punicalagin with zinc (Zn) II, appear to show powerful inhibitory activity against SARS-CoV-2. MATERIALS AND METHODS: The 3CL protease assay kit was used to quantify 3CL protease action. The tetrazolium dye, MTS, was used to evaluate cytotoxicity. RESULTS: Punicalagin showed inhibitory action against the 3CL-protease in a dose-dependent manner, and IC₅₀ was found to be 6.192 µg/ml for punicalagin. Punicalagin (10 µg/ mL) demonstrated a significant inhibitory activity toward 3CL-protease activity (p < 0.001), yet when punicalagin is combined with zinc sulfate monohydrate (punicalagin/Zn-II) extremely strong 3CL-protease activity (p < 0.001) was obtained. The action of 3CL-protease with punicalagin/Zn-II was decreased by approximately 4.4-fold in contrast to only punicalagin (10 µg/ mL). Likewise, we did not notice any significant cytotoxicity caused by punicalagin, Zn-II, or punicalagin/Zn-II. CONCLUSIONS: We suggest that these compounds could be used as potential antiviral drugs against COVID-19. © 2021 Verduci Editore s.r.l. All rights reserved.

Tabaza, T.A., Tabaza, O., Barrett, J., Alsakarneh, A.

Hysteresis modeling of impact dynamics using artificial neural network

(2021) Journal of Mechanics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107113726&doi=10.1093%2fjom%2fufab007&partnerID=40&md5=e419b552af7ba337d257bd56ecf5c76f)

[85107113726&doi=10.1093%2fjom%2fufab007&partnerID=40&md5=e419b552af7ba337d257bd56ecf5c76f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107113726&doi=10.1093%2fjom%2fufab007&partnerID=40&md5=e419b552af7ba337d257bd56ecf5c76f)

AFFILIATIONS: Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mechanical Engineering, Graduate School of Science and Technology, University of Science, Chiba, Tokyo, Japan;

Nimbus Centre for Embedded Systems Research, Cork Institute of Technology, Cork, Ireland;

Mechanical Engineering Division, Fujairah Men's College, Higher Colleges of Technology, Fujairah, United Arab Emirates

ABSTRACT: In this paper, the process of training an artificial neural network (ANN) on predicting the hysteresis of a viscoelastic ball and ash wood bat colliding system is discussed. To study how the material properties and the impact speed affect the hysteresis phenomenon, many experiments were

conducted for colliding three types of viscoelastic balls known as sliotars at two different speeds. The aim of the study is to innovate a neural network model to predict the hysteresis phenomenon of the collision of viscoelastic materials. The model accurately captured the input data and was able to produce data sets out of the input ranges. The results show that the ANN model predicted the impact hysteresis accurately with <1% error. © 2021 The Author(s) 2021. Published by Oxford University Press on behalf of Society of Theoretical and Applied Mechanics of the Republic of China, Taiwan.

Sabbah, D.A., Hajjo, R., Bardaweel, S.K., Zhong, H.A.

An Updated Review on Betacoronavirus Viral Entry Inhibitors: Learning from Past Discoveries to Advance COVID-19 Drug Discovery

(2021) Current topics in medicinal chemistry, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85107085484&doi=10.2174%2f1568026621666210119111409&partnerID=40&md5=08bb62718593caf8fe3c27b972aba8fb

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O.

Box 130 Amman11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan Amman 11942, Jordan;

Department of Chemistry, University of Nebraska at Omaha, 6001 Dodge Street, Omaha, NE 68182, United

States

ABSTRACT: Even after one year of its first outbreak reported in China, the coronavirus disease 2019 (COVID-19) pandemic is still sweeping the World, causing serious infections and claiming more fatalities. COVID-19 is caused by the novel coronavirus SARS-CoV-2, which belongs to the genus Betacoronavirus (β -CoVs), which is of greatest clinical importance since it contains many other viruses that cause respiratory disease in humans, including OC43, HKU1, SARS-CoV, and MERS. The spike (S) glycoprotein of β -CoVs is a key virulence factor in determining disease pathogenesis and host tropism, and it also mediates virus binding to the host's receptors to allow viral entry into host cells, i.e., the first step in virus lifecycle. Viral entry inhibitors are considered promising putative drugs for COVID-19. Herein, we mined the biomedical literature for viral entry inhibitors of other coronaviruses, with special emphasis on β -CoVs entry inhibitors. We also outlined the structural features of SARS-CoV-2 S protein and how it differs from other β -CoVs to better understand the structural determinants of S protein binding to its human receptor (ACE2). This review highlighted several promising viral entry inhibitors as potential treatments for COVID-19. Copyright© Bentham Science Publishers; For any queries, please email at epub@benthamscience.net.

Al Sawalqa, F.A., Qtish, A.

IAS/IFRS in Jordan: Adoption, implementation and determinants

(2021) Universal Journal of Accounting and Finance, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85107054583&doi=10.13189%2fUJAF.2021.090213&partnerID=40&md5=a21de65e1849326b97c134391e5ef427

AFFILIATIONS: Accounting Department, Business Faculty, Tafila Technical University, Box 179, Tafila,

66110, Jordan;

Accounting Department, Economics and Administrative Sciences Faculty, Al-Zaytoonah University, Amman,

Jordan

ABSTRACT: This study examines the current status of accounting standards among Jordanian firms. In particular, it examines the adoption level of IAS/IFRS. In addition, it examines the implementation process in terms of difficulties and challenges. Further, the study tests empirically the effect of international institutional pressures, local legal enforcement bodies and accounting education level on accounting standards adoption level. The results of the study are based on the descriptive and multiple regression analysis technique. Based on 62 usable responses, the study reveals that the adoption level of IAS/IFRS among Jordanian firms is moderate. For example, IFRS 7 (Financial Instruments: Disclosure) is the most adopted standard. This is followed by IAS 32 (Financial Instruments: Presentation) and IFRS 15 (Revenue from Contracts with Customers) respectively, while IFRS 2 (Share-based Payment) is the least adopted standard. In general, the study reveals that the implementation process of some standards is easy such as IFRS 7 (Financial Instruments: Disclosure), while others such as IAS 36 (Impairment of Assets) and IFRS 13 (Fair Value Measurement) need additional efforts to properly implement. In addition, several challenges were detected, which could prevent the proper implementation of some accounting standards such as the shortage in the governmental and IT supports. Further, the study shows that international institutional pressure and local legal enforcement bodies have a positive and significant relationship with the adoption level of accounting standards, while the effect of accounting education level is insignificant. JACPA should coordinate and collaborate with IASB and the government to offer all the necessary financial, technical and legal support for Jordanian firms to fully adopt and apply accounting standards. Several recommendations were offered for future research to enrich this vital topic in Jordan and other developing countries. © 2021by authors.

Oudat, R.I., Abualruz, H.S., Al-Shiek, N.K.A., Al-Mashaqba, E.A., Al-Hiari, R.A., Alsoukhni, H.A.,

Hammad, M.A.A.

Sickle Cell Disease in Jordan: The Experience of a Major Referral Center

(2021) Medical Archives, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106603070&doi=10.5455%2fmedarh.2021.75.27-30&partnerID=40&md5=4bf26c0df69f3e83e72a0c828103ca4c>

AFFILIATIONS: Department of Hematopathology, Princess Iman Research and Laboratory Sciences Center, Amman, Jordan;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Introduction: Sickle cell disorders are the most frequently encountered hemoglobin variants in Jordan. Both alpha and beta thalassemias are also prevalent in this population. However, studies on the interaction between these hemoglobin disorders are lacking. Aim: To determine the genotypes responsible for Sickle cell disease in Jordan, by retrospectively reviewing the data from a major referral center in the country's capital. Methods: A total 29,712 peripheral blood samples referred and investigated for hemoglobinopathies over a 10-year period at Princess Iman Center at Amman, Jordan were retrospectively reviewed. In addition to full blood counts, high performance liquid chromatography, those who were identified with sickle cell hemoglobin were studied using polymerase chain reaction and reverse hybridization to determine the various sickle cell disease genotypes. Results: Out of the (29,712) blood samples, 450 were sickle cell trait, while 216 had sickle cell disease. Of the latter: 120 were found to be cases of Sickle cell anemia (Hb SS), 66 were compound heterozygous for Sickle cell and a beta thalassemia mutation (Sickle/ β -thalassemia), while 30 had concomitant alpha thalassemia (HbSS/alpha thalassemia). The most frequent genotype associated with sickle/ β -thalassemia was HbS/ IVS-110 (G>A), followed by Hb S/ IVS-I-6 (T>C), HbS/IVS-II-745 (C>G) and HbS/ IVS-II-1 (G>A). While the most frequent alpha genotype detected in HbSS/ α -thalassemia samples was (- α 3.7/ $\alpha\alpha$) followed by (- α 3.7/- α 3.7). Hb SS patients had the severest hematological phenotype compared to those with sick-le/ β -thalassemia and sickle/ α -thalassemia. Furthermore, within the sickle/ β -thalassemia subgroup the least severe hematological phenotype was encountered in HbS/IVS-1-6 (T>C), while the most severe in HbS/IVS-II-1 (G>A) genotype. Conclusion: The most frequent Sickle cell disease genotype in Jordanians is Sickle cell anemia (HbSS), followed by Sickle/ β -thalassemia and least frequent is HbSS/alpha thalassemia. The concomitant identified thalassemia mutations were consistent with their spectrum among the Jordanian population. © 2021 Raida I. Oudat, Heba S. Abualruz, Nazih KH. Abu Al-Shiek, Eman A. AL-Mashaqba, Rawan A. AL-Hiari, Hala A. Alsoukhni, Ma'mon A. Abu Hammad.

Fashafsheh, I., Al-Ghabeesh, S.H., Ayed, A., Salama, B., Batran, A., Bawadi, H.

Health-Promoting Behaviors among Nursing Students: Palestinian Perspective

(2021) Inquiry (United States), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106585234&doi=10.1177%2f00469580211018790&partnerID=40&md5=b388659547e0508f64af6861760a9e52>

AFFILIATIONS: Arab American University, Jenin, Palestine;

Al-Zaytoonah University of Jordan, Airport Street, Amman, Jordan;

University of Jordan, Amman, Jordan

ABSTRACT: The purpose of this study is to assess the health-promoting lifestyle behaviors of nursing students at Arab American University Palestine, Palestine. A cross-sectional design was used, 350 participants filled the Health Promoting Lifestyle Profile II. The total HPLP score was 138.57 ± 22 . Spiritual growth had the highest mean and physical activity had the lowest subscale. A significant relationship between the age of students and the sub-scales of stress management as well as physical activity. However, gender and spiritual growth subscale differed significantly. Also, there was a significant difference between students' year level and physical activity. University administrators and staff should provide guidance to progress with more actual strategies to improve nursing students' health-promoting behaviors. © The Author(s) 2021.

Als Salman, A.-H., Aboalhaija, N., Talib, W., Abaza, I., Afifi, F.

Evaluation of the Single and Combined Antibacterial Efficiency of the Leaf Essential Oils of Four Common Culinary herbs: Dill, Celery, Coriander and Fennel Grown in Jordan

(2021) Journal of Essential Oil-Bearing Plants, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106302506&doi=10.1080%2f0972060X.2021.1925595&partnerID=40&md5=76035ca525f7790702d9d96427064e8d>

AFFILIATIONS: Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Al-Arab Str. 21, Amman, 11931, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Al-Arab Str. 21, Amman, 11931, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Queen Rania Al-Abdallah Str, Amman, 11942, Jordan

ABSTRACT: This study aimed to determine the volatile oil composition of the fresh leaves of dill, celery, coriander, and fennel, grown in Jordan, and to evaluate the antimicrobial activity of the essential oils individually and in binary (50:50) and quaternary (25:25:25:25) mixtures. The volatile oils, obtained by hydrodistillation, were analysed by gas chromatography (GC) and gas chromatography-mass spectrometry (GC-MS). In vitro antimicrobial activities of the essential oils were evaluated against *Escherichia coli*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, and *Candida albicans*. Using the microtiter plate dilution method minimal inhibitory concentrations (MICs) of the essential oils were determined and the checkerboard method was then used to investigate the antimicrobial efficacy of the essential oil combinations by means of the fractional inhibitory concentration index (FICI). Dill and celery samples were rich in monoterpene hydrocarbons, while the oils of fennel and coriander were dominated by non-terpenoid compounds. In antimicrobial experiments, the essential oil of dill yielded the best activity against all tested microorganisms. In binary combination of the essential oils, best results were detected in a combination of dill with coriander against *B. subtilis* and *P. aeruginosa*, and fennel with coriander against *E. coli* and *P. aeruginosa*. The present study is the first evaluation of the volatile oil composition and determination of the antimicrobial activities of the fresh leaves of dill, celery, coriander, and fennel in binary and quaternary combinations. Additive or synergistic effects were detected in certain binary oil combinations while indifferent and antagonist effects were noticed in other mixtures. © 2021 Har Krishan Bhalla & Sons.

Sabbah, D.A., Hajjo, R., Bardaweel, S.K., Zhong, H.A.

Phosphatidylinositol 3-kinase (PI3K) inhibitors: a recent update on inhibitor design and clinical trials (2016-2020)

(2021) Expert Opinion on Therapeutic Patents, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106216194&doi=10.1080%2f13543776.2021.1924150&partnerID=40&md5=b348068d2b743c0b725aa040c1116cc5)

[85106216194&doi=10.1080%2f13543776.2021.1924150&partnerID=40&md5=b348068d2b743c0b725aa040c1116cc5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106216194&doi=10.1080%2f13543776.2021.1924150&partnerID=40&md5=b348068d2b743c0b725aa040c1116cc5)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, Jordan;

DSC 362, Department of Chemistry, The University of Nebraska at Omaha, Omaha, NE, United States

ABSTRACT: Introduction: The phosphatidylinositol 3-kinase/protein kinase-B/mammalian target of rapamycin (PI3K/AKT/mTOR) signaling pathway plays a central role in regulating cell growth and proliferation and thus has been considered as effective anticancer drug targets. Many PI3K inhibitors have been developed and progressed to various stages of clinical trials, and some have been approved as anticancer treatment. In this review, we discuss the drug design and clinical development of PI3K inhibitors over the past 4 years. We review the selectivity and potency of 47 PI3K inhibitors. Structural determinants for increasing selectivity toward PI3K subtype-selectivity or mutant selectivity are discussed. Future research direction and current clinical development in combination therapy of inhibitors involved in PI3Ks are also discussed. **Area covered:** This review covers clinical trial reports and patent literature on PI3K inhibitors and their selectivity published between 2016 and 2020. **Expert opinion:** To PI3K α mutants (E542K, E545K, and H1047R), it is highly desirable to design and develop mutant-specific PI3K inhibitors. It is also necessary to develop subtype-selective PI3K α inhibitors to minimize toxicity. To reduce drug resistance and to improve efficacy, future studies should include combination therapy of PI3K inhibitors with existing anticancer drugs from different pathways. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Salman, D., Allouzi, R., Shatarat, N.

Punching shear behaviour of flat slabs with different reinforcement schemes: openings and rectangularity effects

(2021) International Journal of Structural Integrity, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105996148&doi=10.1108%2fIJSI-08-2020-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105996148&doi=10.1108%2fIJSI-08-2020-0079&partnerID=40&md5=39e758b999d7bc1717ad4f75cfe057f2)

[0079&partnerID=40&md5=39e758b999d7bc1717ad4f75cfe057f2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105996148&doi=10.1108%2fIJSI-08-2020-0079&partnerID=40&md5=39e758b999d7bc1717ad4f75cfe057f2)

AFFILIATIONS: Civil and Infrastructure Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Civil Engineering, The University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The main goal is to investigate the effect of size and location of opening and column size on the punching shear strength. Openings are often needed in order to install mechanical and electrical services. This process takes away part of the concrete volume which is responsible for resisting the shear forces and any unbalanced moment. Furthermore, the application of rectangular columns in flat slabs is commonly used in practice as they provide lateral stiffness to the building. They are also utilised in garages and multi-storey buildings where these elongated cross-sectional columns reduce the effective span length between adjacent columns. **Design/methodology/approach:** This research is a numerical-based investigation that is calibrated based on a thirteen previously tested and numerically calibrated slab specimens with no openings. A parametric study is conducted in this study to consider the effect of other parameters, which are the size and location of opening and the rectangularity ratio of column in order to evaluate their effect on the punching shear capacity. A

total of 156 models are developed to study these factors. Additionally, the predicted shear carrying capacity of the simulated slabs is calculated using the ACI318-19 and Eurocode (EC2-04) equation. Findings: The presence of openings reduced the punching shear capacity. The small opening's location and orientation have almost no effect except for one slab. For slabs of large openings, the presence of openings reduced the punching capacity. The punching capacity is higher when the openings are farther from the column. The numerically obtained results of slabs with rectangular columns show lower punching capacity compared to slabs of squared columns with the same length of the punching shear control perimeter. The punching capacity for all slabs is predicted by ACI318-19 and Eurocode (EC2-04) and it is found that Eurocode (EC2-04) provided a closer estimation. Originality/value: The slabs considered for calibration were reinforced with four different punching shear reinforcement configurations, namely; ordinary closed rectangular stirrups, rectangular spiral stirrups, advanced rectangular spiral stirrups and circular spiral. Generally, there has been limited research on concrete flat slabs with openings in comparison with other subjects related to structural engineering (Guan, 2009) and no research on punching shear with openings of slabs reinforced with these reinforcement schemes. The available research focussed on the effects of openings on the flexural behaviour of reinforced concrete slabs includes Casadei et al. (2003), Banu et al. (2012) and Elsayed et al. (2009). In addition, experimental tests that examined slabs supported on rectangular columns are very limited. © 2021, Emerald Publishing Limited.

Al-Qerem, W., Al-Maayah, B., Ling, J.

Developing and validating the arabic version of the diabetes quality of life questionnaire [Élaboration et validation de la version arabe du questionnaire sur la qualité de vie des patients diabétiques]

(2021) Eastern Mediterranean Health Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105480819&doi=10.26719%2fEMHJ.20.112&partnerID=40&md5=aa4bb9c658ed51286e86fd6caf0398fb)

[85105480819&doi=10.26719%2fEMHJ.20.112&partnerID=40&md5=aa4bb9c658ed51286e86fd6caf0398fb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105480819&doi=10.26719%2fEMHJ.20.112&partnerID=40&md5=aa4bb9c658ed51286e86fd6caf0398fb)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Pharmacy, Amman, Jordan;

University of Sunderland, Faculty of Health Sciences and Wellbeing, Sunderland, United Kingdom

ABSTRACT: Background: The Diabetes Quality of Life (DQoL) questionnaire has been used frequently among people with diabetes. Aims: To develop and validate a revised Arabic version of the DQoL questionnaire for patients in Jordan with type 2 diabetes. Methods: We recruited patients with type 2 diabetes from 3 public health clinics in Jordan. The original DQoL questionnaire was translated to Arabic and then back-translated by a different translator, and the 2 versions were compared. Prior to circulating the final version of the questionnaire, a cognitive validity test was applied to ensure that all the questions were clear. The final Arabic version of the DQoL questionnaire, along with a questionnaire that included demographic and other health-related questions, were circulated to the participants. The questionnaire data were analysed using exploratory factor analysis and confirmatory factor analysis after excluding duplicated questions and questions that included > 10% missing data. Cronbach's α was also conducted to confirm internal consistency. Results: Analysis validated an Arabic version of DQoL questionnaire that included 29 items divided into 3 factors: worries, impact and satisfaction. Different variables were associated with DQoL scores including insulin administration, low income status, marital status, and presence of diabetic complications. Conclusions: We validated an Arabic tool that can be used to evaluate QoL among Arabic-speaking patients with type 2 diabetes. © World Health Organization (WHO) 2021. Open Access. Some rights reserved.

Zihlif, M., Imraish, A., Al-Rawashdeh, B., Qteish, A., Husami, R., Husami, R., Tahboub, F., Jarrar, Y., Lee, S.-J.

The association of ige levels with adam33 genetic polymorphisms among asthmatic patients

(2021) Journal of Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105440352&doi=10.3390%2fjpm11050329&partnerID=40&md5=ddd912a5856ef9e0a4e02a8d73dc8776)

[85105440352&doi=10.3390%2fjpm11050329&partnerID=40&md5=ddd912a5856ef9e0a4e02a8d73dc8776](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105440352&doi=10.3390%2fjpm11050329&partnerID=40&md5=ddd912a5856ef9e0a4e02a8d73dc8776)

AFFILIATIONS: Department of Pharmacology, Faculty of Medicine, The University of Jordan, Amman, 11942, Jordan;

Department of Biology, Faculty of Science, The University of Jordan, Amman, 11942, Jordan;

Department of Special Surgery, Faculty of Medicine, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmacology, College of Medicine, Inje University, Busan, 50834, South Korea

ABSTRACT: Total serum immunoglobulin E (IgE) is elevated in multiple allergic diseases and is considered a good predictor of atopy. Several studies have been performed on the association of IgE levels with the polymorphism of the ADAM33 gene in asthmatic patients. The aim of this study was to determine whether there is an association between IgE levels and the genetic polymorphisms of the ADAM33 gene (T1, T2, T + 1, V4, S1, S2, and Q-1) in both healthy and asthmatic patients among Jordanians. The clinical data were collected for this case-control study from 267 asthmatic patients and 225 control subjects. Seven genetic polymorphisms (T1, T2, T + 1, V4, S1, S2, and Q-1) of the

gene ADAM33 were analyzed using the polymerase chain reaction/restriction fragment length polymorphism method. The minor alleles (G) of T1, (A) of T2, T + 1, and (G) of V4 polymorphisms were associated with a significant increase in total serum IgE levels in adults but not children. The V4 genetic polymorphism, however, showed a significant association with IgE levels in both adults and children. The S1 polymorphism was significantly associated with the codominant module only in the adults. The S2 polymorphism showed a significant association (p-value < 0.05) in both codominant and recessive models. However, in the dominant model for both pediatric control and asthmatic patients, the association between the IgE and S2 polymorphism was insignificant (p-value = 0.7271 and 0.5259, respectively). This study found a statistically significant association between multiple ADAM33 genetic polymorphisms and IgE levels. Such findings add to the growing evidence that the ADAM33 gene has a major impact on IgE levels among asthmatic patients of Jordanian origin. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Qatawneh, A.M.

Risks of adopting automated AIS applications on the quality of internal auditing
(2021) WSEAS Transactions on Business and Economics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105201324&doi=10.37394%2f23207.2021.18.73&partnerID=40&md5=5186a64297cf5825ddb40a6ef2ecf8c6>

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: -The current study aimed at examining the impact of AIS risks (IT Infrastructure, Data Entry and Outcome, Internal Operations, Control procedures and tools and Data Security) on quality on internal auditing as a comparison study between Jordan and England. Study adopted quantitative approach and distributed a questionnaire on (133) internal auditors in Jordan and (331) internal auditors in England. Through SPSS results of study indicated that all adopted risks were found within both samples responded to questionnaire. Both sample also indicated that "internal operations" and "data security" are the most influential risks that may jeopardize quality of internal auditing. Results also indicated differences between impacts of such risks on quality of internal auditing; such risks were attributed to the large population of England compared to Jordan and the intensity of internal auditing in England as higher than Jordan due to the intensity of operations within the country. However, "IT infrastructure" and "data security" appeared to be higher in England compared to Jordan which helped in easing the negative impacts of AIS risks on quality of internal auditing. Study recommended applying restrictions on users to limit the possibility of changing and manipulating data whether by parties inside or outside the organization, in addition to presenting extra efforts in choosing internal auditors in terms of qualifications, experiences and abilities. © 2021, World Scientific and Engineering Academy and Society. All rights reserved.

Hnaif, A.A., Kanan, E., Kanan, T.

Sentiment analysis for arabic social media news polarity
(2021) Intelligent Automation and Soft Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104861634&doi=10.32604%2fiasc.2021.015939&partnerID=40&md5=7d5f1086a8520282b558e120a1e1c7bb>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Science and Information Technology, Amman, 11733, Jordan;

Amman Arab University, Faculty of Computing and Informatics, Amman, 11953, Jordan

ABSTRACT: In recent years, the use of social media has rapidly increased and developed significant influence on its users. In the study of the behavior, reactions, approval, and interactions of social media users, detecting the polarity (positive, negative, neutral) of news posts is of considerable importance. This proposed research aims to collect data from Arabic social media pages, with the posts comprising the main unit in the dataset, and to build a corpus of manually-processed data for training and testing. Applying Natural Language Processing to the data is crucial for the computer to understand and easily manipulate the data. Therefore, Stop-Word removal, Stemming, and Normalization are applied. Several classifiers, such as Support Vector Machine, Naïve Bayes, K-Nearest Neighbor, Random Forest, and Decision Tree are used to train the dataset, and their accuracy is determined by data testing. These two steps are carried out using the open-source WEKA tool. As a result, each post is categorized into three different classes: positive, negative, and neutral. This research concludes that among the classifiers, SVM reaches the highest level of accuracy with a percentage of 83% for the F1-measure. © 2021, Tech Science Press. All rights reserved.

Lafi, M., Hawashin, B., AlZu'bi, S.

Eliciting requirements from Stakeholders' responses using natural language processing
(2021) CMES - Computer Modeling in Engineering and Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104831455&doi=10.32604%2fcmes.2021.013026&partnerID=40&md5=2409da5e96fa240121aca6ae2e51cd82>

AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Computer Information Systems, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Computer Science, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Most software systems have different stakeholders with a variety of concerns. The process of collecting requirements from a large number of stakeholders is vital but challenging. We propose an efficient, automatic approach to collecting requirements from different stakeholders' responses to a specific question. We use natural language processing techniques to get the stakeholder response that represents most other stakeholders' responses. This study improves existing practices in three ways: Firstly, it reduces the human effort needed to collect the requirements; secondly, it reduces the time required to carry out this task with a large number of stakeholders; thirdly, it underlines the importance of using of data mining techniques in various software engineering steps. Our approach uses tokenization, stop word removal, and word lemmatization to create a list of frequently accruing words. It then creates a similarity matrix to calculate the score value for each response and selects the answer with the highest score. Our experiments show that using this approach significantly reduces the time and effort needed to collect requirements and does so with a sufficient degree of accuracy. © 2021 Tech Science Press. All rights reserved.

Rifai, F., Ramadan, B.M., Yousif, A.S.H., Al-Dweiri, M., Alsmadi, A.A.

The impact of using outsourcing strategy by humanitarian organizations on logistical performance: An empirical investigation from a developing country

(2021) Journal of Governance and Regulation, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85104825415&doi=10.22495%2fjgrv10i2art11&partnerID=40&md5=afbc2284753966832dd40080c4e0e6eb

AFFILIATIONS: Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper empirically investigates the potential benefits of outsourcing humanitarian logistics activities to commercial logistics service providers (LSPs) to improve rescue missions in the Al Zaatari Syrian refugee camp in Jordan. The study uses a quantitative research approach, a survey data set of 140 questionnaires was collected from the managers and managerial staff dealing with logistical activities. First, a comprehensive review of related literature was performed to guide this research and then to test the main hypotheses of this study, correlation and regression analysis were carried out. The findings confirmed that humanitarian organizations in Al Zaatary camp can get benefits from collaborating with LSPs on delivering primary logistic services (shelter, food, medicine, transportation, etc.) (Nurmala, de Leeuw, & Dullaert, 2017). Moreover, the findings showed that outsourcing is preferred in the response phase (Vega & Roussat, 2015). This paper contributes to the growing body of knowledge on humanitarian logistics in ways that fills a gap by empirically investigate the phenomenon, as well as it is considered well timed in the context of the still current situation due to political instability in the region. As far as the authors are aware, this research represents the first study within the humanitarian logistics sector in Jordan. © 2021 The Authors.

Abaza, I., Aboalhaija, N., Alsalman, A., Talib, W., Afifi, F.

Aroma Profile, Chemical Composition and Antiproliferative Activity of the Hydrodistilled Essential Oil of a Rare Salvia Species (*Salvia greggii*)

(2021) Journal of Biologically Active Products from Nature, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85104784056&doi=10.1080%2f22311866.2021.1906320&partnerID=40&md5=c6d46e75fbce676bca31fc65c2e915ba

AFFILIATIONS: School of Pharmacy, The University of Jordan, Queen Rania Al-Abdullah Street, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O Box 130, Amman, 11733, Jordan;

Faculty of Pharmacy, Applied Science Private University, Al-Arab Street 21, Amman, 11931, Jordan

ABSTRACT: The present study deals with the gas chromatography/mass spectrometry (GC/ MS) analysis of the aroma profile of different aerial organs obtained by solid-phase microextraction (SPME) and that of the hydro distilled essential oil of the fresh leaves and flowers of *Salvia greggii* A. Gray grown in Jordan. Oxygenated sesquiterpenes dominated the hydrodistilled oils of the leaves and flowers with guaio1 (35.60 % and 31.92 %, respectively) and patchouli alcohol (16.30 % and 16.88 %, respectively) as the main constituents. Alpha-pinene, camphene, limonene, and γ -terpinene were detected as the major hydrocarbon monoterpenes and 1,8-cineol, camphor, and isobornyl acetate as the major oxygenated monoterpenes. The antiproliferative activity of the leaf essential oil was screened on MCF-7 and HCT116 cell lines. The essential oil exhibited a promising dosedependent inhibition of cell growth with low IC₅₀'s (MCF-7: 35.35 μ g/mL; HCT116: 23.57 μ g/mL) with a high safety profile against the normal Vero cell line compared to the positive control Doxorubicin. © 2021 Har Krishan Bhalla & Sons.

Hasan, H., Oudat, M.S., Alsmadi, A.A., Nurfaahadi, M., Ali, B.J.A.

Investigating the causal relationship between financial development and carbon emission in the emerging country

(2021) Journal of Governance and Regulation, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104686977&doi=10.22495%2fjgrv10i2art5&partnerID=40&md5=cd8494698e018bb44d02b207866710ac>

AFFILIATIONS: Accounting and Finance Department, College of Administrative Sciences, Applied Science University, Bahrain;

Banking and Finance Department, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan; Environmental Engineering Department, Faculty of Engineering, University of North Sumatera, Indonesia

ABSTRACT: The current study investigates the causality relationship between financial development and carbon dioxide (CO₂) emission in Bahrain by adopting time series data from 1980–2018. The vector error correction model (VECM) is employed as an appropriate model in order to analyse the data. While the augmented Dickey-Fuller (ADF) test was used in order to detect the stationary variables. However, the domestic per capita has been used as a proxy of economic growth, while financial development is measured by domestic credit provided by the financial sector. The results indicate that there is a long-term association amongst all intended variables at a 5% significant level. Meanwhile, only financial development has an impact on carbon emission in the short term. For the Granger causality test, only financial development and population led positive impact on CO₂, while carbon emission does not Granger-cause financial development and population. However, the study findings did not support the hypothesis of the environmental Kuznets curve (EKC), and these findings are in line with other previous empirical findings (Saidi & Mbarek, 2017). These findings are essential and contribute to policymakers controlling credit policies that confirm that the loans availed by the financial sector to the domestic firms are used as friendly machinery tools for the environment that can decrease CO₂ emission. © 2021 The Authors.

Alqudah, M.A., Almheidat, M.N., Hamadneh, T.

Bivariate generalized shifted gegenbauer orthogonal system

(2021) Journal of Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104565800&doi=10.1155%2f2021%2f5563032&partnerID=40&md5=2c42ff2db0db6708eb33d3326713996b>

AFFILIATIONS: German Jordanian University, Amman, 11180, Jordan;

Department of Mathematics, University of Petra, Amman, 11196, Jordan;

Department of Mathematics, Al-Zaytoonah University of Jordan, P. O. Box 130, Amman, Jordan

ABSTRACT: For $K_0, K_1 \geq 0$, $\lambda > - (1/2)$, we examine $L_r^*(\lambda, K_0, K_1)(x)$, generalized shifted Gegenbauer orthogonal polynomials, with reference to the weight $W(\lambda, K_0, K_1)(x) = ((2\lambda\Gamma(2\lambda))/(\Gamma(\lambda + (1/2))^2))(x - x^2)^{\lambda - (1/2)}I(x \in (0, 1))dx + K_0\delta_0 + K_1\delta_1$, where the indicator function is denoted by $I(x \in (0, 1))$ and δ_x indicates the Dirac δ . measure. Then, we construct a bivariate generalized shifted Gegenbauer orthogonal system $C(\lambda, K_0, K_1)_{n,r,d}(u, v, w)$ over a triangular domain T , with reference to a bivariate measure $W(\lambda, \gamma, K_0, K_1)(u, v, w) = ((\Gamma(2\lambda + 1))/\Gamma(\lambda + (1/2))^2)u^{\lambda - (1/2)}(1 - v)^{\lambda - (1/2)}(1 - w)^{\lambda - (1/2)}I(u \in (0, 1 - w))I(w \in (0, 1))dudw + K_0\delta_0(u) + K_1\delta_w^{-1}(u)$, which is given explicitly in the Bézier form as $C_{n,r,d}(\lambda, K_0, K_1)(u, v, w) = \sum_{i+j+k=n} a_{n,r,d,i,j,k} n_{i,j,k}(u, v, w)$. In addition, for $d = 0, k, r = 0, 1, \dots, n$, and $n \in \{0\} \cup \mathbb{N}$, we write the coefficients $a_{n,r,d,i,j,k}$ in closed form and produce an equation that generates the coefficients recursively. Copyright © 2021 Mohammad A. Alqudah et al.

Allan, M.S., Ali, N.N., Shaban, O.S., Al-Salaita, N.

Client relationship management in banking: A case of emerging market

(2021) Journal of Governance and Regulation, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104544744&doi=10.22495%2fjgrv10i2art1&partnerID=40&md5=bbdefc47d75542b4308c7b0d6376fb4f>

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of this study is to identify the level of gap extended between management perceptions of clients' expectations, and clients' expectations for service quality dimensions in the Jordanian commercial banks. The study also investigates the impact of combined service quality dimensions (tangibility, reliability, responsiveness, assurance, empathy, and online services) on management's and clients' expectations. In order to achieve the objectives of the study, a quantitative study was conducted and a convenience sampling was taken by distributing questionnaires to commercial bank managements and clients during the period of 2018–2019. In total, the researchers had: 362 clients and 168 managers. The study findings were analyzed by using the statistical packages for social sciences (SPSS Statistics V22.0). After testing the hypotheses using various techniques, it was found that there is a difference between management perceptions of clients' expectations and clients' expectations of service quality dimensions (tangibility, reliability, responsiveness, assurance, empathy, and online services). Also, it found that combined service quality dimensions as independent variables have a significant impact on management perceptions of clients' expectations and clients' expectations of service quality dimensions as dependent variables. © 2021 The Authors.

Sabbah, D.A., Hajjo, R., Bardaweel, S.K., Zhong, H.A.

An updated review on SARS-CoV-2 main proteinase (MPro): Protein structure and small-molecule inhibitors

(2021) Current Topics in Medicinal Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104275440&doi=10.2174%2f1568026620666201207095117&partnerID=40&md5=742018b085a72ec653e007e52e028a0f)

85104275440&doi=10.2174%2f1568026620666201207095117&partnerID=40&md5=742018b085a72ec653e007e52e028a0f

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Department of Chemistry, The University of Nebraska at Omaha, 6001 Dodge Street, Omaha, NE 68182, United States

ABSTRACT: Coronaviruses (CoVs) are enveloped positive-stranded RNA viruses with spike (S) protein projections that allow the virus to enter and infect host cells. The S protein is a key virulence factor determining viral pathogenesis, host tropism, and disease pathogenesis. There are currently diverse corona viruses that are known to cause disease in humans. The occurrence of Middle East respiratory syndrome coronavirus (MERS-CoV) and Severe Acute Respiratory Syndrome coronavirus (SARS-CoV), as fatal human CoV diseases, has induced significant interest in the medical field. The novel coronavirus disease (COVID-19) is an infectious disease caused by a novel strain of coronavirus (SARS-CoV-2). The SARS-CoV2 outbreak has been evolved in Wuhan, China, in December 2019, and identified as a pandemic in March 2020, resulting in 53.24 M cases and 1.20M deaths worldwide. SARS-CoV-2 main proteinase (MPro), a key protease of CoV-2, mediates viral replication and transcription. SARS-CoV-2 MPro has been emerged as an attractive target for SARS-CoV-2 drug design and development. Diverse scaffolds have been released targeting SARS-CoV-2 MPro. In this review, we culminate the latest published information about SARS-CoV-2 main proteinase (MPro) and reported inhibitors. © 2021 Bentham Science Publishers.

El Nsour, J.A.

Investigating the impact of organizational agility on the competitive advantage

(2021) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104113470&doi=10.22495%2fJGRV10I1ART14&partnerID=40&md5=2a0eb500afd3305ca50c23830c90b8e5)

85104113470&doi=10.22495%2fJGRV10I1ART14&partnerID=40&md5=2a0eb500afd3305ca50c23830c90b8e5

AFFILIATIONS: Al-Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, Jordan

ABSTRACT: The main purpose of this paper is to investigate the impact of organizational agility on the competitive advantage in Jordanian telecommunication companies. Data were collected from 460 participants through a survey questionnaire. Likert scale was used to measure the concepts of organizational agility and competitive advantage. The findings of the study indicated that organizational agility is related positively and significantly to the company's competitive advantage. Results of the study confirmed that organizational agility is increasingly becoming a critical factor in achieving sustained competitive advantage in such IT and the knowledge-intensive industry as the telecommunication sector. Telecommunication companies are advised to focus on developing organizational agility to acquire a competitive advantage. © 2021 The Author.

Imam, A.T., Alhroob, A., Alzyadat, W.J.

SVM Machine Learning Classifier to Automate the Extraction of SRS Elements

(2021) International Journal of Advanced Computer Science and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104045847&doi=10.14569%2fIJACSA.2021.0120322&partnerID=40&md5=29675ff54adab72a8b8eafdd657d24f8)

85104045847&doi=10.14569%2fIJACSA.2021.0120322&partnerID=40&md5=29675ff54adab72a8b8eafdd657d24f8

AFFILIATIONS: Faculty of Information Technology Isra University, Amman, Jordan;

Faculty of Science and Information Technology Al-Zaytoonah University, Amman, Jordan

ABSTRACT: The process of extraction of software entities such as system, use case, and actor from an English natural language description of a user's software requirements is a linguistic and semantic process of a natural language processing application. Entity extraction is known to be a complicated and challenging problem by researchers in the fields of linguistics or computation, due to the ambiguities in natural languages. This paper presents a named entity recognition method called SyAcUcNER (System Actor Use-Case Named Entity Recognizer), for extracting the system, actor, and use case entities from unstructured English descriptions of user requirements for the software. SyAcUcNER uses one of the Machine Learning (ML) approaches, that is, the Support Vector Machine (SVM) as an effective classifier. Also, SyAcUcNER uses a semantic role labeling process to tag the words in the text of user software requirements. SyAcUcNER is the first work that defines the structure of a requirements engineering specialized NER, the first work that uses a specialized NER model as an approach for extracting actor and use case entities from English language requirements description, and the first time an SVM has been used to specify the semantic meanings of words in a certain domain of discourse; that is the Software Requirements Specification (SRS). The performance of SyAcUcNER, which utilizes WEKA's SVM, is evaluated using a binomial technique, and the results gained from

running SyAcUcNER on text corpora from assorted sources give weighted averages of 76.2% for precision, 76% for recall, and 72.1% for the F-measure. © 2021. All Rights Reserved.

Farha, R.A., Saadeh, M., Mukattash, T.L., Jarab, A.S., Nusair, M.B., Al-Qirim, W.
Pharmacy students' knowledge and perception about the implementation of pharmaceutical care services in Jordan

(2021) Jordan Journal of Pharmaceutical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85103956087&partnerID=40&md5=b92f5e61f46a1b2ac845211b5375ed86

AFFILIATIONS: Department of Clinical Pharmacy and Therapeutics, Applied Science Private University, Amman, Jordan;

Department of Clinical Pharmacy, Faculty of pharmacy, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Faculty of Pharmacy, AlZaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: The concept of pharmaceutical care was introduced to the literature by helper and strand before around thirty years, they defined it as "the provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life". Jordan is still moving slowly toward implementing this service which showed numerous health and economic benefits since its implementation. Objectives: This study aimed to measure pharmacy the knowledge and perception of pharmacy students approaching the completion of their studies towards pharmaceutical care and their readiness to implement it in their practice after graduation. Methods: An electronic questionnaire was distributed via the internet to pharmacy and doctor of pharmacy students in public and private universities in Jordan. The questionnaire was composed of 35 question and was divided into three sections. Section one measured knowledge, while section two explored respondents' perceptions of pharmaceutical care. The final section collected respondents' demographic details. Results: A total of 215 respondent took part in the study. The knowledge score of pharmaceutical care among respondents was 45%, although the vast majority of them stated that they completed at least one module regarding pharmaceutical care during their studies. On the other hand, almost 75% of respondents had a positive perception of pharmaceutical care in Jordan. Results showed statically significant differences among students regarding university type and academic year. Conclusion: Though respondents completed pharmaceutical care courses during their studies, they had low knowledge regarding the term and its implementation. Combining didactic and experiential education in crucial to build proper practice capacities among future pharmacists. © 2021 DSR Publishers.

Al-Nadaf, A.H., Dahabiyeh, L.A., Jawarneh, S., Bardaweel, S., Mahmoud, N.N.

Folic acid-hydrophilic polymer coated mesoporous silica nanoparticles target doxorubicin delivery

(2021) Pharmaceutical Development and Technology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85103895910&doi=10.1080%2f10837450.2021.1904258&partnerID=40&md5=6d17fa08291bf58b6c51b091e068e828

AFFILIATIONS: Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Mutah University, Alkarak, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Mesoporous silica nanoparticles (MSNs) gained significant attention, particularly in the pharmaceutical field. Folic acid (FA) shows marked promise as a targeting agent for its specific interaction with the folate receptor. This receptor is over-expressed on the cell surface of several cancerous cells like breast cancer. Polyethylene glycol (PE), as well as polypropylene glycol (PEG), is used to decorate nanoparticles to improve their biodistribution. Moreover, carboxymethyl beta-cyclodextrin (CM- β -CD), is used as a complexation molecule. In this study, we described the chemical synthesis, in vitro drug release and antiproliferative activity of doxorubicin-loaded/decorated MSNs further coupled with FA in two conditions: chemically bound or as a complex with CM- β -CD. Fourier Transform Infrared Spectroscopy with Transmission Electron Microscopy confirmed the successful surface change. Dynamic Light Scattering confirmed the change in surface characters like zeta potential, polydispersity index (PI), and size. PI improved from 0.58 to 0.23 while the size enlarged from 200 to 348 and 532 nm. Functionalized nanoparticles demonstrated more significant drug entrapment with (97%) while undecorated MSNs only showed (63%). Accordingly, we effectively synthesized FA-PEG2000-MSNs with IC50: 0.015 mg/mL targeting HeLa cells. This approach may allow potential applications as a drug delivery system in cancer chemotherapy. Highlights Mesoporous silica nanoparticles (MSNs) with a carboxylic acid or amine surface group can be successfully decorated with long-chain hydrophilic polymer via an amide bond. Carboxymethyl- β -cyclodextrin coupled with long-chain polymer as host to form a complex with targeting molecule folic acid. Folic acid can be anchored directly to a polymer coat. TEM; DLS and FTIR confirmed the surface modification. The drug encapsulation efficiency; cytotoxicity and selectivity of functionalized nanoparticles with PEG and conjugated with FA were the best. Chemical modification has improved cytotoxicity of doxorubicin and selectivity against Hela cells. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Bashayreh, E., Manasrah, A., Alkhalil, S., Abdelhafez, E.

Estimation of water disinfection by using data mining

(2021) Inzynieria Ekologiczna, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103859221&doi=10.12912%2f27197050%2f132088&partnerID=40&md5=796302383125faf20c06c0ac406a7979)

85103859221&doi=10.12912%2f27197050%2f132088&partnerID=40&md5=796302383125faf20c06c0ac406a7979

AFFILIATIONS: Department of Electrical Engineering, Communication and Computer, Al-Zaytoonah

University of Jordan, Amman, Jordan;

Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Alternative Energy Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this study, the Artificial Neural Network (ANN) models and multiple linear regression

techniques were used to estimate the relation between the concentration of total coliform, E. coli

and Pseudomonas in the wastewater and the input variables. Two techniques were used to achieve this

objective. The first is a classical technique with multiple linear regression models, while the

second one is data mining with two types of ANN (Multilayer Perceptron (MLP) and Radial Basis

Function (RBF). The work was conducted using (SPSS) software. The obtained estimated results were

verified against the measured data and it was found that data mining by using the RBF model has good

ability to recognize the relation between the input and output variables, while the statistical error

analysis showed the accuracy of data mining by using the RBF model is acceptable. On the other hand,

the obtained results indicate that MLP and multiple linear regression have the least ability for

estimating the concentration of total coliform, E. coli and pseudomonas in wastewater. © 2021,

Ecological engineering and environmental technology. All rights reserved.

Qawaqneh, H., Noorani, M.S.M., Aydi, H., Zraiqat, A., Ansari, A.H.

On Fixed Point Results in Partial b -Metric Spaces

(2021) Journal of Function Spaces, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103634644&doi=10.1155%2f2021%2f8769190&partnerID=40&md5=eb2be4445243a149321f9dbd41aa2339)

85103634644&doi=10.1155%2f2021%2f8769190&partnerID=40&md5=eb2be4445243a149321f9dbd41aa2339

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Mathematical Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia,

UKM, Selangor Darul Ehsan, 43600, Malaysia;

Université de Sousse, Institut Supérieur d'Informatique et des Techniques de Communication, H.

Sousse, 4000, Tunisia;

Department of Mathematics and Applied Mathematics, Sefako Makgatho Health Sciences University, Ga-

Rankuwa, South Africa;

China Medical University Hospital, China Medical University, Taichung, 40402, Taiwan;

Department of Mathematics, Karaj Branch, Islamic Azad University, Karaj, Iran

ABSTRACT: Partial b-metric spaces are characterised by a modified triangular inequality and that the

self-distance of any point of space may not be zero and the symmetry is preserved. The spaces with a

symmetric property have interesting topological properties. This manuscript paper deals with the

existence and uniqueness of fixed point points for contraction mappings using triangular weak α -

admissibility with regard to η and C-class functions in the class of partial b-metric spaces. We also

introduce an example to demonstrate the obtained results. © 2021 Haitham Qawaqneh et al.

Bezziou, M., Dahmani, Z., Sarikaya, M.Z., Jebril, I.

New mixed operators for fractional integrations with some applications

(2021) Mathematics in Engineering, Science and Aerospace, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103611653&partnerID=40&md5=c2abf795d1bc85e04cbd8aa988b4bca3)

85103611653&partnerID=40&md5=c2abf795d1bc85e04cbd8aa988b4bca3

AFFILIATIONS: UDBKM, University and laboratory LPAM, Mostaganem, Algeria;

Laboratory LPAM, Faculty of SEI, UMAB, University of Mostaganem, Algeria;

Department of Mathematics, Faculty of Science and Arts, Du`zce University, Du`zce, Turkey;

Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733,

Jordan

ABSTRACT: In this paper, we introduce new mixed operators related to the coupled orders Riemann-

Liouville integrals. Then, we prove some of their properties, such as semigroup and commutativity. At

the end, some applications are discussed. © CSP - Cambridge, UK; I&S - Florida, USA, 2021

Malak, M.Z., Abu Adas, M., Al-Amer, R., Yousef, N.N., Ali, R.M.

Evaluation of Fatigue among Older Population in Jordan

(2021) Experimental Aging Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103551253&doi=10.1080%2f0361073X.2021.1908764&partnerID=40&md5=a8b6257f5a60485db46a1998420e7555)

85103551253&doi=10.1080%2f0361073X.2021.1908764&partnerID=40&md5=a8b6257f5a60485db46a1998420e7555

AFFILIATIONS: Asso'ciate Professor, Community Health Nursing, Faculty of Nursing, Al-Zaytoonah

University of Jordan, Amman, Jordan;

Community Health Nursing, College of Nursing-Khamis Mushait, King Khalid University, Ahba, Saudi Arabia;

Psychiatric Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

Marj Al-Hamam Health Center, Registered Nurse, Adult Health Nursing, Ministry of Health, Amman, Jordan;

Clinical Instructor, Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Western Sydney University, School of Nursing and Midwifery, Sydney, NSW, Australia

ABSTRACT: Objective: Fatigue among older adults has not received empirical attention in the Arabic region. Thus, this study aimed to assess the levels of fatigue and its related psychosocial factors and examine the predictors of fatigue in older Jordanians aged 60 years and more. Methods: This study used a cross-sectional design and our sample was 250 older adults receiving health services at comprehensive healthcare centers in Amman Governorate, the capital of Jordan. The study used the following scales: Fatigue scale, Rosenberg Self-Esteem Scale, Perceived Stress Scale, Multidimensional Social Support Scale, and sociodemographic and lifestyle behaviors datasheet. Results: The results showed that approximately 57% of the participants experienced severe fatigue. Nearly 90% of the older adults reported having moderate to high levels of stress, around 97% experienced moderate and high levels of social support, and almost 68% had normal self-esteem. The significant predictors of the total fatigue scores were, consuming soft drinks, practicing exercise, perceived levels of stress, and social support levels. Conclusions: Awareness of the magnitude and the factors predicting fatigue among elderlies in Jordan should inform the practice and encourage clinicians to implement individualized care plans that include fatigue reduction strategies, to elderlies visiting healthcare centers. © 2021 Taylor & Francis Group, LLC.

Bezziou, M., Dahmani, Z., Jebril, I., Kaid, M.

Caputo-hadamard approach applications: Solvability for an integro-differential problem of lane and emden type

(2021) Journal of Mathematical and Computational Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103368310&doi=10.28919%2fjmc%2f5246&partnerID=40&md5=a0d19e6f7f410140b7e18e5e5c36c377)

[85103368310&doi=10.28919%2fjmc%2f5246&partnerID=40&md5=a0d19e6f7f410140b7e18e5e5c36c377](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103368310&doi=10.28919%2fjmc%2f5246&partnerID=40&md5=a0d19e6f7f410140b7e18e5e5c36c377)

AFFILIATIONS: UDBKM University, Laboratory LPAM of Mathematics, UMAB University of Mostaganem27000, Algeria;

Laboratory LMPA, Faculty of SEI, UMAB, University Abdelhamid Bni Badis of Mostaganem27000, Algeria; Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The present paper is dealing with a new direction in the Caputo-Hadamrd approach. It is concerned with the solvability of an integro differential problem of type Lane and Emden. The studied problem involves Caputo-Hadamard derivative with new different fractional orders. The main results of existence of solutions are based on the contraction principle of Banach, however, for the existence of solutions, the use of Scheafer fixed point theorem is applied to prove the result. Three examples are discussed at the end of this work. © 2021 the author(s).

Almaiah, M.A., Almomani, O., Al-Khasawneh, A., Althunibat, A.

Predicting the Acceptance of Mobile Learning Applications During COVID-19 Using Machine Learning Prediction Algorithms

(2021) Studies in Systems, Decision and Control, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103054411&doi=10.1007%2f978-3-030-67716-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103054411&doi=10.1007%2f978-3-030-67716-9_20&partnerID=40&md5=db92269a1d1bce627064dd08d0e7d366)

[9_20&partnerID=40&md5=db92269a1d1bce627064dd08d0e7d366](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103054411&doi=10.1007%2f978-3-030-67716-9_20&partnerID=40&md5=db92269a1d1bce627064dd08d0e7d366)

AFFILIATIONS: Department of Computer Networks and Communications, College of Computer Sciences and Information Technology, King Faisal University, Al-Ahsa 31982, Hofuf, Saudi Arabia;

Computer Network and Information Systems Department, The World Islamic Sciences and Education University, Amman, Jordan;

CIS Department, President, Irbid National University, Irbid, Jordan;

Professor, Hashemite University, Irbid, Jordan;

CIS Department, Hashemite University, Zarqa, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, 11947, Jordan

ABSTRACT: The global spread of COVID-19 has motivated many universities to adopt online distance learning systems. Mobile learning applications could play a crucial role during this pandemic. Mobile learning applications are increasing popularity among learners due to their benefits and effectiveness. However, the acceptance of mobile learning system among university students is limited. Therefore, this study seeks to understand the main factors influencing the acceptance of mobile learning applications by proposing a hybrid model by combining the TAM with new constructs of TUT model. Machine learning algorithms were employed to analyze the hypothesized relationships among the constructs in the proposed model. The research findings found that RandomForest and IBK algorithms are the best two algorithms in predicting the main determinants of mobile learning

acceptance as comparison with other machine learning algorithms with an accuracy of 81.3%. The results of machine learning predictive algorithms showed that constructs of perceived enjoyment, perceived ease of use, perceived usefulness, effectiveness, efficiency, behavioural intention to use and utilization could predict the acceptance of mobile learning within accuracy rate of 87%. The results of this paper will offer valuable directions for mobile learning designers and developers to better promote mobile learning application utilization in universities. © 2021, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Almaiah, M.A., Al-Khasawneh, A., Althunibat, A., Almomani, O.

Exploring the Main Determinants of Mobile Learning Application Usage During Covid-19 Pandemic in Jordanian Universities

(2021) Studies in Systems, Decision and Control, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103005866&doi=10.1007%2f978-3-030-67716-9_17&partnerID=40&md5=22d2b5cb80bb151623c8045fa5bb3a00

AFFILIATIONS: Department of Computer Networks and Communications, College of Computer Sciences and Information Technology, King Faisal University, Al-Ahsa, 31982, Saudi Arabia;

CIS Department, President of Irbid National University, Hashemite University, Zarqa, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Network and Information Systems Department, The World Islamic Sciences and Education University, Amman, 11947, Jordan

ABSTRACT: Recently, higher education sector has been affected by Covid-19 pandemic significantly. Where, several universities have started to adopt online distance learning tools such as mobile learning applications. However, in order to success mobile learning applications during this pandemic, it is important to understand the necessary factors that ensure the actual use among students in post implementation. The findings showed that factors of technology, awareness, training and experience had a significant and positive influence on the actual use of mobile learning applications. While, the results indicated that psychological factors had a negative effect on the actual use. Furthermore, the results also revealed that technological and individual factors play a crucial role in solving the psychological issues among students. The findings of this research will offer useful recommendations for educational institutions in order to encourage the use of mobile learning applications effectively during Covid-19 pandemic. © 2021, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Badir Alnidawi, A.A., Yousif, A.S.H., Hmdan, K.M.

An investigation into the impact of employee empowerment on organisational commitment: The case of Zajil International Telecom Company of Jordan

(2021) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102815485&doi=10.1504%2fIJPM.2021.113623&partnerID=40&md5=847899e4c2d235c6e05dfef88bbea9d5)

[85102815485&doi=10.1504%2fIJPM.2021.113623&partnerID=40&md5=847899e4c2d235c6e05dfef88bbea9d5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102815485&doi=10.1504%2fIJPM.2021.113623&partnerID=40&md5=847899e4c2d235c6e05dfef88bbea9d5)

AFFILIATIONS: Business Administration Department, College of Business, Al-Zaytoonah University, Queen Alia Airport Street Amman, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The aim of this study is investigating the impact of the main dimensions of employee empowerment (power, knowledge, self-determination and work-impact) on the basic types of organisational commitment (affective, normative and continuance) at Zajil International Telecom Company of Jordan. A sample of 220 employees (the whole technical and managerial staff) was withdrawn from a total population of 300 employees working at the Zajil International Telecom Company. A six-part questionnaire was developed, academically refereed, modified and then distributed. 217 questionnaires were correctly filled in and returned, that were later used for conducting validity, regression and correlation statistical testing using SPSS package. The main results of this study have plainly indicated that employee empowerment in terms of (power, knowledge, self-determination and work-impact) has a significant positive impact on the key types of organisational commitment (affective, continuance and normative). This result represents the originality of this study. It would be reasonable to state that the main objective of this study (determining to what extent that the employee's job title and nationality moderated the impact of employee empowerment on organisational commitment at Zajil International Telecom Company) was attained. Copyright © 2021 Inderscience Enterprises Ltd.

Mahmoud, N.N., Aqabani, H., Hikmat, S., Abu-Dahab, R.

Colloidal stability and cytotoxicity of polydopamine- conjugated gold nanorods against prostate cancer cell lines

(2021) Molecules, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102713716&doi=10.3390%2fmolecules26051299&partnerID=40&md5=127e437fcb5b7809142f44c92606137f)

[85102713716&doi=10.3390%2fmolecules26051299&partnerID=40&md5=127e437fcb5b7809142f44c92606137f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102713716&doi=10.3390%2fmolecules26051299&partnerID=40&md5=127e437fcb5b7809142f44c92606137f)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Prostate cancer is one of the most common cancers in men. Cell invasion is an important step in the process of cancer metastasis. Herein, gold nanorods (GNRs) and polyethylene glycol (PEG)-coated GNRs were conjugated with polydopamine (PDA). The PDA-nanoconjugates demonstrated excellent colloidal stability upon lyophilization and dispersion in cell culture media with or without the addition of fetal bovine albumin (FBS), compared to unconjugated GNRs. PDA-nanoconjugates exhibited a considerable cytotoxicity against DU-145 and PC3 prostate cancer cell lines over a concentration range of 48 µg/mL-12 µg/mL, while they were biocompatible over a concentration range of 3.0 µg/mL-0.185 µg/mL. Furthermore, PDA-nanoconjugates demonstrated possible antiinvasion activity towards prostate cancer cell lines, particularly DU-145 cell line, by reducing cell migration and cell adhesion properties. The PDA-nanoconjugates could be considered a promising nano-platform toward cancer treatment by reducing the invasion activity; it could also be considered a drug delivery system for chemotherapeutic agents. © 2021 by the authors.

Mosleh, R., Hawash, M., Jarrar, Y.

The relationships among the organizational factors of a tertiary healthcare center for type 2 diabetic patients in palestine

(2021) Endocrine, Metabolic and Immune Disorders - Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102592067&doi=10.2174%2f1871530320666200513083802&partnerID=40&md5=acd5a5c8c363b62c5392f4a60e6b45e1)

[85102592067&doi=10.2174%2f1871530320666200513083802&partnerID=40&md5=acd5a5c8c363b62c5392f4a60e6b45e1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102592067&doi=10.2174%2f1871530320666200513083802&partnerID=40&md5=acd5a5c8c363b62c5392f4a60e6b45e1)

AFFILIATIONS: Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, Palestine;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Diabetes prevalence at Palestine was 10%, with a rising fund crisis, and diabetes healthcare problems. There was a limited research concerning diabetes healthcare dimensions including organizational factors and their predictors. Objective: This study described patient characteristics and organizational factors, and assessed relationships among organizational factors of type 2 diabetes health care in Palestine. Methods: This study is a retrospective cross sectional study, recruited by convenience sampling method in 330 participants from a type 2 diabetes patients list. It was carried out at Ramallah, Pales-tine. The Statistical Package for Social Sciences (SPSS v 19) was used to analyze data on patient characteristics and organizational factors collected from personal interview and medical records review. Results: The results showed that 51.2% were males, and 88.5% had additional chronic diseases. Pre-ventive healthcare and patient-healthcare professionals' relationship were the most prominent organizational factors in statistically significant relationships among organizational factors. Conclusion: This study reflected the need for reviewing prescription mode, and educational programs that emphasize the diabetes self-care management and the health care providers' role that would be of great benefit in health outcomes further. © 2021 Bentham Science Publishers.

Al Bawab, A.Q., Zihlif, M., Jarrar, Y., Sharab, A.

Continuous hypoxia and glucose metabolism: The effects on gene expression in mcf7 breast cancer cell line

(2021) Endocrine, Metabolic and Immune Disorders - Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102558744&doi=10.2174%2f1871530320666200506082020&partnerID=40&md5=6566314d920ca5667439f303c9aca38c)

[85102558744&doi=10.2174%2f1871530320666200506082020&partnerID=40&md5=6566314d920ca5667439f303c9aca38c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102558744&doi=10.2174%2f1871530320666200506082020&partnerID=40&md5=6566314d920ca5667439f303c9aca38c)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, Faculty of Medicine, University of Jordan, Amman, Jordan;

Department of Biology and Biotechnology, Faculty of Science, American University of Madaba, Madaba, Jordan

ABSTRACT: Background: Hypoxia (deprived oxygen in tissues) may induce molecular and genetic changes in cancer cells. Objective: To Investigate the genetic changes of glucose metabolism in breast cancer cell line (MCF7) after exposure to continuous hypoxia (10 and 20 cycles exposure of 72 hours continuously on a weekly basis). Methods: Gene expression of MCF7 cells was evaluated using real-time polymerase chain reactionarray method. Furthermore, cell migration and wound healing assays were also applied. Results: It was found that 10 episodes of continuous hypoxia activated the Warburg effect in MCF7 cells, via the significant up-regulation of genes involved in glycolysis (ANOVA, p value < 0.05). The molecular changes were associated with the ability of MCF7 cells to divide and migrate. Interestingly, after 20 episodes of continuous hypoxia, the expression glycolysis mediated genes dropped significantly (from 30 to 9 folds). This could be attributed to the adaptive ability of cancer cells. Conclusion: It is concluded that 10 hypoxic episodes increased the survival rate and aggressiveness of MCF7 cells and induced the Warburg effect by the up-regulation of the glycolysis mediating gene expression. © 2021 Bentham Science Publishers.

Ashour, M.L., Al-Qirem, R.M.

Consumer Adoption of Self-Service Technologies: Integrating the Behavioral Perspective with the

Technology Acceptance Model

(2021) Journal of Asian Finance, Economics and Business, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102245720&doi=10.13106%2fjafeb.2021.vol18.no3.1361&partnerID=40&md5=29206902d3d022c9366021457f56c898)

[85102245720&doi=10.13106%2fjafeb.2021.vol18.no3.1361&partnerID=40&md5=29206902d3d022c9366021457f56c898](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102245720&doi=10.13106%2fjafeb.2021.vol18.no3.1361&partnerID=40&md5=29206902d3d022c9366021457f56c898)

AFFILIATIONS: Assistant Professor, Department of Marketing, Faculty of Business, Al-Zaytoonah

University of Jordan, Jordan;

P.O. Box 130, Amman, 11733, Jordan;

Associate Professor, Department of Management Information Systems, Faculty of Business, Al-Zaytoonah

University of Jordan, Jordan

ABSTRACT: Recent technological advancements have had a substantial impact on consumer buying behavior. This research aims to determine the factors affecting consumer behavior related to the adoption of self-service technologies (SSTs). The intended findings of this study are expected to contribute to understanding consumer behavior towards the adoption of SSTs taking into account the logic of two main theories in this regard: the Technology Acceptance Model (TAM) and the assumptions of the Behavioral Perspective Model (BPM). This research follows a triangulation approach. Consequently, a number of semi structured interviews were conducted with experts and executive directors from selected SSTs providers in Jordan. In addition, the convenience sampling technique was employed focusing on current (or) previous users of SSTs in the public and private sectors in Jordan using a self-administrative questionnaire (66% response rate). The results confirmed the influence (direct and indirect) of previous experience and personal initiatives and characteristics on consumer intention to use SSTs. In addition, the results indicated the important role of the mediator variables namely: perceived ease of use (EOU), perceived risk (PR), and perceived usefulness (PU) on consumer attitude towards SSTs which in turn will positively affect consumer intention to use SSTs. © 2021 The Author(s). All Rights Reserved.

Abdullah, S., Jarrar, Y., Alhawari, H., Abed, E., Zihlif, M.

The influence of endothelial nitric oxide synthase (eNOS) genetic polymorphisms on cholesterol blood levels among type 2 diabetic patients on atorvastatin therapy

(2021) Endocrine, Metabolic and Immune Disorders - Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101096382&doi=10.2174%2f1871530320666200621174858&partnerID=40&md5=efc2c749e87c48ffad2b7f783ab21cf9)

[85101096382&doi=10.2174%2f1871530320666200621174858&partnerID=40&md5=efc2c749e87c48ffad2b7f783ab21cf9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101096382&doi=10.2174%2f1871530320666200621174858&partnerID=40&md5=efc2c749e87c48ffad2b7f783ab21cf9)

AFFILIATIONS: Department of Pharmacology, Faculty of Medicine, University of Jordan, Amman, Jordan;

Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Internal Medicine, Faculty of Medicine, University of Jordan, Amman, Jordan

ABSTRACT: Background: Endothelial nitric oxide synthase (eNOS) plays a major role in the response of anti-hypercholesterol statin drugs. Genetic polymorphisms in the eNOS gene affect the activity of eNOS thereby modulating the statin response. Objective: This study investigated the influence of major functional eNOS gene polymorphisms (rs2070744, rs1799983, and rs61722009) on the lipid profile of type 2 diabetes mellitus (T2DM) Jordanian patients treated with atorvastatin. Methods: The sample comprised 103 T2DM patients who attended the diabetes clinic of Jordan University Hospital. The T2DM patients had regularly been taking 20 mg atorvastatin. The atorvastatin response was calculated by measuring the lipid profile before and after three months of atorvastatin treatment. The eNOS genotypes of the subjects were analyzed using polymerase chain reaction (PCR) followed by restriction fragment length polymorphism (RFLP) assay. Results: No significant association was found between eNOS genetic polymorphisms and the response to atorvastatin (ANOVA, $p > 0.05$). In addition, no significant difference in the frequency of eNOS genotypes was found between T2DM patients and healthy subjects. However, patients with eNOS rs1799983, 4a/4a, and rs61722009 G/G genotypes showed significantly lower levels of baseline total cholesterol (TC) and low density lipoprotein (LDL) than did patients carrying the rs1799983 4b/4b or rs61722009 T/T genotype ($p < 0.05$). The eNOS rs1799983 and rs61722009 polymorphisms were in complete linkage disequilibrium ($D' = 1$). Conclusion: Although no association was found between eNOS genetic polymorphisms and atorvastatin response, there was a significant association between the rs1799983 and rs61722009 genotypes and baselines levels of TC and LDL in Jordanian T2DM patients. These genetic variants affect cholesterol levels and may play a role in the susceptibility to cardiovascular diseases in T2DM patients. Further studies are needed to validate these findings. © 2021 Bentham Science Publishers.

Almomani, E.Y., Almomany, A.M.

The Impact of COVID-19 Curfew Restrictions on the University Students' Academic Learning and Mental Health: A Study from Jordan

(2021) Journal of Loss and Trauma, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100997102&doi=10.1080%2f15325024.2021.1886801&partnerID=40&md5=9d7fc2deba55974d05e674c6266b3a9f)

[85100997102&doi=10.1080%2f15325024.2021.1886801&partnerID=40&md5=9d7fc2deba55974d05e674c6266b3a9f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100997102&doi=10.1080%2f15325024.2021.1886801&partnerID=40&md5=9d7fc2deba55974d05e674c6266b3a9f)

AFFILIATIONS: Department of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan

Akour, A., Elayah, E., Tubeileh, R., Hammad, A., Ya'Acoub, R., Al-Tammemi, A.B.
Role of community pharmacists in medication management during COVID-19 lockdown
(2021) Pathogens and Global Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100978528&doi=10.1080%2f20477724.2021.1884806&partnerID=40&md5=b04524a54636c813194ae9d8ec1e79b9)

85100978528&doi=10.1080%2f20477724.2021.1884806&partnerID=40&md5=b04524a54636c813194ae9d8ec1e79b9

AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, the University of Jordan, Amman, Jordan;

Department of Pharmacy, School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Middle East University, Amman, Jordan;

Doctoral School of Health Sciences, University of Debrecen, Debrecen, Hungary

ABSTRACT: Preventive and control measures implemented by many countries to mitigate the spread of COVID-19 may negatively impact medication and chronic disease management, which can interfere with achieving patients' therapeutic goals. This study aims to evaluate the effect of the COVID-19 lockdown on these aspects, while exploring the role of community pharmacists. A cross-sectional study was conducted via a web-based questionnaire that targeted individuals who suffer from chronic diseases in Jordan. Participants were recruited by convenience sampling and were asked to self-report their ability to access medication, and the perceived role of community pharmacists. Among the 431 participants, the mean age \pm SD (years) was 53.8 \pm 13.7 and 60.1% (n= 259) were females. Participants mainly reported difficulties in accessing medication (n=198, 45.9%), reduced supplies or unavailability of medications (n=213, 49.4%), nonadherence to medications due to lack of access (n=98, 22.7%) and high costs (n=85, 19.7%). Participants avoided follow-ups due to a fear of infection (n=367, 82.5%) or prolonged waiting time in clinics (n=322, 74.7%). An increased reliance on the community pharmacy for medical advice was reported by 39.9% (n=172) of the participants, with half of them (n=217, 50.3%) depending on the pharmacists for advice regarding over-the-counter medications and COVID-19-related information (n=119, 27.6%). There is an urgent need to involve community pharmacists in medication and chronic disease management with a focus on patient adherence to ensure the optimal management of such vulnerable patient groups. Future studies to assess the effect of pharmacists' contributions towards enhancing medication/disease management are warranted. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Al-Ibbini, O.A., Shaban, O.S.

Internal corporate governance mechanisms, investors' confidence and stock price fluctuations risk
(2021) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100856239&doi=10.22495%2fjgrrv10i1art2&partnerID=40&md5=d031a205e3c92fab608e492035522816)

85100856239&doi=10.22495%2fjgrrv10i1art2&partnerID=40&md5=d031a205e3c92fab608e492035522816

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The primary goal of corporate governance is to create a balance of power-sharing among shareholders, directors, and management to enhance shareholder value and protect the interests of other stakeholders. The main aim of this study is to find out the effect of internal corporate governance in improving the confidence of investors and minimizing stock fluctuations risk. In order to achieve the objectives of the study, a questionnaire has been designed and distributed randomly to 200 traders at the Amman Stock Exchange (ASE). Regression data were analyzed using the statistical program (Smart PLS), in addition to other statistical methods. The study concluded that there is a significant statistical effect of internal corporate governance mechanisms in improving the confidence of investors and minimizing stock fluctuations risk. Also, the study recommended to maintain the current level of investors' confidence and to work on developing the legal framework for corporate governance in the light of the proposed development of a conceptual framework, and economic growth. © 2021 The Authors.

Hamarneh, D., Alkhatib, N., Denhaerynck, K., Vancayzeele, S., Brié, H., MacDonald, K., Abraham, I.
Gender-stratified hierarchical modeling of patient and physician determinants of antihypertensive treatment outcomes: pooled analysis of seven prospective real-world studies with 17,044 patients
(2021) Current Medical Research and Opinion, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100724241&doi=10.1080%2f03007995.2021.1877124&partnerID=40&md5=838fc5de0030d26c9772b50ab7347e88)

85100724241&doi=10.1080%2f03007995.2021.1877124&partnerID=40&md5=838fc5de0030d26c9772b50ab7347e88

AFFILIATIONS: Center for Health Outcomes and Pharmacoeconomic Research, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Matrix45, Tucson, AZ, United States;

Institute of Nursing Science, University of Basel, Basel, Switzerland;

Department of Public Health, Faculty of Medicine, University of Basel, Basel, Switzerland;

Novartis Pharma, Vilvoorde, Belgium;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Department of Family and Community Medicine, College of Medicine-Tucson, University of Arizona,

Tucson, AZ, United States

ABSTRACT: Objective: Seven prospective real-world studies conducted in general practices in Belgium of antihypertensive treatment with valsartan-centric regimens were pooled to examine similarities and differences in determinants of blood pressure (BP) values (mmHg) and BP control rates between female and male patients. Methods: Pooled analysis of a total evaluable sample of 17,044 patients, including 8273 (48.5%) women and 8771 men (51.5%) treated over approximately 90 days with valsartan-centric regimens in second or later line. Hierarchical linear and logistic regressions were applied to identify patient- and physician-related determinants of BP outcomes and a potential physician class effect. Results: Reductions in BP (mmHg) over 90 days were similar for women and men, and so were changes in BP control rates. Approximately a quarter of the variance in 90 day BP values was attributable to a physician class effect. Both gender groups shared some patient- and physician-related determinants of BP outcomes, though often varying in degree of influence. Analyses also revealed gender-specific determinants. Among others, modifiable/manageable patient-related determinants included BP at hypertension diagnosis (proxy for time of diagnosis), risk factors, antihypertensive treatment and adherence; while among the physician-related determinants clinical experience in hypertension treatment was modifiable/manageable. Conclusion: Valsartan-centric treatment regimens are associated with significant reductions in BP level and improvement in BP control in both women and men. The determinants revealed in modeling provide guidance to clinicians in the common and differential management of hypertension in female and male patients. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

Bader, A., Bkhaitan, M.M., Abdalla, A.N., Abdallah, Q.M.A., Ali, H.I., Sabbah, D.A., Albadawi, G., Abushaikha, G.M.

Design and Synthesis of 4-O-Podophyllotoxin Sulfamate Derivatives as Potential Cytotoxic Agents (2021) Evidence-based Complementary and Alternative Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100665142&doi=10.1155%2f2021%2f6672807&partnerID=40&md5=33a514d96f2d95752486b0a355cfe497)

[85100665142&doi=10.1155%2f2021%2f6672807&partnerID=40&md5=33a514d96f2d95752486b0a355cfe497](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100665142&doi=10.1155%2f2021%2f6672807&partnerID=40&md5=33a514d96f2d95752486b0a355cfe497)

AFFILIATIONS: Umm Al-Qura University, Makkah, 21955, Saudi Arabia;

Biomedical Sciences Unit, Arab American University, Jenin, Palestine;

Department of Pharmacology and Toxicology, College of Pharmacy, Taif University, Taif, Saudi Arabia;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Rangel College of Pharmacy, Health Science Center, Texas AandM University, Kingsville, TX 78363, United States;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: 4-O-Podophyllotoxin sulfamate derivatives were prepared using the natural lignan podophyllotoxin. The prepared compounds were afforded by reacting O-sulfonyl chloride podophyllotoxin with ammonia or aminoaryl/heteroaryl motif. Biological evaluation was performed in human breast cancer (MCF7), ovarian cancer (A2780), colon adenocarcinoma (HT29), and normal lung fibroblast (MRC5) cell lines. Compound 3 exhibited potent inhibitory activity and good selectivity margin. Compounds 2, 3, and 7 exerted apoptotic effect in MCF7 cells in a dose-dependent manner. The cytotoxicity of the verified compounds was inferior to that of podophyllotoxin. © 2021 Ammar Bader et al.

Alkhatib, N., Sun, D., Denhaerynck, K., Hamarneh, D., Van Camp, Y., Villa, L., Brié, H., Vancayzeele, S., MacDonald, K., Abraham, I.

Hierarchical modeling of blood pressure determinants and outcomes following valsartan treatment in hypertensive patients with known comorbidities: pooled analysis of six prospective real-world studies including 11,999 patients

(2021) Current Medical Research and Opinion, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099998569&doi=10.1080%2f03007995.2020.1853082&partnerID=40&md5=84c7dbc14ea04df13ccb4a6176041ad4)

[85099998569&doi=10.1080%2f03007995.2020.1853082&partnerID=40&md5=84c7dbc14ea04df13ccb4a6176041ad4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099998569&doi=10.1080%2f03007995.2020.1853082&partnerID=40&md5=84c7dbc14ea04df13ccb4a6176041ad4)

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Institute of Nursing Science and Department of Public Health, University of Basel, Basel, Switzerland;

Matrix45, Tucson, AZ, United States;

Centre for Research and Innovation in Care, University of Antwerp, Antwerp, Belgium;

Department of Epidemiology and Biostatistics, College of Public Health, University of Arizona, Tucson, AZ, United States;

Novartis Pharma, Vilvoorde, Belgium;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Department of Family and Community Medicine, College of Medicine-Tucson, University of Arizona, Tucson, AZ, United States

ABSTRACT: Aims: Six prospective real-world studies of antihypertensive treatment with valsartan-

centric regimens were pooled to: (1) examine the effectiveness of ~90 days of second- or later-line valsartan treatment in hypertensive patients with known comorbidities; and (2) identify physician- and patient-related determinants associated with systolic (SBP) and diastolic blood pressure (DBP) outcomes in these patients. Methods and materials: A pooled analysis was performed of an evaluable sample of 11,999 hypertensive patients with known comorbidities treated ~90 days with valsartan-centric regimens. We applied hierarchical linear and logistic regression models to identify determinants of blood pressure (BP) outcomes and a potential physician class effect. Results: Valsartan regimens resulted in mean (SD) SBP and DBP reductions of 18.0 (15.8) mmHg and 9.5 (10.1) mmHg, respectively, at ~90 days, yielding SBP, DBP and combined SBP/DBP control rates of 44.0%, 67.2% and 39.3%, respectively. About a quarter of the variance in 90 day BP values was attributable to a physician class effect. BP outcomes declined with physicians' increasing years in practice and being male. At the patient level, BP outcomes declined with SBP and DBP at diagnosis; diabetes; higher cholesterol and BMI; lower valsartan and hydrochlorothiazide (HCTZ) doses; and concomitant anti-hypertensives. Older age was associated with improved DBP. A proxy of physician vigilance, cardiovascular disease history, was associated with improved BP outcomes, as were patient adherence and higher doses of valsartan in combination with HCTZ. Conclusions: Valsartan-centric regimens have significant BP lowering benefits in this pooled sample of patients with known comorbidities. Many observed determinants of BP outcomes are modifiable or manageable. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Naser, W.

The cosmetic effects of various natural biofunctional ingredients against skin aging: A review (2021) International Journal of Applied Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099857213&doi=10.22159%2fijap.2021v13i1.39806&partnerID=40&md5=e5e0364f3ef77323d691977a86513ed2)

[85099857213&doi=10.22159%2fijap.2021v13i1.39806&partnerID=40&md5=e5e0364f3ef77323d691977a86513ed2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099857213&doi=10.22159%2fijap.2021v13i1.39806&partnerID=40&md5=e5e0364f3ef77323d691977a86513ed2)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Nutricosmetics have emerged to indicate the health benefits of the products that create beauty from inside to outside. Nutricosmetic is the latest trend in the beauty industry. Cosmeceuticals are commonly used in skincare regimens to maintain healthy skin and improve visible signs of aging. Natural products that target skin have gained great attention due to the general belief that they are harmless. A review of the biomedical literature was conducted using peer-reviewed journal articles to identify laboratory, animal, and clinical studies that have evaluated recent breakthroughs in the biological properties and potential dermatologic uses of the different natural bioactive ingredients used in nutricosmetics and Cosmeceuticals. Bioactive ingredients used in Nutri-cosmeceutical products are derived from collagen, peptides, proteins, vitamins, carotenes, minerals, omega-3 fatty acids and plant extracts. These ingredients have been shown to provide dermatologic benefits with potential applications for skin regeneration, photoprotection, wound healing, and more. The information provided by this article is valuable to get the picture of the latest trends. In addition, it might be helpful for clinicians and related manufacturing companies. Despite several developments in this field, extensive research is required for performing successful and precise clinical trials in the future. Further improvements would enable the researchers to develop new products in this field. © 2021 The Authors.

Mayyas, A., Abu-Sini, M., Amr, R., Akasheh, R.T., Zalloum, W., Khdaif, A., Hamad, I., Aburjai, T., Darwish, R.M., Abu-Qatouseh, L.

Novel in vitro and in vivo anti-Helicobacter pylori effects of pomegranate peel ethanol extract (2021) Veterinary World, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099759819&doi=10.14202%2fVETWORLD.2021.120-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099759819&doi=10.14202%2fVETWORLD.2021.120-128&partnerID=40&md5=1312b1ee9c2ee6ec4bd054b471fe4db2)

[128&partnerID=40&md5=1312b1ee9c2ee6ec4bd054b471fe4db2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099759819&doi=10.14202%2fVETWORLD.2021.120-128&partnerID=40&md5=1312b1ee9c2ee6ec4bd054b471fe4db2)

AFFILIATIONS: Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, 11914, Jordan;

Department of Pharmacy, Faculty of Health Sciences, American University of Madaba, Madaba, 11821, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy, University of Petra, Amman, 961343, Jordan

ABSTRACT: Background and Aim: Interest in plants with antimicrobial properties has been revived due to emerging problems associated with using antibiotics to eradicate Helicobacter pylori. Accordingly, this study aims to assess the antibacterial effects of Punica granatum and the possible synergistic effect of its extract along with metronidazole against H. pylori. Materials and Methods: Pomegranate peel ethanol extracts (PPEE) was tested against a control strain of H. pylori (NCTC 11916) in vitro and in vivo in female Wistar rats. Moreover, the synergistic effect of PPEE in combination with metronidazole was tested in vitro. Results: The PPEE exhibited a remarkable activity against H. pylori with a minimum inhibitory concentration (MIC) of 0.156 mg/mL. Furthermore, the extract

exhibited a pronounced urease inhibitory activity (IC₅₀~6 mg/mL) against the tested strain. A synergistic effect between PPEE and metronidazole was also observed (fractional inhibitory concentrations ≤ 0.5). Oral treatment of rats with PPEE for 8 days produced a significant reduction in *H. pylori* gastritis and a significant decrease in both lymphocytic and positive chronicity. Conclusion: Pomegranate extract is probably safe and represents a potential alternative and complementary therapy for reducing *H. pylori* associated with gastric ulcers. © 2021 Veterinary World. All rights reserved.

Zidan, M., Al-Ghalith, A.

An existentialism-sheltered orientalism: Paul Bowles's the sheltering sky

(2021) International Journal of Literary Humanities, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099633857&doi=10.18848%2f2327-7912%2fcgp%2fv19i01%2f1-13&partnerID=40&md5=242c45eb6ea3a02cd6319c0b68844f96>

AFFILIATIONS: Translation Center Building, Department of English Language and Literature, University of Jordan, Amman, 11942, Jordan;

Department of English Language and Literature, University of Jordan, Amman, Jordan;

Department of English Language, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: In "The Sheltering Sky," Paul Bowles does acknowledge the failure of the imperialist project but does not see in the natives, whom he ossifies and whose land he romanticizes, a possibility of an alternative epistemology to that of Western culture. On the contrary, his romantic ethos echoes that of an Orientalistic discourse. While most critics believe that Bowles was mostly interested in questioning all existence and not in comparing civilizations, we strongly argue that this kind of reading obfuscates the text's deep structure. On the surface, Bowles provides an opportunity for one world view that manifests itself in existentialism, but on a deeper level, this manifestation happens at the expense of a real native presence and in the absence of the possibility of the natives' being a source of knowledge. © Common Ground Research Networks, Mahmoud Zidan, Asad Al-Ghalith, All Rights Reserved.

Al-Masaeid, H.R., Magsi, T.M., Almasaeid, H.H.

Consistency of interchange outer connection ramps

(2021) Canadian Journal of Civil Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099565696&doi=10.1139%2fcjce-2019-0828&partnerID=40&md5=4d004bdda572fa230decd18e0728f153>

AFFILIATIONS: Civil Engineering Department, Jordan University of Science and Technology, Irbid, Jordan;

Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Interchange ramps need a proper and consistent geometric design to avoid possible traffic accidents. The objective of this study is to develop guidelines for consistent design of outer connection ramps. As such, 47 ramps were selected from 18 different interchanges in Jordan. Free-flow speed measurements, for different vehicle classes, were taken along ramps and at predefined points. Also, traffic accidents, geometric variables, and traffic volumes were obtained. For circular ramps, the analysis indicated that the operating speed reduction is strongly affected by radius and deflection angle of the curve. The radius of the first curve had the greatest impact on speed reduction on curve-straight-curve ramps. For reverse-curve ramps, the ratio of the radii should be 6:4:9 to achieve a good consistent design for cars, provided that the radius of the first curve exceeds 110 m. Further analysis indicated that speed reduction, geometric variables, and traffic volume influenced the occurrence of accidents. © 2021, Canadian Science Publishing. All rights reserved.

Hamdallah, M.E., Srouji, A.F., Abed, S.R.

The nexus between reducing audit report lags and divining integrated financial report governance disclosures: Should ASE directives be more conspicuous?

(2021) Afro-Asian Journal of Finance and Accounting, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099501169&doi=10.1504%2fAAJFA.2021.111807&partnerID=40&md5=3274a2917982373996590b7ff580293e>

AFFILIATIONS: Accounting Department, Business Faculty, Al-Zaytoonah University, Airport Road, Amman, Jordan;

Accounting Department, King Talal School of Business Technology, Princess Sumaya University for Technology, Amman, Jordan;

Accounting Department, School of Business and Public Administration, University of the District of Columbia, Washington, DC, United States

ABSTRACT: The purpose of the study is to explore any nexus between Amman Stock Exchange (ASE) governance required disclosures based on auditors' determinants on the audit reporting lag (ARL) to construct an integrated financial report (IFR). The study's audit determinants are revealed by terms of audit meetings, number of audit members, audit opinion, and type of audit company. Meanwhile total

assets and bank performance indicated any non-audit determinants affecting the disclosure of IFR. The hypothesised paradigm is tested to pursue nexuses between the endogenous and exogenous variables for the years 2014, 2015 and 2016. Multivariate analysis revealed a positive nexus between the exogenous variables in the model as a whole and ARL. However, a negative influence of the audit committee number of meetings and type of audit opinion performed on ARL. Meanwhile, audit committee meetings and type of audit company had a positive effect on the ARL, all with significant nexuses. Copyright © 2021 Inderscience Enterprises Ltd.

Sabbah, D.A., Haroon, R.A., Bardaweel, S.K., Hajjo, R., Sweidan, K.

N-phenyl-6-chloro-4-hydroxy-2-quinolone-3-carboxamides: Molecular Docking, Synthesis, and Biological Investigation as Anticancer Agents

(2021) Molecules, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099116223&doi=10.3390%2fMOLECULES26010073&partnerID=40&md5=087db47656eb099225648b13099983b2)

[85099116223&doi=10.3390%2fMOLECULES26010073&partnerID=40&md5=087db47656eb099225648b13099983b2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099116223&doi=10.3390%2fMOLECULES26010073&partnerID=40&md5=087db47656eb099225648b13099983b2)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Cancer is a multifactorial disease and the second leading cause of death worldwide. Diverse factors induce carcinogenesis, such as diet, smoking, radiation, and genetic defects. The phosphatidylinositol 3-kinase (PI3K α) has emerged as an attractive target for anticancer drug design. Eighteen derivatives of N-phenyl-6-chloro-4-hydroxy-2-quinolone-3-carboxamide were synthesized and characterized using FT-IR, NMR (^1H and ^{13}C), and high-resolution mass spectra (HRMS). The series exhibited distinct antiproliferative activity (IC_{50} μM) against human epithelial colorectal adenocarcinoma (Caco-2) and colon carcinoma (HCT-116) cell lines, respectively: compounds 16 (37.4, 8.9 μM), 18 (50.9, 3.3 μM), 19 (17.0, 5.3 μM), and 21 (18.9, 4.9 μM). The induced-fit docking (IFD) studies against PI3K α s showed that the derivatives occupy the PI3K α binding site and engage with key binding residues. © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

Hnaif, A., Jaber, K., Alia, M., Daghbosheh, M.

Parallel scalable approximate matching algorithm for network intrusion detection systems

(2021) International Arab Journal of Information Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098746607&doi=10.34028%2fiajit%2f18%2f1%2f9&partnerID=40&md5=dff40f7c0c64d932eb237df76c6570be)

[85098746607&doi=10.34028%2fiajit%2f18%2f1%2f9&partnerID=40&md5=dff40f7c0c64d932eb237df76c6570be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098746607&doi=10.34028%2fiajit%2f18%2f1%2f9&partnerID=40&md5=dff40f7c0c64d932eb237df76c6570be)

AFFILIATIONS: Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Jordan;

Faculty of Science and Information Technology, Irbid National University of Jordan, Jordan

ABSTRACT: Matching algorithms are working to find the exact or the approximate matching between text "T" and pattern "P", due to the development of a computer processor, which currently contains a set of multi-cores, multitasks can be performed simultaneously. This technology makes these algorithms work in parallel to improve their speed matching performance. Several exact string matching and approximate matching algorithms have been developed to work in parallel to find the correspondence between text "T" and pattern "P". This paper proposed two models: First, parallelized the Direct Matching Algorithm (PDMA) in multi-cores architecture using OpenMP technology. Second, the PDMA implemented in Network Intrusion Detection Systems (NIDS) to enhance the speed of the NIDS detection engine. The PDMA can be achieved more than 19.7% in parallel processing time compared with sequential matching processing. In addition, the performance of the NIDS detection engine improved for more than 8% compared to the current SNORT-NIDS detection engine. © 2021, Zarka Private University. All rights reserved.

Al-Omoush, K.S., Zardini, A., Al-Qirem, R.M., Ribeiro-Navarrete, S.

Big crisis data, contradictions and perceived value of social media crowdsourcing in pandemics

(2021) Economic Research-Ekonomska Istrazivanja, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098746360&doi=10.1080%2f1331677X.2020.1867604&partnerID=40&md5=c3c6dd7b97917645b10bd8fc3abc168e)

[85098746360&doi=10.1080%2f1331677X.2020.1867604&partnerID=40&md5=c3c6dd7b97917645b10bd8fc3abc168e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098746360&doi=10.1080%2f1331677X.2020.1867604&partnerID=40&md5=c3c6dd7b97917645b10bd8fc3abc168e)

AFFILIATIONS: Management Information Systems, Al-Zaytoonah University of Jordan, Amman, Jordan;

Business Administration, University of Verona, Verona, Italy;

Business Administration, Universitat Politècnica de València, Valencia, Spain

ABSTRACT: This study examines the impact of big crisis data on the contradictions, trust and perceived value of social media crowdsourcing in pandemics. The study also examines the impact of contradictions on trust and the perceived value of social media crowdsourcing. Finally, the study explores the impact of trust on the perceived value of social media crowdsourcing during pandemics. Data were collected from 405 respondents to an online survey. PLS-SEM was used to analyse the data and test the research model. The results show that big crisis data has a significant positive impact

on contradictions and a significant negative impact on the perceived value of social media crowdsourcing. The results also confirm a significant negative impact of contradictions and a significant positive impact of trust on perceived value. © 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Alkhalil, S.M., Manasrah, A.A., Dabbour, L.M., Bashayreh, E.A., Abdelhafez, E.A., Rababa, E.G. COVID-19 pandemic and the E-learning in higher institutions of education: Faculty of engineering and technology at Al-Zaytoonah University of Jordan as a case study (2021) *Journal of Human Behavior in the Social Environment*, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098700937&doi=10.1080%2f10911359.2020.1829243&partnerID=40&md5=11938ef37d741d390b8cb626a4c9192d>
AFFILIATIONS: Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Architecture, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Electrical Engineering/Communication and Computer Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Alternative Energy Technology, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Coronavirus (COVID-19) pandemics has spread rapidly around the world, sending millions of people into quarantine and lockdown. Based on that, the management of higher educational institutions had to use Internet technology in teaching as the only option to continue all the academic activities across all higher education institution worldwide. This paper aims to investigate how engineering students are coping with the e-learning methods adopted by Al-Zaytoonah University of Jordan during the pandemic. A total of 470 have participated in this study from the faculty of engineering and technology at Al-Zaytoonah University of Jordan. From the findings of the survey, it was clear that students are satisfied with the online teaching and learning instituted by Al-Zaytoonah University of Jordan, despite few identified challenges. © 2020 Taylor & Francis Group, LLC.

Al-Qawabah, S.M., Al-Soud, M.S., Althneibat, A.K. Assessment of hybrid renewable energy systems to drive water desalination plant in an arid remote area in Jordan

(2021) *International Journal of Green Energy*, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098666487&doi=10.1080%2f15435075.2020.1865371&partnerID=40&md5=47bb8308b7bdd3c7258b4e380ee5fe0b>
AFFILIATIONS: Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Electrical Power Engineering and Mechatronics, Tafila Technical University, Tafila, Jordan

ABSTRACT: Jordan is relatively poor in conventional energy resources and it is dependent on foreign energy sources to cover its energy needs. At the same time the low percentage of freshwater along with the rapidly growing population urge to drag the attention to water desalination. This study presents an investigation and assessment of renewable energy resources to operate a reverse osmosis desalination plant located in arid remote area Sail El hasaa, Jordan with a capacity of up to 100 m3 of daily. The HOMER Hybrid Optimization Model Tool has been used to create optimal designs for these renewable energy systems. The photovoltaic system, wind turbine system, diesel generator, and hybrid system are evaluated in terms of each system's net present cost and cost of energy. Different configurations are suggested for each system and compared to meet the analysis requirements. Results showed that the hybrid system is the most optimum system with the configuration of photovoltaic modules, diesel generator, wind turbine, and DC/AC converter. © 2020 Taylor & Francis Group, LLC.

Ahmad, H., Al-Suleiman (Obaidat), T., Elhour, A.

Investigation of Electronic Document Management Applications in the Construction Projects: Case Study in Jordan

(2021) *Advances in Science, Technology and Innovation*, .
https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098067296&doi=10.1007%2f978-3-030-48465-1_98&partnerID=40&md5=b3a5d4dec182b74f55f5b01c76632fa2

AFFILIATIONS: Al-Zaytoonah University of Jordan, 130, Amman, 11733, Jordan; Ministry of Public Works and Housing, 1220, Amman, 11118, Jordan

ABSTRACT: Document Management System (DMS) is always known to be vital for management of the complexity of construction projects. This study aims at investigating the opinions of DMS practitioners regarding the use of an Electronic Document Management System (EDMS) in construction projects. A questionnaire survey was conducted with 91 respondents involved in the construction projects. The respondents were asked to evaluate the extent, motivations and challenges of applying EDMS in the construction projects in Jordan. According to the survey results, only 8.8% of the respondents described the document system in their construction projects as mostly electronic, while 38.5% described their document system as using an almost similar percentage of electronic and paper-based documents. The results also showed that the top motivation to the application of EDMS in the construction projects is the improvement of search and retrieval of information, while the top

challenge is the high expected financial cost of EDMS. This study helps to evaluate the existing DMS, and investigate the motivations, challenges and opportunities to improve EDMS implementation and application in the construction projects. © 2021, The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG.

Al-Hwaiti, M.S., Alsbou, E.M., Abu Sheikha, G., Bakchiche, B., Pham, T.H., Thomas, R.H., Bardaweel, S.K.

Evaluation of the anticancer activity and fatty acids composition of "Handal" (*Citrullus colocynthis* L.) seed oil, a desert plant from south Jordan

(2021) Food Science and Nutrition, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096645836&doi=10.1002%2ffsn3.1994&partnerID=40&md5=4e0486351a15c92ec5a9e81cb147f665)

[85096645836&doi=10.1002%2ffsn3.1994&partnerID=40&md5=4e0486351a15c92ec5a9e81cb147f665](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096645836&doi=10.1002%2ffsn3.1994&partnerID=40&md5=4e0486351a15c92ec5a9e81cb147f665)

AFFILIATIONS: Department of Environmental Engineering, Faculty of Engineering, Al-Hussein Bin Talal University, Ma'an, Jordan;

Chemistry Department, Faculty of Science, Al-Hussein Bin Talal University, Ma'an, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Ma'an, Jordan;

Laboratory of Process Engineering, Faculty of Technology, Laghouat University, Laghouat, Algeria;

School of Science and the Environment/Boreal Ecosystem Research Facility, Grenfell Campus, Memorial University of Newfoundland, Corner Brook, NL, Canada;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, Jordan

ABSTRACT: Background: The chemical composition of Handal (*Citrullus colocynthis* L.) seed oil cultivated in Jordan deserts was characterized, and its bioactivity was evaluated. Methods: The oil was extracted from the grinded seeds in 500 ml Soxhlet extractor for 24 hr using n-hexane, and the recovered fatty acids were methylated with methanolic-HCL. The fatty acid methyl esters (FAMES) composition was analyzed using GC-MS and GC-FID. The anticancer activity associated with the oil was assessed against colon cancer cell lines (Caco-2 and HCT-116) and compared to its cytotoxicity on the human skin fibroblast. Multivariate analysis was used to determine relationship of the fatty acid composition with that of the anticancer activity. Results: The results demonstrated that fatty acid composition of *Citrullus colocynthis* seed oil chiefly contains Linoleic acid, denoted as C18:2n6 (75%), followed by Palmitic acid C16:0 (8%), Stearic acid C18:0 (5%), and Oleic acid C18:1n9 (9%). It is demonstrated as an excellent source of essential fatty acids omega-6 (e.g., Linoleic acid), whereas omega-3 (e.g., α -Linolenic acid) and hydroxy polyunsaturated fatty acids are found at small level. Interestingly, the oil exhibited reasonable anticancer effects against colorectal cancer cell lines with IC50 values varying between 4 and 7 mg/ml. The correlation test revealed a relationship between the fatty acid composition and the effectiveness on treatments. Conclusions: Handal plant from Jordan appears to have very high level of Linoleic acid compared to other oils measured in different geographic locations and that there appears to be some anticancer activities associated with the fatty acid content of Handal seed oil. © 2020 The Authors. Food Science & Nutrition published by Wiley Periodicals LLC

Abu Sharour, L., Al Sabei, S., Al Harrasi, M., Anwar, S., Salameh, A.B.

Translation and validation of the Arabic version of the quality of oncology nursing care scale (QONCS): Psychometric testing in three Arabic countries [Traducción y validación de la versión árabe de la escala QONCS (Quality of Oncology Nursing Care Scale): prueba psicométrica en tres países árabes]

(2021) Journal of Healthcare Quality Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096520421&doi=10.1016%2ffj.jhqr.2020.07.004&partnerID=40&md5=36bd71d858d59d0d3b31b1dda35bde4c)

[85096520421&doi=10.1016%2ffj.jhqr.2020.07.004&partnerID=40&md5=36bd71d858d59d0d3b31b1dda35bde4c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096520421&doi=10.1016%2ffj.jhqr.2020.07.004&partnerID=40&md5=36bd71d858d59d0d3b31b1dda35bde4c)

AFFILIATIONS: Faculty of nursing, Al-Zaytoonah University of Jordan, Jordan;

College of Nursing, Sultan Qaboos University (SQU), Oman;

College of Nursing, Alexandria University, Egypt;

School of Nursing - Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan

ABSTRACT: Background: In the Arab world, little is known about cancer patient's satisfaction with the care provided by the oncology nurses. The only explanation for this dearth of knowledge is lack of a specified, valid and reliable tool that can be utilized with all types of cancer. This regional study was conducted to translate and validate the Arabic version of quality of oncology nursing care scale (QONCS). Methods: Brislin's model of translation was used with a cross-sectional, cross-cultural and psychometric design. A convenience sample of 517 from three countries (Jordan, Oman and Egypt) completed the study's surveys. Results: The results indicated that the total QONCS-Ar was reliable with Cronbach's alpha 0.88 and 0.84, 0.87, 0.83, 0.89 and 0.86 for being supported and confirmed, with the religious and spiritual care, belonging, being valued and being respected domains respectively. Exploratory factor analysis supported the dimensional structure of the 34-item scale with five domains with Kaiser-Meyer-Oklin (KMO) measuring 0.872 and Bartlett's Test of Sphericity being significant (significant $p < 0.001$) Conclusion: QONCS-Ar is a relatively short, valid, reliable and easy to use instrument that can be applied with all types of cancer, research and educational

institutions in the Arabic region. © 2020 FECA

Malak, M.Z., Tawalbeh, L.I., Al-amer, R.M.

Depressive Symptoms among Older Jordanian Patients with Cancer Undergoing Treatment

(2021) *Clinical Gerontologist*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090939154&doi=10.1080%2f07317115.2020.1818660&partnerID=40&md5=bbc03713fd1c6c38fd739bd869ccea4f)

[85090939154&doi=10.1080%2f07317115.2020.1818660&partnerID=40&md5=bbc03713fd1c6c38fd739bd869ccea4f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090939154&doi=10.1080%2f07317115.2020.1818660&partnerID=40&md5=bbc03713fd1c6c38fd739bd869ccea4f)

AFFILIATIONS: Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Adult Health Nursing, Faculty of Nursing, Al-AlBayt University, Al-Mafraq, Jordan;

Psychiatric Health Nursing, Faculty of Nursing, Isra' University, Amman, Jordan;

School of Nursing and Midwifery, Western Sydney University, Sydney, Australia

ABSTRACT: Objectives: To date, predictive and risk factors for depression among older patients with cancer have not been adequately studied in the Middle Eastern countries including Jordan. Therefore, this study aimed to assess the levels of depressive symptoms, anxiety, and hope among older Jordanian patients with cancer aged 60 years and over who are currently undergoing treatment, and to identify the relationship between selected factors (socio-demographic, treatment, and psychological) and depressive symptoms. Methods: A cross-sectional design was conducted on a convenience sample consisting of 150 patients with cancer from one of the biggest governmental hospitals in Jordan. Results: The findings revealed that almost 34% and 27% of the patients experienced anxiety and depression and had a moderate level of hope. Correlating factors with depression were age, duration of treatment, hope, anxiety, educational level, and health insurance. However, low duration of treatment, high anxiety, and low hope were the significant predictors of high depression. Conclusion: Understanding the risk factors correlated with depression could help develop early interventions to enhance the psychological consequences for patients with cancer at risk for depression. Clinical implications: Health-care providers need to develop psychological care for older patients with cancer and interventions directed at minimizing depression. Also, nurses should focus on providing holistic care including physical, social, psychological, and spiritual dimensions. Depression care should be an important part of the comprehensive treatment care plan for older patients undergoing cancer treatment. © 2020 Taylor & Francis Group, LLC.

Huwaitat, R., Coulter, S.M., Porter, S.L., Pentlavalli, S., Laverty, G.

Antibacterial and antibiofilm efficacy of synthetic polymyxin-mimetic lipopeptides

(2021) *Peptide Science*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090795121&doi=10.1002%2fpep2.24188&partnerID=40&md5=f724a8d2095d903ed86e66b54d99c949)

[85090795121&doi=10.1002%2fpep2.24188&partnerID=40&md5=f724a8d2095d903ed86e66b54d99c949](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090795121&doi=10.1002%2fpep2.24188&partnerID=40&md5=f724a8d2095d903ed86e66b54d99c949)

AFFILIATIONS: Biofunctional Nanomaterials Group, School of Pharmacy, Queen's University Belfast, Medical Biology Centre, Belfast, United Kingdom;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The increasing emergence of multidrug-resistant bacteria is a huge problem to society providing significant risks to public health. This has been further escalated by a decline in the clinical translation of new antibacterial drug classes since the 1980s. In this article, we describe the synthesis, antibacterial/antibiofilm activity and in vitro toxicity of synthetic low molecular weight lipopeptides mimetics of polymyxin. C12-KTKCKFLKCC-NH₂ and C14-KTKCKFLKCC-NH₂ lipopeptides demonstrated activity against both planktonic and biofilm forms of *Staphylococcus epidermidis*, *Staphylococcus aureus*, MRSA, *Escherichia coli*, and *Acinetobacter baumannii*. Peptide-outer membrane interaction was studied using lipopolysaccharide neutralization and N-phenyl-1-naphthylamine assays. C12-conjugated peptide significantly neutralized lipopolysaccharide at concentrations lower than minimum inhibitory concentration values against Gram-negative *E. coli*, by an average of 90% and demonstrated up to double the outer membrane permeabilization ability of 10 mg/mL polymyxin B. Polymyxin-mimetic lipopeptides have the potential to undergo further in vitro and in vivo study to enable clinical translation and help alleviate the current antimicrobial crisis. © 2020 Wiley Periodicals LLC.

Al Ganideh, S.F., Awudu, I.

Arab-Muslim Americans' personality riddle and consumer ethnocentrism

(2021) *Journal of Global Marketing*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090462219&doi=10.1080%2f08911762.2020.1817646&partnerID=40&md5=70ea01227912290ede49e60dd927e258)

[85090462219&doi=10.1080%2f08911762.2020.1817646&partnerID=40&md5=70ea01227912290ede49e60dd927e258](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090462219&doi=10.1080%2f08911762.2020.1817646&partnerID=40&md5=70ea01227912290ede49e60dd927e258)

AFFILIATIONS: Council on Middle East Studies, The MacMillan Center, Yale University, New Haven, CT, United States;

Faculty of Business, Al Zaytoonah University of Jordan, Amman, Jordan;

School of Business, Quinnipiac University, Hamden, CT, United States

ABSTRACT: This study aims to theorize the relationship between acculturation and consumer ethnocentrism for ethnic group minorities. Our study seeks to achieve two interrelated goals. The

first is to explore key factors (ethnic identification, religious commitment, and patriotic feelings toward home country) that shape Arab-Muslim Americans' acculturation level. The second is to extend the conceptual boundaries of consumer ethnocentrism by exploring acculturation impacts on Arab-Muslim Americans' ethnocentric tendencies toward their home country, and toward Arab countries (co-ethnic countries). Data were collected from 168 Arab-Muslim Americans living in the US Northeast Region. We found that Arab-Muslim Americans' ethnic identification, religious commitment, and patriotism drive significant negative influences on their acculturation process. The findings lend credence to our postulation of a negative influence of the level of Arab-Muslim Americans' acculturation on their ethnocentric tendencies toward home country, thus further corroborating the notion that immigrants' home-country ethnocentrism can be predicted on their acculturation levels. © 2020 Taylor & Francis Group, LLC.

Khdaire, A.I., Abu-Rumman, G., Khdaire, S.I.

Thermal Conductivity of Olive Cake Compost (OCC) as Affected by Moisture and Density: An Experimental and Mathematical Modeling

(2021) Compost Science and Utilization, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085764409&doi=10.1080%2f1065657X.2020.1755386&partnerID=40&md5=dd84093f4561b65c2abde406c0e8543e)

[85085764409&doi=10.1080%2f1065657X.2020.1755386&partnerID=40&md5=dd84093f4561b65c2abde406c0e8543e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085764409&doi=10.1080%2f1065657X.2020.1755386&partnerID=40&md5=dd84093f4561b65c2abde406c0e8543e)

AFFILIATIONS: King Abdulaziz University, Mechanical Engineering Department, Jeddah, Saudi Arabia;

Jordan University of Science and Technology, Mechanical Engineering Department, Irbid, Jordan;

Department of Civil Engineering, Isra University, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah Private University of Jordan, Amman, Jordan

ABSTRACT: The behaviors of bioactive compounds treating gaseous pollutants in biofilters and in the compost used as soil amendment and in green roof buildings are controlled by their thermal properties. There is a lack of information on thermal conductivity of olive cake compost (OCC), K as affected by water content and bulk density. Thermal conductivities (K) of 40 samples of (OCC) were determined experimentally at bulk densities (400–950 kg/m³) and moisture contents (10%–90%) using a single thermal probe method. The results showed that thermal conductivity increased linearly as water content, and bulk density increased and with a decrease in air filled porosity. Simple linear relationships were developed between compost thermal conductivity and dry bulk density and the degree of saturation. The experimental values were close to those reported recently for leaf compost and green roof soils. The compost at water content of 90% showed the highest thermal conductivity (K) of 0.60 W/m.k, which indicate that compost, can be used as good cheap insulator in geothermal heat storage application and as an additional eco-friendly insulation layer in green roof building which might be considered as a good means of passive energy saving there. © 2020 Taylor & Francis Group, LLC.

El-Tantawy, S.A., Salas, A.H., Hammad, M.A., Ismaeel, S.M.E., Moustafa, D.M., El-Awady, E.I.

Impact of dust kinematic viscosity on the breathers and rogue waves in a complex plasma having kappa distributed particles

(2021) Waves in Random and Complex Media, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076320978&doi=10.1080%2f17455030.2019.1698790&partnerID=40&md5=47cee3ce7f59d9e6847faa18099aad79)

[85076320978&doi=10.1080%2f17455030.2019.1698790&partnerID=40&md5=47cee3ce7f59d9e6847faa18099aad79](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076320978&doi=10.1080%2f17455030.2019.1698790&partnerID=40&md5=47cee3ce7f59d9e6847faa18099aad79)

AFFILIATIONS: Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah, Al-Baha University, Al-Baha, Saudi Arabia;

Department of Physics, Faculty of Science, Port Said University, Port Said, Egypt;

Department of Mathematics and Statistics, Universidad Nacional de Colombia-Nubia Campus, FIZMAKO Research Group, Nubia, Colombia;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Physics, College of Science and Humanities in Al-Kharj, Prince Sattam bin Abdulaziz University, Al-Kharj, Saudi Arabia;

Department of Physics, Faculty of Science, Ain Shams University, Cairo, Egypt;

Department of Physics and Mathematical Engineering, Faculty of Engineering, Port Said University, Port Said, Egypt

ABSTRACT: In this paper, a numerical examination of propagating nonlinear dissipative dust-acoustic breathers and rogue waves (RWs) in electron depleted dusty plasmas having two superthermal ions of different temperature has been made. An important ingredient in this study is the inclusion of the dissipative effect due to the viscosity of the dust grains in the evolution wave equation. Accordingly, a damped/modified nonlinear Schrödinger equation (DNLSE), i.e. the standard nonlinear Schrödinger equation (NLSE) in addition to the damping term, is obtained using a reductive perturbation (the derivative expansion) method. Without taking into account the effect of dust viscosity, the standard NLSE is also examined, and the effect of relevant physical parameters on the breathers and rogue waves is examined. Moreover, the impact of dust kinetic viscosity on both breather structures and RWs is investigated by solving DNLSE numerically with the Dirichlet boundary conditions. This model may be useful to understand the excitation of dust-acoustic waves in the

Earth's magnetotail. © 2019 Informa UK Limited, trading as Taylor & Francis Group.

Abu Sharour, L.

Psychometric evaluation of the Arabic Version the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire for Chemotherapy-Induced Peripheral Neuropathy Questionnaire (EORTC QLQ-CIPN20)

(2021) Applied Neuropsychology:Adult, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074330693&doi=10.1080%2f23279095.2019.1677232&partnerID=40&md5=79dcdcad4d6f30e8a12b13e317e83518)

85074330693&doi=10.1080%2f23279095.2019.1677232&partnerID=40&md5=79dcdcad4d6f30e8a12b13e317e83518

AFFILIATIONS: Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: To date, there is no specific, valid, and reliable scale in the Arabic language to measure CIPN. The purpose of this study was to translate and validate the Arabic version of the EORTC QLQ-CIPN20. A cross-cultural adaptation and psychometric testing were used. A Convenience sample of 100 Arabic cancer patients completed the study's surveys. A content validity involving experts and ten patients indicated that the statements were clear and in logical and easy order. Reliability analysis that the QLQ-CIPN20 subscales were internally consistent (Cronbach's Alpha of 0.84, 0.79, and 0.81, respectively), as was the total QOL-CIPN20 (0.83). The results showed that there was a strong relationship between total QLQ-CIPN20 and total FACT/GOG-Ntx (-0.88, $p < 0.001$). Moderate negative relationships between total QLQ-CIPN20 and QLQ-C30- Global health status and QLQ-C30-Functional (-0.62 and -0.65, $p < 0.001$) were found. A positive relationship was found between total QLQ-CIPN20 and QLQ-C30- Symptom (0.63, $p < 0.001$). Results of the EFA showed that the 20-item scale reflecting three subscales including sensory, motor, and autonomic symptom and functioning. The Arabic version of the EORTC QLQ-CIPN20 can be used in clinical, research, and education settings in Arab countries. © 2019 Taylor & Francis Group, LLC.

Aboushi, A., Hamdan, M., Abdelhafez, E., Turk, E., Ibbini, J., Abu Shaban, N.

Water disinfection by solar energy

(2021) Energy Sources, Part A: Recovery, Utilization and Environmental Effects, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073999546&doi=10.1080%2f15567036.2019.1666182&partnerID=40&md5=0a133ea225d9cafd4146ff27775ca6ab)

85073999546&doi=10.1080%2f15567036.2019.1666182&partnerID=40&md5=0a133ea225d9cafd4146ff27775ca6ab

AFFILIATIONS: Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mechanical Engineering, The University of Jordan, Amman, Jordan;

Department of Alternative Energy Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Land Management and Environment, Hashemite University, Zarqa, Jordan

ABSTRACT: This work was conducted to investigate the effect of augmentation of incident solar radiation (UV portion of the spectrum) on speeding up of the disinfection of contaminated water. The experiments were conducted using three treatment units, the first unit is a base unit, which is simply a transparent bottle contains the contaminated water; the second unit is the same as the base one, but flat mirror (FM) is located below this unit to reflect solar radiation back to the unit. A concave mirror (CM) is used with the third unit to concentrate the reflected solar radiation onto the unit. Both mirrors were used to reflect and redirect the incident UV radiation onto the units and hence the incident UV is augmented. The efficiency of each unit was indicated by its potential to decrease the amounts of Total coliform, E. coli and P. aeruginosa, all of which were measured using the IDEXX unit. The measurements of these contaminants were conducted on an hourly basis. The contaminated water was taken from a sewage treatment unit located at AL-Zaytoonah University of Jordan in Amman. It was found that the disinfection unit with the FM was the most efficient one in water disinfection, such that after 150 min of exposure time of the unit to solar radiation the counts of total coliform, E. coli and Aeruginosa were reduced by 96.8%, 99.6%, 96%, respectively. This was followed by the CM fitted unit, such that and after 150 min of exposure time, the total counts of total coliform, E. coli, and Aeruginosa were reduced by 96%, 99.2%, 95%, respectively. Finally, the base unit was the least efficient, such that total counts of total coliform, E. coli, and Aeruginosa were reduced by 95.9%, 97.2%, 90%, respectively, under same exposure time of the solar radiation. Comparing the obtained results with previous results, it may be concluded that this solar water disinfection method, which is based on the augmentation of the UV portion of the solar spectrum, is a promising one to be used to disinfect contaminated. © 2019 Taylor & Francis Group, LLC.

Manasrah, A., Al Zyoud, A., Abdelhafez, E.

Effect of color and nano film filters on the performance of solar photovoltaic module

(2021) Energy Sources, Part A: Recovery, Utilization and Environmental Effects, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067595816&doi=10.1080%2f15567036.2019.1631907&partnerID=40&md5=3f94f5d2f46e991852833e3c608e9f9be)

85067595816&doi=10.1080%2f15567036.2019.1631907&partnerID=40&md5=3f94f5d2f46e991852833e3c608e9f9be

AFFILIATIONS: Faculty of Engineering and technology, Mechanical Engineering Department, AL Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Engineering and technology, Alternative Energy Technology Department, AL Zaytoonah

University of Jordan, Amman, Jordan

ABSTRACT: Solar intensity and surface temperatures have a major impact on the performance of solar photovoltaic modules. Light spectrum has different wavelengths, and energy levels where each of them can affect the solar panel differently. The goal of this study is to investigate the effect of color filters and thermal insulating Nano films on the solar panel output characteristics. Two indoor experiments were conducted where four color filters and three types of insulating Nano films were tested on a photovoltaic module. The results showed that red color filters and Nano films, with a blocking rate of 20%, generated more electrical power than other solar filters. The results also showed that the surface temperature of the photovoltaic module was significantly decreased by applying certain color and Nano film filters. This research aims to improve the overall performance of the solar cell by controlling the solar intensity and decreasing the surface temperature through applying color and Nano film filters. © 2019 Taylor & Francis Group, LLC.

Abed, A.F., Jarrar, Y.B., Mahdi, A.Y., Ibrahim, Y.H.

The safety of clinically equivalent therapeutic dose of oxandrolone administration on rat livers (2020) Pharmacologyonline, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104724824&partnerID=40&md5=31d62d8c9b32625091a86bb1f201df0b>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department Pharmacology and Toxicology, Pharmacy college, Umm Al-Qura University, Saudi Arabia

ABSTRACT: Oxandrolone is a testosterone derivative with a weak androgenic properties. There are previous controversial results regarding the safety of using oxandrolone in human and animal models. Aim: The present study aimed to find out the safety of using clinical therapeutic dose of oxandrolone on rats liver. Fourteen rats were divided into 2 groups, which was administrated oxandrolone in a dose equivalent to that used for human treatment (0.28 mg/kg), for continuous 14 days. Subsequently, liver and blood samples were isolated from the rats for morphological, biochemical and histological examination. The results showed no significant differences (p value > 0.05, t-test) in the levels of hepatic transaminase enzymes, ALT, AST, in the blood. The relative liver weights of oxandrolone-treated rats were in comparable values (p value>0.05) to those of the control animals. In addition, the histological examination revealed that oxandrolone had no harmful effect on the liver tissue of rats. In conclusion, this preliminary study found that clinically equivalent therapeutic dose of oxandrolone is safe for the rat livers, which might indicate that oxandrolone is not hepato-toxic to human livers. Further clinical studies are needed to confirm these findings. © 2020, SILAE (Italo-Latin American Society of Ethnomedicine). All rights reserved.

Naser, W.

Recent studies regarding the use of medicinal plant extracts as skincare photoprotective cosmeceuticals: A review

(2020) Pharmacologyonline, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104646356&partnerID=40&md5=d6e4c1cd3f38ac06879ea2cd9a0f1c27>

AFFILIATIONS: Department Of Pharmacy, Al-Zaytoonah University Of Jordan, Amman, Jordan

ABSTRACT: Cosmeceuticals are commonly used in skincare regimens to maintain healthy skin and improve visible signs of aging. Natural products that target the skin have gained a great attention due to the general belief that they are harmless. Recently, the therapeutic potential of medical plants used in dermatology has been explored, and some of them have been developed as drugs for the treatment of various skin disorders. A review of the literature was conducted using a peer-reviewed journal articles to identify laboratory, animal, and clinical studies that have studied recent breakthroughs in the biological properties and potential dermatologic uses of the different bioactive medicinal plants that could be potentially used in formulation of various cosmeceuticals that could attack the photoaged skin. The information provided by this article is valuable to get the picture of the latest trends and it might be helpful for dermatologists and cosmeceutical manufacturing companies. Despite the several developments in this area, further improvements would enable the researchers to develop new products in this field. © 2020, SILAE (Italo-Latin American Society of Ethnomedicine). All rights reserved.

Bozed, K.A., Zerek, A.R., Daeri, A.M., Jaradat, Y.

Modeling and Performance Analysis of the Transceiver Duplex Filter using SIMULINK

(2020) Proceedings - STA 2020: 2020 20th International Conference on Sciences and Techniques of Automatic Control and Computer Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100509486&doi=10.1109%2fSTA50679.2020.9329309&partnerID=40&md5=d06a75446728cde1a773aa1fd07050a8>

AFFILIATIONS: Benghazi University, Faculty of Information Technology, Computer System Design Department, Benghazi, State of Libya;

Zawia University, Faculty of Engineering, Ee Department, Zawia, State of Libya;
Zawia University, Faculty of Engineering, Computer Eng. Department., Zawia, State of Libya;
Al-Zaytoonah University of Jordan, Department of Electrical Engineering/Communications and Computer,
Amman, Jordan

ABSTRACT: The non-idealities of full-duplex devices of the transceiver chain is not well known despite of the intensive recent research on wireless single-channel full-duplex communications. However, in spite of the use of efficient analog and digital cancellation and suitable physical antenna isolation they turn out to be among main practical reasons for observing residual self-interference. In this paper the implementation and simulation of RF transceiver Duplex Filter and noise isolation improvement using Matlab/SIMULINK environment is done, as well as quantifying the dynamic range of required signal and the reduction of these IF-interference due to the analog-to-digital interface. The Transfer Function calculation results are provided by the help of a White Noise Source and Simulation results of frequency response in the Tx and Rx channels. The simulation and measurement results comparison for new duplexer and the marks and values of frequency response at the critical frequency points have improved isolation due to the effect of optimized external inductor. It has been observed in a full-duplex transceiver that the transmitter power amplifier (PA) produces a nonlinear distortion that is considered to be a significant issue. © 2020 IEEE.

Ahmad, M.N., Farah, A.I., Al-Qirim, T.M.

The cardiovascular complications of diabetes: a striking link through protein glycation
(2020) Romanian journal of internal medicine = Revue roumaine de medecine interne, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105829511&doi=10.2478%2frjim-2020-0021&partnerID=40&md5=e9b6eee1e371713cac6f8c024d617086>

AFFILIATIONS: Department of Nutrition and Food Technology, Human Nutrition and Dietetics, University of Jordan Amman11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan Amman11733, Jordan

ABSTRACT: Diabetes mellitus is a predominant cause of mortality and morbidity worldwide. One of its serious health problems is cardiovascular complications. Advanced glycation end products (AGEs) are a group of heterogeneous toxic oxidant compounds that are formed after a non-enzymatic reaction between monosaccharides and free amino groups of proteins, compound lipids, and nucleic acids. AGE interacts with various types of cells through a receptor for AGE (RAGE). The interaction between AGE and RAGE is responsible for a cascade of inflammation, oxidative stress, and disruption of calcium homeostasis in cardiac cells of diabetic patients. There is striking evidence that the AGE/RAGE axis with its consequences on inflammation and oxidative stress plays a major role in the development of cardiovascular complications. Therefore, considering AGE as a therapeutic target with foreseeable results would be a wise direction for future research. Interestingly, several studies on nutraceutical, pharmaceutical, and natural products have begun to reveal promising therapeutic results, and this could lead to better health outcomes for many diabetic patients worldwide. This article discusses the current literature addressing the connection between protein glycation and diabetes cardiovascular complications and suggests future avenues of research. © 2020 Mousa Numan Ahmad et al., published by Sciendo.

ALQIREM, R., ABU AFIFA, M., SALEH, I., HANIAH, F.

Ownership Structure, Earnings Manipulation, and Organizational Performance: The Case of Jordanian Insurance Organizations

(2020) Journal of Asian Finance, Economics and Business, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098487789&doi=10.13106%2fJAFEB.2020.VOL7.NO12.293&partnerID=40&md5=3ac142432343b9a5574a8608f21622ff)

[85098487789&doi=10.13106%2fJAFEB.2020.VOL7.NO12.293&partnerID=40&md5=3ac142432343b9a5574a8608f21622ff](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098487789&doi=10.13106%2fJAFEB.2020.VOL7.NO12.293&partnerID=40&md5=3ac142432343b9a5574a8608f21622ff)

AFFILIATIONS: MIS Department, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Faculty of Business, The World Islamic Sciences and Education University, Amman, Jordan

ABSTRACT: This study aims to investigate the direct relationship between ownership structure, earnings manipulation, and organizational performance, and then examine the mediating effect of earnings manipulation in the relationship between ownership structure and organizational performance. This study collected and analyzed secondary data published in financial reports related to all insurance organizations listed in the Jordanian market during the study period (from 2009 until 2018). A panel data analysis was conducted, giving a total of 200 observations. The findings of this study concluded that ownership concentration, foreign ownership, and organization size affect organizational performance proxied by ROA, ROE, and EPS, more specifically, ownership concentration and organization size have a positive effect, whereas foreign ownership has a negative effect. At the same time, board of director ownership, organizational ownership, and CEO compensation did not affect organizational performance. Next, the board of director ownership, ownership concentration, foreign ownership, and CEO compensation affect earnings manipulation separately. In addition, earnings manipulation positively affects organizational performance proxied by ROA, ROE and EPS. This means

that the higher the earnings manipulation is, the higher the organizational performance is. Finally, earnings manipulation mediates the relationship between ownership concentration and foreign ownership of ownership structure, and organizational performance. © 2020. All Rights Reserved.

Hamadneh, L., Abuarqoub, R., Alhusban, A., Bahader, M.
Upregulation of PI3K/AKT/PTEN pathway is correlated with glucose and glutamine metabolic dysfunction during tamoxifen resistance development in MCF-7 cells
(2020) Scientific Reports, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098475816&doi=10.1038%2fs41598-020-78833-x&partnerID=40&md5=fb34e3ab1e222f31455add10dcdb50dd>

AFFILIATIONS: Faculty of Pharmacy, AL-Zaytoonah University of Jordan, Amman, 11733, Jordan
ABSTRACT: Tamoxifen resistance is emerging as a big challenge in endocrine therapy of luminal A breast cancer patients. In this study, we aimed to determine the molecular changes of PI3K/AKT/PTEN signaling pathway during tamoxifen-resistance development using gradually increased doses of tamoxifen in one model, while fixing tamoxifen treatment dose at 35 µM for several times in the second model. An upregulation of AKT/PI3K genes was noticed at 30 µM tamoxifen concentration in cells treated with a gradual increase of tamoxifen doses. In the second model, significant upregulation of AKT1 was seen in cells treated with 35 µM tamoxifen for three times. All genes studied showed a significant increase in expression in resistant cells treated with 50 µM and 35 µM six times tamoxifen. These genes' upregulation was accompanied by PTEN and GSK3 β genes' down-regulation, and it was in correlation to the changes in the metabolic rate of glucose in tamoxifen-resistant models. A significant increase in glucose consumption rate from culture media was observed in tamoxifen resistant cells with the highest consumption rate reported in the first day of culturing. Increased glucose consumption rates were also correlated with GLUL significant gene expression and non-significant change in c-MYC gene expression that may lead to increased endogenous glutamine synthesis. As a result, several molecular and metabolic changes precede acquired tamoxifen resistance could be used as resistance biomarkers or targets to reverse tamoxifen resistance. © 2020, The Author(s).

Al-Amayreh, M.I., Alahmer, A., Manasrah, A.

A novel parabolic solar dish design for a hybrid solar lighting-thermal applications
(2020) Energy Reports, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098214261&doi=10.1016%2fj.egyr.2020.11.063&partnerID=40&md5=72d6800a8e4156aaf292747f770d5239>

AFFILIATIONS: Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman P.O. Box 13011733, Jordan;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, Tafila P.O. Box 17966110, Jordan;

Department of Mechanical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman P.O. Box 13011733, Jordan

ABSTRACT: A concentrating solar power (CSP) unit was designed to work as a hybrid system to supply the required energy for heat water and high intensity light. The system consists of a parabolic solar dish that reflected light in a set of optical fiber light inside a receiver. In turn, this light was transmitted to an indoor photovoltaic (PV) panels to produce electrical energy or used directly as a source of light during the day. This study revealed the following points: (i) the increased number of fiber optics, the improved efficiency of solar panel and power generated; (ii) the efficiency of the hybrid solar system was 23.62%. (iii) when the separation distance between the fiber optics and the PV module was closed, the level of the power generated becomes higher; and finally; (v) this application is more suitable for a limited area in the roof of the building. © 2020 The Authors

Akour, A., Al-Tammemi, A.B., Barakat, M., Kanj, R., Fakhouri, H.N., Malkawi, A., Musleh, G.

The impact of the COVID-19 pandemic and emergency distance teaching on the psychological status of university teachers: A cross-sectional study in Jordan

(2020) American Journal of Tropical Medicine and Hygiene, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097211200&doi=10.4269%2fajtmh.20-0877&partnerID=40&md5=bac94837dac131feb143787c151de0da>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Epidemiology and Global Health, Faculty of Medicine, Umea University, Umea, Sweden;

Doctoral School of Health Sciences, University of Debrecen, Debrecen, Hungary;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

School of Psychology and Clinical Language Sciences, University of Reading, Reading, United Kingdom;

Department of Computer Science, King Abdullah II School for Information Technology, The University of Jordan, Amman, Jordan;

Department of Health Promotion, School of Nutrition and Translational Research in Metabolism (NUTRIM), Maastricht University Medical Center, Maastricht University, Maastricht, Netherlands;

Department of Family and Community Medicine, School of Medicine, The University of Jordan, Amman, Jordan

ABSTRACT: The COVID-19 pandemic has struck many countries globally. Jordan has implemented strict nationwide control measures to halt the viral spread, one of which was the closure of universities and shifting to remote teaching. The impact of this pandemic could extend beyond the risk of physical harm to substantial psychological consequences. Our study aimed at assessing 1) psychological status, 2) challenges of distance teaching, and 3) coping activities and pandemic-related concerns among university teachers in Jordan in the midst of COVID-19-related quarantine and control measures. We conducted a cross-sectional study using an anonymous online survey. The measure of psychological distress was obtained using a validated Arabic version of the Kessler Distress Scale (K10). Other information collected included sociodemographic profile, methods used to handle distress, motivation to participate in distance teaching, and challenges of distance teaching as well as the most worrisome issues during this pandemic. Three hundred eighty-two university teachers returned completed surveys. Results of K10 showed that 31.4% of respondents had severe distress and 38.2% had mild to moderate distress. Whereas gender was not associated with distress severity, age had a weak negative correlation ($Rho = -0.19$, $P < 0.0001$). Interestingly, most teachers had moderate to high motivation for distance teaching. Engagement with family was the most reported self-coping activity. More than half of the participants were most concerned and fearful about SARS-CoV-2 infection. In conclusion, university teachers have shown to exhibit various levels of psychological distress and challenges during the implementation of precautionary national measures in the battle against COVID-19 in Jordan. Copyright © 2020 by The American Society of Tropical Medicine and Hygiene.

Batiha, I.M., Albadarneh, R.B., Momani, S., Jebril, I.H.

Dynamics analysis of fractional-order Hopfield neural networks

(2020) International Journal of Biomathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85097196765&doi=10.1142%2fS1793524520500837&partnerID=40&md5=4b8d02de31ac1280925f28c387fc821f

AFFILIATIONS: Department of Mathematics, International Center for Scientific Research and Studies (ICSRS), Jordan;

Department of Mathematics, Faculty of Science, The Hashemite University, Zarqa, Jordan;

Department of Mathematics and Sciences, College of Humanities and Sciences, Ajman University, Ajman, United Arab Emirates;

Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan

ABSTRACT: This paper proposes fractional-order systems for Hopfield Neural Network (HNN). The so-called Predictor-Corrector Adams-Bashforth-Moulton Method (PCABMM) has been implemented for solving such systems. Graphical comparisons between the PCABMM and the Runge-Kutta Method (RKM) solutions for the classical HNN reveal that the proposed technique is one of the powerful tools for handling these systems. To determine all Lyapunov exponents for them, the Benettin-Wolf algorithm has been involved in the PCABMM. Based on such algorithm, the Lyapunov exponents as a function of a given parameter and as another function of the fractional-order have been described, the intermittent chaos for these systems has been explored. A new result related to the Mittag-Leffler stability of some nonlinear Fractional-order Hopfield Neural Network (FoHNN) systems has been shown. Besides, the description and the dynamic analysis of those phenomena have been discussed and verified theoretically and numerically via illustrating the phase portraits and the Lyapunov exponents' diagrams. © 2020 World Scientific Publishing Company.

Hamadah, S., Aqel, D.

Cybersecurity becomes smart using artificial intelligent and machine learning approaches: An overview (2020) ICIC Express Letters, Part B: Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85094114852&doi=10.24507%2fificelb.11.12.1115&partnerID=40&md5=6fcbd7fb6d2ad84caf1ec321c32c3e67

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Airport Road, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: With the rapid increasing of technology devices and the development of In-ternet, cyber-attacks are changing quickly and more and more attackers appear which lead more difficult threats in cybersecurity. Moreover, the world is facing Internet of Things devices which generate large volumes of data that cause a lot of new cyber threats. Cyber-crimes cost a lot and make companies lose millions of dollars every year. Cybersecurity is a top concern at many companies. So, we need smart approaches to protect data a-against different threats which are difficult to know. Recently, researchers are developing systems based on Artificial Intelligence (AI) and machine learning to

create defense approaches and protect data with high level of security and less cost. AI can help companies to identify threats automatically and find links between potential risks fast. This form of identification eliminates human errors from the process. This paper discusses AI-based cybersecurity various models that focus on machine learning and deep leaning algorithms. The results of this study show that machine learning and deep learning that simulate the human mind are more effective approaches than the traditional ones to solve security problems. © ICIC International 2020.

Mahmoud, N.N., Abu-Dahab, R., Abdallah, M., Al-Dabash, S., Abuarqoub, D., Albasha, A., Khalil, E.A. Interaction of gold nanorods with cell culture media: Colloidal stability, cytotoxicity and cellular death modality

(2020) Journal of Drug Delivery Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090010271&doi=10.1016%2Fj.jddst.2020.101965&partnerID=40&md5=528714458fb96c52e9cbbba934e799bdd)

[85090010271&doi=10.1016%2Fj.jddst.2020.101965&partnerID=40&md5=528714458fb96c52e9cbbba934e799bdd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090010271&doi=10.1016%2Fj.jddst.2020.101965&partnerID=40&md5=528714458fb96c52e9cbbba934e799bdd)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Cell Therapy Center, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan

ABSTRACT: Behavior of nanoparticles in biological media is crucial in predicting their cellular responses. In this study, gold nanorods (GNR) were chosen as a model to evaluate the influence of nanoparticle's surface modification and the composition of cell culture media on the colloidal stability and dispersibility of the nanoparticles in media. Optical spectra, zeta potential and hydrodynamic size were measured to evaluate the colloidal stability. The results indicate that incorporation of fetal bovine serum (FBS) into the cell culture media drastically enhanced their colloidal stability by protein adsorption, while nanoparticles dispersed in serum-free media demonstrated obvious aggregation. Nanoparticles dispersed in serum-free media showed high rate and extent of cellular internalization and dose-independent cytotoxicity compared to those dispersed in serum-containing media. Flow cytometry revealed that both late apoptosis and necrosis are responsible for the cellular death of breast cancer cells exposed to well-dispersed GNR in serum-containing media, while cells exposed to nano-aggregates experienced necrosis as the major modality of their cellular death. © 2020 Elsevier B.V.

Al-Jazzazi, T., El-khateeb, M., Quraan, L., Abul-Futouh, H., Görls, H., Weigand, W.

Half-sandwich iron complexes bearing vinyl-selenocarboxylato ligands

(2020) Journal of Chemical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078124049&doi=10.1007%2Ffs12039-019-1732-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078124049&doi=10.1007%2Ffs12039-019-1732-4&partnerID=40&md5=db5820c2f4ae08040ca9944e80b63e18)

[4&partnerID=40&md5=db5820c2f4ae08040ca9944e80b63e18](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078124049&doi=10.1007%2Ffs12039-019-1732-4&partnerID=40&md5=db5820c2f4ae08040ca9944e80b63e18)

AFFILIATIONS: Chemistry Department, Yarmouk University, Irbid, 21163, Jordan;

Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str.

8, Jena, 07743, Germany

ABSTRACT: Vinyl selenocarboxylato iron complexes of the formula $CpFe(CO)_2SeCOCH=C(R_1)(R_2)$ { $R_1 = H$, $R_2 = Me$, $R_1 = R_2 = Me$, $R_1 = H$, $R_2 = CH=CHMe$ } are synthesized by the reaction of $(\mu-Se)[CpFe(CO)_2]_2$ with the corresponding vinyl acid chlorides $ClCOCH=C(R_1)(R_2)$. Photolytic substitutions of $CpFe(CO)_2SeCOCH=CMe_2$ with EPH_3 gave the monosubstituted complexes $CpFe(CO)(EPH_3)SeCOCH=CMe_2$ ($E = P, As, Sb$) in good yields. The new complexes have been characterized by UV-Vis, IR, ^1H-NMR , $^{13}C\{^1H\}-NMR$, $^{77}Se\{^1H\}-NMR$, $^{31}P\{^1H\}-NMR$ spectroscopy and elemental analysis. The solid state structures of $CpFe(CO)_2SeCOCH=CMe_2$ and $CpFe(CO)(AsPh_3)SeCOCH=CMe_2$ were determined by X-ray crystallography. The cyclic voltammetric measurements of $CpFe(CO)_2SeCOCH=CMe_2$ were recorded. Graphic abstract: Vinyl selenocarboxylato iron complexes of the formula $CpFe(CO)_2SeCOCH=C(R_1)(R_2)$ { $R_1 = H$, $R_2 = Me$, $R_1 = R_2 = Me$, $R_1 = H$, $R_2 = CH=CHMe$ } are synthesized by the reaction of $(\mu-Se)[CpFe(CO)_2]_2$ with the corresponding vinyl acid chlorides $ClCOCH=C(R_1)(R_2)$. Photolytic substitutions of $CpFe(CO)_2SeCOCH=CMe_2$ with EPH_3 gave the monosubstituted complexes $CpFe(CO)(EPH_3)SeCOCH=CMe_2$ ($E = P, As, Sb$) in good yields. The new complexes have been characterized by UV-Vis, IR, ^1H-NMR , $^{13}C\{^1H\}-NMR$, $^{77}Se\{^1H\}-NMR$, $^{31}P\{^1H\}-NMR$ spectroscopy and elemental analysis. The solid-state structures of $CpFe(CO)_2SeCOCH=CMe_2$ and $CpFe(CO)(AsPh_3)SeCOCH=CMe_2$ were determined by X-ray crystallography and the cyclic voltammetric measurements of $CpFe(CO)_2SeCOCH=CMe_2$ were recorded. [Figure not available: see fulltext.]. © 2020, Indian Academy of Sciences.

El-Khateeb, M., Asali, K.J., Al-Juneidi, B., Abul-Futouh, H., Görls, H., Weigand, W.

Vinyl-thiocarboxylate complexes of iron: synthesis, characterization and reactions

(2020) Journal of Chemical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077855689&doi=10.1007%2Ffs12039-019-1720->

8&partnerID=40&md5=b4b425c8d44cec53dcb7491568a6582e

AFFILIATIONS: Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;
Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany

ABSTRACT: Abstract: Half-sandwich iron thiocarboxylate complexes of the general formula $CpFe(CO)2SCOCH=C(R')(R'')$ ($R' = H, R'' = Me, R' = R'' = Me, R' = H, R'' = CH=CHMe$) are obtained from the reaction of $(\mu-Sx)[CpFe(CO)2]2$ ($x = 1-5$) with the vinyl acid chlorides $ClCOCH=C(R')(R'')$. The substitution reaction of $CpFe(CO)2SCOCH=C(R)Me$ with $EPh3$ produced the monosubstituted complexes $CpFe(CO)(EPh3)SCOCH=C(R)Me$ ($R = Me, E = P, R = H, E = As, Sb$). All the new complexes have been characterized by UV-Vis, IR, ^1H-NMR , $^{13}C\{^1H\}-NMR$, $^{31}P\{^1H\}-NMR$ spectroscopy and elemental analysis. The solid state structures and the cyclic voltammetric measurements of $CpFe(CO)2SCOCH=CMe2$ and $CpFe(CO)(PPh3)SCOCH=CMe2$ were determined. Graphic abstract: Half-sandwich iron thiocarboxylate complexes of the general formula $CpFe(CO)2SCOCH=C(R')(R'')$ ($R' = H, R'' = Me, R' = R'' = Me, R' = H, R'' = CH=CHMe$) are obtained from the reaction of $(\mu-Sx)[CpFe(CO)2]2$ ($x = 1-5$) with the vinyl acid chlorides $ClCOCH=C(R')(R'')$. The substitution reaction of $CpFe(CO)2SCOCH=C(R)Me$ with $EPh3$ produced the monosubstituted complexes $CpFe(CO)(EPh3)SCOCH=C(R)Me$ ($R = Me, E = P, R = H, E = As, Sb$). All the new complexes have been characterized by UV-Vis, IR, ^1H-NMR , $^{13}C\{^1H\}-NMR$, $^{31}P\{^1H\}-NMR$ spectroscopy and elemental analysis. The solid state structures and the cyclic voltammetric measurements of $CpFe(CO)2SCOCH=CMe2$ and $CpFe(CO)(PPh3)SCOCH=CMe2$ were determined. [Figure not available: see fulltext.]. © 2020, Indian Academy of Sciences.

Hamed, R., Farhan, A., Abu-Huwaij, R., Mahmoud, N.N., Kamal, A.

Lidocaine Microemulsion-Laden Organogels as Lipid-Based Systems for Topical Delivery

(2020) Journal of Pharmaceutical Innovation, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068833623&doi=10.1007%2fs12247-019-09399-z&partnerID=40&md5=6a52b230e49d757af92f6b7f58a50ad9>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmaceutics & Pharmaceutical Technology, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan

ABSTRACT: Purpose: Conventional organogel and microemulsion-laden organogels (microemulsion organogels) were developed to deliver the lipophilic drug, lidocaine, topically. Methods: Optimized formulations of lidocaine microemulsions of oil, water, and surfactant:cosurfactant (Tween® 20:ethanol), at ratios 4:1 and 2:1 v/v, were selected based on the droplet size and physical stability of microemulsions. Microemulsions were then loaded into organogels. Lidocaine conventional organogel was prepared without the addition of microemulsion and used as a reference. The rheological properties and release profiles of lidocaine organogels were investigated. Results: Lidocaine conventional and microemulsion organogels displayed viscoelastic properties with more elastic behavior. Lidocaine conventional organogel exhibited the highest viscoelastic properties and lowest rate of release, whereas microemulsion organogel containing Tween® 20:ethanol (4:1 v/v) exhibited lower viscoelastic properties and higher rate of release compared to those of microemulsion organogel containing Tween® 20:ethanol (2:1 v/v). Conclusion: Type and composition of organogels dictated the viscoelastic properties and rate of release of lidocaine. © 2019, Springer Science+Business Media, LLC, part of Springer Nature.

Hajjo, R., Sabbah, D.A., Bardaweel, S.K.

Chemocentric informatics analysis: Dexamethasone versus combination therapy for covid-19

(2020) ACS Omega, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096689206&doi=10.1021%2facsomega.0c03597&partnerID=40&md5=50a7cda4828d2cb92a195421fc205413>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: COVID-19 is a biphasic infectious disease with no approved vaccine or pharmacotherapy. The first drug that has shown promise in reducing COVID-19 mortality in severely-ill patients is dexamethasone, a cheap, well-known anti-inflammatory glucocorticoid, approved for the treatment of inflammatory conditions including respiratory diseases such as asthma and tuberculosis. However, about 80% of COVID-19 patients requiring oxygenation, and about 67% of patients on ventilators, are not responsive to dexamethasone therapy mainly. Additionally, using higher doses of dexamethasone for prolonged periods of time can lead to severe side effects and some patients may develop corticosteroid resistance leading to treatment failure. In order to increase the therapeutic efficacy of dexamethasone in COVID-19 patients, while minimizing dexamethasone-related complications that could result from using higher doses of the drug, we applied a chemocentric informatics approach to

identify combination therapies. Our results indicated that combining dexamethasone with fast long-acting beta-2 adrenergic agonists (LABAs), such as formoterol and salmeterol, can ease respiratory symptoms hastily, until dexamethasone's anti-inflammatory and immunosuppressant effects kick in. Our studies demonstrated that LABAs and dexamethasone (or other glucocorticoids) exert synergistic effects that will augment both anti-inflammatory and fibronectin-mediated anticoagulant effects. We also propose other alternatives to LABAs that are supported by sound systems biology evidence, such as nitric oxide. Other drugs such as sevoflurane and treprostinil interact with the SARS-CoV-2 interactome and deserve further exploration. Moreover, our chemocentric informatics approach provides systems biology evidence that combination therapies for COVID-19 will have higher chances of perturbing the SARS-CoV-2 human interactome, which may negatively impact COVID-19 disease pathways. © 2020 American Chemical Society.

Alkhatib, A.A.A., Elbes, M.W., Maria, E.M.A.

Improving accuracy of wireless sensor networks localisation based on communication ranging (2020) IET Communications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096362159&doi=10.1049%2fiet-com.2019.1089&partnerID=40&md5=b1928e5037573ed588d4fae5c71a6e35>

AFFILIATIONS: Department of Computer Information Systems, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Localisation is one of the most important services in sensor networks. The impact of the used localisation technique used reflects on wireless sensor network services such as coverage or event detection. Accuracy is considered to be one of the factors that is related to successful network performance in most sensor network applications. Communication ranging is one of the practical applicable technique for localisation on short-range communication nodes with no additional components. This study proposes an enhanced communication ranging localisation technique with high accuracy. The authors evaluated and validated the proposed technique in a forest environment using 20 Wasmote Nodes and Meshlium router (Spanish product). The novelty of the proposed localisation technique is based on controlling communication range by manipulating the XBee transmitter power changing ability on four rounds to provide the best-predicted location. The results demonstrated the locations of nodes were found with error range between 0 and 22 m. The network location error decreased starting with 30 m in round 1 down to 8 m in round 4. The technique can be applied to different types of networks and technologies as long as the transmission power can be set to different values and the communication range is known or can be measured manually. © 2020 Institution of Engineering and Technology. All rights reserved.

Lopez-Lopez, L., Cardenas-Juarez, M., Stevens-Navarro, E., Aldalahmeh, S.A., Katz, M.

On the Leverage of Superimposed Training for Energy-Efficient Spectrum Sensing in Cognitive Radio (2020) 2020 17th International Conference on Electrical Engineering, Computing Science and Automatic Control, CCE 2020, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099447654&doi=10.1109%2fCCE50788.2020.9299115&partnerID=40&md5=74cf5b2435b68fae40a462e050a231fb>

AFFILIATIONS: Autonomous University of San Luis Potosi (UASLP), Faculty of Sciences, San Luis, Potosi, Mexico;

Uaslp, Faculty of Sciences, San Luis, Potosi, Mexico;

Al-Zaytoonah University of Jordan, Faculty of Engineering and Technology, Amman, Jordan;

University of Oulu, Centre for Wireless Communications, Oulu, Finland

ABSTRACT: The efficient utilization of the radio-electric spectrum (or simply spectrum) is essential to satisfy the ever-increasing amount of bandwidth required by future wireless communications networks. Cognitive radio (CR) networks aim to improve this efficiency by dynamically exploiting the underutilized spectrum (also called spectrum opportunities). To identify these transmission opportunities, cognitive users might draw on spectrum sensing, although this task increases the energy consumption. For battery-powered terminals, this increment might represent a challenge, also considering that spectrum sensing must be recurrently performed. For a scenario in which the CR user first senses the spectrum and then, if allowed, transmit data, the average energy consumption depends on the time used for spectrum sensing and for data transmission, which also impacts the spectrum-efficiency. Thus, improving the energy-efficiency might implicate a reduction on the spectrum-efficiency. This paper analyses the energy-efficiency in the context of spectrum sensing of superimposed training-based transmissions, showing the advantages of using an enhanced spectrum sensing method in terms of the relationship between the spectrum and energy-efficiency. © 2020 IEEE.

AlZu'bi, S., AlQatawneh, S., ElBes, M., Alsmirat, M.

Transferable HMM probability matrices in multi-orientation geometric medical volumes segmentation (2020) Concurrency and Computation: Practice and Experience, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85062712771&doi=10.1002%2fcpe.5214&partnerID=40&md5=7d9f15a0e896bbda11e2cd1b6eba7adf

AFFILIATIONS: Department of Computer Science, Faculty of Sciences and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Faculty of Information Technology, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Acceptable error rate, low quality assessment, and time complexity are the major problems in image segmentation, which needed to be discovered. A variety of acceleration techniques have been applied and achieve real time results, but still limited in 3D. HMM is one of the best statistical techniques that played a significant rule recently. The problem associated with HMM is time complexity, which has been resolved using different accelerator. In this research, we propose a methodology for transferring HMM matrices from image to another skipping the training time for the rest of the 3D volume. One HMM train is generated and generalized to the whole volume. The concepts behind multi-orientation geometrical segmentation has been employed here to improve the quality of HMM segmentation. Axial, saggital, and coronal orientations have been considered individually and together to achieve accurate segmentation results in less processing time and superior quality in the detection accuracy. © 2019 John Wiley & Sons, Ltd.

Al-Tammemi, A.B., Akour, A., Alfalah, L.

Is It Just About Physical Health? An Online Cross-Sectional Study Exploring the Psychological Distress Among University Students in Jordan in the Midst of COVID-19 Pandemic

(2020) *Frontiers in Psychology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096370760&doi=10.3389%2ffpsyg.2020.562213&partnerID=40&md5=30eb808649c5b6b130311d7d5740f4f7)

[85096370760&doi=10.3389%2ffpsyg.2020.562213&partnerID=40&md5=30eb808649c5b6b130311d7d5740f4f7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096370760&doi=10.3389%2ffpsyg.2020.562213&partnerID=40&md5=30eb808649c5b6b130311d7d5740f4f7)

AFFILIATIONS: Department of Epidemiology and Global Health, Faculty of Medicine, Umeå University, Umeå, Sweden;

Doctoral School of Health Sciences, University of Debrecen, Debrecen, Hungary;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Internal Medicine, School of Medicine, The University of Jordan, Amman, Jordan

ABSTRACT: Background: Since the spread of COVID-19 on a global scale, most of efforts at national and international levels were directed to mitigate the spread of the disease and its physical harm, paying less attention to the psychological impacts of COVID-19 on global mental health especially at early stages of the pandemic. Objectives: This study aimed to assess and explore (i) The levels of psychological distress and its correlates (ii) Motivation for distance learning (iii) Coping activities and pandemic related concerns, among university students in Jordan in the midst of COVID-19 pandemic. Methods: A cross-sectional study was conducted using an online self-administered questionnaire. The measure of psychological distress was obtained using the 10-item Kessler Psychological Distress Scale, while other questions have explored our study's second and third aims. Results: A total of 381 completed questionnaires were included in the analysis. Female participants slightly predominated the sample (n = 199, 52.2%). The respondents aged 18–38 years (mean 22.6 years, SD: 3.16). Concerning distress severity, most of respondents were regarded as having severe psychological distress (n = 265, 69.5%). 209 students (54.9%) reported that they had no motivation for distance learning. Ordinal logistic regression revealed a significant correlation between distress severity and many predictors. Among the predictors that were found to act as protective factors against higher levels of distress included older age (aOR = 0.64, P = 0.022; 95% CI: 0.44–0.94), and having a strong motivation for distance learning (aOR = 0.10, P = 0.048; 95% CI: 0.01–0.96). In contrary, being a current smoker (aOR = 1.99, P = 0.049; 95% CI: 1.10–3.39), and having no motivation for distance learning (aOR = 2.49, P = 0.007; 95% CI: 1.29–4.80) acted as risk factors for having higher levels of psychological distress among the students. The most common coping activity reported was spending more time on social media platforms (n = 269, 70.6%), and 209 students (54.9%) reported distance learning as their most distressing concern. Conclusion: The COVID-19 pandemic and related control measures could impact the mental health of individuals, including students. We recommend a nationwide psychological support program to be incorporated into Jordan's preparedness plan and response strategy in combating the COVID-19 pandemic. © Copyright © 2020 Al-Tammemi, Akour and Alfalah.

Saleh, I., Afifa, M.A., Alsufy, F.

Does Earnings Quality Affect Companies' Performance? New Evidence from the Jordanian Market

(2020) *Journal of Asian Finance, Economics and Business*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097229516&doi=10.13106%2fjafab.2020.vol17.no11.033&partnerID=40&md5=1e8d60053d2028bd0c908f821f04bef0)

[85097229516&doi=10.13106%2fjafab.2020.vol17.no11.033&partnerID=40&md5=1e8d60053d2028bd0c908f821f04bef0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097229516&doi=10.13106%2fjafab.2020.vol17.no11.033&partnerID=40&md5=1e8d60053d2028bd0c908f821f04bef0)

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Faculty of Business, Isra University, Amman, Jordan

ABSTRACT: This study aims to investigate the importance of earnings quality as a determinant of companies' performance. It provides some empirical evidences from an emerging market, specifically from the Jordanian market. This study developed an econometric model for the effect of earnings quality on the companies' performance using empirical evidence. The study employs a panel data analysis method by using a sample of all Jordanian industrial public shareholding companies listed on Amman Stock Exchange (ASE) during 2010-2018. The results reveal that Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS) as proxies of company's performance are affected by the earnings quality. This provides the importance of positive earnings quality that eventually influences the companies' performance. The results of this study suggest that the higher control level on the managers' behavior and its outcome will have an effect on earnings quality, and thus the company's performance increases. As well as, high relevance of accounting information will improve earnings quality, and thus earnings quality with the interaction factors of the company's environment work on improving performance. As a conclusion, this study can work as a reference to assist standard setters, security analysts, regulators and other accounting-information users in appraising relation between the earnings quality and companies' performance. © 2020. All Rights Reserved.

Saleh, I., Afifa, M.A., Haniah, F.

Financial factors affecting earnings management and earnings quality: New evidence from an emerging market

(2020) ACRN Journal of Finance and Risk Perspectives, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

[85096923534&doi=10.35944%2fJOFPR.2020.9.1.014&partnerID=40&md5=723ceace48264d3e408d9edeab5b229f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096923534&doi=10.35944%2fJOFPR.2020.9.1.014&partnerID=40&md5=723ceace48264d3e408d9edeab5b229f)

AFFILIATIONS: Al Zaytoonah University of Jordan, College of Business, Department of Accounting, Jordan;

World Islamic Sciences and Education University, Jordan, Jordan

ABSTRACT: The purpose of this study is to examine the effect of financial factors on earnings management and earnings quality. Moreover, the study examines the role of earnings management as a mediator in the effect of the financial factors on earnings quality. It provides some empirical evidences from an emerging market, especially from the Jordanian market. The study uses a panel data analysis method over a ten-year period (2009-2018). The study population includes all Jordanian insurance companies listed in Jordanian market at the end of the year 2019, and the study sample consists of 20 Jordanian insurance companies (a complete population), giving a total of 200 observations for each variable. The results indicate that all financial factors in the model combined affect the earnings management and earnings quality. In addition, earnings management negatively affects earnings quality, and earnings management fully mediates the effect of financial factors on earnings quality. The study advises that policy makers ought to follow good legislation to curb the company's earnings management activities. Hence, the policy makers need to apply regulations which enrich the company's effectiveness and efficiency whilst protecting the investors and other interested parties from risk. © 2020 by the authors.

Sabbah, D.A., Hasan, S.E., Khalaf, R.A., Bardaweel, S.K., Hajjo, R., Alqaisi, K.M., Sweidan, K.A., Al-Zuheiri, A.M.

Article Molecular Modeling, Synthesis and Biological Evaluation of N-Phenyl-4-Hydroxy-6-Methyl-2-Quinolone-3-CarboxAmides as Anticancer Agents

(2020) Molecules, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

[85096407080&doi=10.3390%2fMOLECULES25225348&partnerID=40&md5=efe126a27d44de96ef5125786af32a5c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096407080&doi=10.3390%2fMOLECULES25225348&partnerID=40&md5=efe126a27d44de96ef5125786af32a5c)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Department of Medical Laboratory Sciences, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Pharmacological and Diagnostic Research Centre (PDRC), Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, 19328, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The emergence of phosphatidylinositol 3-kinase (PI3K α) in cancer development has accentuated its significance as a potential target for anticancer drug design. Twenty one derivatives of N-phenyl-4-hydroxy-6-methyl-2-quinolone-3-carboxamide were synthesized and characterized using NMR (1 H and 13 C) and HRMS. The derivatives displayed inhibitory activity against human epithelial colorectal adenocarcinoma (Caco-2) and human colon cancer (HCT-116) cell lines: compounds 8 (IC₅₀ Caco-2 = 98 μ M, IC₅₀ HCT-116 = 337 μ M) and 16 (IC₅₀ Caco-2 = 13 μ M, IC₅₀ HCT-116 = 240.2 μ M). Results showed that compound 16 significantly affected the gene encoding AKT, BAD, and PI3K. The induced-fit docking (IFD) studies against PI3K α demonstrated that the scaffold accommodates the kinase domains

and forms H-bonds with significant binding residues. © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

Hajjo, R., Tropsha, A.

A Systems Biology Workflow for Drug and Vaccine Repurposing: Identifying Small-Molecule BCG Mimics to Reduce or Prevent COVID-19 Mortality (2020) Pharmaceutical Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092007368&doi=10.1007%2fs11095-020-02930-9&partnerID=40&md5=163567ac86f49f8a39edd9d3725cc709>

AFFILIATIONS: Department of Pharmacy – Computational Chemical Biology, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Laboratory for Molecular Modeling, UNC Eshelman School of Pharmacy, UNC Chapel Hill, Chapel Hill, NC 27599, United States

ABSTRACT: Purpose: Coronavirus disease 2019 (COVID-19) is expected to continue to cause worldwide fatalities until the World population develops ‘herd immunity’, or until a vaccine is developed and used as a prevention. Meanwhile, there is an urgent need to identify alternative means of antiviral defense. Bacillus Calmette–Guérin (BCG) vaccine that has been recognized for its off-target beneficial effects on the immune system can be exploited to boost immunity and protect from emerging novel viruses. Methods: We developed and employed a systems biology workflow capable of identifying small-molecule antiviral drugs and vaccines that can boost immunity and affect a wide variety of viral disease pathways to protect from the fatal consequences of emerging viruses. Results: Our analysis demonstrates that BCG vaccine affects the production and maturation of naïve T cells resulting in enhanced, long-lasting trained innate immune responses that can provide protection against novel viruses. We have identified small-molecule BCG mimics, including antiviral drugs such as raltegravir and lopinavir as high confidence hits. Strikingly, our top hits emetine and lopinavir were independently validated by recent experimental findings that these compounds inhibit the growth of SARS-CoV-2 in vitro. Conclusions: Our results provide systems biology support for using BCG and small-molecule BCG mimics as putative vaccine and drug candidates against emergent viruses including SARS-CoV-2. © 2020, Springer Science+Business Media, LLC, part of Springer Nature.

Alkhatib, N.S., Abraham, I.

The six Delta platform for outcome-based contracting for pharmaceuticals

(2020) Journal of Medical Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091682173&doi=10.1080%2f13696998.2020.1824161&partnerID=40&md5=b9f025ce3b322ddc6ee666b1142b9ffa)

[85091682173&doi=10.1080%2f13696998.2020.1824161&partnerID=40&md5=b9f025ce3b322ddc6ee666b1142b9ffa](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091682173&doi=10.1080%2f13696998.2020.1824161&partnerID=40&md5=b9f025ce3b322ddc6ee666b1142b9ffa)

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;

Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ, United States;

Matrix45, Tucson, AZ, United States

Alkhatib, N.S., McBride, A., Slack, M., Bhattacharjee, S., Erstad, B., Ramos, K., Abraham, I.

Pricing methods in outcome-based contracting: integration analysis of the six dimensions (6 δ s)

(2020) Journal of Medical Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090465746&doi=10.1080%2f13696998.2020.1815031&partnerID=40&md5=44e7aafd0756c64202290f65554a94ee)

[85090465746&doi=10.1080%2f13696998.2020.1815031&partnerID=40&md5=44e7aafd0756c64202290f65554a94ee](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090465746&doi=10.1080%2f13696998.2020.1815031&partnerID=40&md5=44e7aafd0756c64202290f65554a94ee)

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Banner University Medical Center, Tucson, AZ, United States;

University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;

Institute of Biosciences and Technology, Texas A&M University, Houston, TX, United States;

Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ, United States;

Matrix45, Tucson, AZ, United States;

Texas Center for Health Outcomes Research Education, College of Pharmacy, University of Texas, Austin, TX, United States

ABSTRACT: Aims: Six Delta is a six-dimensional independent platform for outcome-based pricing/contracting. The six dimensions have been described separately: (δ 1) cost-effectiveness

analysis and cost-utility analysis-based pricing; (δ2) willingness-to-pay-based pricing; (δ3) reference-based pricing; (δ4) safety-based pricing; (δ5) risk of efficacy failure-based pricing; and (δ6) adherence-based pricing. The final step is to integrate the various dimension-specific pricing estimates into a composite estimate termed the All-Dimensional Price (ADP). We describe the methodology for this integration and present a proof-of-concept application to the treatment of non-small cell lung cancer (NSCLC) with EGFR mutation with osimertinib. Materials and methods: For better accuracy in estimating the ADP, we used the prices generated from the six dimensions at scenario levels, not at the dimension-specific price (DSP) level. We pooled the price estimates and performed Monte Carlo Simulations (MCS) for the price scenarios generated by the six dimensions. We used the results of the proof-of-concept exercise involving osimertinib in NSCLC with EGFR mutation to estimate the ADP in two hypothetical contracts: 1-year (2019–2020) and 2-year contract (2019–2021). Results: The average of the 30-day prescription estimates from the six dimensions averaged \$10,819 (SD=\$8,486) for the 1-year contract and \$10,730 (SD=\$8,500) for the 2-year contract. MCS yielded for the 1-year contract an ADP of \$10,959 (or -25.02% the 2018 WAC price) and an ADP for the 2-year contract was \$10,788 (or -26.19% the 2018 WAC price). Conclusions: We demonstrated that the integration of the prices from the six dimensions of the Six Delta platform and market conditions is feasible and yields multidimensional prices estimates to support outcome-based pricing/contracting. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Alkhatib, N.S., Ramos, K., Erstad, B., Slack, M., McBride, A., Bhattacharjee, S., Abraham, I. Pricing methods in outcome-based contracting: δ2: willingness-to-pay-based pricing (2020) Journal of Medical Economics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85090451896&doi=10.1080%2f13696998.2020.1815026&partnerID=40&md5=b07c7d65114c53903d294e0684626d95

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Institute of BioSciences and Technology, Texas A&M University, Houston, TX, United States;

Department of Pharmacy Practice and Science College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Banner University Medical Center, Tucson, AZ, United States;

University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;

Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ, United States;

Matrix45, TucsonAZ, United States

ABSTRACT: Aims: Six Delta is a six-dimensional independent platform for outcome-based pricing/contracting. The second dimension (δ2) estimates prices on the basis of four willingness-to-pay (WTP) thresholds. We describe this dimension's methodology and present a proof-of-concept application to the treatment of non-small cell lung cancer (NSCLC) with EGFR mutation with osimertinib. Materials and methods: Eight WTP scenarios based on four levels of real gross domestic product per capita (GDP/capita, 1 × GDP/capita, 3 × GDP/capita, and >math>3 \times \text{GDP/capita}</math>) and two market conditions (monopolistic versus competitive) were assumed. The incremental cost-utility ratio (ICUR) was applied to differently to both markets. In the monopolistic market, assuming no competitors, the cost/QALY ratio for a drug was used; whereas in the competitive market, assuming competitors, the incremental cost-utility ratio (ICUR) was applied. One-way sensitivity analyses were performed and predictive equations were specified to estimate the prices of treatment for the resulting eight WTP scenarios; for which subsequently the average and standard deviation were calculated. A gamma distribution was specified and Monte Carlo Simulation (MCS) was applied to estimate the dimension-specific price based on WTP (DSPWTP). A proof-of-concept exercise with osimertinib in NSCLC was performed for two hypothetical outcome-based contracts: 1-year (2019–2020) and 2-year (2019–2021). The 2018 wholesale acquisition cost (WAC) of \$14,616 (30-day prescription) was used to estimate the DSPWTP for each contract. Results: The 1-year estimates averaged \$4,654 (SD=\$6,462) and the MCS yielded a DSPWTP of \$4,547 or -68.89% of the 2018 WAC for a 30-day prescription. The 2-year estimates averaged \$4,7667 (SD=\$6,480) with the MCS generating a DSPWTP of \$4,704 or -67.82% of the WAC. Conclusions: We demonstrated that WTP-based methods that include various WTP thresholds and market conditions generate price estimates across these thresholds and market conditions that can be integrated into our proposed Six Delta platform for outcome-based pricing/contracting. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Alkhatib, N.S., Ramos, K., Erstad, B., Slack, M., McBride, A., Bhattacharjee, S., Abraham, I. Pricing methods in outcome-based contracting: δ1: cost effectiveness analysis and cost-utility analysis-based pricing (2020) Journal of Medical Economics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85090451889&doi=10.1080%2f13696998.2020.1815025&partnerID=40&md5=299e99a9e00671de7bceb1668623b41f

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;
College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Institute of BioSciences and Technology, Texas A&M University, Houston, TX, United States;
Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;
Banner University Medical Center, Tucson, AZ, United States;
University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;
Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ, United States;
Matrix45, Tucson, AZ, United States;
Texas Center for Health Outcomes Research Education, College of Pharmacy, University of Texas, Austin, TX, United States

ABSTRACT: Aims: Six Delta is a six-dimensional independent platform for outcome-based pricing/contracting. The first dimension (δ_1) estimates prices on the basis of cost-effectiveness (CEA) and cost-utility analysis (CUA). We describe this dimension's methodology and present a proof-of-concept application to the treatment of non-small cell lung cancer (NSCLC) with EGFR mutation with osimertinib. Materials and methods: CEA and CUA were performed using established methods. Probabilistic sensitivity analyses (PSA) were performed to generate cost-effectiveness acceptability curves (CEAC), specifically the PSA incremental cost-effectiveness (PSA ICER) and incremental cost-utility ratio generated CEACs (PSA ICUR). Price of treatment was estimated at three certainty levels (0%, turning point%, 100%). The marketed drug price at turning point was used to estimate prices at 0% and 100% certainty levels, as per PSA ICER and PSA ICUR-generated CEACs. The resulting prices were pooled, inflated, and simulated by Monte Carlo Simulation (MCS) methods to estimate the dimension-specific price based on CEA and CUA (DSPCEA/CUA). A proof-of-concept exercise with osimertinib in NSCLC was performed for two hypothetical outcome-based contracts: 1-year (2019-2020) and 2-years (2019-2021). Results: Turning points were estimated at the 50% certainty level in both PSA ICER and ICUR-generated CEACs. At these points, the wholesale acquisition cost for osimertinib was \$14,616 (30-day prescription); inflated by 0.44% for 1-year and by 0.72% for 2-year contracts. Additional prices at 0% and 100% certainty levels were quantified based on the PSA ICER and ICUR-generated CEACs. The MCS yielded a DSPCEA/CUA of \$16,391 for the 1-year contract and a DSPCEA/CUA at \$16,677 for the 2-year contract for a 30-day prescription. Conclusions: We demonstrated that conventional CEA and CUA methods generate price estimates at varying levels of certainty that can be integrated into our proposed Six Delta platform for outcome-based pricing/contracting. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Alkhatib, N.S., Slack, M., Bhattacharjee, S., Erstad, B., Ramos, K., McBride, A., Abraham, I. Pricing methods in outcome-based contracting: δ_6 : adherence-based pricing (2020) Journal of Medical Economics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85090449290&doi=10.1080%2f13696998.2020.1815030&partnerID=40&md5=8a0132df02ee0fb10fbce1000a9d0772

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;
College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;
Institute of BioSciences and Technology, Texas A&M University, Houston, TX, United States;
Banner University Medical Center, Tucson, AZ, United States;
University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;
Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ, United States;
Matrix45, Tucson, AZ, United States;
Texas Center for Health Outcomes Research Education, College of Pharmacy, University of Texas, Austin, TX, United States

ABSTRACT: Aims: Six Delta is a six-dimensional independent platform for outcome-based pricing/contracting. The sixth dimension (δ_6) estimates prices on the basis of adherence to the prescribed regimen, whereby manufacturers provide payers with adherence-enhancing programs and whereby payers implement these programs and provide adherence data to the manufacturer. We describe this dimension's methodology and present a proof-of-concept application to the treatment of non-small cell lung cancer (NSCLC) with EGFR mutation with osimertinib. Materials and methods: We propose two paybacks based on adherence: in-advance (based on clinical trial data) and in-arrear (based on real-world data). The risk of efficacy failure pricing dimension utilizes a 7-step method: 1) defining efficacy endpoints; 2) extracting data; 3) predicting models; 4) estimating in-advance and in-arrear paybacks; 5) suggesting ranges for in-advance and in-arrear paybacks; 6) adjusting for medical inflation; and 7) performing Monte Carlo Simulation (MCS) to estimate the DSPAdherence. A proof-of-

concept exercise with osimertinib in NSCLC was performed for two hypothetical outcome-based contracts: 1-year (2019–2020) and 2-year (2019–2021). The 2018 wholesale acquisition cost (WAC) for a 30-day prescription was used and inflated as needed. Herein, the DSPAdherence is estimated exclusively in terms of in-advance payback because real-world data about osimertinib are not yet available and thus the in-arrear payback cannot yet be estimated. Results: For the 1-year contract, the average price for osimertinib was \$13,798 (SD=\$1,265) and the DSPAdherence was \$13,785 (or -5.69% of the 2018 WAC) for a 30-day prescription. For the 2-year contract, the average price was \$12,555 (SD=\$2,847) and the DSPAdherence was \$12,582 (or -13.92% of the 2018 WAC). Conclusions: We demonstrated that adherence-based pricing methods can be integrated into our proposed Six Delta platform for outcome-based pricing/contracting. The proof-of-concept exercise needs to be expanded with the in-arrear pricing method based on real world data to be secured. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Alkhatib, N.S., McBride, A., Bhattacharjee, S., Ramos, K., Erstad, B., Slack, M., Billheimer, D., Abraham, I.

Pricing methods in outcome-based contracting: δ_5 : risk of efficacy failure-based pricing (2020) Journal of Medical Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090443416&doi=10.1080%2f13696998.2020.1815029&partnerID=40&md5=73f74610c15dda756aefa1064fab98f4)

[85090443416&doi=10.1080%2f13696998.2020.1815029&partnerID=40&md5=73f74610c15dda756aefa1064fab98f4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090443416&doi=10.1080%2f13696998.2020.1815029&partnerID=40&md5=73f74610c15dda756aefa1064fab98f4)

AFFILIATIONS: Center for Health Outcomes and Pharmaco Economic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Banner University Medical Center, Tucson, AZ, United States;

University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;

Institute of Bio Sciences and Technology, Texas A&M University, Houston, TX, United States;

Center for Biomedical Informatics & Biostatistics, University of Arizona, Tucson, AZ, United States;

Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ, United States

ABSTRACT: Aims: Six Delta is a six-dimensional independent platform for outcome-based pricing/contracting. The fifth dimension (δ_5) estimates prices on the basis of the risk of efficacy failure of a drug. We describe this dimension's methodology and present a proof-of-concept application to the treatment of non-small cell lung cancer (NSCLC) with EGFR mutation with osimertinib. Materials and methods: The risk of efficacy failure pricing dimension utilizes a seven-step method: (1) defining risk; (2) extracting data; (3) predicting models; (4) performing Monte Carlo Simulation (MCS) to estimate risk of efficacy failure; 5) estimating ranges for a payback; (6) adjusting for medical inflation; and (7) performing Monte Carlo Simulation (MCS) to estimate the DSPRisk of efficacy failure. A proof-of-concept exercise with osimertinib in NSCLC was performed for two hypothetical outcome-based contracts: 1-year (2019–2020) and 2-year (2019–2021). We estimated the risk of efficacy failure for osimertinib in terms of overall and progression-free survival versus standard of care. We used the estimated risk to estimate the price reduction on the wholesale acquisition cost (WAC) for the two hypothetical contracts: a 1-year (2019–2020) and 2-year contract (2019–2021). From this we estimated the DSPRisk of efficacy failure. Results: Based on the risk of OS and PFS efficacy failure for osimertinib in OS and PFS, in the 1-year contract, the DSPRisk of efficacy failure was estimated at \$12,652 (or -13.44% the 2018 WAC) for a 30-day prescription. For the 2-year contract (2019–2021), the DSPRisk of efficacy failure was estimated at \$13,019 (or -10.93% the 2018 WAC). Conclusions: We demonstrated that pricing methods based on risk of efficacy failure methods can be integrated into our proposed Six Delta platform for outcome-based pricing/contracting. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Alkhatib, N.S., Bhattacharjee, S., McBride, A., Ramos, K., Slack, M., Erstad, B., Abraham, I.

Pricing methods in outcome-based contracting: δ_4 : safety-based pricing

(2020) Journal of Medical Economics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090442471&doi=10.1080%2f13696998.2020.1815028&partnerID=40&md5=edaabfb8692052b1a40b63f00aa8e126)

[85090442471&doi=10.1080%2f13696998.2020.1815028&partnerID=40&md5=edaabfb8692052b1a40b63f00aa8e126](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090442471&doi=10.1080%2f13696998.2020.1815028&partnerID=40&md5=edaabfb8692052b1a40b63f00aa8e126)

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Banner University Medical Center, Tucson, AZ, United States;

University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;

Institute of BioSciences and Technology, Texas A&M University, Houston, TX, United States;

Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ,

United States;

Matrix45, Tucson, AZ, United States;

Texas Center for Health Outcomes Research Education, College of Pharmacy, University of Texas, Austin, TX, United States

ABSTRACT: Aims: Six Delta is a six-dimensional independent platform for outcome-based pricing/contracting. The fourth dimension (δ_4) estimates prices on the basis of assessments of the safety of the drug using an ex ante analysis based on clinical trial data. We describe this dimension's methodology and present a proof-of-concept application to the treatment of non-small cell lung cancer (NSCLC) with EGFR mutation with osimertinib. Materials and methods: The safety-based pricing dimension utilizes a four-step method: 1) pooling adverse events (AE), standardizing, estimating 95% CIs, and adjusting for time; 2) estimating correction factors and corrected probabilities of AEs; 3) estimating the probability of at least one adverse event (AE) occurring and leading to treatment discontinuation; and 4) estimating ranges for payback percentages and performing Monte Carlo Simulation to estimate a DSPSafety. A proof-of-concept exercise with osimertinib in NSCLC was performed for two hypothetical outcome-based contracts: 1-year (2019–2020) and 2-year (2019–2021). We estimated the DSPSafety based on the grade 3/4 AEs observed for osimertinib and standard of care. The 2018 wholesale acquisition cost (WAC) of osimertinib at \$14,616 for a 30-day prescription was used. Results: AEs 3/4 were retrieved from the FLAURA trial. In the 1-year contract, the DSPSafety of osimertinib was estimated at \$14,627 (or +0.08% the 2018 WAC) for a 30-day prescription. In the 2-year contract, the DSPSafety of osimertinib was estimated at \$14,516 (or –0.68% the 2018 WAC) for a 30-day prescription. Conclusions: We demonstrated that ex ante pricing methods-based paybacks for safety issues leading to treatment discontinuation can be integrated into our proposed Six Delta platform for outcome-based pricing/contracting. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Alkhatib, N.S., Erstad, B., Ramos, K., McBride, A., Bhattacharjee, S., Slack, M., Abraham, I.

Pricing methods in outcome-based contracting: δ_3 : reference-based pricing

(2020) Journal of Medical Economics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85090435191&doi=10.1080%2f13696998.2020.1815027&partnerID=40&md5=1dcc2dcec2fce565d8980b754d1f3ada

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Institute of BioSciences and Technology, Texas A&M University, Houston, TX, United States;

Banner University Medical Center, Tucson, AZ, United States;

University of Arizona Cancer Center, University of Arizona, Tucson, AZ, United States;

Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, AZ, United States;

Matrix45, Tucson, AZ, United States

ABSTRACT: Aims: Six Delta is a six-dimensional independent platform for outcome-based pricing/contracting. The third dimension (δ_3) estimates prices on the basis of international drug price referencing methods. We describe this dimension's methodology and present a proof-of-concept application to the treatment of non-small cell lung cancer (NSCLC) with EGFR mutation with osimertinib. Materials and methods: The reference-based pricing dimension utilizes a six-step method: (1) selecting foreign countries based on a set of four criteria (drug is available in the foreign country, price information is available in the foreign country, foreign countries are members within the organization for Economic Co-operation and Development, pricing methods in the foreign countries involve value assessment); (2) adjusting for exchange rates; (3) generating reference price (RP) scenarios; (4) adjusting with the medical inflation rate; (5) pooling all generated RP scenarios and calculating average and standard deviation (SD); (6) and Monte Carlo Simulation (MCS) to estimate the dimension-specific DSPReference. A proof-of-concept exercise with osimertinib in NSCLC was performed for two hypothetical outcome-based contracts: 1-year (2019–2020) and 2-year (2019–2021). Results: The United Kingdom and Canada met the four criteria. For the osimertinib 1-year contract price, the average of eight RP scenarios, adjusted for inflation by 0.44%, was \$8,892 (SD = \$2,606) for a 30-day prescription. MCS yielded a DSPReference estimate of \$9,395 or –35.72% of the wholesale acquisition cost (WAC) of \$14,616. For the 2-year contract, the average, adjusted for inflation by 0.72%, was \$8,928 (SD = \$2,610). MCS yielded a DSPReference estimate of \$9,442 or –35.40% of the WAC of \$14,616. Conclusions: We demonstrated that international price referencing methods can be integrated into our proposed Six Delta platform for outcome-based pricing/contracting. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

El-khateeb, M., Abul-Futouh, H., Alshurafa, H., Görls, H., Weigand, W.

Influence of bidentate phosphine ligands on the chemistry of [FeFe]-hydrogenase model: insight into

molecular structures and electrochemical characteristics

(2020) Applied Organometallic Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088297101&doi=10.1002%2faoc.5940&partnerID=40&md5=024b97611c5f8907420446200638cae7)

[85088297101&doi=10.1002%2faoc.5940&partnerID=40&md5=024b97611c5f8907420446200638cae7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088297101&doi=10.1002%2faoc.5940&partnerID=40&md5=024b97611c5f8907420446200638cae7)

AFFILIATIONS: Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt-Straße 2, Jena, 07743, Germany

ABSTRACT: Substitution of carbonyl ligands of the hydrogenase model complex $[\text{Fe}_2(\mu\text{-SeCH}_2\text{CH}(\text{Me})\text{CH}_2\text{Se-}\mu)(\text{CO})_6]$ (A), by 1,1'-bis (diphenylphosphino)ferrocene (dppf), 1,2-bis (diphenylphosphino)benzene (dppbz) or 1,2-bis (diphenylphosphino)acetylene (dppac) is investigated. It is found that the reaction product depends on the diphosphine used. In the case of dppf, the product is an intramolecular bridged disubstituted complex $[\text{Fe}_2\{\mu\text{-SeCH}_2\text{CH}(\text{Me})\text{CH}_2\text{Se-}\mu\}(\text{CO})_4\{\mu, \kappa 1, \kappa 1(\text{P}, \text{P})\text{-dppf}\}]$ (1), while the dppac-reaction produces an intermolecular bridged tetra-iron model $[\text{Fe}_2\{\mu\text{-SeCH}_2\text{CH}(\text{Me})\text{CH}_2\text{Se-}\mu\}(\text{CO})_5]_2\{\mu, \kappa 1, \kappa 1(\text{P}, \text{P})\text{-dppac}\}$ (2). However, the dppbz-reaction gives $[\text{Fe}_2\{\mu\text{-SeCH}_2\text{CH}(\text{Me})\text{CH}_2\text{Se-}\mu\}(\text{CO})_4\{\kappa 2(\text{P}, \text{P})\text{-dppbz}\}]$ (3) in which the dppbz ligand is bonded to one Fe atom in a chelated manner. The newly prepared complexes (1-3) have been characterized by elemental analysis, IR, $^1\text{H-}$, $^{13}\text{C}\{\text{H}\}\text{-}$, $^{31}\text{P}\{\text{H}\}\text{-}$, $^{77}\text{Se}\{\text{H}\}\text{-}$ NMR spectroscopy and X-ray structure determination. The electrochemical behavior of 2 and 3, in absence and presence of acid, is described by cyclic voltammetric measurements in CH_2Cl_2 . © 2020 John Wiley & Sons, Ltd.

Jarrar, Y., Al-Doaiss, A., Alfaifi, M., Shati, A., Al-Kahtani, M., Jarrar, B.

The influence of five metallic nanoparticles on the expression of major drug-metabolizing enzyme genes with correlation of inflammation in mouse livers

(2020) Environmental Toxicology and Pharmacology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086942302&doi=10.1016%2fj.etap.2020.103449&partnerID=40&md5=954d47809e76f5690cdaa88486bf8fa5)

[85086942302&doi=10.1016%2fj.etap.2020.103449&partnerID=40&md5=954d47809e76f5690cdaa88486bf8fa5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086942302&doi=10.1016%2fj.etap.2020.103449&partnerID=40&md5=954d47809e76f5690cdaa88486bf8fa5)

AFFILIATIONS: Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Department of Biology, College of Science, King Khalid University, Saudi Arabia;

Nanobiology Unit, Department of Biological Sciences, College of Science, Jerash University, Jordan

ABSTRACT: Metallic nanoparticles (NPs) are widely used in medical preparations. The present study aims to find out the influence of widely used five metallic NPs on the expression of major hepatic drug-metabolizing enzyme (DME) genes. Six groups of BALB/C mice, 7 mice each, were exposed to: Gold NPs, silver NPs, copper oxide NPs, silicon dioxide NPs and zinc oxide NPs, for 21 days. Liver biopsies from all mice were subjected to mouse *cyp3a11*, *cyp2c29*, *ugt2b1* and interleukin-6 (*il6*) gene expression quantification using real-time polymerase chain reaction, in addition to inflammatory cell infiltration examination. All tested NPs caused a sharp and significant (ANOVA, p value < 0.05) downregulation in the expression of DME genes, with the highest influence was observed in mice exposed to copper oxide NPs. Additionally, all NPs induced hepatic inflammation and upregulated the expression of *il6* gene, which were inversely correlated with the expression of DMEs. It is concluded that all tested NPs downregulated the expression of DME genes, with the highest influence exhibited by copper oxide NPs, in correlation with inflammation and *il6* gene induction in the liver. Further studies are needed to find out the effect of anti-inflammatory compounds against the alterations induced by metallic NPs exposure on hepatic DMEs. © 2020 Elsevier B.V.

Almaiah, M.A., Al-Khasawneh, A., Althunibat, A.

Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic

(2020) Education and Information Technologies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085313535&doi=10.1007%2fs10639-020-10219-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085313535&doi=10.1007%2fs10639-020-10219-y&partnerID=40&md5=e236e0af251433723c946c52c2c96388)

[y&partnerID=40&md5=e236e0af251433723c946c52c2c96388](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085313535&doi=10.1007%2fs10639-020-10219-y&partnerID=40&md5=e236e0af251433723c946c52c2c96388)

AFFILIATIONS: Faculty of Computer Sciences and Information Technology, King Faisal University, Al-Ahsa, Saudi Arabia;

Computer Information Systems, Hashemite University of Jordan, Zarqa, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The provision and usage of online and e-learning system is becoming the main challenge for many universities during COVID-19 pandemic. E-learning system such as Blackboard has several fantastic features that would be valuable for use during this COVID-19 pandemic. However, the successful usage of e-learning system relies on understanding the adoption factors as well as the main challenges that face the current e-learning systems. There is lack of agreement about the critical challenges and factors that shape the successful usage of e-learning system during COVID-19 pandemic; hence, a clear gap has been identified in the knowledge on the critical challenges and factors of e-learning usage during this pandemic. Therefore, this study aims to explore the critical

challenges that face the current e-learning systems and investigate the main factors that support the usage of e-learning system during COVID-19 pandemic. This study employed the interview method using thematic analysis through NVivo software. The interview was conducted with 30 students and 31 experts in e-learning systems at six universities from Jordan and Saudi Arabia. The findings of this study offer useful suggestions for policy-makers, designers, developers and researchers, which will enable them to get better acquainted with the key aspects of the e-learning system usage successfully during COVID-19 pandemic. © 2020, Springer Science+Business Media, LLC, part of Springer Nature.

Jaber, T., Abdallah, M., Al-Thunibat, A.

A Proposed Code Inspection Model using Program Slicing Technique

(2020) 2020 IEEE 5th International Conference on Computing Communication and Automation, ICCCA 2020,

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097641737&doi=10.1109%2fICCCA49541.2020.9250784&partnerID=40&md5=df9b0fa5986bd58d51275958dad539b8)

[85097641737&doi=10.1109%2fICCCA49541.2020.9250784&partnerID=40&md5=df9b0fa5986bd58d51275958dad539b8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097641737&doi=10.1109%2fICCCA49541.2020.9250784&partnerID=40&md5=df9b0fa5986bd58d51275958dad539b8)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Software Engineering Department, Amman, Jordan

ABSTRACT: Code inspection is the way to ensure the quality and the control of products and software by detecting, correcting or reducing defects. Nowadays, several methods of code inspection emerged, most of which consisted of processing, preparation, analysis, meetings, and reform. However, each code inspection method may face problems in terms of number of developers, whether large or small, ease of attendance at meetings, and defects coverage. Moreover, some uses of the programs do not tolerate errors during implementation. In this paper, we will propose a new code inspection model that integrates the program slicing technique with code inspection process. We create reports that facilitate the implementation of the code review process and reduce its time, costs, and team size. The proposed model supposed to be more accurate detection and resolution of existing defects. © 2020 IEEE.

Sharour, L.M.A., Al-Noumani, H., Sabei, S.A., Hashmi, I.A., Harrasi, M.A., Al-Yazidi, B.

Community-based palliative care in the Arab region: Current status and future directions

(2020) Palliative Care for Chronic Cancer Patients in the Community: Global Approaches and Future

Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149859512&doi=10.1007%2f978-3-030-54526-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149859512&doi=10.1007%2f978-3-030-54526-0_31&partnerID=40&md5=a6fb018013a1304ec8929085f4a94a57)

[0_31&partnerID=40&md5=a6fb018013a1304ec8929085f4a94a57](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85149859512&doi=10.1007%2f978-3-030-54526-0_31&partnerID=40&md5=a6fb018013a1304ec8929085f4a94a57)

AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan, Amman, Jordan;

College of Nursing, Sultan Qaboos University, Muscat, Oman

ABSTRACT: In recent years, palliative care practice has shifted toward community-based palliative care. The complex care needs of older adults and people requiring palliative care are increasing due to the increase in life expectancy. However, it remains limited in the Middle East, which has Muslim-majority populations. Various barriers to successful establishment of palliative care services in community settings were identified. © Springer Nature Switzerland AG 2021. All rights reserved.

Elhaija, W.A., Hamici, Z.

Robust Unbalance Compensation of Induction Machines Using Swarm Intelligence Control: Design and

Analysis

(2020) Electric Power Components and Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092148162&doi=10.1080%2f15325008.2020.1821839&partnerID=40&md5=8f48f25c2bf22f93a9f78187526bbb55)

[85092148162&doi=10.1080%2f15325008.2020.1821839&partnerID=40&md5=8f48f25c2bf22f93a9f78187526bbb55](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092148162&doi=10.1080%2f15325008.2020.1821839&partnerID=40&md5=8f48f25c2bf22f93a9f78187526bbb55)

AFFILIATIONS: Department of Electrical Engineering, King Abdullah II School of Engineering, Princess

Sumaya University for Technology (PSUT), Amman, Jordan;

Department of Electrical Engineering, Faculty of Engineering and Technology at Al-Zaytoonah

University of Jordan (ZUJ), Amman, Jordan

ABSTRACT: This work presents an innovative approach for solving the problem of unbalance in three-phase induction motors (IM). The presented contribution is based on optimal controller operating with a quantized swarm-intelligence algorithm. The work starts by modeling and investigating the effects of unbalance factors on a three-phase IM operation. The mathematical model of the IM is based on steady state symmetrical component analysis which represents the discrete Fourier transform governing the estimation of control voltages fed into the swarm. The three-phase power input of an IM is controlled by a DSP controller with three-phase current sensors and an output stage that controls the power level of each phase fed into the motor. The controller measures the currents, estimates the current unbalance factor, searches for voltage levels that reduces the unbalance based on a cost functional, therefore, generates control signals on power electronics stage. The swarm-intelligence algorithm searches solutions in a stochastic space for three-phase voltages that minimize and even nullify the unbalance and reacts instantaneously. The algorithm shows very fast convergence to IM input voltages solution in less than 80 ms. The present work is concerned with the design and analysis of applying swarm intelligence control to implement unbalance compensation in three-phase IMs. © 2020 Taylor & Francis Group, LLC.

Hamed, R., Mahmoud, N.N., Alnadi, S.H., Alkilani, A.Z., Hussein, G.

Diclofenac diethylamine nanosystems-loaded bigels for topical delivery: development, rheological characterization, and release studies

(2020) Drug Development and Industrial Pharmacy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091170329&doi=10.1080%2f03639045.2020.1820038&partnerID=40&md5=b9b776b71ad25559d686c64cab58aafd)

[85091170329&doi=10.1080%2f03639045.2020.1820038&partnerID=40&md5=b9b776b71ad25559d686c64cab58aafd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091170329&doi=10.1080%2f03639045.2020.1820038&partnerID=40&md5=b9b776b71ad25559d686c64cab58aafd)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, Jordan

ABSTRACT: The objective of this study was to develop novel topical drug delivery systems of the nonsteroidal anti-inflammatory drug diclofenac diethylamine (DDEA). Toward this objective, DDEA was loaded into two nanosystems, the oil in water (O/W) nanoemulsion (DDEA-NE) and the gold nanorods (GNR) that were conjugated to DDEA, forming DDEA-GNR. The DDEA-NE and DDEA-GNR were characterized in terms of particle size, zeta potential, morphology, thermodynamic stability, DDEA loading efficiency, and UV-Vis spectroscopy. These nanosystems were then incorporated into the biphasic gel-based formulations (bigels) for topical delivery. The rheological characterization and release studies of the DDEA NE- and DDEA GNR-incorporated bigels were performed and compared to those of DDEA traditional bigel. DDEA-NE exhibited a droplet size 15.2 ± 1.5 nm and zeta potential -0.37 ± 0.06 mV. The particle size of GNR was approximately 66 nm \times 17 nm with an aspect ratio of approximately 3.8. The bigels showed composition-dependent viscoelastic properties, which in turn play a vital role in determining the rate and mechanism of DDEA release from the bigels. Bigels showed a controlled-release pattern where 61.6, 91.7, and 50.0% of the drug was released from DDEA traditional bigel, DDEA NE-incorporated bigel, and DDEA GNR-incorporated bigel, respectively, after 24 h. The ex vivo permeation studies showed that the amount of DDEA permeated through excised skin was relatively low, between 2.7% and 18.2%. The results suggested that the incorporation of the nanosystems NE and GNR into bigels can potentially improve the topical delivery of DDEA. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Omari, R., Almahmoud, E., Talla, J.A., Al-Khaza'leh, K., Ghazlan, A., Al-Diabat, A.

Influence of substitutional doping on the electronic properties of carbon nanotubes with Stone Wales defects: density functional calculations

(2020) Fullerenes Nanotubes and Carbon Nanostructures, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085335707&doi=10.1080%2f1536383X.2020.1768529&partnerID=40&md5=44ec9f542cb7b0ed595cc4078ffdf1fa8)

[85085335707&doi=10.1080%2f1536383X.2020.1768529&partnerID=40&md5=44ec9f542cb7b0ed595cc4078ffdf1fa8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085335707&doi=10.1080%2f1536383X.2020.1768529&partnerID=40&md5=44ec9f542cb7b0ed595cc4078ffdf1fa8)

AFFILIATIONS: Department of Physics, Al al-Bayt University, Al-Mafraq, Jordan;

Department of Physical Sciences, Jordan University of Science and Technology, Irbid, Jordan;

Department of Basic Sciences, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this work, we implemented density function theory to investigate the structural and the electronic properties of nitrogen doped single walled carbon nanotube under different orientations of Stone Wales defect. We have found that, the doped defected structures are more stable than the non-doped defected structures. Furthermore, doping defected carbon nanotubes with a nitrogen atom has significantly narrowed the band gap and slightly shifted the Fermi level toward the conduction band. Moreover, nitrogen substitution creates new band levels just above the Fermi level which exemplifies an n-type doping. However, the induced band gap is indirect band gap compared to direct band gap as in pristine carbon nanotubes. Furthermore, the electronic and structural properties of nitrogen doped carbon nanotube with Stone Wales defects is crucially affected by the dopant site as well as the orientations of Stone Wales defects. © 2020, © 2020 Taylor & Francis Group, LLC.

Alkubaisi, M.

Development of freeway weaving areas microsimulation model (FWASIM)

(2020) Civil Engineering and Architecture, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097908998&doi=10.13189%2fcea.2020.080527&partnerID=40&md5=71f6cde3427c8bfd0db21dc26e9613c1)

[85097908998&doi=10.13189%2fcea.2020.080527&partnerID=40&md5=71f6cde3427c8bfd0db21dc26e9613c1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097908998&doi=10.13189%2fcea.2020.080527&partnerID=40&md5=71f6cde3427c8bfd0db21dc26e9613c1)

AFFILIATIONS: Civil and Infrastructure Engineering Department, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Comprehensive analysis of traffic behavior requires continuous studies to develop traffic theories explaining that behavior at the microscopic level. The study aims to develop a microsimulation program to evaluate the freeway weaving performance depending on the observed data. FWASIM represents a microscopic analysis of the freeway traffic features. It scans events periodically. The developed FWASIM involves the formulation of driver and vehicle behavior at freeway link, on-ramp, off-ramp, and combine them to produce a flexible, friendly use simulation model. Its concept is mainly depending on the car following and lane change theories. Analytical model validation was conducted based on a comparison of FWASIM output with the VISSIM output. Tests consider the important factors that may affect the traffic behavior for a given segment

configuration. The obtained results show agreement between FWASIM and VISSIM outputs. Besides, the field data were used to validate FWASIM. Graphical and t-test methods were used to examine the results. The results are statistically significant which implies that the model provides reasonably accurate measures of effectiveness for the validated range of input data. © 2020 by authors, all rights reserved.

Shukur, M.I., Ibrahim, A.K., Khalid, A.-T.O., Sarab, A.-R.K., Khalid, A.S.M.

Predominant actinobacteria baumannii among bacterial isolates from neonatal bacteremia and their antimicrobial susceptibilities

(2020) *Annals of Tropical Medicine and Public Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096343900&doi=10.36295%2fASRO.2020.231623&partnerID=40&md5=1d5d09e4121dc893bef69743ac71922b)

[85096343900&doi=10.36295%2fASRO.2020.231623&partnerID=40&md5=1d5d09e4121dc893bef69743ac71922b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096343900&doi=10.36295%2fASRO.2020.231623&partnerID=40&md5=1d5d09e4121dc893bef69743ac71922b)

AFFILIATIONS: Department of Pharmacy, Al- Rafidain University College, Baghdad, Iraq;

Department of Pharmacy, Middle East University, Amman, Jordan;

Department of Microbiology, AL- Mustansyriah University, Baghdad, Iraq;

Department of Medical Analysis, AL- Yarmouk Hospital, Baghdad, Iraq;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Nosocomial bacteremia caused by *Acinetobacter baumannii* is of increasing presence in critically ill patients and has been found naturally in soil and implicated in causing a wide range of clinical conditions in hospitals. *Acinetobacter baumannii* is resistant to a wide range of antimicrobial agents, i.e. multidrug resistant Gram-negative bacteria. Objectives: The aim of the study is to find out the predominant *Acinetobacter baumannii* through its prominent role in cases of neonatal bacteremia as compared to other bacterial isolates from the same clinical conditions. It is also aimed to find out the multidrug-resistant *Acinetobacter baumannii*. Methods: This work was conducted on neonates attending the Central Child Hospital and Al-Yarmouk teaching hospital laboratories at Baghdad, Iraq during the period January 2017- January 2018 two hundred and fifty neonates attending the above mentioned hospitals were the sources of 2-3 ml of blood samples collected aseptically from each newborn. Each blood sample was subjected to established microbiological standard methods for blood culturing and final identification of each isolate. All isolates were tested for whether sensitive or resistant to the commonly used antimicrobial according to manufacture instructions. Results: In this study in which 250 neonates were the source of 180 bacterial isolates (72%) from which *Acinetobacter baumannii* are 75(41.7%) isolates, followed by Group B Beta Hemolytic Streptococci which is 35(19.4%) and *Streptococcus pneumoniae* 32(17.8%) bacterial isolates, while *E.coli* is 14(7.8%), *Pseudomonas aeruginosa* as 13(7.2%) and the least of the isolates is *Staphylococcus epidermidis* which is 11(6.1%). Multidrug resistant were documented in this work in which *Acinetobacter baumannii* were almost completely resistant for Amoxicillin (94.4%), Penicillin G (93.4%), Vancomycin (91.9%), followed by Imipenem (88%) and all of the remaining drugs as in table (2). The only drug for which *Acinetobacter baumannii* reveals the least resistance is Colistin (20%). Conclusion: It seems that *Acinetobacter baumannii* plays the major role in causing neonatal bacteremia, followed by GB β HS. It is also concluded that multidrug-resistance in *Acinetobacter baumannii* is confirmed. This necessitates the advice for future work to find a modified antimicrobials specific treatment for *Acinetobacter baumannii* infections in neonate. © 2020 Wolters Kluwer Medknow Publications. All rights reserved.

Al-Omoush, K.S., Simón-Moya, V., Sendra-García, J.

The impact of social capital and collaborative knowledge creation on e-business proactiveness and organizational agility in responding to the COVID-19 crisis

(2020) *Journal of Innovation and Knowledge*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85094606893&doi=10.1016%2fj.jik.2020.10.002&partnerID=40&md5=ba30743636e6344c0641abca2050a8b5)

[85094606893&doi=10.1016%2fj.jik.2020.10.002&partnerID=40&md5=ba30743636e6344c0641abca2050a8b5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85094606893&doi=10.1016%2fj.jik.2020.10.002&partnerID=40&md5=ba30743636e6344c0641abca2050a8b5)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Universitat de València, Spain;

Universidad Complutense de Madrid, Spain

ABSTRACT: The purpose of this study is to explore the role of social capital and collaborative knowledge creation in achieving e-business proactiveness in responding to the COVID-19 crisis. An online survey was used to collect data from industries that had to continue working during the crisis, such as the pharmaceutical and cleaning materials sectors. The sample consisted of 198 managers. The findings show that social capital and collaborative knowledge creation have a significant role in achieving e-business proactiveness in responding to the pandemic. The results also show the positive impact of collaborative knowledge creation and e-business proactiveness on organizational agility during the crisis. The present study opens broad horizons for the exploration of emerging themes in information technology studies, including the role of collaborative knowledge creation and e-business proactiveness and their impact on organizational agility in responding to global pandemics. An understanding of the pivotal impact of social capital and collaborative knowledge creation on e-business proactiveness provides managers with valuable insights into managing

the pressures of pandemics. © 2020 Journal of Innovation & Knowledge

Alhawari, H., Jarrar, Y., Alkhatib, M.A., Alhawari, H., Momani, M., Zayed, A., Alkamhawi, R., Zihlif, M.

The association of 3-hydroxy-3-methylglutaryl-coa reductase, apolipoprotein e, and solute carrier organic anion genetic variants with atorvastatin response among jordanian patients with type 2 diabetes

(2020) Life, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092176579&doi=10.3390%2flife10100232&partnerID=40&md5=86d04dbdceeda1feed950387a5a34f7f)

[85092176579&doi=10.3390%2flife10100232&partnerID=40&md5=86d04dbdceeda1feed950387a5a34f7f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092176579&doi=10.3390%2flife10100232&partnerID=40&md5=86d04dbdceeda1feed950387a5a34f7f)

AFFILIATIONS: Department of Internal Medicine, Faculty of Medicine, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Haemostasis and Thrombosis Laboratory, The University of Jordan, Amman, 11942, Jordan;

Certified Lab Technician, Jordan University Hospital, Amman, 11942, Jordan;

Department of Pharmacology, Faculty of Medicine, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Atorvastatin is commonly used among type 2 diabetic (DM2) patients at the University of Jordan Hospital to prevent cardiovascular complication. However, we noticed that there is a wide inter-individual variation in the efficacy and toxicity of atorvastatin. This study aimed to find out the effects of major genetic variants in 3-Hydroxy-3-Methylglutaryl-CoA Reductase (HMGCR), Apolipoprotein E (APOE), and Solute Carrier Organic Anion (SLC01B1) genes on atorvastatin response among DM2 patients. A sample of 139 DM2 patients on 20 mg of atorvastatin was included in this study. The lipid and glycemic profile and the levels of hepatic enzymes alanine aminotransferase (ALT) and aspartate transaminase were recorded before and after 3 months of atorvastatin treatment.

Additionally, the genetic variants HMGCR rs17244841, APOE rs7412 and rs429357, and SLC01B1 rs2306283 and rs11045818 were genotyped using an Applied Biosystems DNA sequencing method (ABI3730x1). We found that atorvastatin reduced total cholesterol and low-density lipoprotein (LDL) more significantly (p-value < 0.05) in patients with wild genotype than variant alleles APOE rs7412C > T and SLC01B1 rs2306283A > G. Furthermore, the ALT level was elevated significantly (p-value < 0.05) by 27% in patients with heterozygous SLC01B1 rs11045818 G/A genotype, while it was not elevated among wild genotype carriers. Additionally, atorvastatin reduced total cholesterol more significantly (p-value < 0.05) in patients with SLC01B1 rs2306283A and rs11045818G haplotypes and increased ALT levels by 27% (p-value < 0.05) in patients with SLC01B1 rs2306283G and rs11045818A haplotypes. In conclusion, it was found in this study that APOE rs7412, SLC01B1 rs2306283, and rs11045818 genotypes can be considered as potential genetic biomarkers of atorvastatin response among DM2 patients of Jordanian Arabic origin. Further clinical studies with larger sample numbers are needed to confirm these findings. © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

Oh, M., Patanwala, A.E., Alkhatib, N., Almutairi, A., Abraham, I., Erstad, B.

Cost Analysis of Adjunctive Hydrocortisone Therapy for Septic Shock: U.S. Payer Perspective

(2020) Critical Care Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091126108&doi=10.1097%2fCCM.0000000000004501&partnerID=40&md5=10ad205e089fa5eb19d598318ae0c79f)

[85091126108&doi=10.1097%2fCCM.0000000000004501&partnerID=40&md5=10ad205e089fa5eb19d598318ae0c79f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091126108&doi=10.1097%2fCCM.0000000000004501&partnerID=40&md5=10ad205e089fa5eb19d598318ae0c79f)

AFFILIATIONS: Center for Health Outcomes and PharmacoEconomic Research, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

The University of Sydney, Faculty of Medicine and Health, School of Pharmacy, NSW, Sydney, Australia; Royal Prince Alfred Hospital, NSW, Sydney, Australia;

College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Saudi Food and Drug Authority, Riyadh, Saudi Arabia;

Department of Pharmacy Practice and Science, College of Pharmacy, University of Arizona, Tucson, AZ, United States;

Department of Family and Community Medicine, College of Medicine - Tucson, University of Arizona, Tucson, AZ, United States

ABSTRACT: Objectives: To conduct a cost analysis of adjunctive hydrocortisone therapy for severe septic shock from the perspective of a third-party payer in the United States. Design: Estimates of outcomes were aggregate data from the Adjunctive Corticosteroid Treatment in Critically Ill Patients with Septic Shock and Activated Protein C and Corticosteroids for Human Septic Shock trials. In these trials, the outcomes of interests were ICU length of stay, vasopressor-free days, ventilation-free days, and the proportion of patients receiving blood transfusion. Each outcome was monetized into a set of mutually exclusive components and was aggregated to estimate the cost-per-patient based on each trial. Cost inputs for each outcome were obtained from literature and adjusted based on the medical care consumer price index. To estimate the budget impact using adjunctive hydrocortisone therapy, per-patient avoided cost was multiplied by expected septic shock annual incidence.

Deterministic one-way sensitivity analysis evaluated the robustness of the findings, and Monte Carlo

simulation estimated 95% CI of the findings. Setting: A total of 103 medical-surgical ICU (69 for Adjunctive Corticosteroid Treatment in Critically Ill Patients with Septic Shock and 34 for Activated Protein C and Corticosteroids for Human Septic Shock). Patients: Adults greater than or equal to 18 years old with septic shock. Interventions: Adjunctive hydrocortisone therapy (hydrocortisone at a dose of 200 mg/d for 7 d for Adjunctive Corticosteroid Treatment in Critically Ill Patients with Septic Shock and hydrocortisone at a 50 mg IV bolus every 6 hr and fludrocortisone as a 50 µg tablet once daily). Measurements and Main Results: Per Adjunctive Corticosteroid Treatment in Critically Ill Patients with Septic Shock, adjunctive hydrocortisone therapy showed a 90-day monetized benefit of \$8,111 (95% CI, \$3,914-\$12,307) per patient, driven by improvements in ICU-free days, vasopressor-free days, ventilation-free days, and blood transfusion proportion. The total estimated annual impact of adjunctive hydrocortisone therapy, in 2019 dollars, was \$750 million. Per Activated Protein C and Corticosteroids for Human Septic Shock, adjunctive hydrocortisone therapy showed a 90-day monetized benefit of \$25,539 per patient (95% CI, \$22,853-\$28,224), driven by improvements in ICU free-days, vasopressor-free days, and ventilation-free days. The total estimated annual impact of adjunctive hydrocortisone therapy, in 2019 dollars, was \$2.3 billion. The deterministic one-way sensitivity analysis showed the cost of ICU stays to be the most influential factor in both analyses. The sensitivity analysis using the reported median showed a greater monetized benefit of \$10,658 (Adjunctive Corticosteroid Treatment in Critically Ill Patients with Septic Shock) and \$30,911 (Activated Protein C and Corticosteroids for Human Septic Shock) per patient. Conclusions: Using adjunctive hydrocortisone therapy yields a significant monetized benefit based on inputs from the Adjunctive Corticosteroid Treatment in Critically Ill Patients with Septic Shock and Activated Protein C and Corticosteroids for Human Septic Shock trials. © 2020 Lippincott Williams and Wilkins. All rights reserved.

Al Bawab, A.Q., Alkhalidi, B.A., Albarahmeh, E., Qassim, S.M.A., Al-Saifi, M.A.D., Al-Saifi, B., Ling, J., Al-Qerem, W.

Pharmacokinetics and Bioequivalence Estimation of Two Formulations of Alfuzosin Extended-Release Tablets

(2020) Clinical Pharmacology in Drug Development, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85089158269&doi=10.1002%2fcdd.860&partnerID=40&md5=34c07909dc873a8db1b1a230056df327

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan Amman, Jordan;

School of Pharmacy, The University of Jordan Amman, Jordan;

School of Applied Medical Sciences, German Jordanian University Amman, Jordan;

Tabuk Pharmaceuticals, Tabuk, Saudi Arabia;

University of Sunderland, Sunderland, United Kingdom

ABSTRACT: Alfuzosin is a medication approved by the US Food and Drug Administration to treat benign prostatic hyperplasia symptoms. Bioequivalence studies are demanded by regulatory authorities to evaluate the expected in vivo biological similarity of 2 formulations of a medication. The aim of this study is to assess the bioavailability of the generic (test) and branded (reference) formulations of 10-mg alfuzosin extended-release tablets after oral administration to healthy adults under fed conditions. The study used a comparative randomized, single-dose, 2-way crossover open-label study design. Thirty-three participants were recruited and completed the clinical assessment. The pharmacokinetic parameters maximum plasma concentration (C_{max}), area under the plasma concentration-time curve (AUC_{0-t}), AUC extrapolated to infinity (AUC_{0-∞}), time to maximum concentration, and elimination half-life were estimated to prove bioequivalence. The confidence intervals for the log-transformed test/reference ratios for alfuzosin 110.7% (98.0-124.9) and 112.0% (101.9-123.1) for C_{max} and AUC_{0-t} respectively, which are within the allowed limits specified by the regulatory authorities (80-125% for C_{max} and AUC_{0-t}). The test formulation can therefore be prescribed as an alternative to the reference for symptomatic treatment of benign prostatic hyperplasia. © 2020, The American College of Clinical Pharmacology

Boukhelif, A., Merdji, A., Roy, S., Alkhalidi, H., Abu-Alshaikh, I., Della, N., Cristache, C.M., Hillstrom, R.

Effect of supporting implants inclination on stability of fixed partial denture: A finite element study

(2020) Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85088262816&doi=10.1177%2f0954411920944109&partnerID=40&md5=8ca17e48380abe44403d5fe7f76663de

AFFILIATIONS: Faculty of Science Technology, University of Mascara, Mascara, Algeria;

Laboratory of Mechanics and Materials Physics (LMPM), Mechanical Engineering Department, University of Sidi Bel-Abbes, Sidi Bel Abbès, Algeria;

Department of Mechanical Engineering, SRM Institute of Science and Technology, Chennai, India;

Mechanical Engineering Department, The University of Jordan, Amman, Jordan;

Department of Mechanical Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania;
Department of Bioengineering, Tandon School of Engineering, New York University, New York, NY, United States

ABSTRACT: The aim of this finite element study was to analyze effect of supporting implants inclination on stress distribution in the bone for a four-unit fixed partial denture. A three-dimensional finite element model of mandibular molar section of the bone to receive implants was constructed. Three implant-supported fixed partial dentures, with null, moderate and wide tilting, of 0° , 15° and 30° implant inclinations, respectively, were modeled. A mechanical load of 10 MPa was applied in coronal-apical direction on bridge framework at the regions of crowns positions. The finite element analysis was performed, and von Mises stress levels were calculated. Peak stress concentration in the cortical bone was observed mostly around the implant necks, in inter-implants line. There was favorable stress distribution during loading, with peak stress being 90.04 MPa for 0° , which decreased to 54.33 MPa for 15° and 46.36 MPa for 30° inclination. The supporting implants inclination in fixed partial denture plays an important role in stress distribution and may be helpful in preventing bone loss and implant failure. This phenomenon is likely to be more pronounced in bones of poor quality. Within the limitation of this study, it seems that the inclination of implants in fixed partial denture has a favorable effect on stress distribution pattern values around the supporting implants. © IMechE 2020.

Al-Jazzar, S.O., Jaradat, Y.

AOA-based drone localization using wireless sensor-doublers
(2020) Physical Communication, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85088227163&doi=10.1016%2fj.phycom.2020.101160&partnerID=40&md5=0d0cd6c5adfc9afea0946a6ffd3c4db9

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In this paper, we introduce a method to estimate the drone location in a wireless sensor field (SF). The sensors are assumed to be installed in a field in a doublers form (i.e., each two sensors are combined to form a doublet). Each doublet in the near drone location can be used to estimate the angle between the doublet axis and the line connecting the drone to doublet's vertex. The locus of this angle will form a cone. Using six sets of different doublers, one can locate the drone by considering the intersection of the corresponding six cones. Cramer-Rao bound (CRB) is derived for the proposed estimator. Also, simulation results are provided to illustrate the estimator's performance. © 2020 Elsevier B.V.

Al-Mahmood, O.A., Aboalhaija, N.H., Abaza, I.F., Talib, W.H., Afifi, F.U.

Investigations on the spontaneous emitted and hydrodistilled volatiles of *Platycladus orientalis* (L.) Franco grown in four different biogeographic zones of Jordan

(2020) Biochemical Systematics and Ecology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85086923089&doi=10.1016%2fj.bse.2020.104109&partnerID=40&md5=9565853ab9f8529bc535a0182b05dbd5

AFFILIATIONS: Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmacy, Applied Science Private University, Al-Arab Str. 21, Amman, 11931, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Queen Rania Al-Abdallah Str, Amman, 11942, Jordan;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Al-Arab Str. 21, Amman, 11931, Jordan

ABSTRACT: The essential oil of the fresh leaves of *Platycladus orientalis* (L.), grown in four different biogeographic zones of Jordan, - (the Mediterranean, Irano-Turanian, Saharo-Arabian, and Sudanian penetration) -, were obtained by hydrodistillation and analysed by gas chromatography (GC) and gas chromatography-mass-spectrometry (GC/MS). The actual composition of the spontaneous emitted volatiles was obtained using the solid-phase-micro-extraction (SPME) method and investigated using the same chromatographic and spectroscopic methods. Hydrocarbon monoterpenes dominated the hydrodistilled oils and emissions of all regions. Bicyclic monoterpenes (sabinene, α -pinene, and α -thujene) and monocyclic α -terpinene were detected as the major constituents of the oils and emissions. Additionally, hierarchical cluster analysis (HCA) revealed that the clustering is based on the region of collection rather than the applied methodology. Differences were observed in the quantity of the obtained oils (P-values <0.01); the highest amount of volatile oil was obtained from samples grown in the Irano-Turanian biogeographic zone. © 2020 Elsevier Ltd

Alshraifeen, A., Alnuaimi, K., Al-Rawashdeh, S., Ashour, A., Al-Ghabeesh, S., Al-Smadi, A.

Spirituality, Anxiety and Depression Among People Receiving Hemodialysis Treatment in Jordan: A Cross-Sectional Study

(2020) Journal of Religion and Health, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078422825&doi=10.1007%2fs10943-020-00988-8&partnerID=40&md5=1fb142f2dbc55b37b225e9d4d695b24b>

AFFILIATIONS: Adult Health Nursing Department, Faculty of Nursing, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Department of Maternal and Child Health, Faculty of Nursing, Jordan University of Science and Technology, P.O. Box 3030, Irbid, 22110, Jordan;

Department of Community and Mental Health, Faculty of Nursing, The Hashemite University, P.O. Box 330127, Zarqa, 13133, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Airport Street, Amman, Jordan;

Faculty of Health Sciences, American University of Madaba, Amman, Jordan

ABSTRACT: Spirituality is an important factor that may mediate the detrimental impacts of hemodialysis on mental health. Lack of research examining spirituality and mental health in the Arab world in general and Jordan in particular encouraged this research. The study examined levels of spirituality, depression and anxiety and explored the association between them among patients receiving hemodialysis treatment in Jordan. A cross-sectional design was used to recruit 202 patients receiving hemodialysis treatment. Self-administered questionnaires including spiritual well-being scale, depression and anxiety and a demographic data sheet were used. The data were analyzed using SPSS and descriptive, inferential statistics and linear multivariate regression. The majority of respondents reported moderate mean levels of spirituality well-being (62.4%), while 60.9% and 80.2% scored low-to-moderate levels of depression, respectively. Only 22.3% reported moderate-to-severe anxiety levels. Increasing anxiety and number of co-morbid conditions were predictors of depression. No significant correlations were found between spirituality neither with the sample characteristics nor with depression and anxiety. It was found that depression and anxiety are common among respondents. Spirituality was of medium importance to them, yet it was not significantly associated with depression and anxiety. The implications of this study for holistic clinical practice are explored. © 2020, Springer Science+Business Media, LLC, part of Springer Nature.

Hawashin, B., Lafi, M., Kanan, T., Mansour, A.

An efficient hybrid similarity measure based on user interests for recommender systems

(2020) Expert Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071583542&doi=10.1111%2fexsy.12471&partnerID=40&md5=88253f41638fa9d6c00cf6a65941e1e3)

[85071583542&doi=10.1111%2fexsy.12471&partnerID=40&md5=88253f41638fa9d6c00cf6a65941e1e3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071583542&doi=10.1111%2fexsy.12471&partnerID=40&md5=88253f41638fa9d6c00cf6a65941e1e3)

AFFILIATIONS: Department of Computer Information Systems, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Communication and Computer Engineering, Tafila Technical University, Tafilah, Jordan

ABSTRACT: Recommender systems are used to suggest items to users based on their interests. They have been used widely in various domains, including online stores, web advertisements, and social networks. As part of their process, recommender systems use a set of similarity measurements that would assist in finding interesting items. Although many similarity measurements have been proposed in the literature, they have not concentrated on actual user interests. This paper proposes a new efficient hybrid similarity measure for recommender systems based on user interests. This similarity measure is a combination of two novel base similarity measurements: the user interest-user interest similarity measure and the user interest-item similarity measure. This hybrid similarity measure improves the existing work in three aspects. First, it improves the current recommender systems by using actual user interests. Second, it provides a comprehensive evaluation of an efficient solution to the cold start problem. Third, this similarity measure works well even when no correlated items exist between two users. Our experiments show that our proposed similarity measure is efficient in terms of accuracy, execution time, and applicability. Specifically, our proposed similarity measure achieves a mean absolute error (MAE) as low as 0.42, with 64% applicability and an execution time as low as 0.03 s, whereas the existing similarity measures from the literature achieve an MAE of 0.88 at their best; these results demonstrate the superiority of our proposed similarity measure in terms of accuracy, as well as having a high applicability percentage and a very short execution time. © 2019 John Wiley & Sons, Ltd

Sunoqrot, S., Al-Shalabi, E., Sabbah, D.A., Al-Majawleh, M., Abusara, O.H.

Remote Teaching and Learning in a Pandemic: Reflections from Chemistry Instructors at a Pharmacy School in Jordan

(2020) Journal of Chemical Education, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090974404&doi=10.1021%2facs.jchemed.0c00735&partnerID=40&md5=bd2bef887440cbef1c51f7ea3d0b1875)

[85090974404&doi=10.1021%2facs.jchemed.0c00735&partnerID=40&md5=bd2bef887440cbef1c51f7ea3d0b1875](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090974404&doi=10.1021%2facs.jchemed.0c00735&partnerID=40&md5=bd2bef887440cbef1c51f7ea3d0b1875)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: The coronavirus disease 2019 (COVID-19) pandemic is being considered one of the most challenging global crises that the world has experienced in recent history, causing ripple effects and major disruption across all aspects of our daily lives, especially education. Many countries around the world, including Jordan, have instituted shutdown of academic institutions as an early measure to curb the spread of the virus. The rapid response came at a price: Having to transition to remote teaching and learning without the proper tools and technological support. Here we present a glimpse of the efforts undertaken by chemistry instructors at a Pharmacy School in Jordan to ensure the continuity of student learning and achieve educational outcomes during these unprecedented times. By sharing our experiences, we hope to contribute to the collective insights of chemistry instructors around the world in the face of this universal struggle, so that we may all be better prepared for future disruptive events. Copyright © 2020 American Chemical Society and Division of Chemical Education, Inc.

Hamed, R., Schenck, D.M., Fiegel, J.

Surface rheological properties alter aerosol formation from mucus mimetic surfaces (2020) *Soft Matter*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090071821&doi=10.1039%2fd0sm01232g&partnerID=40&md5=16b4ad663e50671b1d87fabf0ee21483)

[85090071821&doi=10.1039%2fd0sm01232g&partnerID=40&md5=16b4ad663e50671b1d87fabf0ee21483](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090071821&doi=10.1039%2fd0sm01232g&partnerID=40&md5=16b4ad663e50671b1d87fabf0ee21483)

AFFILIATIONS: Department of Pharmaceutical Sciences and Experimental Therapeutics, University of Iowa, Iowa City, IA, United States;

Department of Chemical and Biochemical Engineering, University of Iowa, Iowa City, IA, United States; Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: The effects of surface tension and surface viscoelastic properties on the formation of aerosol droplets generated from mucus-like viscoelastic gels (mucus mimetics) during shearing with a high velocity air stream were investigated. Mucus mimetic samples were formulated with similar composition (94% water and 6% dissolved solids, consisting of mucins, proteins, and ions), surface tension (via the addition of surfactant to the mimetic surface) and bulk viscoelastic properties (via crosslinking of mucin macromolecules in the mimetic) to that of native non-diseased tracheal mucus. The surface tension of the mucus mimetic was decreased by spreading one of two surfactants, dipalmitoyl phosphatidylcholine (DPPC) or calf lung surfactant (Infasurf®), on the mimetic surface. Aerosols were generated from the mimetic surfaces during simulated coughing using an enhanced simulated cough machine (ESCM) operating under controlled environmental conditions. The size distribution of aerosol droplets generated during simulated coughing from the surfactant-coated mimetic surfaces was multimodal, while no droplets were generated from the bare mimetic surface due to its high surface viscoelastic properties and high surface tension. The concentration of aerosols generated from the DPPC-coated mimetic was higher than that of the Infasurf®-coated mimetic, even though the surface tension of the two interfaces was the same. The experimental results suggest that a balance of surface elastic behavior and surface viscous behavior is required for the generation of aerosols from the viscoelastic surfaces. This journal is © The Royal Society of Chemistry.

Buday, P., Seeber, P., Zens, C., Abul-Futouh, H., Görls, H., Gräfe, S., Matczak, P., Kupfer, S., Weigand, W., Mloston, G.

Iron(0)-Mediated Stereoselective (3+2)-Cycloaddition of Thiochalcones via a Diradical Intermediate (2020) *Chemistry - A European Journal*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088861147&doi=10.1002%2fchem.202001412&partnerID=40&md5=d5735cb21f5aaf5f3fee9774e68c9edb)

[85088861147&doi=10.1002%2fchem.202001412&partnerID=40&md5=d5735cb21f5aaf5f3fee9774e68c9edb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088861147&doi=10.1002%2fchem.202001412&partnerID=40&md5=d5735cb21f5aaf5f3fee9774e68c9edb)

AFFILIATIONS: Institute of Inorganic and Analytical Chemistry, Friedrich Schiller University Jena, Humboldtstrasse 8, Jena, 07743, Germany;

Institute of Physical Chemistry and Abbe Center of Photonics, Friedrich Schiller University Jena, Helmholtzweg 4, Jena, 07743, Germany;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Faculty of Chemistry, University of Lodz, Tamka 12, Łódź, 91403, Poland

ABSTRACT: Reactions of α,β -unsaturated aromatic thioketones 1 (thiochalcones) with $\text{Fe}_3(\text{CO})_{12}$ leading to η^4 -1-thia-1,3-diene iron tricarbonyl complexes 2, [FeFe] hydrogenase mimics 3, and the thiopyrane adduct 4 are described. Obtained products have been characterized by X-ray crystallography and by computational methods. Completely regio- and diastereoselective formation of the five-membered ring system in products 3, containing four stereogenic centers, can be explained by an unprecedented, stepwise (3+2)-cycloaddition of two thiochalcone molecules mediated by $\text{Fe}_3(\text{CO})_{12}$. Quantum chemical calculations aimed at elucidation of the reaction mechanism, suggest that the formal (3+2)-cycloaddition proceeds via sequential intramolecular radical transfer events upon homolytic cleavage of one carbon-sulfur bond leading to a diradical intermediate. © 2020 The Authors. Published by Wiley-VCH GmbH

Abd-Rabbo, M.

The naturalization of orientalism in Herman Melville's *Mardi*: Whitewashing Arabian nights?

(2020) Arab Studies Quarterly, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85112258104&doi=10.13169%2ffarabstudquar.42.4.0272&partnerID=40&md5=d10b41bb7a64fd3afcb668d4f5ea8691)

85112258104&doi=10.13169%2ffarabstudquar.42.4.0272&partnerID=40&md5=d10b41bb7a64fd3afcb668d4f5ea8691

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The nineteenth-century American novelist, Herman Melville, is oftentimes viewed as a multi-cultured innovator who possibly anticipated post-modernism. In his epic romance, *Mardi*, Melville incorporates aspects of Orientalism within a Westernized framework, thereby eroding cultural borders. This article focuses on *Arabian Nights* as one possible parent text for *Mardi* on the one hand, and on Melville's naturalization of certain Orientalist concepts in his novel on the other. Furthermore, it explores the question of whether Melville "whitewashes" the Eastern narrative to naturalize the text and thus familiarize Westerners with a foreign culture in the spirit of multi-culturalism, or whether he simply subscribes to the Orientalist stereotypes prevalent in nineteenth-century America. © 2020 Pluto Journals. All rights reserved.

Manasrah, A.A., Alkhalil, S., Masoud, M.

Investigation of multi-way forced convective cooling on the backside of solar panels

(2020) International Journal on Energy Conversion, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092479635&doi=10.15866%2ffirecon.v8i5.19516&partnerID=40&md5=dfb2ff68c4af78504194158143f9d92f)

85092479635&doi=10.15866%2ffirecon.v8i5.19516&partnerID=40&md5=dfb2ff68c4af78504194158143f9d92f

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Mechanical Engineering, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: The surface temperature of a photovoltaic panel has a major impact on its efficiency and performance. Therefore, it is essential to keep the temperatures of a photovoltaic module within an optimum operating range and avoid abnormal distribution of temperatures on the panel. This paper investigates a forced convective cooling method using different cooling paths and directions on the backside of a PV panel. The cooling paths (or patterns) have been generated using five DC power fans that have worked as inlets and outlets of coolant air. The experiments have been conducted indoors and outdoors where five cooling patterns have been studied. The results have showed that certain cooling patterns have generated a significant decrease in surface temperatures between 27.5% and 32.8% with a uniform distribution of temperatures while other cooling patterns have only ranged between 12.5% and 17% and non-uniform distribution of temperatures. The results have also showed similarities between the indoor and the outdoor experiment results in terms of electrical and thermal efficiencies, power output, and best pattern types. © 2020 Praise Worthy Prize S.r.l.-All rights reserved.

Al-Fawaeer, M., Alkhatib, A.W.

The effect of emotional intelligence of operational team leaders on the performance of team members

(2020) Research in World Economy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092458792&doi=10.5430%2frwe.v11n5p266&partnerID=40&md5=ab641f5db58b775458a0fdfa0a3b6628)

85092458792&doi=10.5430%2frwe.v11n5p266&partnerID=40&md5=ab641f5db58b775458a0fdfa0a3b6628

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study is aimed at identifying the effect of emotional intelligence with its dimensions (self-awareness, self-regulation, empathy, motivation, and social skills) on the performance of working teams with its dimensions (task performance, contextual performance, and counterproductive performance) among employees on the operational lines of industrial companies operating in the Jordanian city of Sahab. The analysis is limited to employees in those companies, and the questionnaire is used as a data collection tool, taking a simple random sample to represent the study population. In addition to the analysis of 216 questionnaires, the SPSS program is used as a data analysis tool in the study. The study emphasizes the importance of emotional intelligence dimensions for operational team leaders, especially motivation and social skills dimensions because they have a higher effect on the task performance and contextual performance levels, while all dimensions of emotional intelligence have a negative effect on counterproductive performance for operational team members. © 2020 Sciedu Press.

Sunoqrot, S., Alfaraj, M., Hammad, A.M., Kasabri, V., Shalabi, D., Deeb, A.A., Ibrahim, L.H.,

Shnewer, K., Yousef, I.

Development of a thymoquinone polymeric anticancer nanomedicine through optimization of polymer molecular weight and nanoparticle architecture

(2020) Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092330089&doi=10.3390%2ffarmaceutics12090811&partnerID=40&md5=e8b3de6c827bf6c380a8c62e48c0a382)

85092330089&doi=10.3390%2ffarmaceutics12090811&partnerID=40&md5=e8b3de6c827bf6c380a8c62e48c0a382

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Smart Medical Labs, Amman, 11180, Jordan

ABSTRACT: Thymoquinone (TQ) is a water-insoluble natural compound isolated from *Nigella sativa* that has demonstrated promising chemotherapeutic activity. The purpose of this study was to develop a polymeric nanoscale formulation for TQ to circumvent its delivery challenges. TQ-encapsulated nanoparticles (NPs) were fabricated using methoxy poly(ethylene glycol)-b-poly(ϵ -caprolactone) (mPEG-PCL) copolymers by the nanoprecipitation technique. Formulation variables included PCL chain length and NP architecture (matrix-type nanospheres or reservoir-type nanocapsules). The formulations were characterized in terms of their particle size, polydispersity index (PDI), drug loading efficiency, and drug release. An optimized TQ NP formulation in the form of oil-filled nanocapsules (F2-NC) was obtained with a mean hydrodynamic diameter of 117 nm, PDI of 0.16, about 60% loading efficiency, and sustained in vitro drug release. The formulation was then tested in cultured human cancer cell lines to verify its antiproliferative efficacy as a potential anticancer nanomedicine. A pilot pharmacokinetic study was also carried out in healthy mice to evaluate the oral bioavailability of the optimized formulation, which revealed a significant increase in the maximum plasma concentration (C_{max}) and a 1.3-fold increase in bioavailability compared to free TQ. Our findings demonstrate that the versatility of polymeric NPs can be effectively applied to design a nanoscale delivery platform for TQ that can overcome its biopharmaceutical limitations. © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

Qader, A.A., Awad, K.

A novel reservation model based on intelligent requirement elicitation technique using SVM classifier (2020) ICIC Express Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091037973&doi=10.24507%2f14.09.845&partnerID=40&md5=e59f6e70be05992e61adbaa7a3e03b78)

[85091037973&doi=10.24507%2f14.09.845&partnerID=40&md5=e59f6e70be05992e61adbaa7a3e03b78](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091037973&doi=10.24507%2f14.09.845&partnerID=40&md5=e59f6e70be05992e61adbaa7a3e03b78)

AFFILIATIONS: Department of Software Engineering, Al-Zaytoonah University of Jordan, P.O.Box 130, Airport Street, Amman, 11733, Jordan

ABSTRACT: Most of reservation systems are working on traditional methods and they are user dependent. The requirements engineering process (REP) in these systems also works based on traditional elicitation methods to build the user interface reservation system. These traditional methods are aimed to ensure that systems meet the needs of stakeholders including users, sponsors, and customers. Most reservation systems are based on traditional requirements that meet the stakeholder's needs as they entered the systems. This makes the novel users face some problems relative to their choices in reservation and mostly they did not select the optimal solution. This research proposed a new reservation model based on intelligent requirements elicitation features; these features are stored in a predefined dataset in order to be used in classification process. The support vector machine (SVM) classifier is used to speed up the classification process of finding the optimal solution based on trained intelligent reservation system. The proposed model shows significant improvements in the reservation system based on intelligent feature requirements. The intelligent reservation system is implemented and tested on Al-Zaytoonah University halls and classrooms for reservations of different lectures and meetings. The proposed model shows significant results with high accuracy. © 2020 ICIC International.

Akour, A.

Probiotics and COVID-19: is there any link?

(2020) Letters in Applied Microbiology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088096731&doi=10.1111%2f14.13334&partnerID=40&md5=2f99dede3c19389ea6de638cf201c7d1)

[85088096731&doi=10.1111%2f14.13334&partnerID=40&md5=2f99dede3c19389ea6de638cf201c7d1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088096731&doi=10.1111%2f14.13334&partnerID=40&md5=2f99dede3c19389ea6de638cf201c7d1)

AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, The School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Understanding mechanisms of the novel SARS-CoV2 infection and progression can provide potential novel targets for prevention and/or treatment. This could be achieved via the inhibition of viral entry and/or replication, or by suppression of the immunologic response that is provoked by the infection (known as the cytokine storm). Probiotics are defined as 'live microorganisms that, when administered in adequate amounts, confer a health benefit on the host'. There is scarcity of evidence about the relationship between COVID-19 and gut microbiota. So, whether or not these supplements can prevent or ameliorate COVID-19-associated symptoms is not fully understood. The aim of this study is to provide an indirect evidence about the utility of probiotics in combating COVID-19 or its associated symptoms, through the review of its antiviral and anti-inflammatory properties in vitro, animal models and human trials. Significance and Impact of the Study: The role of probiotics in alleviation of the novel COVID-19 has not been established. This review provides an insight about the anti-inflammatory, antiviral effects of probiotics in vitro, animal models and human. The latter can provide an indirect evidence and/or hypothesis-driven approach to investigate the use of probiotics as adjunctive therapy in the prophylaxis and/or alleviation of COVID-19 symptoms. © 2020 The Society for Applied Microbiology

Alshraifeen, A., Al-Rawashdeh, S., Alnuaimi, K., Alzoubi, F., Tanash, M., Ashour, A., Al-Hawamdih, S., Al-Ghabeesh, S.

Social support predicted quality of life in people receiving haemodialysis treatment: A cross-sectional survey

(2020) Nursing Open, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086041622&doi=10.1002%2fnop2.533&partnerID=40&md5=7c1097ea4c7ddd550f006b25a6dc6ed8)

[85086041622&doi=10.1002%2fnop2.533&partnerID=40&md5=7c1097ea4c7ddd550f006b25a6dc6ed8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086041622&doi=10.1002%2fnop2.533&partnerID=40&md5=7c1097ea4c7ddd550f006b25a6dc6ed8)

AFFILIATIONS: Adult Health Nursing Department, Faculty of Nursing, The Hashemite University, Zarqa, Jordan;

Department of Community and Mental Health, Faculty of Nursing, The Hashemite University, Zarqa, Jordan;

Department of Maternal and Child Health, Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan;

Department of Community and Mental Health Nursing, Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan;

Faculty of Nursing, Isra University, Amman, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Aims: To examine levels of social support and quality of life (QOL) and to examine the association between social support and QOL in patients receiving haemodialysis (HD) treatment.

Design: A cross-sectional study. Method: social support and QOL were measured using the Multidimensional Scale of Perceived social Support (MSPSS) and the World Health Organization QOL-BREF questionnaires, respectively. A convenience sample of 195 patients receiving HD from different dialysis units across Jordan completed the questionnaires. Results: Respondents scored highest on the social relationships domain of QOL (55.5 SD 21.4) compared with the lowest mean scores of the physical and environmental domains (48.6 SD 20.4; 46.2 SD 17.3, respectively). social support had a positive significant association with quality of life. Multiple linear regression identified age and social support as influencing factors, explaining 24.6% of the total variance in the social domain of quality of life. Understanding the relationship between social support and QOL in patients receiving HD may provide guidance to the healthcare providers, family members and social services about the importance of social support to this group of patients. © 2020 The Authors. Nursing Open published by John Wiley & Sons Ltd

Hailat, M., Al-Shdefat, R.I., Muflih, S.M., Ahmed, N., Attarabeen, O., Alkhateeb, F.M., Al Meanazel, O., Gassar, E.S.

Public knowledge about dosage forms, routes of drug administration and medication proper storage conditions in Riyadh District, Saudi Arabia

(2020) Journal of Pharmaceutical Health Services Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085218414&doi=10.1111%2fjphs.12359&partnerID=40&md5=d0e7fcdfdf3f292aec81b7967102cbe1f)

[85085218414&doi=10.1111%2fjphs.12359&partnerID=40&md5=d0e7fcdfdf3f292aec81b7967102cbe1f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085218414&doi=10.1111%2fjphs.12359&partnerID=40&md5=d0e7fcdfdf3f292aec81b7967102cbe1f)

AFFILIATIONS: College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutical Sciences, Jadara University, Irbid, Jordan;

College of Pharmacy, Clinical Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Clinical Pharmacy, College of Pharmacy, Prince Sattam Bin Abul-Aziz University, Alkharj, Saudi Arabia;

Department of Pharmacy Practice, Administration and Research, School of Pharmacy, Marshall University, Huntington, WV, United States;

and Associate Dean for Academic Affairs, Qatar University, College of Pharmacy, Doha, Qatar;

Department of Pharmaceutics, Faculty of pharmacy, King Saud University, Saudi Arabia;

Physiology Department, Faculty of Medicine, University of Benghazi, Benghazi, State of Libya

ABSTRACT: Objectives: The purpose of this study was to assess public knowledge on the safety, efficacy, proper storage conditions and other physiochemical properties of different dosage forms. Methods: This study was based on a cross-sectional design. A structured quantitative survey, which included five sections, was used as an instrument for data collection. The first section addressed the demographic characteristics of the sample, whereas the second section assessed public knowledge on medications. The third section inquired about participants' preferred dosage forms. The fourth section was related to the perceived effects of physiochemical properties of medicines on their safety and efficacy. The fifth section addressed participants' thoughts on appropriate ways for medications usage and storage. A total of 752 participants completed the questionnaire. Data were analysed using SPSS (20.0) software. Key findings: Although our study findings pointed out some knowledge gaps based on participants' answers, most of the participants (87%) reported that physicians or pharmacists were the main sources of their medicine-related information. There was a great variation in participants' responses regarding perceived onset of action, proper storage conditions and other properties of different dosage forms. Conclusion: The study findings demonstrated the need to educate the public about basic information related to different dosage forms

of medications. © 2020 Royal Pharmaceutical Society

Jarrar, Y.B., Shin, J.-G., Lee, S.-J.

Identification and functional characterization of CYP4V2 genetic variants exhibiting decreased activity of lauric acid metabolism

(2020) Annals of Human Genetics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084516312&doi=10.1111%2fahg.12388&partnerID=40&md5=f9c55f998a3bc47fed084b533d5bd15f)

[85084516312&doi=10.1111%2fahg.12388&partnerID=40&md5=f9c55f998a3bc47fed084b533d5bd15f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084516312&doi=10.1111%2fahg.12388&partnerID=40&md5=f9c55f998a3bc47fed084b533d5bd15f)

AFFILIATIONS: Department of Pharmacology and Pharmacogenomics Research Center, Inje University College of Medicine, Inje University, Busan, South Korea;

Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacology, Inje University College of Medicine, Inje University, Busan, South Korea

ABSTRACT: The objectives of the present study were to identify CYP4V2 genetic variants and characterize their functional consequences. A total of 26 CYP4V2 genetic variants were identified, including seven novel variants in 60 randomly selected healthy subjects. Six protein-coding variants were studied, including three novel variants (L22V, R287T, and G410C) and three previously reported variants (R36S, Q259K, and H331P). The cDNA sequences encoding each amino acid variant and the wild-type CYP4V2 protein were cloned into the pcDNA/PDEST40 expression vector and transfected into eukaryotic 293T cells for overexpression of the CYP4V2 coding variants. CYP4V2 H331P and CYP4V2 G410C exhibited significant decreases in activity for lauric acid oxidation (20–30% of wild-type activity), when compared to the wildtype, which was correlated with low expression of CYP4V2 H331P and G410C substituted proteins. The other four CYP4V2 amino variants were comparable to wild-type CYP4V2 for lauric acid metabolism. The CYP4V2 H331P and G410C substitutions were predicted to cause a structural change through in silico analysis. In conclusion, the present study provides functional information about CYP4V2 genetic variants. These findings will be valuable for interpreting individual variations in phenotypes associated with CYP4V2 function in the clinical setting. © 2020 John Wiley & Sons Ltd/University College London

Sharour, L.A.

Oncology nurses' knowledge about exploring chemotherapy related - Extravasation care: A cross-sectional study

(2020) Clinical Epidemiology and Global Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078527190&doi=10.1016%2fj.cegh.2020.01.019&partnerID=40&md5=b30725893c7044e53baf9dfa1cf89269)

[85078527190&doi=10.1016%2fj.cegh.2020.01.019&partnerID=40&md5=b30725893c7044e53baf9dfa1cf89269](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078527190&doi=10.1016%2fj.cegh.2020.01.019&partnerID=40&md5=b30725893c7044e53baf9dfa1cf89269)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, P.O. Box, 130 Amman11733, Jordan

ABSTRACT: Introduction: can cause significant tissue damage; alter limb function, pain and decreasing quality of life. Nurses play a significant role in the prevention, identification and follow-up of the complications. Objectives: This study was conducted to evaluate the oncology nurses' knowledge about chemotherapy related - extravasation injuries, risk factors, preventive measures, and management practices. Methods: A descriptive cross-sectional design with a convenience sample was used. A sample of 110 oncology nurses completed the knowledge test. European Society for Medical Oncology (ESMO) - European Oncology Nursing Society (EONS) management of chemotherapy extravasation Clinical practice guidelines were used to develop the knowledge test. Results: The oncology nurses' knowledge of chemotherapy related-extravasation's definition and signs and symptoms was satisfactory. However, knowledge about risk factors was limited. Generally, the results showed that high percentage of the participants had correct information regarding the procedure domain. However, knowledge deficit regarding site of insertion, and cannula characteristics were reported. The results showed that there was knowledge deficit among the participants regarding all specific treatment practices. Conclusions: The current study provides a baseline data about oncology nurses knowledge and practice regarding chemotherapy related-extravasation care. Continues education, seminars, and workshops should be conducted for oncology nurses to increase their knowledge and strengthen their competencies. © 2020 INDIACLEN

Abdallah, M., Muhairat, M., Althunibat, A., Abdalla, A.

Big data quality factors, frameworks and challenges

(2020) Compusoft, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103992915&partnerID=40&md5=1227d31987a9dedff4e28b17f4d3ad1b)

[85103992915&partnerID=40&md5=1227d31987a9dedff4e28b17f4d3ad1b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103992915&partnerID=40&md5=1227d31987a9dedff4e28b17f4d3ad1b)

AFFILIATIONS: Software Engineering Department, Al-Zaytoonah University of Jordan, Jordan;

Computer Science Department, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Big Data applications are widely used in many fields such as artificial intelligence, marketing, commercial applications and health care, as demonstrated by the role of Big Data in coping with the COVID-19 pandemic. Therefore, it is essential to ensure the quality of the generation and use of Big Data applications. Consequently, Big Data applications must satisfy quality factors suited

for these applications. Furthermore, quality frameworks need to be applied and tested for the quality factors of Big Data applications. Nevertheless, the quality measurement process needs to overcome some challenges for it to become applicable and trustworthy. This research lists different quality factors and dimensions and describes quality frameworks that are commonly used to measure the quality of Big Data. Furthermore, it lists the frequent challenges that researchers and data scientists face throughout the Big Data quality measurement process. Finally, it outlines the solutions that need to be developed for confronting the challenges of Big Data quality. © 2020 National Institute of Science Communication and Information Resources (NISCAIR). All rights reserved.

Sharour, L.A.

Cancer-Related Fatigue, Laboratory Markers as Indicators for Nutritional Status among Patients with Colorectal Cancer

(2020) Nutrition and Cancer, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074008404&doi=10.1080%2f01635581.2019.1669674&partnerID=40&md5=1c1c214cfe90adbf43fc5d29dfed8209)

[85074008404&doi=10.1080%2f01635581.2019.1669674&partnerID=40&md5=1c1c214cfe90adbf43fc5d29dfed8209](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074008404&doi=10.1080%2f01635581.2019.1669674&partnerID=40&md5=1c1c214cfe90adbf43fc5d29dfed8209)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Our objective was to determine the relationship between cancer-related fatigue (CRF), laboratory markers, and nutritional status among patients with colorectal cancer (CRC). A cross-sectional design was used. A sample of 80 participants diagnosed with CRC participated and completed the study's surveys including the patient-generated subjective global assessment (PG-SGA), cancer fatigue scale (CFS), laboratory markers sheet, and patient-related factors sheet. Positive relationships were identified between PG-SGA and CRF, physical fatigue, cognitive fatigue, WBC, and calcium level ($r = 0.781, 0.820, 0.751, 0.680, \text{ and } 0.710$; $P = 0.001$ respectively). Negative relationships were found between PG-SGA and sodium, potassium, and hemoglobin levels ($r = -0.801, -0.761, \text{ and } -0.810$; $P = 0.001$ respectively). The regression analysis revealed an $R^2 = 0.610$ (adjusted $R^2 = 0.590$), $F(4.58, P < 0.001)$. Finally, the above-mentioned independent variables accounted for 61.0% of the variance in PG-SGA. Patients with CRC are experiencing nutritional problems during their treatment. Cancer-related fatigue and other laboratory markers are considered indicators for nutritional status. Clinical dietitians and oncology nurses can work together to monitor these parameters and provide clinical treatment when needed. © 2019, © 2019 Taylor & Francis Group, LLC.

Sunogrot, S., Mahmoud, N.N., Ibrahim, L.H., Al-Dabash, S., Raschke, H., Hergenröder, R.

Tuning the Surface Chemistry of Melanin-Mimetic Polydopamine Nanoparticles Drastically Enhances Their Accumulation into Excised Human Skin

(2020) ACS Biomaterials Science and Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090494664&doi=10.1021%2facsbmaterials.0c00196&partnerID=40&md5=4c1dc60d829fc921dad54dc1b2e7bd5d)

[85090494664&doi=10.1021%2facsbmaterials.0c00196&partnerID=40&md5=4c1dc60d829fc921dad54dc1b2e7bd5d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090494664&doi=10.1021%2facsbmaterials.0c00196&partnerID=40&md5=4c1dc60d829fc921dad54dc1b2e7bd5d)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Leibniz-Institut für Analytische Wissenschaften - ISAS - E.V., Dortmund, 44139, Germany

ABSTRACT: Melanin-mimetic polydopamine nanoparticles (PDA NPs) are emerging as promising candidates for topical and transdermal drug delivery because they mimic melanin, a naturally occurring skin pigment. However, our knowledge of their interactions with human skin remains limited. Hence, we set out to investigate the role of PDA NP surface chemistry in modulating their skin deposition. PDA NPs were synthesized by base-catalyzed oxidative self-polymerization of dopamine and functionalized with poly(ethylene glycol) (PEG) bearing different termini to obtain neutral, anionic, cationic, and hydrophobic PEGylated NPs. NPs were characterized by dynamic light scattering, transmission electron microscopy, Fourier transform-infrared spectroscopy, and X-ray photoelectron spectroscopy. The NPs were then labeled with rhodamine B, and their skin interactions were investigated both in vitro, using a Strat-M membrane, and ex vivo, using excised whole thickness human skin. In vitro diffusion studies revealed that the NPs did not permeate transdermally, rather the NPs accumulated in the Strat-M membrane after 24 h of incubation. Membrane deposition of the NPs showed a strong dependence on surface chemistry, with anionic (unmodified and carboxyl-terminated PEGylated) NPs achieving the highest accumulation, followed by neutral and cationic NPs, whereas hydrophobic NPs achieved the lowest degree of accumulation. In ex vivo permeation studies, we observed that surface modification of PDA NPs with PEG serving as an antifouling coating is essential to maintaining colloidal stability upon skin contact. Moreover, anionic PEGylated NPs were able to achieve 78% skin accumulation, which was significantly higher than neutral and cationic NPs (51 and 34% accumulation, respectively). Our findings provide important insights into the role of surface chemistry in enhancing the skin accumulation of melanin-mimetic PDA NPs as potential sunscreens and carriers for skin-targeted treatments. © 2020 American Chemical Society.

Al-Zoubi, H., Alzaareer, H., Hamadneh, T., Al Rawajbeh, M.

Tubes of coordinate finite type Gauss map in the euclidean 3-space

(2020) Indian Journal of Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105284354&partnerID=40&md5=3331b7316e8ba0031cd55810dc8dbd6d>

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In this paper, we consider tubes in the Euclidean 3-space whose Gauss map n is of coordinate finite I-type, i.e., the position vector n satisfies the relation $\Delta I n = \Lambda n$, where ΔI is the Laplace operator with respect to the first fundamental form I of the surface and Λ is a square matrix of order 3. We show that circular cylinders are the only class of surfaces mentioned above of coordinate finite I-type Gauss map. © 2020 Allahabad Mathematical Society.

Hammad, M.A., Salas, A.H., El-Tantawy, S.A.

New method for solving strong conservative odd parity nonlinear oscillators: Applications to plasma physics and rigid rotator
(2020) AIP Advances, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090856550&doi=10.1063%2f5.0015160&partnerID=40&md5=8a8c8e590f9fd6c76d8738617f3f95f3>

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; Department of Mathematics, Universidad Nacional de Colombia-Nubia Campus, Department of Mathematics and Statistics, FIZMAKO Research Group, Bogotá, 111321, Colombia; Research Center for Physics (RCP), Department of Physics, Faculty of Science and Arts, Al-Mikhwah, Al-Baha University, Al-Baha, 1988, Saudi Arabia;

Department of Physics, Faculty of Science, Port Said University, Port Said, 42521, Egypt

ABSTRACT: In the present work, a new method for solving a strong nonlinear oscillator equation of the form $\ddot{x} + F(x) = 0$, where $F(-x) = -F(x)$, is carried out. This method consists of approximating function $F(x)$ by means of a suitable Chebyshev polynomial: $F(x) \approx P(x) = px + qx^3 + rx^5$, and then, the original oscillator is replaced by the cubic-quintic Duffing equation $\ddot{x} + px + qx^3 + rx^5 = 0$ with arbitrary initial conditions, which admits the exact solution in terms of elliptic functions. The efficacy of the present method is demonstrated through the fluid multi-ion plasma equations and a generalized pendulum problem. For the generalized pendulum problem, the governing motion is directly reduced to the cubic-quintic Duffing oscillator with the help of the Chebyshev polynomial, and the approximate analytical and exact solutions are obtained. In addition, the comparison between our solutions and the Runge-Kutta numerical solution is examined. Moreover, the periodic time formula of the oscillations for both the approximate analytical solution and the exact solution is deduced, and the comparison between them is implemented. With respect to the plasma application, the fluid plasma equations of its particles are reduced to the Extended Korteweg-de Vries (EKdV) equation utilizing a reductive perturbation method. Then, we proved for the first time that any undamped polynomial oscillator of the n th degree can be reduced to a $(2n - 1)$ th odd parity Duffing. Accordingly and after applying the previous theory to the EKdV equation, it was converted to the cubic-quintic Duffing equation. Finally, we can deduce that our new solutions and theory help us to understand and investigate many nonlinear phenomena in various branches of science. © 2020 Author(s).

Kharshid, A.M., Sulaiman, S.A.S., Saadh, M.J., Barakat, H., Al-Ani, I.H., Awad, R.M., Hailat, M.M., Dayyih, W.A.

Knowledge, Attitudes, and perceptions of healthcare professionals towards early referral and using statins in non-dialysis CKD Patients
(2020) Systematic Reviews in Pharmacy, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090484751&doi=10.31838%2f5srp.2020.7.69&partnerID=40&md5=854aa264c760ee3354a8c6be1c862c0e>

AFFILIATIONS: Faculty of Pharmacy, Mutah University, Amman, Jordan;

Department of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Penang, Malaysia;

Faculty of Pharmacy, Middle East University, Amman, Jordan;

Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of this study is assessing Healthcare Professionals (HCPs) knowledge on Chronic Kidney Disease (CKD) and inspecting their attitude regarding referral and perceptions towards statins use in non-dialysis CKD patients. A cross-sectional design was employed using a self-administered questionnaire that was constructed and validated before the study. The questionnaire was distributed to HCPs at two accredited hospitals. A total of 187 individuals including, 48.1% were pharmacists, 40.6% were physicians, and 11.2% were medical students. Female respondents slightly exceeded males, 56.7% vs. 43.3% respectively. Thirty-nine percent of study participants chose medical journals as their fundamental source for updated CKD information. More than 87% of respondents reported that the available CKD Continuing Medical Education (CME) programs are not sufficient. Almost 93% of participants appreciated the benefit of early referral of CKD patients to a nephrologist and 84.5%

believed that non-dialysis CKD patients might benefit from using statins. The overall knowledge of participants was average with no significant differences in overall knowledge scores based on their age, gender, profession, experience or monthly salary. In conclusion, HCPs hold a positive attitude towards the early referral of CKD patients to nephrologists and appreciate the considerable value of statins use in improving CKD patients' outcomes. © 2020 EManuscript Technologies. All rights reserved.

Zaid, A.A., Barakat, M., Al-Qudah, R.A., Albetawi, S., Hammad, A.

Knowledge and awareness of community toward COVID-19 in Jordan: A cross-sectional study

(2020) Systematic Reviews in Pharmacy, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090464388&doi=10.31838%2fsrp.2020.7.22&partnerID=40&md5=b56c7dbbe4d5ec67e0d4669e5fd3194f)

[85090464388&doi=10.31838%2fsrp.2020.7.22&partnerID=40&md5=b56c7dbbe4d5ec67e0d4669e5fd3194f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090464388&doi=10.31838%2fsrp.2020.7.22&partnerID=40&md5=b56c7dbbe4d5ec67e0d4669e5fd3194f)

AFFILIATIONS: Applied Science Department, Al- Balqa Applied University, Aqaba, Jordan;

Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Applied Science Department, Al- Balqa' Applied University, Aqaba, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: The behavior of the general public in Jordan will likely have an important effect on the how the coronavirus disease 2019 (COVID-19) epidemic spreads. Human behavior is influenced by people's knowledge and awareness. The aim of the study is to determine the knowledge and awareness of COVID-19 among the general public in Jordan. Method: Cross-sectional online survey conducted between March 17 and March 23, 2020. A sample of 3,791 adults in Jordan who were representative of the general population by gender, age, occupation, marital status, employment status and educational level. Measurements: Response to 23 survey questions. Results: Participants generally had satisfactory knowledge of the main mode of disease transmission and the common symptoms of COVID-19, as half of the participants confirmed that transmission is via droplets from sneezing or coughing and from contaminated surfaces. In addition, most (77%) of the respondents stated that more than one category could be at high risk of complications from COVID-19, including the elderly, people with weak immune systems, those with heart problems, and diabetic patients. However, a substantial proportion of participants had misconceptions about how to prevent infection. For instance, about 80% of participants thought that wearing a mask was effective in protecting them from acquiring COVID-19. Conclusion: These findings can guide government information campaigns that will be covered by media. Rapid online surveys could be an important tool in tracking the public's knowledge and misperceptions of COVID-19 over time. © 2020 EManuscript Technologies. All rights reserved.

Subih, M., AlBarmawi, M., Bashir, D.Y., Jacoub, S.M., Sayyah, N.S.

Correlation between quality of life of cardiac patients and caregiver burden

(2020) PLoS ONE, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85089057239&doi=10.1371%2fjournal.pone.0237099&partnerID=40&md5=5f253991f462428db428cf8dc8b6114d)

[85089057239&doi=10.1371%2fjournal.pone.0237099&partnerID=40&md5=5f253991f462428db428cf8dc8b6114d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85089057239&doi=10.1371%2fjournal.pone.0237099&partnerID=40&md5=5f253991f462428db428cf8dc8b6114d)

AFFILIATIONS: School of Nursing-Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan

ABSTRACT: Background Caregivers experience high strain related to care giving. There is increasing interest in examining the caregiver burden of cardiac patients and studying the characteristics of caregivers. Purpose To explore the correlation between quality of life cardiac patients and caregiver's burden. Methods A cross-sectional design using a convenience sample of caregivers and patients with cardiac conditions. Sociodemographic sheet, Dutch Objective Burden Inventory (DOBI), and Quality of Life (QLI-Cardiac 4). Linear regression was used to explore the predictors. Results 200 caregivers and 200 patients with cardiac diseases completed the study. The overall mean scores of both DOBI and QLI-4 indicated moderate results 1.51(SD 0.4), 19.8 (SD 4.7) respectively. Predictors of caregiver burden were young, less educated caregivers and high QoL of cardiac patients. Conclusion Caregivers should receive more support and training from healthcare providers to develop their coping and resilience skills in a way that decreases their care burden and improves their quality of care and self-confidence. © 2020 Subih et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abd-Alhamid, F., Kent, M., Calautit, J., Wu, Y.

Evaluating the impact of viewing location on view perception using a virtual environment

(2020) Building and Environment, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087199030&doi=10.1016%2fj.buildenv.2020.106932&partnerID=40&md5=f6f7f8a8c0be03aae5312dfed63f8b79)

[85087199030&doi=10.1016%2fj.buildenv.2020.106932&partnerID=40&md5=f6f7f8a8c0be03aae5312dfed63f8b79](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087199030&doi=10.1016%2fj.buildenv.2020.106932&partnerID=40&md5=f6f7f8a8c0be03aae5312dfed63f8b79)

AFFILIATIONS: Department of Architecture and Built Environment, Faculty of Engineering, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom;

Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Berkeley Education Alliance for Research in Singapore, Singapore

ABSTRACT: Window views are an important design feature in buildings. Views can impact the cognitive attention, psychological and physiological well-being of building occupants due to their ability to provide recovery in stressful working environments. The impact of viewing position on view perception as a result of the visual parallax effect resulted from occupants seeing a window from different relative positions in any given room has not been comprehensively investigated. In this study, view perception was evaluated using a physically-based 360° virtual environment at three different viewing locations: close, middle, and far. The three conditions were presented to thirty-two participants. The study employed a comprehensive method by collecting subjective and physiological evaluations. A stress-recovery methodology to assess restorativeness effects was used by presenting a window view observing period after a stressful task was performed. Subjective assessments included questions on view restorative ability, view content and size preferences, view valance/arousal, and positive and negative affects. Physiological measures included skin conductance, heart rate, and heart rate variability. Results showed significant differences in subjective parameters and measures of skin conductance. Decreased view quality was reported as participants observed the view from the further viewing locations compared to the close position. The study highlights the importance of the informative content seen in the window view such as the sky and ground, which may impose limitations on recommended room depth and windows design. The results of this study show that the design of window views has important implications on the health and well-being of building occupants. © 2020 The Authors

Mahmoud, I.S., Jarrar, Y.B., Alshaer, W., Ismail, S.

SARS-CoV-2 entry in host cells-multiple targets for treatment and prevention
(2020) Biochimie, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085772600&doi=10.1016%2fj.biochi.2020.05.012&partnerID=40&md5=2487ed39493b96d740017adc73bcecac)

85085772600&doi=10.1016%2fj.biochi.2020.05.012&partnerID=40&md5=2487ed39493b96d740017adc73bcecac
AFFILIATIONS: Department of Medical Laboratory Sciences, The Hashemite University, Zarqa, 13133, Jordan;

Department of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan;

Cell Therapy Center, The University of Jordan, Amman, 11942, Jordan;

Faculty of Medicine, The University of Jordan, Amman, 11942, Jordan;

Qatar Genome Project, Qatar Foundation, Doha, Qatar

ABSTRACT: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a new viral disease that has gained global attention owing to its ability to provoke community and health-care-associated outbreaks of severe infections in human populations. The virus poses serious challenges to clinical management because there are still no approved anti- SARS-CoV-2 drugs available. In this mini-review, we summarize the much updated published reports that demonstrate the mechanism of SARS-CoV-2 entry into host cells, and discuss the availability and development of attractive host-based therapeutic options for SARS-CoV-2 infections. © 2020 Elsevier B.V. and Société Française de Biochimie et Biologie Moléculaire (SFBBM)

Mahmoud, N.N., Hamed, R., Khalil, E.A.

Colloidal stability and rheological properties of gold nanoparticle-loaded polymeric hydrogels: impact of nanoparticle's shape, surface modification, and concentration
(2020) Colloid and Polymer Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085144961&doi=10.1007%2fs00396-020-04659-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085144961&doi=10.1007%2fs00396-020-04659-8&partnerID=40&md5=9dcf4310e974bf4b29f2cde24061dc84)

8&partnerID=40&md5=9dcf4310e974bf4b29f2cde24061dc84
AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Gold nanorods (GNR) and gold nanospheres (GNS) of different surface charges; neutral -poly ethylene glycol (PEG), negatively charged poly acrylic acid (PAA), and positively charged poly allyl amine hydrochloride (PAH), were synthesized and characterized, and their colloidal stability was investigated using UV-Vis absorption spectra and zeta potential measurements. Gold nanoparticles (GNP) were loaded at different concentrations (from 1.0 to 6.0 nM) into two hydrogels prepared in water; 18% w/v Poloxamer 407 and 1.5% w/v hydroxypropyl methylcellulose (HPMC). The GNP hydrogels were characterized in terms of GNP colloidal stability, and the rheological properties of the GNP hydrogels. GNP loaded into HPMC hydrogel demonstrated poor stability and exhibited separation into two layers. On the contrary, colloidal stability of the GNP was preserved upon loading into Poloxamer 407 hydrogel. The rheology study demonstrates that Poloxamer 407 hydrogel was able to accommodate GNR or GNS at concentrations lower than 6.0 nM with no apparent change in the measured rheology parameters. PAH-coated GNP caused the largest decrease in the low shear rate viscosity values. The elastic modulus was higher than the viscous modulus at the entire concentration range and the values of the phase shift angle did not exceed 10 degrees indicating prevail elastic property. As a

conclusion, Poloxamer 407 hydrogel is a good candidate as a topical vehicle for both GNR and GNS at concentrations lower than 6.0 nM. © 2020, Springer-Verlag GmbH Germany, part of Springer Nature.

Alrawashdeh, T.A., Elbes, M.W., Almomani, A., ElQirem, F., Tamimi, A.

User acceptance model of open source software: an integrated model of OSS characteristics and UTAUT (2020) Journal of Ambient Intelligence and Humanized Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074362949&doi=10.1007%2fs12652-019-01524-7&partnerID=40&md5=88790016954e3c4f26af155224bd63a8>

AFFILIATIONS: Department of Software Engineering, Alzaytoonah University of Jordan, Amman, Jordan; Department of Computer Science, Alzaytoonah University of Jordan, Amman, Jordan; IT-Department, Al-Huson University College, Al-Balqa Applied University, Irbid, Jordan; Department of Multimedia, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Globally, the acceptance of Open Source Software (OSS) varies among the users of a company. Despite the substantive software, social, and infrastructure-related implications of OSS acceptance, the research on the acceptance of OSS across organizations inhabitants remains surprisingly limited. To propose a model for the acceptance of OSS; investigate the influence of the OSS characteristics, UTAUT constructs, and infrastructure factors on the acceptance of open source software system. It also examines the validity of UTAUT in the open source software context. Quantitative design has been used following the distribution of questionnaire among a sample of 255 individuals employed at public and private organizations (172 males and 83 females). Software quality, software interoperability, and software security had a significant impact on the performance expectancy (PE) ($\beta = 0.445$, $P < 0.001$), ($\beta = 0.302$, $P < 0.001$), ($\beta = 0.139$, $P < 0.05$), respectively. Moreover, PE, cost, facilitating conditions, social influence SI and self-efficacy had a notable impact on the behavioral intention ($\beta = 0.275$, $P < 0.05$), ($\beta = 0.229$, $P < 0.01$), ($\beta = 0.136$, $P < 0.01$), ($\beta = 0.220$, $P < 0.01$) and ($\beta = 0.174$, $P < 0.01$) respectively. A new path appears to exist between EE (effort expectancy) and PE ($\beta = 0.215$, $P < 0.01$). The outcomes indicated that users perceive that OSS user-friendliness must be upgraded for optimizing its benefits. It showed that performance expectancy, effort expectancy, social influence, self-efficacy, software security, software quality, software interoperability, and software cost are important indicators in the acceptance and implementation of OSS. Further research can be conducted in organizations to observe the implementation of OSS and its effectiveness. © 2019, Springer-Verlag GmbH Germany, part of Springer Nature.

Al-Qawabah, S., Mostafa, A., Al-Rawajfeh, A., Al-Qawabeha, U.

Effect of Heat Treatment on the Grain Size, Microhardness and Corrosion Behavior of the Cold-Working Tool Steels Aisi D2 and Aisi 01

(2020) Materiali in Tehnologije, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098576126&doi=10.17222%2fmit.2020.035&partnerID=40&md5=bf0ef6860564e188b3c021d2da46feea>

AFFILIATIONS: Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan; Mechanical Engineering Department, Tafila Technical University, Tafila, 66110, Jordan; Chemical Engineering Department, Tafila Technical University, Tafila, 66110, Jordan

ABSTRACT: The current work focuses on the effect of heat treatment on the grain size, microhardness and corrosion behavior of AISI D2 and 01 tools steels. Samples of the investigated steels were subjected to different heat treatment (quenching and tempering) regimes. The hardening temperatures for AISI D2 steel were in the range 850–1000 °C with 50 °C step and in the range 780–870 °C with 30 °C step for AISI 01 steel. The tempering temperatures were fixed for AISI D2 and 01 specimens at 550 °C and 450 °C, respectively, to investigate the influence of the hardening temperature only. The results show that the grain size of heat-treated steels decreased by increasing the hardening temperature and thus the microhardness number increased due to the dense grain-boundary areas in the fine structures. The corrosion behaviors of the steel specimens were assessed in 0.1-M HCl solution using a potentiostatic polarization technique. The immersed AISI D2 specimens showed better corrosion resistance than that of AISI 01 due to the presence of high alloying elements, which may help in forming a protective layer against corrosion. The corrosion rates of the coarse-grained structures were less than that of the fine-grained structures, because the finer the grains, the greater the anodic areas, which leads to higher corrosion rates.

Hamad, K.M., Mahmoud, N.N., Al-Dabash, S., Al-Samad, L.A., Abdallah, M., Al-Bakri, A.G.

Fluconazole conjugated-gold nanorods as an antifungal nanomedicine with low cytotoxicity against human dermal fibroblasts

(2020) RSC Advances, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088468681&doi=10.1039%2fd0ra00297f&partnerID=40&md5=017f15bd7cd20325d446d87b16bca0a8>

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan; Amman Academy, Amman, 11821, Jordan; School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Herein, a nanotechnology-based approach was adopted to develop a facile and effective nanoplatfrom for the treatment of superficial fungal infections. Gold nanorods (GNR) functionalized with thiolated poly ethylene glycol (PEG-SH) or thiolated PEGylated cholesterol (Chol-PEG-SH) moieties were conjugated with Fluconazole and loaded into poloxamer 407 hydrogel. The obtained nanocomplexes; PEG-Fluc-GNR and Chol-Fluc-GNR were characterized by optical spectroscopy, hydrodynamic size and effective surface charge. The anti-fungal activity of the nanocomplexes was investigated by estimating the minimum inhibitory concentration (MIC) and the percentage reduction of fungal viable count against *Candida (C.) albicans*. PEG-Fluc-GNR and Chol-Fluc-GNR resulted in 5-fold and 14-fold reduction in MIC of GNR, and in 9-fold and 12-fold reduction in MIC of Fluconazole, respectively. The average log-reduction of the viable fungal cells upon treatment with the nanocomplexes was 5 log cycles, and it ranged from 1.3-3.7 log cycles when loaded into poloxamer 407 hydrogel. Transmission electron microscope imaging of the treated *C. albicans* revealed an enhanced uptake of the nanoparticles into the fungus's cell wall within the first 120 min of exposure. The nanocomplexes demonstrated low cytotoxicity towards human dermal fibroblasts which represent the human skin dermal cells. Conjugating Fluconazole with GNR is a promising approach for the effective treatment of superficial fungal infections. © The Royal Society of Chemistry.

Alkhatib, A.A.A., Sawalha, T.

Techniques for road traffic optimization: An overview

(2020) Indian Journal of Computer Science and Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85090187721&doi=10.21817%2findjcse%2f2020%2fv11i4%2f201104063&partnerID=40&md5=6b84920432566d7bf62c3ddcfefbdf99

AFFILIATIONS: Computer Information System, Alzaytoonah University of Jordan, Airport Street, Amman, 11733, Jordan;

Computer Science, Alzaytoonah University of Jordan, Airport Street, Amman, 11733, Jordan

ABSTRACT: With the number of cars clogging the roads and junctions around the world and expected to double in the next decades, new ways have been introduced by researchers. controlling traffic signals through active traffic management targeted to increase road capacity and road traffic flows more efficient. Smart traffic lights have the ability to reduce traffic congestion and vehicle waiting time, thus reducing fuel wasting and gas emissions. This work explores proposed solutions and techniques for traffic signal to optimize road traffic and reduce traffic congestion impacts. © 2020, Engg Journals Publications. All rights reserved.

Gomaa, M.R., Al-Dhaifallah, M., Alahmer, A., Rezk, H.

Design, modeling, and experimental investigation of activewater cooling concentrating photovoltaic system

(2020) Sustainability (Switzerland), .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85088253627&doi=10.3390%2fsu12135392&partnerID=40&md5=9f7752d64d380d449c758e7fb581cf46

AFFILIATIONS: Mechanical Engineering Department, Benha Faculty of Engineering, Benha University, Benha Z.C., 13512, Egypt;

Mechanical Engineering Department, Faculty of Engineering, Al-Hussein Bin Talal University, Ma'an, 71111, Jordan;

Systems Engineering Department, King Fahd University of Petroleum and Minerals, Dhahran, 31261, Saudi Arabia;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman, 11733, Jordan;

Department of Mechanical Engineering, Tafila Technical University, Tafila, 66110, Jordan;

College of Engineering at Wadi Addawaser, Prince Sattam Bin Abdulaziz University, Wadi Addawaser, 11991, Saudi Arabia;

Electrical Engineering Department, Faculty of Engineering, Minia University, Minia, 61517, Egypt

ABSTRACT: This work presents performance study of a concentrating photovoltaic/thermal (CPV/T) collector and its efficiency to produce electric and thermal power under different operating conditions. The study covers a detailed description of flat photovoltaic/thermal (PV/T) and CPV/T systems using water as a cooling working fluid, numerical model analysis, and qualitative evaluation of thermal and electrical output. The aim of this study was to achieve higher efficiency of the photovoltaic (PV) system while reducing the cost of generating power. Concentrating photovoltaic (CPV) cells with low-cost reflectors were used to enhance the efficiency of the PV system and simultaneously reduce the cost of electricity generation. For this purpose, a linear Fresnel flat mirror (LFFM) integrated with a PV system was used for low-concentration PV cells (LCPV). To achieve the maximum benefit, water as a coolant fluid was used to study the ability of actively cooling PV cells, since the electrical power of the CPV system is significantly affected by the temperature of the PV cells. This system was characterized over the traditional PV systems via producing more electrical energy due to concentrating the solar radiation as well as cooling the PV modules and at

the same time producing thermal energy that can be used in domestic applications. During the analysis of the results of the proposed system, it was found that the maximum electrical and thermal energy obtained were 170 W and 580 W, respectively, under solar concentration ratio 3 and the flow rate of the cooling water 1 kg/min. A good agreement between the theoretical and experimental results was confirmed. © 2020 by the authors.

Hamed, R., Alnadi, S.H., Awadallah, A.

The Effect of Enzymes and Sodium Lauryl Sulfate on the Surface Tension of Dissolution Media: Toward Understanding the Solubility and Dissolution of Carvedilol

(2020) AAPS PharmSciTech, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085005538&doi=10.1208%2fs12249-020-01683-3&partnerID=40&md5=40b5c586051e24d18c83450686b4daf6>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Mutah University, Karak, Jordan

ABSTRACT: The objective of this work was to study the effect of the physiologically relevant enzymes pepsin, pancreatin, and the synthetic surfactant sodium lauryl sulfate (SLS) on the surface tension of the dissolution media and the solubility and dissolution of the weakly basic drug carvedilol. Compendial dissolution media and buffer solutions that simulate the gastrointestinal fluid, prepared with and without the addition of SLS, were used in this study. The surface tension of the dissolution media; critical micelle concentration (CMC) of SLS in buffer solutions; and size, polydispersity index, and zeta potential of SLS micelles loading carvedilol were determined. The solubility and dissolution of carvedilol were investigated and compared with those of the corresponding media prepared without the addition of pepsin, pancreatin, and SLS. Results showed that the addition of pepsin, pancreatin, and SLS lowered the surface tension of the dissolution media to 54.8, 55.7, and ~ 30 mN/m, respectively. The solubility of carvedilol was significantly enhanced with pepsin and SLS; however, no significant difference was found with pancreatin. The dissolution rate of carvedilol was fast in simulated gastric fluid with and without pepsin. The dissolution was further enhanced in media with pancreatin and SLS. The dissolution data were corroborated with the molar micellar solubilization (X) of SLS, ranging between 0.02 and 3.09. Understanding the effect of pepsin, pancreatin, and SLS on the surface tension of the dissolution media and the solubility and dissolution of poorly soluble drugs can improve our knowledge of the performance of these drugs in vivo. © 2020, American Association of Pharmaceutical Scientists.

Yaseen, S.G., Omoush, K.S.A.

Mobile crowdsourcing technology acceptance and engagement in crisis management: The case of syrian refugees

(2020) International Journal of Technology and Human Interaction, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85083587670&doi=10.4018%2fIJTHI.2020070101&partnerID=40&md5=56a50b8220d9a6866c82afc774979a2f>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The purpose of this study is to examine the determinants of the intention for the continuous acceptance and use of mobile crowdsourcing to participate in refugee crisis management. A questionnaire was developed to collect data from 389 Syrian refugees in Jordan's Za'atari camp. Smart PLS was used to analyze the data. The findings indicated that the individual and crowd performance expectancy, the social influence, and perceived risks on the individual and crowd levels have a significant influence on the intention for the continuous acceptance and engagement in mobile crowdsourcing to participate in refugee crisis management. In addition, the results revealed that cultural values of masculinity, power distance, and long-term orientation have no effect on the intention. At the same time, cultural values of collectivism and uncertainty avoidance have a significant effect. Copyright © 2020, IGI Global.

Alsswey, A., Al-Samarraie, H., El-Qirem, F.A., Zaqout, F.

M-learning technology in Arab Gulf countries: A systematic review of progress and recommendations

(2020) Education and Information Technologies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077633798&doi=10.1007%2fs10639-019-10097-z&partnerID=40&md5=49c2f5b924df361df3e81516d48ec020>

AFFILIATIONS: School of Architecture and Design, Multimedia Technology Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Media and Performing Arts, Coventry University, Coventry, United Kingdom;

Applied Media Program, Higher Colleges of Technology (HCT), Ras AL khaimah, United Arab Emirates

ABSTRACT: With the recent development in mobile devices and mobile services, mobile learning (m-learning) has become one of the most common research topics across Arab Gulf countries (AGC). The literature showed an inconsistent usage of m-learning in these countries. This paper sheds light on the progress of m-learning use in AGC, as well as offering recommendations to improve its adoption

success. A systematic literature review was conducted to identify the current evidence on the use of m-learning in AGC across several groups of instructors and students. The results from reviewing 31 previous studies showed that students' and instructors' acceptance and use of m-learning were the main topics of concern. In addition, the lack of research on leadership and policy practices in AGC may lead to technology failure. The key recommendations on best practices related to the use of m-learning in AGC were presented and discussed. © 2020, Springer Science+Business Media, LLC, part of Springer Nature.

Ridha, M.B., Ismail, A.-R., Yousif, A.S.H.

Investigating the mediating role of organization's sustainability in the relationship between using greening technology information tools and organization's general performance: a field study on a group of Jordanian business organization

(2020) Review of Applied Socio-Economic Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099263425&partnerID=40&md5=a6589ca0feee451410401286857bac5c)

[85099263425&partnerID=40&md5=a6589ca0feee451410401286857bac5c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099263425&partnerID=40&md5=a6589ca0feee451410401286857bac5c)

AFFILIATIONS: Department of Business Administration, Faculty of Business Al-Zaytoonah University of Jordan, Jordan;

Department of Management Information Systems, Faculty of Economics and Administrative Sciences Zarqa University, Jordan

ABSTRACT: This study aims at investigating, the mediating role of business organization sustainability in the relationship and impact of the use of IT Tools on Organizational performance. A selective sample of 110 managers from 30 Jordanian business organizations were the participants of this study. Four parts, 22 statements questionnaire was used to gather the required data. The statistical testing and analysis results of the collected data have indicated that there is a strong positive and statistically significant relationship between the use of IT tools and organization performance. Its tool utilization also has a strong positive impact on organizational performance. The mediating role of organization sustainability was positive in terms of the relationship and impact of using IT tools and business organization performance. The results of this study were consistent with many other previous studies. © 2020, Pro Global Science Association. All rights reserved.

Abdallah, A.A.J., Musallam, J.Y.A., Bader, A.

The role of the audit committee in improving voluntary disclosure "field study on Jordanian insurance companies"

(2020) Review of Applied Socio-Economic Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099240541&partnerID=40&md5=867e67751104a2edc9773a35cfd32f4d)

[85099240541&partnerID=40&md5=867e67751104a2edc9773a35cfd32f4d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099240541&partnerID=40&md5=867e67751104a2edc9773a35cfd32f4d)

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan; Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The audit committee plays a major role in corporate governance regarding the organization's direction, control, and accountability. As a representative of the board of directors and the main part of the corporate governance mechanism, the audit committee is involved in the organization's both internal and external audits, internal control, accounting, and financial reporting, regulatory compliance, and risk management. This study aims to provide and explain the relationship between audit committee roles and voluntary disclosure, and how audit committee tries to enhance her role in voluntary disclosure among Jordanian insurance companies listed in Amman stock exchange (24 company). We concentrated on two roles, reviewing accounting policies and risk management used to improve the voluntary disclosure, through questionnaires distributed to all audit committee members in insurance companies (84 members), (75) questionnaire was accepted and used in the pilot analysis of the originally distributed questionnaires at (percentage of 89.3%) through use One-Sample T-Test and verify the validity of this hypothesis, the arithmetic means and standard deviations of the items concerning for the audit committee role we found that these two roles influence the level of voluntary disclosure among insurance companies. audit committee followed specific procedures in reviewing, supervising, and control of the company accounting policies to improve the voluntary disclosure. Moreover, about risk management, the study concluded that the audit committee covers all aspects of the company's operations and sets clear methods for each type of risk and how to deal with them by the voluntary disclosure of the company. © 2020, Pro Global Science Association. All rights reserved.

Alsufy, F., Afifa, M.A., Soda, M.Z.

Mediating effects of liquidity in the relationship between earnings quality and market value of the share price: evidence from Jordan

(2020) Review of Applied Socio-Economic Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096910964&partnerID=40&md5=00b31c8cdba5765d9feb01e2e1b9bf2a)

[85096910964&partnerID=40&md5=00b31c8cdba5765d9feb01e2e1b9bf2a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096910964&partnerID=40&md5=00b31c8cdba5765d9feb01e2e1b9bf2a)

AFFILIATIONS: Faculty of Business, Isra University, Amman, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The current study aims to investigate the effect of earnings quality on the market value of the share price, and then the role of liquidity as a mediating effect in the relationship between earnings quality and the market value of the share price. This study provides some empirical evidence from an emerging market, especially from Jordanian market. The framework of this study is developed by the classical valuation theory that discusses the factors that affect the market value of the shares prices. Also, this study is a quantitative study using a panel data analysis. The study population includes all Jordanian industrial public shareholding companies listed in the Amman Stock Exchange (ASE) during the year 2012 to the year 2017, where there are 62 industrial companies listed in ASE during this period. The study sample is all targeted companies that are included in the study population. In other words, it uses a comprehensive sample method. In conclusion, a high earnings quality and more liquidity in Jordanian industrial public shareholding companies increase their market value of the shares prices. At the same time, liquidity mediates the relationship between earnings quality and the market value of the shares prices of those companies. Moreover, the level of Jordanian market controlling of earnings quality and liquidity is a good one. The study recommended to continually investigating the relationship between organizational factors and earnings management, which may have a positive effect on the market value of the shares prices. © 2020, Pro Global Science Association. All rights reserved.

Alahmer, A., Ajib, S.

Solar cooling technologies: State of art and perspectives

(2020) Energy Conversion and Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084134789&doi=10.1016%2fj.enconman.2020.112896&partnerID=40&md5=b946feaeae452701a2e191179f667825)

[85084134789&doi=10.1016%2fj.enconman.2020.112896&partnerID=40&md5=b946feaeae452701a2e191179f667825](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084134789&doi=10.1016%2fj.enconman.2020.112896&partnerID=40&md5=b946feaeae452701a2e191179f667825)

AFFILIATIONS: Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P. O. Box 130, Amman, 11733, Jordan;

Department of Mechanical Engineering, Tafila Technical University, P. O. Box 179, Tafila, 66110, Jordan;

Department of Renewable Energies and Decentralized Energy Supplying, Technische Hochschule Ostwestfalen-Lippe, Höxter, Germany

ABSTRACT: The energy demand for cooling and air conditioning systems is increasing worldwide, especially in regions with high solar radiation intensity. One of the reasons for this is the increase of comfort demands worldwide. The most cooling and air conditioning systems are the conventional electrically driven one type such as compression refrigeration machines and air conditioning systems. Through the huge electricity consumption for cooling and air conditioning, the environmental problems get bigger and bigger, because of carbon dioxide (CO₂) and other pollutant emissions. One of the possibilities to reduce the primary energy consumption is through the use of solar energy for driving the thermal driven absorption or adsorption refrigeration systems, or desiccant cooling. Another possibility is using solar energy to produce electrical energy and this can be used to drive the conventional refrigeration systems. Many research and developmental efforts in the last years have been done to enforce the spreading of solar-driven cooling systems. This paper will illustrate the state of the art about the energy consumption for cooling and air conditioning systems, available solar-driven cooling systems and the potential of the utilization of such systems in comparison to the conventional ones. Moreover, this paper highlights some different methods of optimization, which used to maximize the performance and minimize the cost. © 2020 Elsevier Ltd

Suleiman, K., Hijazi, Z., Kalaldehy, M.A., Sharour, L.A.

Factors Associated with Sleep Quality Among Emergency Nurses in Jordan

(2020) Sleep and Vigilance, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132018452&doi=10.1007%2fs41782-019-00082-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132018452&doi=10.1007%2fs41782-019-00082-4&partnerID=40&md5=90f604872bb5d9a69c9b514e6b2024be)

[4&partnerID=40&md5=90f604872bb5d9a69c9b514e6b2024be](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132018452&doi=10.1007%2fs41782-019-00082-4&partnerID=40&md5=90f604872bb5d9a69c9b514e6b2024be)

AFFILIATIONS: School of Nursing, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Objectives: The objective of this study is to identify the relationship between sleep quality (SQ) and related factors among nurses working in an emergency room (ER) in Jordan. Methods: A cross-sectional descriptive correlational design was employed. Data were collected from a convenient sample of nurses working in ER based on a specific inclusion criteria from a number of referral hospitals located in Amman. Eligible participants were required to complete a demographic and work-related variables sheet, and the Pittsburgh Sleep Quality Index (PSQI). Results: A total of (186) nurses working in ER participated in the study. Participants reported an SQ mean score of (M = 8.76, SD = 3.18) indicating poor sleep. In classifying good versus poor sleepers, 7.9% (n = 14) had PSQI scores (< 5) which indicate good sleep quality, and 92.1% (n = 172) had PSQI scores (≥ 5) which indicate poor sleep quality. In addition, there were no statistically significant differences in PSQI score in regarding to the others demographic and work-related variables except for salary (F = 3.35, p = 0.02). Conclusion: The results of this study reported a noticeable alteration in sleep quality

among nurses working in ER. The nurses were poor sleepers. In addition, the results emphasized on the importance of conducting further interventional research studies in the future to establish effective measures to enhance nurses SQ. © 2019, Springer Nature Singapore Pte Ltd.

Shaban, N.A., Nasser, I., Asfar, J.A., Al-Qawabah, S., Olimat, A.N.

Thermodynamic and Economic Analysis of a Refrigerator Display Cabinet Equipped with a DC Compressor and Electronic Expansion Valve

(2020) International Journal of Heat and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092897331&doi=10.18280%2fijht.380219&partnerID=40&md5=107231919c71acd4d97a64e1bc421f59)

[85092897331&doi=10.18280%2fijht.380219&partnerID=40&md5=107231919c71acd4d97a64e1bc421f59](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092897331&doi=10.18280%2fijht.380219&partnerID=40&md5=107231919c71acd4d97a64e1bc421f59)

AFFILIATIONS: Mechanical Engineering Department, Faculty of Engineering and Technology, Al-Zaytoonah University, Amman, 11733, Jordan;

Mechanical Engineering Department, School of Engineering, University of Jordan, Amman, 11942, Jordan; Prince Al-Hussein Bin Abdullah II Academy of Civil Protection, Amman, 11134, Jordan

ABSTRACT: In this study, energy and exergy analysis was performed for a refrigerator display cabinet (RDC) unit equipped with a variable speed DC-compressor and electronic expansion valve. Economic impact and energy saving were also investigated. Two identical refrigeration systems were built and tested experimentally to find the most efficient and feasible one. The first system was built using the existing commercial way of building up the refrigeration cycle of the RDC unit using an on/off switch for the compressor, and mechanical traditional thermal expansion valve (TEV). The other system was equipped with a variable refrigerant flow (VRF) DC-compressor, with inverter and electronic expansion valve (EEV) instead of the mechanical expansion valve. Complete specifications of each component and measurement devices used in this work are included in this study. It was found that the new RDC unit equipped with the VRF system provided 32% energy saving, and less exergy destruction than the commercial cabinet. So, the use of the new suggested RDC units will reduce the energy bill of such sector by 32%. © 2020 International Information and Engineering Technology Association. All rights reserved.

Badinjki, T.

Dickens's nonconformist treatment of stained women in David Copperfield

(2020) Ars Aeterna, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088948277&doi=10.2478%2faa-2020-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088948277&doi=10.2478%2faa-2020-0006&partnerID=40&md5=e298a4d82398eae2478be26181d4fd9e)

[0006&partnerID=40&md5=e298a4d82398eae2478be26181d4fd9e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088948277&doi=10.2478%2faa-2020-0006&partnerID=40&md5=e298a4d82398eae2478be26181d4fd9e)

AFFILIATIONS: Dept. of English, Al-Zaytoonah University, P.O. Box1089, Amman, 11732, Jordan

ABSTRACT: David Copperfield shows an advance in Dickens's treatment of stained women in his earlier works. In this novel he takes the subject inside the closed doors of respectable people to influence their attitudes and to bring a shift in society's attitude towards them. Dickens's presentation of stained women is lapped by romantic pathos and supported by a number of devices which aim at securing the sympathy of his readers. In saving them from public retribution, Dickens has turned the bitterest aspect of conventions to a more generous end trying to indicate that it requires sympathy and an ameliorating Christian response, rather than downright condemnation. He supports reformation which leads to rehabilitation and a return to respectability. In his treatment of Emily, Martha Endell, Rosa Dartle and other tarnished women, Dickens could reconcile his charitable inclinations with the imperatives of respectability and could also show the necessity of giving stained women a second chance at home or abroad. © 2020 Taher Badinjki, published by Sciendo 2020.

Alshehadeh, A.R., Atieh, A.

External auditor's analytical procedures and their impact on discovering material misstatements - An empirical study on Jordanian commercial banks [Analitički postupci vanjskog revizora i njihov utjecaj na otkrivanje materijalnih pogrešnih izvještaja - Empirijska studija komercijalnih banaka u Jordanu] (2020) Ekonomski Pregled, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086878326&doi=10.32910%2fep.71.3.4&partnerID=40&md5=b40eb3450a6145684661837cad9e191a)

[85086878326&doi=10.32910%2fep.71.3.4&partnerID=40&md5=b40eb3450a6145684661837cad9e191a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086878326&doi=10.32910%2fep.71.3.4&partnerID=40&md5=b40eb3450a6145684661837cad9e191a)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Jordan

ABSTRACT: This study aims to identify the impact of the external auditor's analytical procedures on the financial statements and reports for the detection of material misstatements of the Jordanian commercial banks. The impact of independent variables (profitability, liquidity, capital solvency and the employment of funds ratios) on the dependent variable (the detection of material misstatements) was measured. The dependent variable is represented by the earnings management, which is measured by the discretionary accruals. The quantitative standard method was used to analyse the financial statements and analytical procedures; moreover, the Jones Model was used to measure earnings management. Additionally, the multivariate linear regression model was used to test the hypothesis of the study, and to indicate the relationships between the variables. The study population consisted of five Jordanian commercial banks. The data was collected from 2011 to 2017. This study concluded that there is no statistically significant impact of the analytical procedures relating to the ratios of

liquidity, profitability, solvency, and employment of funds that the external auditor could undertake to discover material misstatement of the financial statements of Jordanian commercial banks. Finally, the study recommended that auditors should be highly competent and deeply knowledgeable in using the analytical procedures to judge the fairness of financial data and be free of material misstatements. © 2020, Hrvatsko Drustvo Ekonomista. All rights reserved.

Najm, N.A., Zaghari, A.Y.

The Impact of Cultural Intelligence on Organisational Performance: Applied Study in Sample of Jordanian Pharmaceutical Companies

(2020) Journal of Information and Knowledge Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086098762&doi=10.1142%2fS0219649220500100&partnerID=40&md5=76e3273476fb062baa3053aa643d6319)

[85086098762&doi=10.1142%2fS0219649220500100&partnerID=40&md5=76e3273476fb062baa3053aa643d6319](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086098762&doi=10.1142%2fS0219649220500100&partnerID=40&md5=76e3273476fb062baa3053aa643d6319)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of this study is to determine the impact of cultural intelligence in its four dimensions (metacognitive, cognitive, motivational and behavioural) on organisational performance based on three criteria: productivity, profitability and market share in Jordanian pharmaceutical companies. The study is sought to provide a broad review of the literature of cultural intelligence and administrative practices in the field of business administration and research in different parts. The results of the study confirmed that there is an impact of three dimensions of cultural intelligence (metacognitive, cognitive, behavioural) on organisational performance (productivity, profitability, market share), while the motivational dimension has no impact on all three performance criteria in Jordanian pharmaceutical companies. © 2020 World Scientific Publishing Co.

Al-Jazzar, S.O., Aldalahmeh, S.A., McLernon, D., Zaidi, S.A.R.

Intruder Localization and Tracking Using Two Pyroelectric Infrared Sensors

(2020) IEEE Sensors Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084837636&doi=10.1109%2fJSEN.2020.2974633&partnerID=40&md5=55a50859b9a8428d3be618530625952d)

[85084837636&doi=10.1109%2fJSEN.2020.2974633&partnerID=40&md5=55a50859b9a8428d3be618530625952d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084837636&doi=10.1109%2fJSEN.2020.2974633&partnerID=40&md5=55a50859b9a8428d3be618530625952d)

AFFILIATIONS: Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Electronic and Electrical Engineering, University of Leeds, Leeds, LS2 9JT, United Kingdom

ABSTRACT: In this paper, we introduce a method to estimate the range of an intruder and track its trajectory by utilizing the received signal strength of the heat flux for pyroelectric infrared (PIR) sensors. To this end, we first develop a mathematical model of the received heat flux signal strength and the corresponding PIR signal for a moving intruder. The algorithm uses only two PIR sensors and the geometry of the field of views (FOVs) to perform the estimation and tracking process without any knowledge of the intruder's parameters. The tracking algorithm shows remarkable performance in estimating the intruder's parameters. The intruder heat flux was accurately estimated even at large separation distances as was the intruder path angle. Finally, the intruder's location was also very accurately estimated with sub-meter error for large separation distances. © 2001-2012 IEEE.

Ullah, A.K.M.S., Rumley, A.C., Peleh, V., Fernandes, D., Almomani, E.Y., Berrini, M., Lashhab, R., Touret, N., Alexander, R.T., Herrmann, J.M., Cordat, E.

SLC26A7 protein is a chloride/bicarbonate exchanger and its abundance is osmolarity- and pH-dependent in renal epithelial cells

(2020) Biochimica et Biophysica Acta - Biomembranes, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081888438&doi=10.1016%2fj.bbame.2020.183238&partnerID=40&md5=75300b2dce544241c976a532c3741735)

[85081888438&doi=10.1016%2fj.bbame.2020.183238&partnerID=40&md5=75300b2dce544241c976a532c3741735](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081888438&doi=10.1016%2fj.bbame.2020.183238&partnerID=40&md5=75300b2dce544241c976a532c3741735)

AFFILIATIONS: Department of Physiology, University of Alberta, Edmonton, AB, Canada;

Cell Biology, University of Kaiserslautern, Kaiserslautern, Germany;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biochemistry, University of Alberta, Edmonton, AB, Canada

ABSTRACT: Acid-secreting intercalated cells of the collecting duct express the chloride/bicarbonate kidney anion exchanger 1 (kAE1) as well as SLC26A7, two proteins that colocalize in the basolateral membrane. The latter protein has been reported to function either as a chloride/bicarbonate exchanger or a chloride channel. Both kAE1 and SLC26A7 are detected in the renal medulla, an environment hyper-osmotic to plasma. Individuals with mutations in the SLC4A1 gene encoding kAE1 and mice lacking Slc26a7 develop distal renal tubular acidosis (dRTA). Here, we aimed to (i) confirm that SLC26A7 can function as chloride/bicarbonate exchanger in Madin-Darby canine kidney (MDCK) cells, and (ii) examine the behavior of SLC26A7 relative to kAE1 wild type or carrying the dRTA mutation R901X in iso- or hyper-osmotic conditions mimicking the renal medulla. Although we found that SLC26A7 abundance increases in hyper-osmotic growth medium, it is reduced in low pH growth conditions mimicking acidosis when expressed at high levels in MDCK cells. In these cells, SLC26A7 exchange activity was independent from extracellular osmolarity. When SLC26A7 protein was co-expressed with kAE1 WT or the R901X dRTA mutant, the cellular chloride/bicarbonate exchange rate was not additive

compared to when proteins are expressed individually, possibly reflecting a decreased overall protein expression. Furthermore, the cellular chloride/bicarbonate exchange rate was osmolarity-independent. Together, these results show that (i) in MDCK cells, SLC26A7 is a chloride/bicarbonate exchanger whose abundance is up-regulated by high osmolarity growth medium and (ii) acidic extracellular pH decreases the abundance of SLC26A7 protein. © 2020 Elsevier B.V.

Mohammad, Z.

Cryptanalysis and improvement of the YAK protocol with formal security proof and security verification via Scyther

(2020) International Journal of Communication Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081285853&doi=10.1002%2fdac.4386&partnerID=40&md5=bc6f23d4ed235f85969a201c3f81cf7c)

[85081285853&doi=10.1002%2fdac.4386&partnerID=40&md5=bc6f23d4ed235f85969a201c3f81cf7c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081285853&doi=10.1002%2fdac.4386&partnerID=40&md5=bc6f23d4ed235f85969a201c3f81cf7c)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Hao proposed the YAK as a robust key agreement based on public-key authentication, and the author claimed that the YAK protocol withstands all known attacks and therefore is secure against an extremely strong adversary. However, Toorani showed the security flaws in the YAK protocol. This paper shows that the YAK protocol cannot withstand the known key security attack, and its consequences lead us to introduce a new key compromise impersonation attack, where an adversary is allowed to reveal both the shared static secret key between two-party participation and the ephemeral private key of the initiator party in order to mount this attack. In addition, we present a new security model that covers these attacks against an extremely strong adversary. Moreover, we propose an improved YAK protocol to remedy these attacks and the previous attacks mentioned by Toorani on the YAK protocol, and the proposed protocol uses a verification mechanism in its block design that provides entity authentication and key confirmation. Meanwhile, we show that the proposed protocol is secure in the proposed formal security model under the gap Diffie-Hellman assumption and the random oracle assumption. Moreover, we verify the security of the proposed protocol and YAK protocol by using an automatic verification method such as the Scyther tool, and the verification result shows that the security claims of the proposed protocol are proven, in contrast to those of the YAK protocol, which are not proven. The security and performance comparisons show that the improved YAK protocol outperforms previous related protocols. © 2020 John Wiley & Sons, Ltd.

Alhorani, R.A.M.

Mathematical models for the optimal design of I- and H-shaped crane bridge girders

(2020) Asian Journal of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079883989&doi=10.1007%2fs42107-020-00232-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079883989&doi=10.1007%2fs42107-020-00232-4&partnerID=40&md5=9a4c2c5fbc346da71ea4d21bf76d01d9)

[4&partnerID=40&md5=9a4c2c5fbc346da71ea4d21bf76d01d9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079883989&doi=10.1007%2fs42107-020-00232-4&partnerID=40&md5=9a4c2c5fbc346da71ea4d21bf76d01d9)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The design of crane bridge girders requires many revisions to ensure strength and stability, and limit the deflection of girders, so design aids are needed. This research aims to develop mathematical models for the optimal design of crane bridge girders by minimizing their weight and thus reducing the operating energy. I- and H-shaped crane girders with compact sections of A36 steel are studied according to the American Institute of Steel Construction-Allowable Stress Design method. A code was written to optimize girder sectional dimensions for spans of 5–50 m with crane capacities of 50–500 kN. The design criteria are the allowable bending, shear stresses and deflections. The obtained dimensions were utilized as target values to propose neural models for girder design using a back-propagation network method. The models were validated using two network training performance parameters: the mean square error and regression plots. The obtained results of the mathematical models were used as input for finite-element analysis of double crane girders. The generated models should aid crane designers in efficiently selecting the lightest girders and crane manufacturers in providing cost-effective design solutions for a variety of crane configurations to suit the different needs of end users. © 2020, Springer Nature Switzerland AG.

Al-Kalaldehy, M., Suleiman, K., Al-Kalaldehy, O.

Prognostic Performance of NUTRIC Score in Quantifying Malnutrition Risk in the Critically Ill in Congruence With the Bioelectrical Impedance Analysis

(2020) Nutrition in Clinical Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074981343&doi=10.1002%2fnpc.10440&partnerID=40&md5=42772c824f2191de6c17385bd53cd0bd)

[85074981343&doi=10.1002%2fnpc.10440&partnerID=40&md5=42772c824f2191de6c17385bd53cd0bd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074981343&doi=10.1002%2fnpc.10440&partnerID=40&md5=42772c824f2191de6c17385bd53cd0bd)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of JordanAmman, Jordan;

Ministry of HealthAmman, Jordan

ABSTRACT: Background: There is still no concrete guidance for assessing malnutrition risk in the critically ill. Nutrition Risk in the Critically Ill (NUTRIC) score is undertaken cautiously compared with other validated tools such as bioelectrical impedance analysis (BIA). This study aimed to assess the malnutrition risk in the critically ill using NUTRIC score and assess its congruency with the

BIA. Methods: In this cross-section observational study, intensive care unit (ICU) patients from various etiologies were assessed using the earlier tools in addition to other prognostic markers (Acute Physiologic Assessment and Chronic Health Evaluation II [APACHE II] and Sequential Organ Failure Assessment [SOFA] scores), caloric attainment, and feeding complications. Results: Of a total 411 assessed patients, 313 (76.2%) were enterally fed, and 318 (77.4%) were mechanically ventilated. Mean age was 60.7 years, and the median of the assessment since admission was the 12th day. Of those enterally fed patients, 57.9% attained the caloric requirements. Both APACHE II and SOFA scores were compatible in ascertaining ICU mortality at a moderate level (17.88 and 7.17, respectively). The NUTRIC score and phase angle (PA) measured by BIA revealed no differences in the malnutrition risk between patients with and without enteral nutrition. However, regression indicated that the NUTRIC score has explained only 1.1% of the variance of PA after controlling other covariates ($\beta = -0.222$, $P = .009$, confidence interval = -0.31 to -0.05). Conclusions: NUTRIC score has a limited prediction to the urgency of aggressive nutrition therapy within the early period of ICU admission. © 2019 American Society for Parenteral and Enteral Nutrition

Al-Ghabeesh, S.H., Bashayreh, I.H., Saifan, A.R., Rayan, A., Alshraifeen, A.A.
Barriers to Effective Pain Management in Cancer Patients From the Perspective of Patients and Family Caregivers: A Qualitative Study
(2020) Pain Management Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071639284&doi=10.1016%2fj.pmn.2019.07.011&partnerID=40&md5=7f881814da9ac9aa06663696c891d098)

[85071639284&doi=10.1016%2fj.pmn.2019.07.011&partnerID=40&md5=7f881814da9ac9aa06663696c891d098](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071639284&doi=10.1016%2fj.pmn.2019.07.011&partnerID=40&md5=7f881814da9ac9aa06663696c891d098)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Fatima College, Madinnat Zayed/Abu Dhabi, United Arab Emirates;

Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Faculty of Nursing, The Hashemite University, Zarqa, Jordan

ABSTRACT: Background: Pain is one of the most common and undesired symptoms in cancer patients, affecting patients' physical and psychological well-being. Barriers to effective pain management in cancer patients need to be identified and addressed by clinicians. Aims: The purpose of this study was to explore the barriers to effective cancer pain management from the perspective of cancer patients and their family members. Methods: A qualitative research design was employed. Semistructured interviews were conducted with 10 patients and 10 family caregivers to elucidate their perspectives regarding the barriers to effective cancer pain management in Jordan. Results: Regulatory factors, knowledge deficit, and the use of religious and cultural strategies to cope with pain were major barriers to effective cancer pain management. Although effective cancer pain management is highly recommended, the participants' cultural beliefs deeply appreciated pain tolerance and discouraged effective treatment of cancer pain. Conclusion: Tailoring culturally appropriate educational programs regarding effective cancer pain management could facilitate pain management among patients with cancer. © 2019 American Society for Pain Management Nursing

Alsswey, A.H., Al-Samarraie, H., El-Qirem, F.A., Alzahrani, A.I., Alfarraj, O.
Culture in the design of mHealth UI: An effort to increase acceptance among culturally specific groups
(2020) Electronic Library, .

(2020) Electronic Library, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082404666&doi=10.1108%2fEL-04-2019-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082404666&doi=10.1108%2fEL-04-2019-0097&partnerID=40&md5=7c4f02ece355e070bb33ae9318d1e0d6)

[0097&partnerID=40&md5=7c4f02ece355e070bb33ae9318d1e0d6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082404666&doi=10.1108%2fEL-04-2019-0097&partnerID=40&md5=7c4f02ece355e070bb33ae9318d1e0d6)
AFFILIATIONS: Department of Multimedia Technology, Al-Zaytoonah Private University of Jordan, Amman, Jordan;

School of Media and Performing Arts, Coventry University, Coventry, United Kingdom;

Department of Computer Science, King Saud University, Riyadh, Saudi Arabia;

Centre for Arts, Memory and Communities, Coventry University, Coventry, United Kingdom

ABSTRACT: Purpose: Designers of mobile applications have long understood the importance of users' preferences in making the user experience easier, convenient and therefore valuable. The cultural aspects of groups of users are among the key features of users' design preferences, because each group's preferences depend on various features that are culturally compatible. The process of integrating culture into the design of a system has always been an important ingredient for effective and interactive human computer interface. This study aims to investigate the design of a mobile health (mHealth) application user interface (UI) based on Arabic culture. It was argued that integrating certain cultural values of specific groups of users into the design of UI would increase their acceptance of the technology. Design/methodology/approach: A total of 135 users responded to an online survey about their acceptance of a culturally designed mHealth. Findings: The findings showed that culturally based language, colours, layout and images had a significant relationship with users' behavioural intention to use the culturally based mHealth UI. Research limitations/implications: First, the sample and the data collected of this study were restricted to Arab users and Arab culture; therefore, the results cannot be generalized to other cultures and users. Second, the adapted unified theory of acceptance and use of technology model was used in this study instead of

the new version, which may expose new perceptions. Third, the cultural aspects of UI design in this study were limited to the images, colours, language and layout. Practical implications: It encourages UI designers to implement the relevant cultural aspects while developing mobile applications. Originality/value: Embedding Arab cultural aspects in designing UI for mobile applications to satisfy Arab users and enhance their acceptance toward using mobile applications, which will reflect positively on their lives. © 2020, Emerald Publishing Limited.

Suleiman, A., Abahre, J.

Essential competencies for engineers from the perspective of fresh graduates

(2020) Engineering Management in Production and Services, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085477089&doi=10.2478%2femj-2020-0006&partnerID=40&md5=59faba750dac667f308e59c841267216>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Al-Zaytoonah, Jordan;

An-Najah National University, An-Najah, Palestine

ABSTRACT: Determining the competencies required for engineering programmes has become important due to the increasing challenges faced by engineers after graduation and the tremendous development in technology. This research aims to identify the general competencies that fresh graduate students of engineering schools in Jordan believe they need to become competent and effective in their profession as engineers. This study was the first of its kind with students as respondents, and it was the first study of this kind in Jordan. Competencies were collected from a previous study with 48 competencies split into 11 groups. A questionnaire was prepared with these competencies, then rated for the degree of importance by answering "What engineering competencies graduates will require for their future work in Jordan?" The study showed that all competencies were vital, including technical, personal, non-technical and attitudinal competencies. This study will help to link the outputs of university education provided by engineering departments with market needs as well as to harmonise study programmes offered by Jordanian universities. Also, the research outputs are expected to facilitate the transition process of students from one university to another. The empirically identified competencies could be used to help assess different engineering study programmes in Jordan. © 2020 Akram Suleiman, Jafar Abahre, published by Sciendo 2020.

Al-Kalaldeh, M., Amro, N., Qtait, M., Alwawi, A.

Barriers to effective nurse-patient communication in the emergency department

(2020) Emergency Nurse, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084272481&doi=10.7748%2fen.2020.e1969&partnerID=40&md5=97f76829573875728090bb17980f4647>

AFFILIATIONS: Faculty of Nursing, University of Jordan, Aqaba, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Al-Quds University, East Jerusalem, Palestine;

Ankara University, Ankara, Turkey

ABSTRACT: Background It has been identified that ineffective nurse-patient communication in the emergency department (ED) can lead to frustration, mistrust and inadequate pain management. Therefore, it is important to recognise the potential barriers to effective communication, including nurse and patient-related factors. Aim To identify what emergency nurses perceive as barriers to nurse-patient communication, and if there is any difference in the perception of communication barriers between nurses' demographic subgroups. Method A total of 199 emergency nurses were recruited using convenience sampling, from nine hospitals in the West Bank, Palestine. These nurses completed a 27-item questionnaire that encompassed six domains of barriers that may affect nurse-patient communication: demographic, knowledge-related, environmental, social, economic and psychological factors. Results Of the six domains covered by the questionnaire, environmental factors scored the highest, meaning that emergency nurses perceived these to be the most significant barriers to effective nurse-patient communication. This was followed by knowledge-related and psychological factors. Knowledge-related factors were perceived to be a greater communication barrier by male nurses more than female nurses, and by younger nurses more than older nurses. Conclusion To enhance nurse-patient communication, it is important to establish a comfortable working environment and to provide ongoing training for nurses to develop their communication skills. © RCN Publishing Company Limited 2020

Hamed, R., Kamal, A., Alkilani, A.Z.

Gelation and rheological characterization of Carbopol® in simulated gastrointestinal fluid of variable chemical properties

(2020) Pakistan Journal of Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090161179&doi=10.36721%2fPJPS.2020.33.3.REG.923-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090161179&doi=10.36721%2fPJPS.2020.33.3.REG.923-928.1&partnerID=40&md5=494a4603896dad692d82100c109828e3)

[928.1&partnerID=40&md5=494a4603896dad692d82100c109828e3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090161179&doi=10.36721%2fPJPS.2020.33.3.REG.923-928.1&partnerID=40&md5=494a4603896dad692d82100c109828e3)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman,

Jordan;

Department of Pharmacy, Faculty of Pharmacy, Zarqa University, Zarqa, Jordan

ABSTRACT: Carbopol® is a hydrophilic polymer commonly used in the preparation of oral controlled-release matrix tablets. These matrices are subjected to dissolution testing to investigate the rate and mechanism of drug release. The rate of drug release from these matrices is influenced by the viscoelastic properties of the gel layer formed upon hydration and surrounded tablet core. This study evaluates the gelation behavior and rheological characterization of Carbopol® in dispersion media, of varied chemical properties, commonly used in dissolution testing. The rheological properties of Carbopol® polymer underwent gelation were determined using a controlled-stress rheometer. Carbopol® gelation was not found in simulated gastric fluid of low pH (1.2-5.0) and simulated intestinal fluid of pH (5.0-6.5) during fasted (Fa) and fed (Fe) conditions. However, in water and at high pH (6.8-7.8), gelation occurred in phosphate buffers of high buffering capacity (β). Furthermore, no gelation was found in sodium chloride solutions of different ionic strengths (μ). These results highlight the importance of investigating the gelation behavior and rheological characterization of Carbopol® in dispersion media prior to dissolution testing. These preliminary studies can give an insight on the formation/absence of the gel layer around Carbopol® matrices which is responsible for controlling the release of drugs. © 2020 Pakistan Journal of Pharmaceutical Sciences. All rights reserved.

Hamed, R., Alnadi, S.H.

Drug release pattern of oral dual-release pellets through the gastrointestinal tract: Case example of diclofenac sodium

(2020) Dissolution Technologies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088930393&doi=10.14227%2fDT270220P22&partnerID=40&md5=9c29d4d5b2527aff56449d2581aeb1b)

[85088930393&doi=10.14227%2fDT270220P22&partnerID=40&md5=9c29d4d5b2527aff56449d2581aeb1b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088930393&doi=10.14227%2fDT270220P22&partnerID=40&md5=9c29d4d5b2527aff56449d2581aeb1b)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The purpose of this research was to evaluate the release pattern of the dual-release pellets of diclofenac sodium (DS), coated with enteric-and sustained-release layers, in dissolution media that resemble the physiological variables of the gastrointestinal (GI) fluid. Dissolution testing in three pH stages (acidic, intermediate, and basic) was conducted using USP apparatus I (basket) rotating at 100 rpm. The acidic pH stage resembles the gastric fluid during fasted and fed states, the intermediate pH stage resembles the fluid of the proximal small intestine (duodenal fluid), and the basic pH stage resembles the fluid of the small intestine during fasted and fed states and distal GI. DS pellets showed excellent gastric resistance in the acidic pH stage for 2 h. In the intermediate pH stage, DS pellets showed a gastric resistance for 2 h, followed by a low percent of DS release thereafter (15.2% after 10 h). DS release was accelerated in the basic pH stage, particularly in pH media 6.5-7.2. This is because the enteric-coated film starts to dissolve at pH > 5.5. In addition, DS release was influenced by the buffer capacity (β)/ionic strength (I) of the dissolution media, where DS release increased with increasing β /I of phosphate buffers (pH 6.8) up to a concentration of 50 mM and then decreased at 100 mM. These dissolution results corroborated with equilibrium solubility data and sink conditions (S values) of DS in the media of the three pH stages. This study provides an insight into the release pattern of the dual-release DS pellets throughout the GI tract to better correlate the in vitro release data of these pellets to those in vivo. © 2020, Dissolution Technologies Inc. All rights reserved.

Mahmoud, N.N., Abuarqoub, D., Zaza, R., Sabbah, D.A., Khalil, E.A., Abu-Dahab, R.

Gold nanocomplex strongly modulates the PI3K/Akt pathway and other pathways in MCF-7 breast cancer cell line

(2020) International Journal of Molecular Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084364377&doi=10.3390%2fijms21093320&partnerID=40&md5=88c17525e05abfa6328ad1b490aab091)

[85084364377&doi=10.3390%2fijms21093320&partnerID=40&md5=88c17525e05abfa6328ad1b490aab091](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084364377&doi=10.3390%2fijms21093320&partnerID=40&md5=88c17525e05abfa6328ad1b490aab091)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Cell Therapy Center, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacology and Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, 11196, Jordan;

School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Conjugating drugs with gold nanoparticles (GNP) is a key strategy in cancer therapy. Herein, the potential inhibition of the phosphatidylinositol 3-kinase (PI3K)/Akt pathway, and other pathways of the MCF-7 cell-line, was investigated upon treatment with gold nanorods (GNR) conjugated with a PI3K inhibitor drug. The results revealed that the coupling of GNR with the drug drastically modulated the expression of PI3K α at the gene and protein levels compared to the drug or GNR alone. The PI3K α pathway is involved in tumor progression and development through the mediation of different mechanisms such as apoptosis, proliferation, and DNA damage. Treatment with the nanocomplex significantly affected the gene expression of several transcription factors responsible for cell

growth and proliferation, apoptotic pathways, and cell cycle arrest. Furthermore, the gene expression of different regulatory proteins involved in cancer progression and immune responses were significantly modified upon treatment with the nanocomplex compared to the free drug or GNR alone. © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

Hammad, A.M., Sari, Y.

Effects of cocaine exposure on astrocytic glutamate transporters and relapse-like ethanol-drinking behavior in male alcohol-preferring rats

(2020) Alcohol and Alcoholism, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85083913976&doi=10.1093%2falcalc%2fagaa010&partnerID=40&md5=d14ac0ccf4509eb2a9cc61ca0228f373)

85083913976&doi=10.1093%2falcalc%2fagaa010&partnerID=40&md5=d14ac0ccf4509eb2a9cc61ca0228f373

AFFILIATIONS: Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and

Pharmaceutical Sciences, University of Toledo, 3000 Arlington Ave, Toledo, OH, United States;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman,

11733, Jordan

ABSTRACT: Aim: Glutamate has been considered as neurotransmitter that is critical in triggering relapse to drugs of abuse, including ethanol and cocaine. Extracellular glutamate concentrations are tightly regulated by several mechanisms, including reuptake through glutamate transporters. Glutamate transporter type 1 (GLT-1) is responsible for clearing the majority of extracellular glutamate. The astrocytic cystine/glutamate antiporter (xCT) regulates also glutamate homeostasis. In this study, we investigated the effects of cocaine exposure and ampicillin/sulbactam (AMP/SUL), a β -lactam antibiotic known to upregulate GLT-1 and xCT, on relapse-like ethanol intake and the expression of astrocytic glutamate transporters in mesocorticolimbic brain regions. Methods: Male alcohol-preferring (P) rats had free access to ethanol for 5 weeks. On Week 6, rats were exposed to either cocaine (20 mg/kg, i.p.) or saline for 12 consecutive days. Ethanol bottles were then removed for 7 days; during the last 5 days, either AMP/SUL (100 or 200 mg/kg, i.p.) or saline was administered to the P rats. Ethanol bottles were reintroduced, and ethanol intake was measured for 4 days. Results: Cocaine exposure induced an alcohol deprivation effect (ADE), which was associated in part by a decrease in the expression of GLT-1 and xCT in the nucleus accumbens (NAc) core. AMP/SUL (100 mg/kg, i.p.) attenuated the ADE, while AMP/SUL (200 mg/kg, i.p.) reduced ethanol intake during 4 days of ethanol re-exposure and upregulated GLT-1 and xCT expression in the NAc core, NAc shell and dorsomedial prefrontal cortex (dmPFC). Conclusion: This study suggests that these astrocytic glutamate transporters might be considered as potential targets for the treatment of polysubstance abuse. © 2020 The Author(s) 2020. Medical Council on Alcohol and Oxford University Press. All rights reserved.

Mahmoud, N.N., Albasha, A., Hikmat, S., Hamadneh, L., Zaza, R., Shraideh, Z., Khalil, E.A.

Correction: Nanoparticle size and chemical modification play a crucial role in the interaction of nano gold with the brain: Extent of accumulation and toxicity (Biomaterials Science (2020) DOI:

10.1039/c9bm02072a)

(2020) Biomaterials Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082770370&doi=10.1039%2fd0bm90023k&partnerID=40&md5=32b0d501717b6408a315feb5538a6553)

85082770370&doi=10.1039%2fd0bm90023k&partnerID=40&md5=32b0d501717b6408a315feb5538a6553

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Cell Therapy Center, University of Jordan, Amman, 11942, Jordan;

Department of Biological Sciences, School of Science, University of Jordan, Amman, 11942, Jordan;

School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Correction for 'Nanoparticle size and chemical modification play a crucial role in the interaction of nano gold with the brain: extent of accumulation and toxicity' by Nouf N. Mahmoud et al., Biomater. Sci., 2020, DOI: 10.1039/c9bm02072a. After publication, the authors found an error in Fig. 3D in the main paper. The corrected version of Fig. 3 is shown below. The authors note that this correction has no effect on the results reported, nor does this change alter any of the contents and conclusions of the paper. The authors sincerely apologize for these inadvertent errors. (Figure presented). The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers. © 2020 The Royal Society of Chemistry.

Al-Omoush, K.S., Al Attar, M.K., Saleh, I.H., Alsmadi, A.A.

The drivers of E-banking entrepreneurship: an empirical study

(2020) International Journal of Bank Marketing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074345286&doi=10.1108%2fIJBM-03-2019-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074345286&doi=10.1108%2fIJBM-03-2019-0113&partnerID=40&md5=b7e1b06f145652f6a46d122bd0eacd9d)

0113&partnerID=40&md5=b7e1b06f145652f6a46d122bd0eacd9d

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The purpose of this paper is to investigate the drivers of e-banking entrepreneurship. The impact of e-banking entrepreneurship on banks' performance in the banking industry is also investigated. Design/methodology/approach: A questionnaire was developed to collect

data from 16 banks with a sample of 214 respondents. Structural equation modeling using PLS was conducted to analyze the data. Findings: The results reveal a significant impact of top management support, organizational context, technological context and social capital on the degree of e-business entrepreneurship. The findings also reveal a direct impact of e-banking entrepreneurship on achieving a competitive advantage, financial performance and customer performance. Originality/value: The present empirical study contributes to a better understanding of the existing theories and practices of banking entrepreneurship and e-innovations in today's banking industry. This study also provides insights into the drivers and the role of e-entrepreneurship in this industry for improving the opportunities of competitiveness and growth. The findings of the present study are of importance to both academic and practitioner audiences. The present study provides empirical evidence to bolster e-banking technology as an enabler of banking entrepreneurship and improving performance. Additionally, these findings provide directives to managers regarding the untapped opportunities and potential that innovative e-banking technology can offer in a highly volatile and rapidly changing environment. © 2019, Emerald Publishing Limited.

Toume, A.A., Yahya, S., Amran, A.

The impact of surplus free cash flow and stock market segmentations on earnings management in Jordan:

Agency-and institutional-theory perspectives

(2020) Management and Accounting Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101877406&partnerID=40&md5=4b90b1694958b1f3c74ea0869096335a)

[85101877406&partnerID=40&md5=4b90b1694958b1f3c74ea0869096335a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101877406&partnerID=40&md5=4b90b1694958b1f3c74ea0869096335a)

AFFILIATIONS: Universiti Sains Malaysia, Malaysia;

Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The current research aims at providing evidence concerning the influence of surplus free cash flow (SFCF) and stock market segmentations (SMS) on income-increasing earnings management practices in Jordan. The results, based on a sample of all non-financial companies that were listed on the Amman Stock Exchange (ASE) from 2013 to 2017, confirm the research hypotheses. The Huber-White's sandwich standard errors for random-effects regression was used as the primary statistical tool for this study. The findings revealed a significant and positive association between SFCF and income-boosting discretionary accruals (DAC). As well, the results found that SMS was significantly and positively associated with the positive DAC. This research adds value to scholarship by investigating the impact of SMS variable on earnings management. To the best available knowledge, this relationship has not been examined either in Jordan or elsewhere in the world. Further, this is the first empirical attempt to investigate the effect of SFCF on earnings management in Jordan, which provides meaningful information for companies seeking to understand and reduce agency problems within the Jordanian context. © 2020, Universiti Teknologi Mara. All rights reserved.

Alkhatib, A.A.A., Sawalha, T., Alzu'Bi, S.

Load Balancing Techniques in Software-Defined Cloud Computing: An overview

(2020) 2020 7th International Conference on Software Defined Systems, SDS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095785811&doi=10.1109%2fSDS49854.2020.9143874&partnerID=40&md5=dd74523b0bebfbf0961ff732cbf980e)

[85095785811&doi=10.1109%2fSDS49854.2020.9143874&partnerID=40&md5=dd74523b0bebfbf0961ff732cbf980e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095785811&doi=10.1109%2fSDS49854.2020.9143874&partnerID=40&md5=dd74523b0bebfbf0961ff732cbf980e)

AFFILIATIONS: Al Zaytoonah University of Jordan, Computer Information, Amman, Jordan

ABSTRACT: With the expansion of the network and increasing their users, as well as emerging new technologies, such as cloud computing and big data, managing traditional networks is difficult, where the VM load has increased as well as the required task processing time. Therefore, it is necessary to change the traditional network architecture. Lately, to address this issue, a notion named software-defined network (SDN) has been proposed, which makes network management more conformable. Network resources limitations and requirements fulfilment leads to the important need of load balancing that helps in distributing traffic via several resources to improve network resources efficiency and reliability. Many researchers have worked previously on this task, proposing several algorithms with advantages and disadvantages. This paper focuses on cloud computing load balancing concepts, and represents benefits and some weaknesses regarding to the selected load balancing algorithms and investigates the metrics of their algorithms. In addition, the important challenges of these algorithms have been reviewed to provide future researchers with better load balancing techniques. © 2020 IEEE.

Hawashin, B., Alzubi, S., Mughaid, A., Fotouhi, F., Abusukhon, A.

An Efficient Cold Start Solution for Recommender Systems Based on Machine Learning and User Interests

(2020) 2020 7th International Conference on Software Defined Systems, SDS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095783072&doi=10.1109%2fSDS49854.2020.9143953&partnerID=40&md5=f75e620da43a83aee33f78ee92acc84e)

[85095783072&doi=10.1109%2fSDS49854.2020.9143953&partnerID=40&md5=f75e620da43a83aee33f78ee92acc84e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095783072&doi=10.1109%2fSDS49854.2020.9143953&partnerID=40&md5=f75e620da43a83aee33f78ee92acc84e)

AFFILIATIONS: AlZaytoonah University of Jordan, Department of { Information Systems Computer Science}, Amman, Jordan;

Hashimite University, Department of Computer Science, Zarqa, Jordan;

Wayne State University, Department of Computer Science, Detroit, United States;
AlZaytoonah University of Jordan, Department of Computer Science, Amman, Jordan
ABSTRACT: Recommender Systems are used to provide suggestions to users based on their interests. One of the well-known problems in recommender systems is the cold start problem, which concentrates on providing recommendations when the user data is not sufficient. Although many solutions have been proposed in the literature, the majority did not concentrate on using both the hidden user motifs. We proposed previously a user-interest based cold start solution, however, finding similar users needed optimization. In this work, we propose the use of machine learning techniques to find patterns associating user profile information and user extracted interests. This would further improve the accuracy provided suggestions for new users. Experimental work showed that our solution is efficient in terms of training time, classification time, and accuracy. In details, using Bayesian Classifier Chain classifier proved to be the fastest training and classification time, while all classifiers proved to be efficient in term of accuracy. © 2020 IEEE.

Lafi, M., Hawashin, B., Alzu'Bi, S.

Maintenance Requests Labeling Using Machine Learning Classification

(2020) 2020 7th International Conference on Software Defined Systems, SDS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095771125&doi=10.1109%2fSDS49854.2020.9143895&partnerID=40&md5=c9cb74304cb567b1f6eb25c0bfe0cc1a)

[85095771125&doi=10.1109%2fSDS49854.2020.9143895&partnerID=40&md5=c9cb74304cb567b1f6eb25c0bfe0cc1a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095771125&doi=10.1109%2fSDS49854.2020.9143895&partnerID=40&md5=c9cb74304cb567b1f6eb25c0bfe0cc1a)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Follow-up maintenance reports are important and tedious work. Bug repository is usually used to store maintenance reports which could be: fault repair, Functionality addition or modification, or environmental adaptation. Labeling these maintenance reports can reduce the time and effort of handling them. We proposed an approach that classifies maintenance reports into different categories. We applied a machine learning pipeline to achieve classification. We reached up to 78% precision, 83% recall, and 79%F1-score. Adopting such an approach can speedup handling maintenance reports and increase user satisfaction. © 2020 IEEE.

Abusukhon, A., Alzu'Bi, S.

New Direction of Cryptography: A Review on Text-to-Image Encryption Algorithms Based on RGB Color Value

(2020) 2020 7th International Conference on Software Defined Systems, SDS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095760501&doi=10.1109%2fSDS49854.2020.9143891&partnerID=40&md5=7c2afe4898f8ebce978e373832e0d33c)

[85095760501&doi=10.1109%2fSDS49854.2020.9143891&partnerID=40&md5=7c2afe4898f8ebce978e373832e0d33c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095760501&doi=10.1109%2fSDS49854.2020.9143891&partnerID=40&md5=7c2afe4898f8ebce978e373832e0d33c)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan

ABSTRACT: Data encryption techniques are important for answering the question: How secure is the Internet for sending sensitive data. Keeping data secure while they are sent through the global network is a difficult task. This is because many hackers are fishing these data in order to get some benefits. The researchers have developed various types of encryption algorithms to protect data from attackers. These algorithms are mainly classified into two categories namely symmetric and asymmetric encryption algorithms. This survey sheds light on the recent work carried out on encrypting a text into an image based on the RGB color value and held a comparison between them based on various factors evolved from the literature. © 2020 IEEE.

Alzu'bi, S., Jararweh, Y.

Data Fusion in Autonomous Vehicles Research, Literature Tracing from Imaginary Idea to Smart Surrounding Community

(2020) 2020 5th International Conference on Fog and Mobile Edge Computing, FMEC 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85094652707&doi=10.1109%2fFMEC49853.2020.9144916&partnerID=40&md5=706bc06d198a8f285c49ffb3728ef512)

[85094652707&doi=10.1109%2fFMEC49853.2020.9144916&partnerID=40&md5=706bc06d198a8f285c49ffb3728ef512](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85094652707&doi=10.1109%2fFMEC49853.2020.9144916&partnerID=40&md5=706bc06d198a8f285c49ffb3728ef512)

AFFILIATIONS: Al Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

Jordan University of Science and Technology, Department of Computer Science, Irbid, Jordan

ABSTRACT: Many significant challenges related to transportation systems have been raised recently, these include the high accidents rate, road congestion, emission of gases, and environment pollution. Furthermore, transportation crashes caused injuries in accident. Researchers investigated virtual methodologies to automate the transportation process that known as Intelligent Transport System (ITS). In the last 20 years, ITS have been employed efficiently to enhance the performance of transportation systems, improve security of travel, and provide several choices for travelers. The idea of virtual technologies integration is a novel in transportation field. Collecting data from multi-sources played a significant improvement in ITS, this can help stakeholders for processing different forms of data. This huge amount of data can significantly help in the revolution of ITS. This paper focused on several Autonomous vehicles (AVs) related technologies that employed efficiently in ITS. This review integrates and synthesizes monitoring AVs using data fusion from different data sources. Furthermore, recent technologies and software toolboxes are presented in this paper to facilitate the researchers job in improving the data and sensor fusion in AVs. © 2020 IEEE.

Mohammad, B., Alzyadat, W., Al-Fayoumi, M., El Hawi, R., Alhroob, A.

An Approach to Improve Data Quality from Big Data Aspect by Sensitive Cost and Time

(2020) 2020 11th International Conference on Information and Communication Systems, ICICS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085028098&doi=10.1109%2FICICS49469.2020.239526&partnerID=40&md5=262e493d4e7c15cb132f47f5f0217181)

[85085028098&doi=10.1109%2FICICS49469.2020.239526&partnerID=40&md5=262e493d4e7c15cb132f47f5f0217181](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085028098&doi=10.1109%2FICICS49469.2020.239526&partnerID=40&md5=262e493d4e7c15cb132f47f5f0217181)

AFFILIATIONS: Isra University, Department of Software Engineering, Faculty of Information Technology, Amman, Jordan;

Al-Zaytoonah University, Department of Software Engineering, Faculty of Science Information Technology, Amman, Jordan;

Isra University, Department of Business Administration, Faculty of Business, Amman, Jordan

ABSTRACT: Big data is term of dataset with characteristic volume, value and veracity that lead to challenges unable proceed using traditional techniques to extract value, project management perspective is dynamic processing that utilizes the appropriate resources of organization in many phases by measuring in four-factor scope, time, cost and quality. In this research aim improve data quality from big data via project management scope depends on high trust which is getting high accuracy from confidence level in volume of data, confidence get with context and value of data which lead to determine accuracy deeply in it and finally choose from data depending on veracity of it, the experiment using three main factors time, cost and scope, strongest relation arranging between them start by project scope as strongest one then cost, product and finally time is weakest between them, in the final when select best quality use two sides generally from quality degree and be middle-quality interval and especially from relative distance with the strongest factor. © 2020 IEEE.

Baroudi, M., Alia, M., Marashdih, A.W.

Evaluation of Accessibility and Usability of Higher Education Institutions' Websites of Jordan

(2020) 2020 11th International Conference on Information and Communication Systems, ICICS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085014871&doi=10.1109%2FICICS49469.2020.239565&partnerID=40&md5=8222547949b010eb68f1df81c2328bc6)

[85085014871&doi=10.1109%2FICICS49469.2020.239565&partnerID=40&md5=8222547949b010eb68f1df81c2328bc6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085014871&doi=10.1109%2FICICS49469.2020.239565&partnerID=40&md5=8222547949b010eb68f1df81c2328bc6)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Sciences and Information Technology, Amman, Jordan;

Universiti Sains Malaysia, School of Computer Science, Penang, Malaysia

ABSTRACT: Recently, various websites have become a popular means of deriving information. However, users still find it difficult to access the relevant data or use the websites. Hence, they require websites which offer accessible information and easy navigation. In this study, the researchers have investigated the accessibility of the different websites of the Jordanian universities. The researchers determined the accessibility of 30 websites and verified their compliance with the Guidelines 2.0 (WCAG 2.0) for accessing the web content, according to the World Wide Web Consortium (W3C). They tested the usability of the Al-Zaytoonah University website as a test study, by interviewing 6 students belonging to the University. They were asked to identify the pages directly, without any assistance or direction, and they were asked to describe the selection processes and assistive techniques that they used. The data was collected from these students for conducting the website usability test. 14 tasks were implemented in this study, like accessing their University webpages, e.g., homepages of the site and access to the e-learning sites from the university homepage. The time required for every task was assessed. Based on this study, the researchers could identify the websites that were error-free. The results indicated that most of the websites were not easily accessible and were difficult to use. Furthermore, when the researchers carried out the test study with the students, their results indicated that the user interface for every webpage needs improvement, rearrangement of the sequence of web links and addition of more tags and information. © 2020 IEEE.

Alsmadi, A., Alzu'bi, S., Hawashin, B., Al-Ayyoub, M., Jararweh, Y.

Employing Deep Learning Methods for Predicting Helpful Reviews

(2020) 2020 11th International Conference on Information and Communication Systems, ICICS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085010693&doi=10.1109%2FICICS49469.2020.239504&partnerID=40&md5=24dea0ba105389e8388357854d97d520)

[85085010693&doi=10.1109%2FICICS49469.2020.239504&partnerID=40&md5=24dea0ba105389e8388357854d97d520](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085010693&doi=10.1109%2FICICS49469.2020.239504&partnerID=40&md5=24dea0ba105389e8388357854d97d520)

AFFILIATIONS: Jordan University of Science and Technology, Irbid, Jordan;

Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: E-commerce dominates a large part of the world's economy with many websites dedicated to selling products online. The vast majority of e-commerce websites provide their customers with the ability to express their opinions about the products/services they purchase. These reviews represent a rich source of information about the users' experiences, which is of great benefit to both the producer and the consumer. In This paper we present a set of machine/deep learning models, especially using Recurrent Convolutional Neural Network (RCNN) to predict the helpfulness of reviews. Mainly, two approaches are used: a supervised learning approach and a semi-supervised approach. The latter is a unique aspect of our work and it takes advantage of a large number of unlabeled reviews. The

results show that both approaches are better than existing approaches. Moreover, the results show that the second approach has a remarkably better performance compared with the first one, which is in accordance with recent trends in machine/deep learning that focus on benefiting from the huge amount of unlabeled data to enhance the performance of supervised models. © 2020 IEEE.

Alzubi, S., Hawashin, B., Mughaid, A., Jararweh, Y.

Whats Trending? An Efficient Trending Research Topics Extractor and Recommender

(2020) 2020 11th International Conference on Information and Communication Systems, ICICS 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085008259&doi=10.1109%2fICICS49469.2020.239519&partnerID=40&md5=19206d4535bdbdaeeba3757a6362955b)

[85085008259&doi=10.1109%2fICICS49469.2020.239519&partnerID=40&md5=19206d4535bdbdaeeba3757a6362955b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085008259&doi=10.1109%2fICICS49469.2020.239519&partnerID=40&md5=19206d4535bdbdaeeba3757a6362955b)

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, Jordan;

Hashimite University, Zarqa, Jordan;

Jordan University of Science Technology, Irbid, Jordan

ABSTRACT: Finding trending research topics can be of great importance to many domains. However, despite its importance, the works that concentrated on this task are very limited. Furthermore, they did not consider important criteria to detect trending scientific topics. Furthermore, the extraction of trending topics need to be integrated with a recommender system, as it would be difficult for users to browse all the extracted trending scientific topics. In this work, we propose an efficient trending scientific topics extractor and an integrated recommender system. The contribution of this work lies in three points. First, improving the performance of the trending topic extractors by using two important criteria that were not used by the literature. Second, integrating a recommender system with the trending topic extractor to provide intelligent results based on the user profile. Third, insisting on the importance of this field as it deserves more works in this direction. Experimental results showed that the system is efficient in terms of updating time, trending topic extraction time, extraction recall and precision, and recommendation time. © 2020 IEEE.

Akour, A., Kasabri, V., Bulatova, N., Al Muhaisen, S., Al Tarawneh, R., Al-Anati, B., Alhourani, N. Patterns and perceived efficacy of herbal medicine for weight loss and maintenance: A cross-sectional survey from Jordan

(2020) European Journal of Integrative Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85080973868&doi=10.1016%2fj.eujim.2020.101086&partnerID=40&md5=08fbfd0eb3983fa98df9e9674a6b2120)

[85080973868&doi=10.1016%2fj.eujim.2020.101086&partnerID=40&md5=08fbfd0eb3983fa98df9e9674a6b2120](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85080973868&doi=10.1016%2fj.eujim.2020.101086&partnerID=40&md5=08fbfd0eb3983fa98df9e9674a6b2120)

AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, The School of Pharmacy, The University of Jordan, Jordan;

Department of Pharmaceutics and Pharmaceutical Technology, The School of Pharmacy, The University of Jordan, Jordan;

Department of Pharmaceutical Sciences, The School of Pharmacy, The University of Jordan, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Jordan;

Department of Pharmacology, The School of Medicine, The University of Jordan, Jordan

ABSTRACT: Introduction: Overweight and obesity are on the rise worldwide, including Jordan.

Simultaneously the use of complementary and alternative medicine (CAM) is also increasing. The aim of this study is to investigate the patterns and efficacy of CAM used for the purpose of weight reduction and/or maintenance in a sample of Jordanians, with emphasis on herbal medicine. Methods: This was a cross-sectional survey that used a purposive convenience sample from Amman, Jordan between 2015 and 2017. A total of 462 individuals who reported using CAM and herbal medicine were recruited from nutrition and fitness centres, malls and universities. A self-administered questionnaire was completed by participants after obtaining their consent. Results: During the last 3 months, 379 (82 %) of participants had used herbs for weight management, while 279 (60.40 %) were still using them at the time of the study. Green tea leaves and lemon juice were most frequently used among participants (57.4 and 39.2 %; respectively). However, fennel users reported that it was the most effective for weight reduction and was used by (n = 24; 5.19 %) of participants of whom 87.50 % said it worked. Of those using cumin (n = 34; 7.4 %), 87.0 % believed it worked. Interestingly, all users of rosemary had reported dizziness as a side effect when used once daily and 1-2 years usage duration. Plants were used in the form of herbal teas, and were obtained from home (n = 161, 34.85 %), herbalists (n = 146; 31.60 %) and specialized centers (n = 120; 25.97 %). Conclusions: The study provides, for the first time, an insight about the diverse range of remedies used to manage weight in Jordanian society, and how these therapies are utilized in relation to allopathic care. Health care practitioners can use these findings to enhance their communication with patients regarding weight management. © 2020 Elsevier GmbH

Al-Qerem, W.A.

How applicable are GLI 2012 equations to a sample of Middle Eastern school-age children?

(2020) Pediatric Pulmonology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079701651&doi=10.1002%2fppul.24685&partnerID=40&md5=b34050f190c45e90656204f7c494b543)

[85079701651&doi=10.1002%2fppul.24685&partnerID=40&md5=b34050f190c45e90656204f7c494b543](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079701651&doi=10.1002%2fppul.24685&partnerID=40&md5=b34050f190c45e90656204f7c494b543)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: The Global Lung Function Initiative attempted to formulate global all-age lung function equations. The suitability of these equations to Middle Eastern children was never evaluated; this study will evaluate these equations in addition to other regional ones. Methods: Spirometry was conducted for 582 (311 boys) healthy 6- to 13-year-old Jordanian children. z scores, predicted values, percent predicted values, and frequency of records below lower limit than normal (LLN) were calculated for each child using the studied equations. Results: Although none of the studied equations produced a perfect representation of the study data, the GLI 2012 equations for Caucasians were the most suitable. Conclusion: GLI 2012 equations for Caucasians are a reasonable fit for Jordanian school-aged children. © 2020 Wiley Periodicals, Inc.

Al-Shalabi, E., Alkhalidi, M., Sunoqrot, S.

Development and evaluation of polymeric nanocapsules for cirsiol isolated from Jordanian *Teucrium polium* L. as a potential anticancer nanomedicine

(2020) *Journal of Drug Delivery Science and Technology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078805880&doi=10.1016%2fj.jddst.2020.101544&partnerID=40&md5=739b69c292153e4dda0810264da3e9c9)

[85078805880&doi=10.1016%2fj.jddst.2020.101544&partnerID=40&md5=739b69c292153e4dda0810264da3e9c9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078805880&doi=10.1016%2fj.jddst.2020.101544&partnerID=40&md5=739b69c292153e4dda0810264da3e9c9)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan Amman 11733, Jordan

ABSTRACT: Cirsiol (CIR; 5,3',4'-trihydroxy-6,7-dimethoxyflavone) is an abundant bioactive plant flavonoid which has been shown to exhibit inhibitory activity against phosphatidylinositol-3-kinase (PI3K), an enzyme implicated in many cancer types. Despite its promising therapeutic benefits, CIR has not yet been formulated into any type of dosage form. The purpose of this study was to develop a novel polymeric nanoscale formulation for CIR isolated from Jordanian *Teucrium polium* L. to enhance its biopharmaceutical properties. CIR was entrapped into core-shell nanoparticles (nanocapsules; NC) composed of a castor oil-filled core and poly(ethylene glycol)-b-poly(ϵ -caprolactone) (PEG-PCL) polymeric shell by the nanoprecipitation technique. Highly monodisperse CIR-encapsulated NC (CIR-NC) were produced with a mean diameter of 158.1 nm and an almost neutral surface charge. CIR-NC contained on average 53.7 μ g CIR/mg polymer at an encapsulation efficiency of 53.5%. The NC formulation exhibited remarkable stability with no significant increase in particle size up to 6 months at 4 °C or in the presence of serum. Lyophilization of the formulation in the presence of mannitol as lyoprotectant maintained its colloidal stability. The formulation also demonstrated sustained drug release at pH 7.4, with 41% of CIR released after 4 days. An antioxidant assay showed that the free radical scavenging activity of CIR was maintained after encapsulation. Cytotoxicity assays in MCF-7 breast cancer cells showed dose-dependent cytotoxicity of CIR-NC, with an IC₅₀ of 53 μ M, which was comparable to free CIR. Our findings present a promising nanoformulation for a naturally occurring potent anticancer compound with the potential to improve its delivery challenges. © 2020 Elsevier B.V.

Daraosheh, A.Q., Abul-Futouh, H., Görls, H., Weigand, W.

Synthesis and electrochemical investigations of the ortho-metalated complexes [Fe₂(CO)₆{ κ , μ -S, η 2-(R)}] and their substitution reactions

(2020) *Inorganica Chimica Acta*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078632221&doi=10.1016%2fj.ica.2019.119377&partnerID=40&md5=87dc4ca173d5cdc00321c9389d38f45c)

[85078632221&doi=10.1016%2fj.ica.2019.119377&partnerID=40&md5=87dc4ca173d5cdc00321c9389d38f45c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078632221&doi=10.1016%2fj.ica.2019.119377&partnerID=40&md5=87dc4ca173d5cdc00321c9389d38f45c)

AFFILIATIONS: Department of Chemistry, College of Arts and Sciences, University of Petra, P.O. Box: 961343, Amman, 11196, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany

ABSTRACT: Modifications of the dithiolate linkers that connect the two iron atoms of the synthetic H-cluster mimics of [FeFe]-hydrogenase play a significant role on tuning its physical and electrochemical properties. In this report, we describe the redox properties and the catalytic behavior of the ortho-metalated complexes having the general formula [Fe₂(CO)₆{ κ , μ -S, η 2-(R)}] (R = C₁₃H₈O₅, 1 and C₁₇H₂₀N₂S, 2) in the presence and absence of acetic acid, AcOH as a proton source. Moreover, we explore the influence of substituting one CO in complex 1 by stronger electron donating, PPh₃ toward the electrochemical reduction mechanism of the resulting substituted model complex [Fe₂(CO)₅PPh₃{ κ , μ -S, η 2-(C₁₃H₈O₅)}], 3. Overall, the reduction of complexes 1-3 proceeds via simple EE mechanism (E = electron transfer) in the absence of AcOH. In Addition, all complexes show their ability to catalyze the reduction of protons and generate H₂ in the presence of AcOH. © 2019 Elsevier B.V.

Al-Nadaf, A.H., Dahabiyeh, L.A., Bardaweel, S., Mahmoud, N.N., Jawarneh, S.

Functionalized mesoporous silica nanoparticles by lactose and hydrophilic polymer as a hepatocellular carcinoma drug delivery system

(2020) Journal of Drug Delivery Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078555587&doi=10.1016%2fj.jddst.2020.101504&partnerID=40&md5=bd3186ae1f63ba965da3f9f9f0f68381)

[85078555587&doi=10.1016%2fj.jddst.2020.101504&partnerID=40&md5=bd3186ae1f63ba965da3f9f9f0f68381](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078555587&doi=10.1016%2fj.jddst.2020.101504&partnerID=40&md5=bd3186ae1f63ba965da3f9f9f0f68381)

AFFILIATIONS: Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Mutah University, Alkarak, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Surface modification has a strong impact on mesoporous silica nanoparticles (MSNs) performance as drug carriers. Here, we described the chemical synthesis; in vitro drug release and cytotoxicity of MSNs decorated with poly ethylene glycol (PEG) or poly propylene glycol PPG as an outer shell wrap for nanoparticles (NPs). The lactose, glucosylgalactose, was used to provide a specific interaction with the asialoglycoprotein receptor which is expressed on the cell surface of hepatoma. Fourier transform infrared spectroscopy (FTIR) and transmission electron microscopy (TEM) confirmed successful chemical surface modification while Dynamic Light Scattering (DLS) confirmed the surface characteristic changes as size; polydispersity index (PI) and zeta potential. Our results showed that the PI was improved from 0.58 to 0.28 while size has been enlarged from 200 to 357 and 580 nm. A higher percentage of drug entrapment (doxorubicin) was observed with functionalized NPs (94%) compared to plain MSNs (63%). In this study, we effectively synthesized lactose-PPG-MSNs targeting HepG2 cells with IC50 of 0.07 mg/mL when loaded with doxorubicin. This study may provide a useful approach for designing and improving the applicability of MSNs as a promising drug delivery system in hepatocellular carcinoma. © 2020 Elsevier B.V.

Abu-Snieneh, H.M., Aroury, A.M.A., Alsharari, A.F., Al-Ghabeesh, S.H., Esaileh, A.A.

Relationship between sleep quality, using social media platforms, and academic performance among university students

(2020) Perspectives in Psychiatric Care, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075807350&doi=10.1111%2fppc.12450&partnerID=40&md5=e452a5bfff19552204662d56a339bc44e)

[85075807350&doi=10.1111%2fppc.12450&partnerID=40&md5=e452a5bfff19552204662d56a339bc44e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075807350&doi=10.1111%2fppc.12450&partnerID=40&md5=e452a5bfff19552204662d56a339bc44e)

AFFILIATIONS: Nursing Department, College of Applied Medical Sciences, Jouf University, Sakakah, Al-Jawf, Saudi Arabia;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: Explore the quality of sleep and investigate the relationship between sleep quality, using social media platforms, and academic performance among university students. Design and Methods: A cross-sectional correlation design was used, 412 students completed an electronic questionnaire. Findings: The majority of university students suffer from poor quality of sleep. The most frequently used social media platforms were WhatsApp, Snapchat, and YouTube. The strongest predictor of having very poor sleep quality was addiction on twitter. Practice Implications: An educational program about the importance of adequate sleep should be supported university students. © 2019 Wiley Periodicals, Inc.

Sha'ban, M., Girardone, C., Sarkisyan, A.

Cross-country variation in financial inclusion: a global perspective

(2020) European Journal of Finance, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074830479&doi=10.1080%2f1351847X.2019.1686709&partnerID=40&md5=2424e6b72c05267196fd6a944c310c58)

[85074830479&doi=10.1080%2f1351847X.2019.1686709&partnerID=40&md5=2424e6b72c05267196fd6a944c310c58](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074830479&doi=10.1080%2f1351847X.2019.1686709&partnerID=40&md5=2424e6b72c05267196fd6a944c310c58)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Essex Business School, University of Essex, Colchester, United Kingdom

ABSTRACT: Recent years have witnessed a global commitment to advancing financial inclusion as a key enabler for promoting equal opportunity and reducing poverty. In this paper, we use the IMF's Financial Access Survey data and two different approaches to construct a multidimensional financial inclusion index for a global sample of 95 countries over 2004-15. Results reveal an overall progress in financial inclusion over the period under study, most markedly in the use and access dimensions. Financial inclusion appears to be positively and significantly associated with GDP per capita, employment, bank competition, human development, government integrity, and internet usage. Our evidence also points to the importance of considering the level of national income when designing policies to boost financial inclusion. © 2019, © 2019 Informa UK Limited, trading as Taylor & Francis Group.

Mahmoud, N.N., Albasha, A., Hikmat, S., Hamadneh, L., Zaza, R., Shraideh, Z., Khalil, E.A.

Nanoparticle size and chemical modification play a crucial role in the interaction of nano gold with the brain: Extent of accumulation and toxicity

(2020) Biomaterials Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082099385&doi=10.1039%2fc9bm02072a&partnerID=40&md5=15f16b9aae3117e2679d80b2336f49bf)

[85082099385&doi=10.1039%2fc9bm02072a&partnerID=40&md5=15f16b9aae3117e2679d80b2336f49bf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082099385&doi=10.1039%2fc9bm02072a&partnerID=40&md5=15f16b9aae3117e2679d80b2336f49bf)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Cell Therapy Center, University of Jordan, Amman, 11942, Jordan;
Department of Biological Sciences, School of Science, University of Jordan, Amman, 11942, Jordan;
School of Pharmacy, University of Jordan, Amman, 11942, Jordan

ABSTRACT: The blood brain barrier (BBB) is a very selective barrier that protects the brain and the central nervous system (CNS) from the entry of harmful substances and helps regulate the exchange of different molecules and nutrients from and into the brain and the CNS. This selectivity makes delivering therapeutic and diagnostic materials across the BBB very challenging. In this study, different shapes and sizes of gold nanoparticles (GNP) were synthesized and functionalized with five different thiolated ligands to obtain GNP with various surface chemistries. The potential of GNP of different properties to be accumulated into the brain through the BBB and into other organs was investigated in a mouse model using qualitative and quantitative approaches. Gold nanorods (GNR) functionalized with 4-mercaptophenol (Mph) showed the highest penetration ability across the BBB into the brain with no significant deposition in other organs. Interestingly, increasing the size of GNR retarded their delivery into the brain, while enhancing their accumulation in other organs. On the other hand, gold nanospheres (GNS) demonstrated high deposition percentages in the brain and other organs with possible toxic effects. The properties of GNP play a crucial role in their interaction with the BBB and accumulation in the brain and other organs. Thus, GNP can be considered a promising nano-platform for drug delivery into the brain and as a photothermal-inducing agent against brain cancer. © 2020 The Royal Society of Chemistry.

Sobiahe, A., Hijazi, E., Al-Ameer, H.J., Almasri, Y., Jarrar, Y., Zihlif, M., Shomaf, M., Al-Rawashdeh, B.

Arg399Gln XRCC1 polymorphism and risk of squamous cell carcinoma of the head and neck in jordanian patients

(2020) Asian Pacific Journal of Cancer Prevention, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082505639&doi=10.31557%2fAPJCP.2020.21.3.663&partnerID=40&md5=a91f37962d4d26a8f16f816b015ee54b)

[85082505639&doi=10.31557%2fAPJCP.2020.21.3.663&partnerID=40&md5=a91f37962d4d26a8f16f816b015ee54b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082505639&doi=10.31557%2fAPJCP.2020.21.3.663&partnerID=40&md5=a91f37962d4d26a8f16f816b015ee54b)

AFFILIATIONS: Department of Dental Surgery, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pathology, Islamic Hospital, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, Faculty of Medicine, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pathology, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Otolaryngology and Head and Neck Surgery, The University of Jordan, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Biology and Biotechnology, American University of Madaba, Madaba, Jordan

ABSTRACT: Background and Objective: X-ray repair cross-complementing group1 (XRCC1) is a key protein in base excision repair and closely associated with the coordination of the base excision repair pathway. Many studies have focused on XRCC1 SNPs and have shown an associated between these SNPs and the risk of several types of cancers, including head and neck cancer. There are many single nucleotide polymorphisms XRCC1 gene (SNPs) and the most common SNP that result in amino acid substitutions is exon 10 (Arg399Gln). This study aimed to investigate the association between Arg399Gln SNP and the risk of squamous cell carcinoma of the head and neck. Materials and Methods: Ninety nine patients with squamous cell carcinomas of the head and neck and 89 healthy adult controls were enrolled in this study. The Arg399Gln in XRCC1 allele was genotyped using polymerase chain reaction-restriction fragment length polymorphism method. Results: In the single-locus analyses, Arg399Gln SNP showed a significant association with head and neck cancer risk (p value = 0.016 and odd ratio of 1.8). On the genotype level, we applied three analysis models, namely co-dominant, dominant, and recessive genotypes. Arg/Arg homozygous major genotype was significantly (p value <0.05) associated with head and neck squamous cell carcinoma incidence with odd ratio of 2.23 and 2.24 for the co-dominant and recessive models, respectively. Conclusion: The findings indicated that Arg399Gln allele was associated with squamous cell carcinoma of the head and neck among Jordanian patients. This allele might be used as a genetic biomarker of squamous cell carcinoma of the head and neck. © 2020, Asian Pacific Organization for Cancer Prevention.

Hamadneh, T., Al-Zoubi, H., Alomari, S.A.

Fast Computation of Polynomial Data Points over Simplicial Face Values

(2020) Journal of Information and Knowledge Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082315779&doi=10.1142%2fS0219649220400018&partnerID=40&md5=f3a823e9667d469be7c9c81c7a4bd5f7)

[85082315779&doi=10.1142%2fS0219649220400018&partnerID=40&md5=f3a823e9667d469be7c9c81c7a4bd5f7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082315779&doi=10.1142%2fS0219649220400018&partnerID=40&md5=f3a823e9667d469be7c9c81c7a4bd5f7)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Faculty of Science and Information Technology, Jadara University, Irbid, Jordan

ABSTRACT: Polynomial functions F of degree m have a form in the Bernstein basis defined over 1-dimensional simplex W . The Bernstein coefficients exhibit a number of special properties. The function F can be optimised by the smallest and largest Bernstein coefficients (enclosure bounds) over W . By a proper choice of barycentric subdivision steps of W , we prove the inclusion property of Bernstein enclosure bounds. To this end, we provide an algorithm that computes the Bernstein coefficients over subsimplices. These coefficients are collected in an 1-dimensional array in the field of computer-aided geometric design. Such a construct is typically classified as a patch. We show that the Bernstein coefficients of F over the faces of a simplex coincide with the coefficients contained in the patch. © 2020 World Scientific Publishing Co.

Shoqirat, N., Mahasneh, D., Khresheh, R., Singh, C., Al-Momani, M.M., Al-Kalaldeh, M.
Factors Influencing Patients' Experiences of Pain Management in the Emergency Department
(2020) Canadian Journal of Nursing Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85079202175&doi=10.1177%2f0844562119851332&partnerID=40&md5=592fe36665ddcf825c0580804c28842c

AFFILIATIONS: Faculty of Nursing, Mutah University, Karak, Jordan;

Betty Irene Moore School of Nursing, Cootage Hospital General Surgery, Sacramento, CA, United States;

Princess Aisha Bint Al-Hussein College for Nursing and Health Sciences, Al-Hussein Bin Talal

University, Amman, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Despite management of acute pain, concerns regarding pain are still prevalent in the emergency department (ED). Purpose: This study aimed to explore the factors influencing patients' pain management in a Jordanian ED. Method: Fifteen semistructured interviews ($N = 15$) with purposively selected patients in the ED. Results: The thematic analysis uncovered two related themes. The first theme described the stage of "being on ED bed" which encapsulates two subthemes: "bad pain means, bad diagnosis" and "smiley faces versus grumpy faces." The second theme referred to as "being discharged" including two subthemes, namely, "praying for not paying" and "being grateful to God." The lack of money to pay for pain management was equally as stressful as pain itself. Patients' narratives suggest that nursing pain management is a critical time, extending beyond medical management to encompass communication and spirituality. Conclusions: The factors influencing the patients' experience of pain management extend beyond addressing the source of the pain. Consequently, effective communication coupled with respecting patients' spirituality and socioeconomic concerns is essential to pain management. To enhance patients' experience of pain management, the ED system should shift toward a patient-centric model. © The Author(s) 2019.

Al Asfar, J., AlShawra, A., Shaban, N.A., Alrbai, M., Qawasmeh, B.R., Sakhrieh, A., Hamdan, M.A., Odeh, O.

Thermodynamic analysis of a biomass-fired lab-scale power plant

(2020) Energy, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85078558608&doi=10.1016%2fj.energy.2019.116843&partnerID=40&md5=5c010833f3b873904c2151313965e48b

AFFILIATIONS: Mechanical Engineering Department, The University of Jordan, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Jordan;

Institute of Technical Combustion, Leibniz University Hannover, Germany;

Department of Mechanical and Industrial Engineering, American University of Ras Al Khaimah, P.O. Box 10021, Ras Al Khaimah, United Arab Emirates

ABSTRACT: In this study, thermodynamic analysis and environmental impact of a lab-scale biomass-fired open cycle power plant have been performed. The performance of the plant including combustion and generated power efficiencies was studied based on first and second laws of thermodynamics. The combustion temperature and mass fraction of pollutants resulted from direct burning of biomass were also estimated theoretically using a mathematical model developed by the authors. It was found that the measured temperature of combustion of biomass mixture reached 818 °C, which agrees with theoretical result. The estimated energy and exergy efficiencies of the plant were 12 and 16.4%. The heat addition process in the boiler through the burner was the major source of irreversibility in the lab-scale plant; due to non-adiabatic heat transfer in the un-insulated burner where most exergy destruction and energy loss took place. The environmental impact of biomass combustion showed insignificant contents of sulfur and nitrogen oxides pollutants, which enhances the use of biomass as alternative fuel. © 2019 Elsevier Ltd

Abu Sharour, L.

Psychometric evaluation of the Arabic version of the lymphedema life impact scale in breast cancer patients

(2020) Breast Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85073798284&doi=10.1111%2ftbj.13620&partnerID=40&md5=9d0042b75d81901085d2ceaff2b0d7a4

AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan, Amman, Jordan

Sharour, L.A., Omari, O.A., Salameh, A.B., Yehia, D.

Health-related quality of life among patients with colorectal cancer

(2020) Journal of Research in Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071603548&doi=10.1177%2f1744987119846177&partnerID=40&md5=7802f05d94b5629fde722216ed44b2f8)

[85071603548&doi=10.1177%2f1744987119846177&partnerID=40&md5=7802f05d94b5629fde722216ed44b2f8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071603548&doi=10.1177%2f1744987119846177&partnerID=40&md5=7802f05d94b5629fde722216ed44b2f8)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Jordan;

School of Nursing, Sultan Qaboos University, Oman;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Up to 35% of cancer patients have clinically significant levels of psychological distress during their treatment. Accordingly, better understanding of health-related quality of life and its predictors will help oncology nurses plan appropriate interventions to improve health-related quality of life. Aims: This study was conducted to investigate the relationship between hope, depression and anxiety and health-related quality of life among Jordanian cancer patients during their treatment period. Methods: Cross-sectional descriptive correlational design was conducted using the Hospital Anxiety and Depression Scale, Herth Hope Index and Functional Assessment of Cancer Therapy-Colorectal surveys. Results: 260 Jordanian patients with cancer from three Jordanian hospitals completed the study survey. The bivariate analysis indicated significant positive relationships between hope and quality of life ($r = .57, p < .0001$). A significant negative relationship was found between anxiety and depression and quality of life ($r = -.76, p < .0001$). A multiple regression analysis indicated that hope, Hospital Anxiety and Depression Scale and time since diagnosis were predictors of quality of life, and explained 66% of the variance in the quality of life for this sample. Conclusions: The assessment of psychosocial elements including hope, depression, anxiety, and quality of life should be a part of daily nurse-caring behaviours and practices. Implement education programmes to increase nurses' competencies in the psychosocial assessment are recommended. © The Author(s) 2019.

Abu Sharour, L., Malak, M., Subih, M., Bani Salameh, A.

Quality of life, care needs, and information needs among patients diagnosed with cancer during their treatment phase

(2020) Psychology, Health and Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075997448&doi=10.1080%2f13548506.2019.1699660&partnerID=40&md5=1a736731738cac273107f3453bd4548f)

[85075997448&doi=10.1080%2f13548506.2019.1699660&partnerID=40&md5=1a736731738cac273107f3453bd4548f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075997448&doi=10.1080%2f13548506.2019.1699660&partnerID=40&md5=1a736731738cac273107f3453bd4548f)

AFFILIATIONS: Faculty of nursing, AL-Zaytoonah University of Jordan, Amman, Jordan;

School of Nursing, Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan

ABSTRACT: Proper assessment of patients' needs might enhance patients' outcomes, ability to cope with new challenges, identify required resources, prioritize service needs, determine patients with higher need levels, and improve patients' quality of life. A cross-sectional descriptive design was used. Total of 113 patients from different settings completed the study surveys including demographic sheet, Short-form cancer needs questionnaire (CNQ-SF), Functional Assessment of Cancer Therapy-General (FACT-G), and European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-INFO 25). Regression analysis indicated that care needs and information needs were predictors of QOL ($R^2 = 0.688, \text{adjusted } R^2 = 0.61, F(1.17, p < 0.001)$). A significant correlation exists between QOL, care needs and information needs. Daily nursing practices should include assessing patients; care needs, information needs, and QOL through using valid and reliable scales. © 2019, © 2019 Informa UK Limited, trading as Taylor & Francis Group.

Ahmad, H.S., Ayoush, M.D., Al-Alwan, M.S.

Causes of delay to public infrastructure projects according to engineers representing different contract parties

(2020) Built Environment Project and Asset Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078999166&doi=10.1108%2fBEPAM-03-2019-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078999166&doi=10.1108%2fBEPAM-03-2019-0026&partnerID=40&md5=b5acf2f27890af318fc394d44390b6d5)

[0026&partnerID=40&md5=b5acf2f27890af318fc394d44390b6d5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078999166&doi=10.1108%2fBEPAM-03-2019-0026&partnerID=40&md5=b5acf2f27890af318fc394d44390b6d5)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Accounting, Al-Zaytoonah University of Jordan, Amman, Jordan;

Jordanian Ministry of Public Works and Housing, Amman, Jordan

ABSTRACT: Purpose: The purpose of this paper is to investigate the main causes of delay in public construction projects. This is motivated by feedback from public construction experts concerning substantive delays during the last decade. The study thus seeks to help decision makers in Jordan and elsewhere identify problems and develop mitigating strategies. Design/methodology/approach: Causes of delay were identified from previous related studies and then augmented after consultation with experts. This resulted in 56 delay factors classified into eight groups. The sampling frame for the study was defined in terms of public construction projects (mostly related to roads) owned by the

Ministry of Public Works and Housing in Jordan. A survey was conducted with engineers working as representatives of the owner, contractors or consultants to elicit and evaluate the importance of the 56 delay factors. Findings: Overall, 113 completed questionnaire responses were returned and analyzed to rank the causes of delay using the relative importance index method. Owners and consultants showed more interest in factors related to themselves, while contractors showed highest interest in an external factor related to the owner of services. Four recommendations are put forward for decision makers to mitigate against delays. Originality/value: This research investigates a relatively large number of delay factors compared to other studies and these are categorized into groups to facilitate thematic understanding. Further, compared to previous related research, this research fills a gap by exploring the opinions of different contract parties. © 2019, Emerald Publishing Limited.

Alsakarneh, A., Tabaza, T.A., Momani, L.

Smart advising and tailored class scheduling

(2020) 2020 Advances in Science and Engineering Technology International Conferences, ASET 2020, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087437243&doi=10.1109%2fASET48392.2020.9118232&partnerID=40&md5=96f4e8e33f97db31984eadf5cc062cdc)

85087437243&doi=10.1109%2fASET48392.2020.9118232&partnerID=40&md5=96f4e8e33f97db31984eadf5cc062cdc

AFFILIATIONS: Faculty of Engineering Technology and Science, Higher Colleges of Technology, Fujairah, United Arab Emirates;

Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Department of Mechanical Engineering, Amman, Jordan

ABSTRACT: This paper is proposing a smart degree audit, scheduling and advising system using Matlab. The system would work in three phases; (i) Degree audit, i.e. extract data identify courses required by the students, (ii) class scheduling, i.e. tailored scheduling of required courses, (iii) advising student with required courses that is offered. The proposed approach has proved to be very efficient in all tasks. Efficient in terms of time consumption, advising where it can be done at no time, and accuracy of the developed plans, as the human error is eliminated. © 2020 IEEE.

Arar, S., ALSoufi, H., Abu-Nameh, E.S.M., Deeb, A.A., Habahbeh, A.

Screening of (Aminoalkylindols) cannabinoids in smoking products by GC-EI/MS in Jordan: Liquid-liquid extraction optimization

(2020) Egyptian Journal of Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084993565&doi=10.21608%2fejchem.2019.11591.1737&partnerID=40&md5=a2e928474ccbeec1e1719e629e519596)

85084993565&doi=10.21608%2fejchem.2019.11591.1737&partnerID=40&md5=a2e928474ccbeec1e1719e629e519596

AFFILIATIONS: Department of Chemistry, School of Science, University of Jordan, Amman, 11942, Jordan;

Department of Chemistry, Faculty of Science, Al-Balqa Applied University, Al-Salt, 19117, Jordan;

Forensic Science Laboratory Department-PSD, Amman, Jordan;

Alzaytoonah University of Jordan, Faculty of Pharmacy, Amman, 11733, Jordan;

Anti-Narcotics Department-PSD, Amman, Jordan

ABSTRACT: IN THIS work a screening study in Jordan was conducted on identification of herbal smoking mixtures containing recently new marketed synthetic cannabinoids (aminoalkylindols) (XLR-11, AB-CHMINACA, AB-FUBINACA isomers) which were responsible for a few cases for suicide accidents, individual violent action and few homicides. The smoking items were seized by customs and by the Anti-Narcotics Department in the year 2016/17. Forensic evidences including herbal smoking mixtures, cigarettes, and cigarettes waste were screened for containing these banned drugs employing GC-EI/MS in scan mode with JWH-018 and 5F-ADB as surrogates and individual aminoalkylindols reference standards. The liquid-liquid extraction optimization results indicated that dichloromethane gave the highest recovery for aminoalkylindols in herbal smoking mixtures and methanol for cigarette waste filters. The Results indicated that the marketed herbs were in all sprayed with either XLR-11 (around 45%) or combination of either both XLR-11 and AB-CHMINACA or a combination of XLR-11 and AB-FUBINACA isomers (25%) and the rest was AB-CHMINACA or AB-FUBINACA isomers pure or mixtures. These results were further confirmed by cigarette waste analysis which gave approximate results to herbs or spices. To our knowledge this is the first study of its kind in the MENA region and to be conducted in Jordan with an optimization procedure that is not reported in literature. © 2020 National Information and Documentation Center (NIDOC).

Al-Samydai, M.J., Al-Dajani, D.M., Al-Ataywi, L.A.

The impact of the word of mouth on buying behavior of shares; applied study in Amman's stock exchanges markets

(2020) International Journal of Scientific and Technology Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082166462&partnerID=40&md5=36ecea209d356941dff5334b9fb91ff)

85082166462&partnerID=40&md5=36ecea209d356941dff5334b9fb91ff

AFFILIATIONS: Department of marketing, The Faculty of Business, Al-Zaytoonah University, P.O box-130, Amman, Jordan

ABSTRACT: the aim of this study is to identify the word of mouth and its effects on the buying behavior of stocks at the Amman financial exchange market. The Researcher relied on a questionnaire

as a means of data collocation method for the study. The study sample consisted of 125 clients who are clients at the Amman financial exchange market who were chosen at random, the researcher used the statistical package (SPSS) for data analysis. The researcher reached several conclusion, most important ones were that there was a medium level of evaluation for the word of mouth for the clients of the Amman stock exchange financial market reaching (3.55), The research has shown the word of mouth to have an effect of statistical significance (at $p=0.05$) on the buying behavior of the stocks at the stocks exchange including things like dealers, communication, reference group and the company status. Based on the results of this study the researcher made several recommendations including working on enhancing awareness of the stock exchange clients about the economic activity that is included in the word of mouth. © IJSTR 2020.

Bader, R., Alokush, B., Abdallah, M., Awad, K., Ngah, A.

A proposed java forward slicing approach

(2020) Telkomnika (Telecommunication Computing Electronics and Control), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081933804&doi=10.12928%2fTELKOMNIKA.v18i1.12655&partnerID=40&md5=1453ffcf806895f3653b0bf999ac0771)

[85081933804&doi=10.12928%2fTELKOMNIKA.v18i1.12655&partnerID=40&md5=1453ffcf806895f3653b0bf999ac0771](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081933804&doi=10.12928%2fTELKOMNIKA.v18i1.12655&partnerID=40&md5=1453ffcf806895f3653b0bf999ac0771)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

School of Informatics and Applied Mathematics, Universiti Malaysia Terengganu, Malaysia

ABSTRACT: Many organization, programmers, and researchers need to debug, test and make maintenance for a segment of their source code to improve their system. Program slicing is one of the best techniques to do so. There are many slicing techniques available to solve such problems such as static slicing, dynamic slicing, and amorphous slicing. In our paper, we decided to develop a tool that supports many slicing techniques. Our proposed tool provides new flexible ways to process simple segments of Java code, and it generates needed slicing according to the user needs, our tool will provide the user with direct and indirect dependencies for each variable in the code segments. This tool can work under various operating systems and does not need particular environments. Thus, our tool is helpful in many aspects such as debugging, testing, education, and many other elements. © 2020 Universitas Ahmad Dahlan.

Hamadneh, T., Ali, M., AL-Zoubi, H.

Linear optimization of polynomial rational functions: Applications for positivity analysis

(2020) Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85080149737&doi=10.3390%2fmath8020283&partnerID=40&md5=a07a0f73b217fa6a6c0c87f87044f61b)

[85080149737&doi=10.3390%2fmath8020283&partnerID=40&md5=a07a0f73b217fa6a6c0c87f87044f61b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85080149737&doi=10.3390%2fmath8020283&partnerID=40&md5=a07a0f73b217fa6a6c0c87f87044f61b)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics and Statistics, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Basic Sciences, Al Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: In this paper, we provide tight linear lower bounding functions for multivariate polynomials given over boxes. These functions are obtained by the expansion of polynomials into Bernstein basis and using the linear least squares function. Convergence properties for the absolute difference between the given polynomials and their lower bounds are shown with respect to raising the degree and the width of boxes and subdivision. Subsequently, we provide a new method for constructing an affine lower bounding function for a multivariate continuous rational function based on the Bernstein control points, the convex hull of a non-positive polynomial s , and degree elevation. Numerical comparisons with the well-known Bernstein constant lower bounding function are given. Finally, with these affine functions, the positivity of polynomials and rational functions can be certified by computing the Bernstein coefficients of their linear lower bounds. © 2020 by the authors.

Hamici, Z.

Elements Failure Robust Compensation in 2D Phased Arrays for DOA Estimation with M-ary PSK Signals

(2020) IEEE Transactions on Wireless Communications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079808632&doi=10.1109%2fTWC.2019.2953059&partnerID=40&md5=3c9c3f963dee7f446d472ded86ec7f38)

[85079808632&doi=10.1109%2fTWC.2019.2953059&partnerID=40&md5=3c9c3f963dee7f446d472ded86ec7f38](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079808632&doi=10.1109%2fTWC.2019.2953059&partnerID=40&md5=3c9c3f963dee7f446d472ded86ec7f38)

AFFILIATIONS: Department of Electrical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan (ZUJ), Amman, 11733, Jordan

ABSTRACT: Constant modulus algorithm (CMA) has been widely used in direction of arrival (DOA) estimation for constant modulus signals. However, CMA fails completely when dealing with array elements failure. In this paper we devise an algorithm to solve CMA fault-tolerance deficiency. The compensation of failed elements in 2D arrays is achieved by a Replace, Replicate, Reconstruct and Remove (4R) algorithm. The 4R-2D-CMA starts by replacing a failed-element signal by the nearest operating array element signal, then, after computing the covariance matrix, the corrupted rows and columns corresponding to failed elements in both elevation and azimuth are replicated from their Centro-symmetric counterparts to correct the covariance distortion. Replication step takes advantage

of a special structure of two perpendicular Centro-symmetric arrays producing a Centro-Hermitian matrix. Afterwards, a 2D-CMA algorithm is used for decomposition to produce azimuth and elevation directions matrices. After decomposition, a linear phase correction is used before the covariance matrix is reconstructed. Finally, a second decomposition is used to obtain final DOAs. The number of constant modulus (CM) sources is estimated from a robust spectrogram analysis. Results for an SNR of -3 dB with 11% of elements failure show almost full recovery and hence prove the effectiveness of the novel approach. © 2002-2012 IEEE.

Ali, N.N., Allan, M.S., Azzam, Z.A.

The impact of total quality management (Tqm) dimensions on achieving competitive advantage: Managerial perspective of the quality department staff at five-star hotels. Case of Jordan (2020) International Journal of Scientific and Technology Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079598040&partnerID=40&md5=aa973d1d1be9abe881fa54d5d71141c3)

[85079598040&partnerID=40&md5=aa973d1d1be9abe881fa54d5d71141c3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079598040&partnerID=40&md5=aa973d1d1be9abe881fa54d5d71141c3)

AFFILIATIONS: Marketing Department, Al-Zaytoonah University, Jordan;

School of economics and business administrative sciences, Zarqa University, Jordan

ABSTRACT: This study aims to identify the impact of total quality management (TQM) dimensions on achieving competitive advantage at Five star hotels in Amman City the capital of Jordan from managerial perspective. In order to analyze the impact of total quality management (TQM) dimensions on achieving competitive advantage, the researchers selected certain independent variables (Adopting a customer-focused culture, Ongoing development, Focusing on the fulfillment of employees' needs, and focusing on meeting the administrative requirements), and one dependent variable which is achieving competitive advantage. The researchers designed a questionnaire and was given out to 45 directors and employees who work at the quality department of Jordanian five-star hotels. total distributed ones, were valid for the analytical descriptive study. Descriptive statistical analytical method was used for describing the phenomenon of the population using the SPSS to analyze the data collected from the questionnaire. The main result of this study showed that the examined total quality management dimensions jointly have a statistically significant impact - at the statistical significance level of $\alpha \leq 0.05$ - on the achievement of a competitive advantage from the perspective of the quality department staff at Jordanian five-star hotels. The research concludes focusing on the fulfillment of employees' needs shall encourage employees to ensure that development processes are carried out in ongoing manner. In addition, meeting the administrative requirements shall enable the management to focus on its customers. Meeting the administrative requirements shall also enable the management to utilize strategies and carry out effective communication to achieve quality. Thus, that shall participate in creating a competitive advantage. © 2020 IJSTR.

Abu-Rumman, G., Khdair, A.I., Khdair, S.I.

Current status and future investment potential in renewable energy in Jordan: An overview (2020) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079379194&doi=10.1016%2fj.heliyon.2020.e03346&partnerID=40&md5=a5907ead3393cde06b4a0497f0d98b14)

[85079379194&doi=10.1016%2fj.heliyon.2020.e03346&partnerID=40&md5=a5907ead3393cde06b4a0497f0d98b14](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079379194&doi=10.1016%2fj.heliyon.2020.e03346&partnerID=40&md5=a5907ead3393cde06b4a0497f0d98b14)

AFFILIATIONS: Department of Civil Engineering, Isra Private University, Amman, 11622, Jordan;

Jordan University of Science and Technology, Mech. Eng. Dep., P.O.Box: 3030, Irbid, 2011, Jordan;

King Abdulaziz University, Mech. Eng. Dep., P.O.Box: 80204, Jeddah, 21589, Saudi Arabia;

Faculty of Pharmacy, Al-Zaytoonah Private University of Jordan, Amman, 11733, Jordan

ABSTRACT: Jordan imports 94% of its oil and gas (fossil fuels) to meet its energy needs, leaving it vulnerable to variations in fuel price. Jordan's demand for energy is growing at a rate of 3% annually. In response, the government set a target of obtaining 10% of its energy needs from renewable energy resources by increasing electricity generation share from the present 1.13 GW-1.8 GW by 2020. The sources of generation include abundant solar, wind, and biomass resources, which also enhance economic growth and reduce pollution. This article analyzed the current energy situation in Jordan and assessed the available renewable energy resources potential for direct investments. The actual contribution of clean energy is still moderate at roughly 7% of total energy demand, despite the efforts placed on the development of alternative energy resources. The national electricity supply and demand are presented, and the government initiatives, financial incentives, and tax exemptions to encourage investments in clean energy are also discussed. The renewable energy policy generates future opportunities for investors with an ambitious \$20 billion energy plans as does its strategy to improve energy efficiency. This article will benefit interested clean energy investors and developers and plans for 2,000 MW investments in wind and solar energy are ready for bidders. Such an endeavor and model will also benefit neighboring countries in the region. Energy; Energy economics; Renewable energy resources; Energy sustainability; Energy use in building; Renewable energy; Wind energy; Solar energy; Investments; Jordan. © 2020 The Author(s)

Jarrar, Y.B., Kim, D.H., Lee, S.-J., Shin, J.-G.

Inhibition of 20-hydroxyeicosatetraenoic acid (20-HETE) glucuronidation by non-steroidal anti-

inflammatory drugs in human liver microsomes and recombinant UDP-glucuronosyltransferase enzymes (2020) Prostaglandins Leukotrienes and Essential Fatty Acids, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078225069&doi=10.1016%2Fj.plefa.2020.102055&partnerID=40&md5=cfec8227d2ee6ee56f2524b948ccb672)

85078225069&doi=10.1016%2Fj.plefa.2020.102055&partnerID=40&md5=cfec8227d2ee6ee56f2524b948ccb672

AFFILIATIONS: Department of Pharmacology and Pharmacogenomics Research Center, Inje University College of Medicine, Inje University, Gimhae, South Korea;

Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Clinical Pharmacology, Inje University College of Medicine, Inje University, Busan, South Korea

ABSTRACT: 20-hydroxyeicosatetraenoic acid (20-HETE) is an arachidonic acid metabolite which is known to increase platelet aggregation and cardiovascular risk. In this study, nine non-steroidal anti-inflammatory drugs (NSAIDs) selected by chemical structures were screened to determine their effects on the glucuronidation of 20-HETE using human liver microsomes (HLMs). Then, the combined effects of the selected NSAID and genetic polymorphisms in UDP-glucuronosyltransferase (UGT) were investigated. Among the tested NSAIDs, diclofenac was the strongest inhibitor of 20-HETE glucuronidation with an IC₅₀ value of 3.5 μ M. Celecoxib, naproxen, mefenamic acid, ibuprofen, and indomethacin showed modest inhibition with IC₅₀ values of 77, 91, 190, 208, and 220 μ M, respectively, while acetylsalicylic acid, rofecoxib, and meloxicam did not inhibit 20-HETE glucuronidation. Glucuronidation of 20-HETE by UGT2B7 and UGT1A9 recombinant enzymes was significantly inhibited by indomethacin, mefenamic acid, diclofenac, ibuprofen, naproxen, and celecoxib ($P < 0.001$). In addition, diclofenac exhibited a competitive inhibition mechanism with the K_m value of 20-HETE glucuronidation increasing from 23.5 μ M to 62 μ M in the presence of 3.5 μ M diclofenac. Diclofenac further decreased 20-HETE glucuronidation in HLMs carrying UGT2B7*2 alleles compared with the wild-type HLMs. The results from this study would be useful in understanding the alteration of 20-HETE levels in relation to NSAID and UGT genetic polymorphisms. © 2020

Hamed, R., Omran, H.

Development of dual-release pellets of the non-steroidal anti-inflammatory drug celecoxib (2020) Journal of Drug Delivery Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077245503&doi=10.1016%2Fj.jddst.2019.101419&partnerID=40&md5=eb7060af66906584a70e462c28309ce7)

85077245503&doi=10.1016%2Fj.jddst.2019.101419&partnerID=40&md5=eb7060af66906584a70e462c28309ce7

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Tabuk Pharmaceutical Research Center, Amman, Jordan

ABSTRACT: In the current study, once-a-day dual-release pellets of the selective non-steroidal anti-inflammatory drug celecoxib (200 mg) was developed to treat arthritis. Pellets were prepared where a 100 mg celecoxib, located in the outer layer, was released in an immediate-release (IR) pattern, whereas the remaining 100 mg celecoxib, located in the inner layer, was released in a sustained-release (SR) pattern. Pellets were subjected to four coating- and loading-stages using solid-dispersion and spray-drying including seal-coating, drug-loading, SR-coating, and IR-loading. Release studies were carried out using dissolution media with a pH range 1.2–12.0. The IR-stage showed a fast release rate, where 47.0% of celecoxib (equivalent to 94 mg) was released within the first hour. Whereas the SR-stage showed a sustained-release pattern up to 16 h. Celecoxib converted from crystalline to amorphous form during the development of pellets. This in turn improves the aqueous solubility and hence the dissolution of celecoxib. The results of stability studies showed that pellets were stable at 30 °C/65 %RH and 40 °C/75 %RH for 6 months. The present study demonstrated that celecoxib pellets can be an effective strategy for delivering the poorly-soluble drug celecoxib in a dual-release pattern. © 2019 Elsevier B.V.

Abu Shosha, G.M., Al-Kalaldehy, M.

The transactional model of stress and coping as guidance for understanding adolescent patients' experience with thalassemia: Case report

(2020) Journal of Child and Adolescent Psychiatric Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075520190&doi=10.1111%2Fjcap.12259&partnerID=40&md5=6ec852a942f8f0689d961d5c46e97fa4)

85075520190&doi=10.1111%2Fjcap.12259&partnerID=40&md5=6ec852a942f8f0689d961d5c46e97fa4

AFFILIATIONS: Faculty of Nursing, Zarqa University, Zarqa, Jordan;

Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: This case report investigated the transactional model of stress and coping as guidance for nursing care of an adolescent patient with thalassemia. Sources Used: A case study of a 15-year-old female patient with β -thalassemia major. Data were collected using patient medical records, an interview with the patient and physical examination. Results: Four issues related to coping were isolated: Worsening physical symptoms; psychosocial consequences, coping process, and building supportive networks. These issues and the patient's adaption are explored via the transactional model. Conclusions: Having thalassemia was cognitively appraised by the patient as a stressful and taxing situation with detrimental consequences, such as changes in physical appearance,

stigmatization, and depression. Nurses should evaluate each patient's physical and psychosocial needs, utilizing appropriate theoretical models for designing a suitable care plan. As the case study demonstrates, the transactional model was an effective guide for nurses in planning care of an adolescent patient with thalassemia. © 2019 Wiley Periodicals, Inc.

AlZu'bi, S., Shehab, M., Al-Ayyoub, M., Jararweh, Y., Gupta, B.
Parallel implementation for 3D medical volume fuzzy segmentation
(2020) Pattern Recognition Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85050687672&doi=10.1016%2Fj.patrec.2018.07.026&partnerID=40&md5=b61faddadda6fa5e64b7904b1f41c91f)

[85050687672&doi=10.1016%2Fj.patrec.2018.07.026&partnerID=40&md5=b61faddadda6fa5e64b7904b1f41c91f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85050687672&doi=10.1016%2Fj.patrec.2018.07.026&partnerID=40&md5=b61faddadda6fa5e64b7904b1f41c91f)

AFFILIATIONS: Computer Science Department, School of science and information technology, Zaytoonah University of Jordan, Amman, Jordan;

Computer Science Department, Jordan University of Science and Technology, Irbid, Jordan;

Department of Computer Engineering, National Institute of Technology, Kurukshetra, India

ABSTRACT: In the past, 2D models were the main models for medical image processing applications, whereas the wide adoption of 3D models has appeared only in recent years. The 2D Fuzzy C-Means (FCM) algorithm has been extensively used for segmenting medical images due to its effectiveness. Various extensions of it were proposed throughout the years. In this work, we propose a modified version of FCM for segmenting 3D medical volumes, which has been rarely implemented for 3D medical image segmentation. We present a parallel implementation of the proposed algorithm using Graphics Processing Unit (GPU). Researchers state that efficiency is one of the main problems of using FCM for medical imaging when dealing with 3D models. Thus, a hybrid parallel implementation of FCM for extracting volume objects from medical files is proposed. The proposed algorithm has been validated using real medical data and simulated phantom data. Segmentation accuracy of predefined datasets and real patient datasets were the key factors for the system validation. The processing times of both the sequential and the parallel implementations are measured to illustrate the efficiency of each implementation. The acquired results conclude that the parallel implementation is 5X faster than the sequential version of the same operation. © 2018 Elsevier B.V.

AL Maâ€™mari, Q., Sharour, L.A., Al Omari, O.

Fatigue, burnout, work environment, workload and perceived patient safety culture among critical care nurses

(2020) British Journal of Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077721876&doi=10.12968%2Fbjon.2020.29.1.28&partnerID=40&md5=c2b8a77ce8cb3545c55811fc32ac9a6b)

[85077721876&doi=10.12968%2Fbjon.2020.29.1.28&partnerID=40&md5=c2b8a77ce8cb3545c55811fc32ac9a6b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077721876&doi=10.12968%2Fbjon.2020.29.1.28&partnerID=40&md5=c2b8a77ce8cb3545c55811fc32ac9a6b)

AFFILIATIONS: Medical Unit, College of Nursing, Sultan Qaboos University, Muscat, Oman;

College of Nursing, AL Zaytoonah University of Jordan, Jordan;

Sultan Qaboos University, Muscat, Oman;

College of Nursing, Sultan Qaboos University, Muscat, Oman

ABSTRACT: A study was conducted to explore whether fatigue, workload, burnout and the work environment can predict the perceptions of patient safety among critical care nurses in Oman. A cross-sectional predictive design was used. A sample of 270 critical care nurses from the two main hospitals in the countryâ€™s capital participated, with a response rate of 90%. The negative correlation between fatigue and patient safety culture ($r=-0.240$) indicates that fatigue has a detrimental effect on nursesâ€™ perceptions of safety. There was also a significant relationship between work environment, emotional exhaustion, depersonalisation, personal accomplishment and organisational patient safety culture. Regression analysis showed that fatigue, work environment, emotional exhaustion, depersonalisation and personal accomplishment were predictors for overall patient safety among critical care nurses ($R^2=0.322$, $F=6.117$, $P<0.0001$). Working to correct these predictors and identifying other factors that affect the patient safety culture are important for improving and upgrading the patient safety culture in Omani hospitals. © 2020 MA Healthcare Ltd

Dajani, D., Yaseen, S.G., El Qirem, I.A.

Mitigating the Impact of the COVID-19 Pandemic on the Tourism Sector: The Case of Jordan

(2020) World Sustainable Development Outlook, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175454432&partnerID=40&md5=a338d7acccb41573e15401d1e0dae649)

[85175454432&partnerID=40&md5=a338d7acccb41573e15401d1e0dae649](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85175454432&partnerID=40&md5=a338d7acccb41573e15401d1e0dae649)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Business, Department of Marketing, Amman, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Business, Department of Business Administration, Jordan;

Al-Zaytoonah University of Jordan, Faculty of Business, Department of Marketing, Jordan

ABSTRACT: Purpose The outbreak of the COVID-19 pandemic led to an almost complete cessation in the tourism sector worldwide. The sudden outbreak affected all economic sectors in Jordan and tourism was severely hit. The aim of this study is to adapt a "multi-step model for altering place image" to

uncover various media strategies that could possibly be used by Jordanian marketers to increase the flow of tourism and repair their destination image during the pandemic. Design/Methodology/Approach A qualitative research method was used to reach the objectives of the research. Findings The study provides a framework for tourism marketers to mitigate the effects of COVID-19 in the tourism sector. © 2020 World Sustainable Development Outlook. All rights reserved.

Shihab, I.A., Al-Shra'a, M., Abushihab, E.

The status of women in renaissance drama: An analytical and critical study of Elizabeth Cary's *The Tragedy of Mariam* (1613), and John Webster's *The Duchess of Malfi* (1612)

(2020) *Journal of Language Teaching and Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147482059&doi=10.17507%2fjltr.1106.08&partnerID=40&md5=926b68e6a369b7cf1ebe9c1a6ad531b8)

[85147482059&doi=10.17507%2fjltr.1106.08&partnerID=40&md5=926b68e6a369b7cf1ebe9c1a6ad531b8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147482059&doi=10.17507%2fjltr.1106.08&partnerID=40&md5=926b68e6a369b7cf1ebe9c1a6ad531b8)

AFFILIATIONS: English Department, Alzaytoonah University of Jordan, Jordan;

English Department, University of Jordan, Jordan;

Yarmouk University, Jordan

ABSTRACT: This paper attempts to analyze two plays, Elizabeth Cary's *The Tragedy of Mariam* (1613), and John Webster's *The Duchess of Malfi* (1612). It focuses on main characters in these works which compares and contrasts between them. These plays were selected to highlight issues related to Renaissance women such as marriage, feminism, misogynist, silence, and obedience. This analysis shows the tyranny of the husband against women, and their revolution against their social status. The outcome of this analysis endeavors to present new kind of heroines who want to change the traditional stereotype about women. Special attempt is given to propose feminist explanations for these characters. © 2020 ACADEMY PUBLICATION.

Abushihab, I.

A stylistic analysis of Arab-American poetry: Mahjar (place of emigration) poetry

(2020) *Journal of Language Teaching and Research*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147475012&doi=10.17507%2fjltr.1104.17&partnerID=40&md5=8884c885dfc6c9a7554ddf51d58683e9)

[85147475012&doi=10.17507%2fjltr.1104.17&partnerID=40&md5=8884c885dfc6c9a7554ddf51d58683e9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147475012&doi=10.17507%2fjltr.1104.17&partnerID=40&md5=8884c885dfc6c9a7554ddf51d58683e9)

AFFILIATIONS: English Department, Faculty of Arts, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The present paper represents an attempt to focus upon analyzing and describing the major features of Arab American poetry written by prominent Arab poets who had arrived in America on behalf of millions of immigrants during the 19th century. Some of who wrote in English and Arabic like Ameen Rihani (1876-1940); Khalil Gibran (1883-1931) and Mikhail Naimy (1889-1988). Others wrote in Arabic like Elia Abumadi (1890-1957). Most of their poems in Mahjar (place of emigration) reveal nostalgia, their love to their countries and their ancestors and issues relating to Arab countries. The paper analyzes some of their poems based on linguistic, grammatical, lexical and rhetorical levels. © 2021 ACADEMY PUBLICATION.

Suleiman, K., Al-Khateeb, T., Al Kalaldehy, M., Sharour, L.A.

The Effect of Shift Fluctuations on Sleep Quality among Nurses Working in the Emergency Rooms in Amman, Jordan

(2020) *International Journal of Occupational Safety and Health*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132026437&doi=10.3126%2fijosh.v10i1.29877&partnerID=40&md5=043594a1eae1da0aa4fdd95dfc372f06)

[85132026437&doi=10.3126%2fijosh.v10i1.29877&partnerID=40&md5=043594a1eae1da0aa4fdd95dfc372f06](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132026437&doi=10.3126%2fijosh.v10i1.29877&partnerID=40&md5=043594a1eae1da0aa4fdd95dfc372f06)

AFFILIATIONS: School of Nursing, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Faculty of Nursing, The University of Jordan, Aqaba Campus, Jordan

ABSTRACT: Introduction: Sleep Quality disturbances are common among nurses especially those working in stressful situations such as emergency room. Additionally, sleep quality disturbances were found to interfere with nurses' quality of life and work performance. No studies have found the effect of fluctuated shifts on sleep quality among nurses. Objectives: To examine the impact of shift fluctuations on sleep quality among nurses working in the emergency room. Methods: A cross-sectional, descriptive design was employed. Five emergency rooms were selected from public and private hospitals located in Amman, Jordan. The selected hospitals were also referral sites with capacity of more than 200 beds. A convenient sample of nurses who had a minimum of six months experience in the emergency room and working on rotating shifts were eligible for participation. Nurses with known chronic respiratory problems and sleep apnea were excluded. A self-administered questionnaire including a demographic and work-related questions, and the Arabic version of the Pittsburgh Sleep Quality Index were provided. Shift fluctuations were clustered based on interchanging between morning, evening and night shifts. Results: A total of 179 emergency nurses working in rotating shifts participated in the study. The majority of the nurses were poor sleepers. The study found no significant differences between different shifts interchange and sleep quality. However, interchange between morning and evening shift reported the highest sleep disturbance. Sleep quality was positively correlated with the length of experience, while negatively correlated with the age and the number of monthly shifts.

Nurses who declared higher satisfaction and ability to work under pressure revealed better sleep quality. Conclusion: Emergency room nurses showed poor sleep quality. While there was no specific shift interchange cluster inducing poor sleep quality, some demographical and work-related characteristics indicated their influence on sleep quality. © International Journal of Occupational Safety and Health.

Shaban, O.S.

Digital Currencies: Its Features and Macroeconomic Implications

(2020) Springer Proceedings in Business and Economics, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85126100194&doi=10.1007%2f978-3-030-38253-7_31&partnerID=40&md5=f72143004dc25465e88e175d74f83238

AFFILIATIONS: Accounting Department, Faculty of Business, Al-Zaytoonah University of Jordan, 130, Amman, 11733, Jordan

ABSTRACT: Central banks are producing traditional paper currencies within controls and under a corresponding inventory of metals or a basket of currencies, but digital currencies are not subject to any controls of any kind which may create a fertile environment of economic instability. The purpose of this paper is to explore the macroeconomics implications of digital currencies, in addition to examine the extent to which digital currencies are currently used as a form of money, and also to determine whether digital currencies pose a material risk to monetary or financial stability. In order to achieve the objectives of this paper, the study examined the digital currencies currently in use, and it analyzed its performance, and expectations, and finally, the study provides its point of view about possible risk associated with digital currencies in use and its effect to our economy. © 2020, Springer Nature Switzerland AG.

Alsmadi, A.A., Oudat, M.S., Ali, B.J.A., Al-Ibbini, O.A.

Analyze the Impact of Exchange Rate on Inflation Rate: Kuwait as a Case Study for the Period of 1990 to 2019

(2020) Change Management, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85122928359&partnerID=40&md5=fcbbdccc20d25b2c26ffced64d2ebf9b>

AFFILIATIONS: Banking and Finance Al-Zaytoonah University of Jordan, Jordan;

Accounting and Finance Department, Applied Science University, Bahrain;

Al-Zaytoonah University of Jordan, Faculty of Business. Department of Accounting, Jordan

ABSTRACT: For the last year, one of the most critical topics in many countries was the exchange rate. Daily news affecting economy may have some explanation power. However, if we look from a broad view there should be bigger and more general factors for exchange rate movements. These general factors can be listed as a differential in inflation rates and changing in interest rate. In addition, this study aims to estimate the impact of exchange rate system on the inflation, the data of Kuwait Central Bank has been used for the period of 1990-2019. In addition, OLS has been applied on the data. The relationship between exchange rate and inflation rate in Kuwait was showed by (OLS) method. The estimated coefficient between inflation and real effective exchange rate was 0.01 and was not significant. The results of this study concluded that the rate of inflation rate not effected exchange rate in Kuwait during the period of this study. © 2020, Common Ground Research Networks. All rights reserved.

Abushihab, I.

The effect of critical rhetoric in teaching english as a foreign language

(2020) Theory and Practice in Language Studies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85106968967&doi=10.17507%2ftpls.1007.04&partnerID=40&md5=15c7302c0993dd6764edfa2786ca70c7>

AFFILIATIONS: English Department, Faculty of Arts, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The present paper represents an attempt so as to examine and analyze texts in terms of the context and its relation to cultural, political and social issues. It also provides theoretical and practical information which are used in classroom to facilitate learning foreign language. Rhetorical analysis is essential to be used and incorporated into EFL classroom because it is an important field which is not isolated from other disciplines like critical thinking and learning process. Special emphasis is laid upon the role of contrastive rhetoric in facilitating the process of learning foreign languages. Some pedagogical implications for studying L2 correctly and effectively are also tackled. Furthermore, the major role of pragmatics in analyzing the Second and Foreign Language text is also highlighted. This is accomplished within a pedagogical point of view. It is hoped that the paper will be of value to EFL teachers, syllabus designers, applied linguists and specialists in ethnography of communication. © 2020 ACADEMY PUBLICATION.

Hamadneh, T., Athanasopoulos, N., Wisniewski, R.

Control design and Lyapunov functions via Bernstein approximations: Exact results

(2020) IFAC-PapersOnLine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85105113522&doi=10.1016%2fj.ifacol.2020.12.1789&partnerID=40&md5=be9f9ba8e812d35e40dc4b46b4f7cf26)

85105113522&doi=10.1016%2fj.ifacol.2020.12.1789&partnerID=40&md5=be9f9ba8e812d35e40dc4b46b4f7cf26

AFFILIATIONS: Al Zaytoonah University of Jordan, Department of Mathematics, Amman, Jordan;

School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, United Kingdom;

Section of Automation and Control, Aalborg University, Aalborg East, 9220, Denmark

ABSTRACT: We study the control problem for polynomial continuous-time dynamical systems. We consider polynomial Lyapunov functions and controllers, both parameterised in Bernstein form. Specifically, we present necessary and sufficient conditions for existence of polynomial controllers and Lyapunov functions of some maximum degree, providing at the same time explicit upper bounds on the degree of the involved Bernstein polynomials. The formulated conditions are a set of algebraic inequalities, in the space of Bernstein coefficients. Copyright © 2020 The Authors. This is an open access article under the CC BY-NC-ND license

Al-Fawaeer, M., Al-Khatib, A., Al-Jaghbeir, F.A., Al-Gagbeer, T.S.

National culture and its impact on innovation: The mediating role of organizational culture: An empirical study on Jordanian telecommunication companies

(2020) Jordan Journal of Business Administration, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104918201&partnerID=40&md5=f024c0674884c6f76fd3a79a8298c12c)

85104918201&partnerID=40&md5=f024c0674884c6f76fd3a79a8298c12c

AFFILIATIONS: Business Administration Department, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Al-Zaytoonah University of Jordan, Jordan;

Arab University College of Technology, Jordan;

Al-Balqa Applied University, Jordan

ABSTRACT: This study aimed to identify the impact of national culture through its dimensions adopted in the Hofstede model (power distance, uncertainty avoidance, individuality, masculinity, long-term orientation and restraint) on the two dimensions of innovation (service innovation and process innovation) in Jordanian telecommunication companies. Also, the study aimed to identify the mediating role of organizational culture between national culture and innovation. The study population consisted of all the workers in those companies= and a proportional stratified sample of (302) employees was taken, where (296) questionnaires were retrieved, with a response rate of (98.2%). To achieve the aims of the study, the descriptive analytical method was used, based on a questionnaire developed for this purpose as a study tool, consisting of (39) items. Statistical methods appropriate for this type of studies were used and the study reached a set of results, the most prominent of which was that national culture has a statistically significant effect on innovation in Jordanian telecommunication companies. National culture, with its dimensions, has a statistically significant effect on organizational culture. Also, organizational culture has a statistically significant effect on innovation. It was also revealed, through path analysis using the Amos software, that organizational culture exercises a mediating role between national culture and innovation. In light of the results of the study, the most prominent recommendations were the necessity for the researched companies to encourage a culture of teamwork to reach new innovations, as well as the importance of adopting an innovative culture that does not avoid risks of being open to new ideas. © 2020 DAR Publishers/The University of Jordan. All Rights Reserved.

Momani, L., Alsakarneh, A., Tabaza, T.A., Joureyeha, M., Barrett, J.

Impact dynamics modelling of viscoelastic materials

(2020) Materials Today: Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103557621&doi=10.1016%2fj.matpr.2020.09.316&partnerID=40&md5=bfca9403e1e46a12bb7e24f715b42eff)

85103557621&doi=10.1016%2fj.matpr.2020.09.316&partnerID=40&md5=bfca9403e1e46a12bb7e24f715b42eff

AFFILIATIONS: Higher Colleges of Technology, P.O.Box 4114, Fujairah, United Arab Emirates;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Nimbus Centre for Embedded Systems Research, Cork Institute of Technology, Cork, Ireland

ABSTRACT: The aim of this paper is modelling and simulation of nonlinear impact system of viscoelastic bodies. Linear impact model was developed based on Kelvin-Voigt, and nonlinear modelling was based on Hunt-Crossley model. Two approaches were used in the nonlinear modelling; one is based on standard parameters of stiffness/damping coefficients, and the other approach is based on calibrated coefficients of stiffness/damping terms. A multi velocity values are considered to be 10.00m/s, 20.00m/s and 30.00m/s to evaluate the dynamic response of the viscoelastic impact model. This study concentrated on various high velocity impact to enhance a modeling process where coding solve type and Matlab Simulink environment is utilized. In addition, higher order ODE fitted data model has been used to improve the dynamic response of the viscoelastic body by optimizing fundamental impact model parameters, i.e. stiffness and damping terms based on deflection-time experimental data. The nonlinear body response and the contact force are analyzed and the results

showed the linear model has been corrected by 96.39% from experimental one, while the fitted data model corrected by 96.72%. © 2020 Elsevier Ltd. All rights reserved.

Al-Qaisia, A., Al Asfar, J., Shaban, N.A., Eniezat, A.

Experimental Investigation of the Performance of a Vortex Tube with Conical Control Valve

(2020) Jordan Journal of Mechanical and Industrial Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102255391&partnerID=40&md5=0a3b18a636166c58b89fa7ab54cda67d)

[85102255391&partnerID=40&md5=0a3b18a636166c58b89fa7ab54cda67d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85102255391&partnerID=40&md5=0a3b18a636166c58b89fa7ab54cda67d)

AFFILIATIONS: Mechanical Engineering Department, The University of Jordan, Amman, 11942, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mechanical Engineering Department, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The Vortex tube (Ranque-Hilsch type/ RHVT) is a simple device used to obtain both cold and hot gas streams simultaneously from a compressed gas. The obtained cold gas is widely used in many low temperature commercial applications. In this work, the performance of the vortex tube was examined experimentally by studying the effects of inlet pressure variations, conical valve opening percentage, tube diameter and hot gas tube length on the thermal performance of the tube. Four tubes with diameters 14, 21, 25 and 32 mm with four hot exhaust gas lengths; 25, 50, 75 and 100 cm were tested experimentally and the obtained data were analyzed. It was observed that the 75 cm length of the hot side length, gives the maximum coefficient of performance for RHVT, as well as the maximum cold temperature reduction, either with or without insulation. Furthermore, the thermal performance of the RHVT was optimum for the two inner diameters; 14 and 21mm. This indicates that, when the ratio of hot side length to inner diameter (L_h/D) lies between 36 and 50, then the thermal performance of the RHVT is optimum and is highly recommended, which agrees with the results published in previous studies and investigations. © 2020. Jordan Journal of Mechanical and Industrial Engineering. All rights reserved.

Hammad, A.M., Al-Qerem, W., Alassi, A., Hyassat, D.

Effect of type 2 diabetes mellitus and diabetic medication on pulmonary function

(2020) Current Respiratory Medicine Reviews, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101926245&doi=10.2174%2f1573398X17666210121141412&partnerID=40&md5=2072459cb805901a5f2101a2c3c4ad00)

[85101926245&doi=10.2174%2f1573398X17666210121141412&partnerID=40&md5=2072459cb805901a5f2101a2c3c4ad00](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101926245&doi=10.2174%2f1573398X17666210121141412&partnerID=40&md5=2072459cb805901a5f2101a2c3c4ad00)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

National Center for Diabetes, Endocrinology and Genetics, Jordan University, Amman, Jordan

ABSTRACT: Background: Type 2 diabetes mellitus (T2DM) is a chronic condition with an impairing effect on multiple organs. Numerous respiratory disorders have been observed in patients with T2DM. However, the effect of T2DM on pulmonary function is inconclusive. Aims: In this study, we investigated the effect of T2DM on respiratory function and the correlation of glycemic control, diabetes duration and insulin intake. Methods: 1500 patients were recruited for this study; 560 having T2DM for at least a year were included in the final data, in addition to 540 healthy volunteers. Forced expiratory volume in one second (FEV1), forced vital capacity (FVC), forced expiratory flow at 25-75% (FEF 25-75%), as well as FEV1/FVC ratio values were measured. Results: A two-sample t-test showed that z-scores produced by Al-Qerem et al.'s equations for FEV1, FVC, and FEF 25-75% were significantly lower for the T2DM group than the control group ($p < 0.01$). FEV1/FVC ratio in the T2DM group was significantly higher ($p < 0.01$). Multiple linear regression analysis found that glycemic control represented by HbA1c as well as disease duration were negatively associated with the pulmonary function ($p < 0.01$). However, insulin intake was found to have no significant correlation with pulmonary function. Conclusion: T2DM was linked to reduced pulmonary function and was consistent with a restrictive ventilation pattern. HbA1c, as well as disease duration, were found to be independent risk factors for reduced pulmonary function. © 2020 Bentham Science Publishers.

Hamadneh, T., Zraiqat, A., Al-Zoubi, H., Elbes, M.

Sufficient Conditions and Bounding Properties for Control Functions Using Bernstein Expansion

(2020) Applied Mathematics and Information Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100151243&doi=10.18576%2famis%2f140605&partnerID=40&md5=515ab6ba28b9c6776f589b4889ae2e64)

[85100151243&doi=10.18576%2famis%2f140605&partnerID=40&md5=515ab6ba28b9c6776f589b4889ae2e64](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85100151243&doi=10.18576%2famis%2f140605&partnerID=40&md5=515ab6ba28b9c6776f589b4889ae2e64)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Bernstein expansion of a polynomial function has linear and quadratic rates of convergence to the original function. In this paper, we extend a direct approximation method by the minimum and maximum Bernstein control points to multivariate polynomials and continuous rational functions over boxes. Furthermore, we explore the rate of convergence and properties of Bernstein basis and illustrate the advantages of this approach through its applications for positivity of nonlinear functions. To this end, sharpness, minimization, degree elevation and convergence properties of polynomials are extended to the multivariate rational polynomial Bernstein case. Subsequently, local

and global positive values of control Bernstein points are computed. Finally, several valid optimization bounds for the degree of Bernstein basis and the width of a box are given. © 2020. NSP Natural Sciences Publishing Cor.

Sewidan, N., Khalaf, R.A., Mohammad, H., Hammad, W.

In-vitro studies on selected jordanian plants as dipeptidyl peptidase-IV inhibitors for management of diabetes mellitus

(2020) Iranian Journal of Pharmaceutical Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099793942&doi=10.22037%2fijpr.2020.1101232&partnerID=40&md5=b489589402506c495be9d820c4eb300f)

[85099793942&doi=10.22037%2fijpr.2020.1101232&partnerID=40&md5=b489589402506c495be9d820c4eb300f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099793942&doi=10.22037%2fijpr.2020.1101232&partnerID=40&md5=b489589402506c495be9d820c4eb300f)

AFFILIATIONS: Department of Chemistry, Faculty of Arts and Sciences, University of Petra, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Diabetes mellitus is a chronic disease characterized by hyperglycemia mainly because of the absolute or relative deficiency of insulin hormone. The dipeptidyl peptidase-IV inhibitors represent a class of glucose-lowering agents potentiating the action of the incretin hormones glucagon-like peptide-1 and glucose dependent insulinotropic polypeptide, which are secreted from the intestinal endocrine cells in response to food ingestion to stimulate insulin secretion from pancreatic beta cells. Natural products have been traditionally used for curing many diseases. In this study, in-vitro biological evaluation of the isolated compounds calotoxin, calotropin, pectolarigenin, apigenin 7-O-(3",6"-di-O-E-p-coumaroyl)- β -glycoside and extracts of *Calotropis procera*, *Ephedra foeminea*, *Artemisia herba-alba*, *Hylocereus undatus* and *Marrubium vulgare* showed potential inhibitory activity, where the butanol extract of *Calotropis procera* was found to have 85.3% inhibition of dipeptidyl peptidase-IV at 0.2 mg/100 μ L concentration. © 2020, Iranian Journal of Pharmaceutical Research. All rights reserved.

Shaban, O.S., Alqtish, A.M., Qatawnh, A.M.

The impact of fair value accounting on earnings predictability: Evidence from Jordan

(2020) Asian Economic and Financial Review, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099507258&doi=10.18488%2fjournal.aefr.2020.1012.1466.1479&partnerID=40&md5=0db5696aad2c3b1bdfb2c8365321b7c4)

[85099507258&doi=10.18488%2fjournal.aefr.2020.1012.1466.1479&partnerID=40&md5=0db5696aad2c3b1bdfb2c8365321b7c4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099507258&doi=10.18488%2fjournal.aefr.2020.1012.1466.1479&partnerID=40&md5=0db5696aad2c3b1bdfb2c8365321b7c4)

AFFILIATIONS: Al_Zaytoonah University of Jordan, Department of Accounting, Jordan

ABSTRACT: The main aim of this research paper is to examine the impact of fair value measurements on earnings predictability. This study focuses on analyzing the relationship between fair value measurements and predictability as a measure of earnings quality. The primary data needed to achieve the study objectives were collected through the annual reports of Jordanian commercial banks. Data from ten commercial banks representing the study sample were collected and analyzed using a time series method covering a period of eight years, from 2011 to 2018. The resolution data were analyzed using the statistical program SSPS. The study concluded that the unrealized gains or losses of fair value forecasted through comprehensive income have a high predictive power of earnings quality. The results also prove that the unrealized gains or losses of fair value forecasted through net income have a high predictive power of earnings quality in the Jordanian commercial banks. The regression and correlation coefficient analyses also refer to a strong magnitude between the two variables, the dependent variable (fair value accounting) and the independent variable (earnings predictability). © 2020 AESS Publications. All Rights Reserved.

Qatawneh, A.M., Bader, A.

QUALITY OF ACCOUNTING INFORMATION SYSTEMS AND THEIR IMPACT ON IMPROVING THE NON-FINANCIAL PERFORMANCE OF JORDANIAN ISLAMIC BANKS

(2020) Academy of Accounting and Financial Studies Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099477324&partnerID=40&md5=756305928dd2945c60157e51b5077a7a)

[85099477324&partnerID=40&md5=756305928dd2945c60157e51b5077a7a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099477324&partnerID=40&md5=756305928dd2945c60157e51b5077a7a)

AFFILIATIONS: Al-Zaytoonah University of Jordan;

Al-Zaytoonah University of Jordana

ABSTRACT: Current study aimed at examining the influence of quality of AIS outputs in improving non-financial performance of Jordanian Islamic banks, AIS outputs characteristics included (Relevance, Credibility, Procedures and instructions, Timelines, IT infrastructure and Feedback Value). In order to achieve aim, researcher adopted a quantitative approach utilizing a questionnaire. After application; (150) individuals within financial departments in Jordanian Islamic banks responded o he questionnaire; and analysis showed that the quality of AIS outputs plays a role in improving and defining non-financial performance. The influence mainly was attributed to credibility which appeared to be the most influential among all, followed by relevance and procedures and instruction in the 2nd and 3rd ranks respectively. Study recommended the necessity for Jordanian Islamic banks to prepare a strategic plan and implement it to develop electronic accounting information systems to achieve the

continuity of the quality of that information and the principles of systems reliability in an integrated manner. © 2020. All Rights Reserved.

Abduljawad, M., Ahmad, A., Jaber, K.M., Thunaibat, A.A., Maria, E.A., Khasawneh, A., Hijazi, H. Evaluating and Adopting E-learning Systems in Al-Zaytoonah University of Jordan (2020) International Journal of Advances in Soft Computing and its Applications, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85099037895&partnerID=40&md5=af1ae9551e970a5bf2db1ca4bcc1e1dc>

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan; Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan; President of Irbid National University, Irbid National University, Department of Computer Information System, Hashemite University;

School of Information Technology, Hashemite University

ABSTRACT: Despite the advantages of applying e learning, a few higher education organizations do not apply e-learning comprehensively and still there exist very few researches, which provide an integrated and effective structure for the acceptance of applying e-learning methods in the Jordanian universities. Hence, it is important to comprehend the factors, which affect the acceptance of e-learning in such universities based on the evaluation of the e-learning experience at Al-Zaytoonah University of Jordan from the viewpoint of student satisfaction during a full academic year by performing online survey. The study includes many contributions represented by identifying the strengths and weaknesses in the E-learning system after it was updated a year before the implementation of the study, as the new updates included adding more interactive content with students such as; voice and video chat, file and screen sharing, broadcasting lectures or classes, and interactive games. It was necessary to measure student satisfaction with the new changes as well as providing this experience to other educational institutions, it could be an inspirational start that opening new ways for them to develop the mechanisms of e-learning education, which has become one of the most important educational methods adopted in the present and the future, in addition, this study carried out at in the Middle East region, which considered relatively recent in the use of e-learning, and this is a clear guiding instrument for future studies based on different methods, which are related to an effective planning, implementation and development of e-learning. © 2020. ICSRS Publication, 2020. All Rights Reserved.

Al-Masalha, H., Hnaif, A.A., Kanan, T.

Cyber-Crime Effect on Jordanian Society

(2020) International Journal of Advances in Soft Computing and its Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098700793&partnerID=40&md5=19805ba0f2940e4804efcfc416d9f987>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Due to the increasing use of social media applications, it is essential to ensure that the connection is secure because sometimes it is required to fill secret information such as username and password. Many anonymous messages reach to the computer client, which may contain Trojan, virus (Malware). If the user is not an expert in the field of information security, then the user will open the incoming messages without ensuring its integrity, which allows hackers to enter the devices and planting malicious software in the client devices without their knowledge. In this paper, we will identify the concept of syntactic attack and its types, which leads to Cyber-Bullying attack—and also discussing the effect of penetration of devices on the Jordanian society. As shown in the result, the most common electronic crimes are crimes related to defamation, threats and extortion. The results also show the prevalence of Cyber-crime in densely populated places. Besides, Cyber-crime decreases in the regions where clans and tribes live. At the same time, the most age groups that have been exposed to electronic crimes are the groups 18-29 and 30-44. © 2020. All rights reserved.

Qatawneh, A.M.

THE ROLE OF COMPUTERIZED ACCOUNTING INFORMATION SYSTEMS (CAIS) IN PROVIDING A CREDIT RISK MANAGEMENT ENVIRONMENT: MODERATING ROLE OF IT

(2020) Academy of Accounting and Financial Studies Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098687962&partnerID=40&md5=d258d87a8db200d21df073e97d46a615>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Study aimed at examining the influence of CAIS on building a healthy environment for credit risk management through the mediating role of IT infrastructure. Quantitative approach was used. A questionnaire distributed on (76) financial managers within banks, credit companies, and financial services in Jordan. Questionnaire consisted of statements that related to variables of CAIS (speed, compatibility with IFRS, low Error Margins, efficiency, classification, and precision) and variables of credit risk management principles (CRMP) (Establishing an appropriate credit risk environment, operating under a sound credit granting process, Credit administration, measurement and monitoring

process and Ensuring adequate controls). Results of study indicated that IT infrastructure mediates the relationship between CAIS and CRM, and the fact that CAIS can help in creating a healthy environment for CRM through paving the way for (appropriate credit risk environment) and (Credit administration, measurement and monitoring process) based on its characteristics of CAIS, the relationship was highlighted through the variance relationship which was scored through by variables through analysis. Study recommended that financial institution should be more aware of CAIS due to its ability to understand and examine circumstances around the client and their eligibility to be granted credit. Also, increasing awareness of banks and financial institutions to the importance of IT infrastructure and its role in the overall organizational approach in managing and dealing with credit related risks and failures. © 2020. All Rights Reserved.

Gouari, Y., Dahmani, Z., Jebril, I.

Application of fractional calculus on a new differential problem of duffing type

(2020) Advances in Mathematics: Scientific Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098573682&doi=10.37418%2famsj.9.12.82&partnerID=40&md5=d295695cfc649382aa38e7bc0a892d51)

[85098573682&doi=10.37418%2famsj.9.12.82&partnerID=40&md5=d295695cfc649382aa38e7bc0a892d51](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098573682&doi=10.37418%2famsj.9.12.82&partnerID=40&md5=d295695cfc649382aa38e7bc0a892d51)

AFFILIATIONS: LABORATORY OF MATHEMATICS LPAM, FACULTY OF SEI, UMAB UNIVERSITY OF MOSTAGANEM, Mostaganem, 27000, Algeria;

LABORATORY OF LPAM, FACULTY OF SEI, UMAB UNIVERSITY OF MOSTAGANEM, Mostaganem, 27000, Algeria;

DEPARTMENT OF MATHEMATICS, AL-ZAYTOONAH UNIVERSITY OF JORDAN, P.O. BOX 130, Amman, 11733, Jordan

ABSTRACT: In this paper, we study a new nonlinear sequential fractional differential problem of Duffing oscillator type. The considered problem involves two fractional order operators: Riemann and Liouville integral, and the derivative of Caputo, it is also with new nonlocal conditions. We prove an existence and uniqueness result. Also, we prove a new existence result using Schaefer theorem. We end our paper by presenting an illustrative example. © 2020, Research Publication. All rights reserved.

Al-Hawatmah, Z., Shaban, O.S.

The effect of lending policy on the profitability of commercial banks: Evidence from Jordan

(2020) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098528546&doi=10.22495%2fjgrv9i4art4&partnerID=40&md5=36849a2594f74789823518c80e198aca)

[85098528546&doi=10.22495%2fjgrv9i4art4&partnerID=40&md5=36849a2594f74789823518c80e198aca](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098528546&doi=10.22495%2fjgrv9i4art4&partnerID=40&md5=36849a2594f74789823518c80e198aca)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study aims to find out the impact of the lending policies adopted by Jordanian commercial banks on their profitability. This study relied on the descriptive analytical approach to describe and review the theoretical framework of the study. The preliminary information was gathered through a questionnaire prepared for this purpose. The study population consisted of all the commercial banks operating in Jordan, numbering 13 banks during the period 2016-2020. The study concluded that the credit decisions in the Jordanian commercial banks are contributing to about 75.3% of their returns, and there is a statistically significant effect of lending policies (with their combined variables) on the profitability of commercial banks operating in Jordan. Also, the lending policies adopted by the Jordanian commercial banks have interpreted 53.9% of their profitability, and that is due to the strict lending policy adopted by these banks, and this result is adverse of Munyiri's (2010) results stating that a friendly lending policy will maximize demand and increases bank's profitability. Depending on the results, the study recommended that the Jordanian commercial banks should focus on a clearly allocated task, responsibilities, and powers within credit policies so that different administrative levels are granted the right to make high-quality credit decisions that enhance the speed of taking a decision, thereby increasing customer's base and profits. © 2020 The Authors.

Al-Wahsh, S.M.J.

Reasons of the departure of the abbasside caliphs from Baghdad to find another capital 132H/749 A.C.-334H/945 A.C.

(2020) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098484873&partnerID=40&md5=5b89681064788532031a1697c76f9963)

[85098484873&partnerID=40&md5=5b89681064788532031a1697c76f9963](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85098484873&partnerID=40&md5=5b89681064788532031a1697c76f9963)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In the history of the Abbasside state, Baghdad was Known as the most famous capital in the history of the state. Then Samarra`, which was considered as the second capital of the Abbasside during the reign of Al - Mu'tasem billah Bin Haroon Al- Rashid - who had brought too many Turkish soldiers to the Abbasside Army. Baghdad couldn't stand that number of soldiers, therefore, Al-Mu'tasem relocate his capital to Samerra`. Baghdad and Samarra`. Both of them were not the only capitals of the Abbasside Caliphas from Baghdad to Samerra was not the only one in their history. The Abbasside caliphs left Baghdad several times. For either political, economic social. In this study, the researcher studies those reasons and the effect of them on the Abbasside state. © 2020 University

of Jordan, Deanship of Scientific Research. All rights reserved.

Al Hadid, L.A.E., Al Barmawi, M., Qaddumi, J.A.S., Al-Sagarat, A., Moxham, L.

Measuring the psychometric properties of the arabic version of DCL scale to measure work-related stress among Jordanian nurses

(2020) Jordan Medical Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097775461&partnerID=40&md5=c90e2f54a5c3b4a580c516b1ba93de08)

[85097775461&partnerID=40&md5=c90e2f54a5c3b4a580c516b1ba93de08](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097775461&partnerID=40&md5=c90e2f54a5c3b4a580c516b1ba93de08)

AFFILIATIONS: Al-Hussein Bin Talal University, Princess Aisha Bint Al-Hussein College of Nursing and Health Sciences, Nursing Department, Ma'an, Jordan;

Alzaytoonah University of Jordan, Faculty of Nursing, Jordan;

An-Najah National University, Faculty of medicine and health sciences, Palestine;

Mutah University, Faculty of Nursing, Jordan;

University of Wollongong, School of Nursing, Australia

ABSTRACT: Background: Nursing role is instrumental to effective patient care, but the level and standards of clinical practice can be affected by stress. Work-related stress among nurses working in mental health units in Jordan has not been investigated using an instrument in Arabic. Aim: To evaluate the psychometric properties of the Arabic version of the Devilliers, Carson, and Leary (DCL) Stress Scale when used on Jordanian mental health nurses. Methods: A descriptive, cross-sectional design was used on a convenience, non-probability sample of Jordanian 99 nurses working in three public hospitals. Results: The Arabic version of the DCL demonstrated acceptable levels of validity and reliability when it was used on mental health nurses working in units caring for psychiatric patients Jordan. Conclusions: A reliable and valid instrument that is useful in determining levels of stress in nursing staff. Another facet of findings in this study is to the empirical evidence on the presence of high stress among mental health nurses, which should be taken into consideration among health care planners in mental health in Jordan. Therefore, nurse managers can use these findings to implement actions necessary to alleviate work-related stress among nurses in order to improve retention and decrease the negative impact of stress on nurses' wellbeing. © 2020 DSR Publishers / The University of Jordan. All Rights Reserved.

Ashour, M.L., Ali, N.N., Allan, M.S.

Corporate social responsibility and competitive advantage: Relationships and mechanisms

(2020) International Journal of Economics and Business Administration, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097515651&doi=10.35808%2fijeba%2f494&partnerID=40&md5=c8632dee1458c1159a480f36c6d7f07d)

[85097515651&doi=10.35808%2fijeba%2f494&partnerID=40&md5=c8632dee1458c1159a480f36c6d7f07d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097515651&doi=10.35808%2fijeba%2f494&partnerID=40&md5=c8632dee1458c1159a480f36c6d7f07d)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Purpose: This study is intended to gain insight into the association of Corporate Social Responsibility (CSR) implementations and the achievement of competitive advantage focusing on the mediation role of company reputation (CR) in this relationship. Design/Methodology/Approach: Semi-structured interview technique was used to confirm the validity of the research model. In addition, the purposive sampling method has been used targeting senior decision makers in different well-known 5-star hotels and resorts in Jordan. A total of three hundred (300) questionnaires were distributed. While two hundred and forty (240) questionnaires were retrieved from respondents, two hundred and eleven (211) questionnaires were valid and usable. Findings: The results elucidated the mechanism of CSR and competitive advantage relationship. Although the results confirmed the positive (direct and indirect) effect of the social, the legal, and the ethical dimensions of (CSR) on competitive advantage, data analysis did not support any significant impact for the environmental dimension on competitive advantage (CA) through the company reputation (CR) as a mediator variable. Practical Implications: This study raises awareness of (CSR) implementations in service-oriented developing economies through highlighting the mechanism and relationships of CSR and competitive advantage. It is hoped that, it will contribute to generate interest towards the concept of ``Environmental Corporate Social Responsibility`` (ECSR), as a strategic alternative at the aim of the achievement of competitive advantage. Originality/Value: The study goes beyond examining the causal relationship between (CSR) and competitive advantage. It focuses on achieving a deep understanding of this relationship by exploring the mechanisms of its work through illustrating the mediation role of reputation. © 2020 International Strategic Management Association. All rights reserved.

AYOUSH, M., RABAYAH, H., JIBREEL, T.

The Impact of Mergers on the Financial Performance of Jordanian Public Shareholding Companies

(2020) Journal of Asian Finance, Economics and Business, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097493443&doi=10.13106%2fjafeb.2020.vol17.no10.751&partnerID=40&md5=381e245b4600dc755950f2fee2baccb8)

[85097493443&doi=10.13106%2fjafeb.2020.vol17.no10.751&partnerID=40&md5=381e245b4600dc755950f2fee2baccb8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097493443&doi=10.13106%2fjafeb.2020.vol17.no10.751&partnerID=40&md5=381e245b4600dc755950f2fee2baccb8)

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan;

Department of Civil and Infrastructure Engineering, Faculty of Engineering and Technology, Al-

Zaytoonah University of Jordan, Jordan;

Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study examines the impact of mergers on the financial performance of the Jordanian public shareholding companies. The study employs data collected for a sample of 10 Jordanian non-financial public firms that were engaged in legal horizontal merger deals between 2000 and 2013. The data was collected from the published annual financial reports of the merging companies and comparative companies for three years before the merger and three years after the merger. Event study methodology was applied to examine the data. Four measures of financial performance (FP) were used, which are return on assets (ROA), return on equity (ROE), earnings per share (EPS), and net profit margin (NPM). Two methods were used in the analysis - the change model and the intercept model using financial performance raw data and industry-adjusted data. The findings in general showed no significant impact of mergers on the financial performance of merging firms using the change model. However, by using the intercept model, significant impact of mergers on the financial performance was found on the sample of the study. The significant impact was found for mergers on the raw ROE of the merging firms, and on the ROA and NPM of the industry-adjusted firms. © 2020. All Rights Reserved.

Qawaqneh, H.

New contraction embedded with simulation function and cyclic (α, β) -admissible in metric-like spaces (2020) International Journal of Mathematics and Computer Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097389393&partnerID=40&md5=59d3d66df04a60779b2900602e3b02f5)

[85097389393&partnerID=40&md5=59d3d66df04a60779b2900602e3b02f5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097389393&partnerID=40&md5=59d3d66df04a60779b2900602e3b02f5)

AFFILIATIONS: Department of Mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: In this paper, we introduce the concept of cyclic (α, β) -admissible Z-contraction mapping with respect to ζ . We also establish the existence and uniqueness of fixed points for this class of mappings in metric-like spaces. This work generalizes and extends some theorems in the literature. An example and some consequences are given to support the obtained results. © 2020, International Journal of Mathematics and Computer Science. All rights reserved

Kanan, T., Aldaaja, A., Hawashin, B.

Cyber-bullying and cyber-harassment detection using supervised machine learning techniques in Arabic social media contents

(2020) Journal of Internet Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097164507&doi=10.3966%2f160792642020092105016&partnerID=40&md5=34ce9327cffe4d632fe1c4719839e9df)

[85097164507&doi=10.3966%2f160792642020092105016&partnerID=40&md5=34ce9327cffe4d632fe1c4719839e9df](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85097164507&doi=10.3966%2f160792642020092105016&partnerID=40&md5=34ce9327cffe4d632fe1c4719839e9df)

AFFILIATIONS: Department of Computer Science, Alzaytoonah University of Jordan, Jordan;

Department of Computer Information Systems, Alzaytoonah University of Jordan, Jordan

ABSTRACT: The social media has provided users with the chance to publish their written and multimedia content and express feelings and emotions about particular subjects via the internet. However, some users have abused these platforms by performing various acts such as Cyber-Bullying and Cyber-Harassment. These phenomena are dangerous and have negative psychological, health, and social effects. Although multiple works have focused on detecting these phenomena on English text, few works studied this phenomenon on Arabic. Moreover, these works used limited number of methods and datasets. Furthermore, there is a lack in Arabic datasets that are concerned with this topic. We propose the use of Machine Learning to detect such negative written acts. We apply various classification algorithms to the dataset, and we use various Arabic Natural Language Processing (NLP) tools. To evaluate the performance of the classifiers, we use Recall, Precision, and F1-Measure. The results show that the Random Forest algorithm yields the highest values of F1-Measure. The same results occurred when no stemming and no stop-word removal are applied. However, when separating datasets into Facebook Posts dataset and Twitter Tweets dataset, SVM gives the highest F1-Measure value. Significant tests were conducted to support our results. © 2020 Taiwan Academic Network Management Committee. All rights reserved.

Bilginer, S., Bardaweel, S.K., Sabbah, D.A., Gul, H.I.

Docking studies and antiproliferative activities of 6-(3-aryl-2-propenoyl)-2(3h)-benzoxazolone derivatives as novel inhibitors of phosphatidylinositol 3-kinase ($\text{pi}3\text{k}\alpha$)

(2020) Anti-Cancer Agents in Medicinal Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096921654&doi=10.2174%2f1871520620666200807221731&partnerID=40&md5=b5a021416e4ba0ab91f1649b18c3597f)

[85096921654&doi=10.2174%2f1871520620666200807221731&partnerID=40&md5=b5a021416e4ba0ab91f1649b18c3597f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096921654&doi=10.2174%2f1871520620666200807221731&partnerID=40&md5=b5a021416e4ba0ab91f1649b18c3597f)

AFFILIATIONS: Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Ataturk University,

Erzurum, Turkey;

Department of Pharmaceutical Sciences, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Background: Cancer is a life-threatening group of diseases and universally, the second main cause of death. The design and development of new scaffolds targeting selective cancer cells are considered a promising goal for cancer treatment. Aims and Objective: Chalcone derivatives; 6-(3-aryl-2-propenoyl)-2(3H)-benzoxazolone, were previously pre-pared and evaluated against the oral cavity squamous cell carcinoma cell line, HSC-2, and were reported to have remarkably high tumor selectivity. The aim of this study was to further investigate the anticancer activities of the chalcone derivatives against human colon cancer cells with a possible elucidation of their mechanism of action. Methods: Computational studies were conducted to explore the potential interaction of the synthesized molecules with the phosphatidylinositol-4,5-bisphosphate 3-kinase α (PI3K α). Biological evaluation of the antiproliferative activities associated with compounds 1-23 was carried out against the colon cancer cell line, HCT116. Lactate Dehydrogenase (LDH) activity was measured to study necrosis, while the caspase-3 activation and DNA measurements were used to evaluate apoptosis in the treated cells. Results: Glide studies against PI3K α kinase domain demonstrated that the 6-(3-aryl-2-propenoyl)-2(3H)-benzoxazolone scaffold forms H-bond with K802, Y836, E849, V851, N853, Q859, and D933, and it fits the fingerprint of PI3K α active inhibitors. Biological evaluation of the reported compounds in HCT116 cell line confirmed that the series inhibited PI3K α activity and induced apoptosis via activation of caspase-3 and reduction of DNA content. Conclusion: The recently developed compounds might be employed as lead structures for the design of new antitumor drugs targeting PI3K α . © 2021 Bentham Science Publishers.

Al-Chahadah, A.R., El Refae, G.A., Qasim, A.

The impact of financial inclusion on bank performance: The case of Jordan
(2020) International Journal of Economics and Business Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096057031&doi=10.1504%2fIJEER.2020.111096&partnerID=40&md5=949c0b619add1aa47af0aaa15dfd11b1)

[85096057031&doi=10.1504%2fIJEER.2020.111096&partnerID=40&md5=949c0b619add1aa47af0aaa15dfd11b1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096057031&doi=10.1504%2fIJEER.2020.111096&partnerID=40&md5=949c0b619add1aa47af0aaa15dfd11b1)

AFFILIATIONS: Department of Accounting, College of Business, Al Zaytoonah University, P.O. Box: 130, Amman, Jordan;

Department of Accounting, College of Business, Al Ain University, P.O. Box: 64141, Al Ain, United Arab Emirates;

Department of Accounting, College of Business, Al Ain University, P.O. Box: 112612, Abu Dhabi, United Arab Emirates

ABSTRACT: This study aims to examine the impact of financial inclusion on the financial performance of Jordanian banks listed in the Amman Stock Exchange. The study empirically tested the impact of five main indicators of financial inclusion on bank performance. Using a simple regression analysis, findings of the study showed statistically significant impact of two indicators of financial inclusion (i.e., financial access and enterprise financing) and bank financial performance (i.e., bank profitability) of Jordanian banks. The study recommends Jordanian financial institutions to move toward increasing innovative access to financial services as well as enhancing IT infrastructure and the development of financial services to raise the level of digital banking services which is currently considered relatively low when compared to other middle-income countries. Copyright © 2020 Inderscience Enterprises Ltd.

Dababneh, A., Sami, B., Hammad, M.A., Zraiqat, A.

A new impulsive sequential multi-orders fractional differential equation with boundary conditions
(2020) Journal of Mathematical and Computational Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095947609&doi=10.28919%2fjmc%2f4910&partnerID=40&md5=818d083238909a3fff3bd950086994a7)

[85095947609&doi=10.28919%2fjmc%2f4910&partnerID=40&md5=818d083238909a3fff3bd950086994a7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095947609&doi=10.28919%2fjmc%2f4910&partnerID=40&md5=818d083238909a3fff3bd950086994a7)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In this paper, we present a new impulsive sequential multi-orders fractional differential equation is studied. The existence and uniqueness results are obtained for a nonlinear problem with fractional integral boundary conditions applying standard fixed point theorems. An example for the illustration of the main result is given. © 2020 the author(s).

al-Arasi, S.M., al-Afaishat, M.M.S., al-Tibi, T.M.

The challenges of registration of asylum-seekers in the Hashemite kingdom of Jordan
(2020) Arab Law Quarterly, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095885522&doi=10.1163%2f15730255-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095885522&doi=10.1163%2f15730255-bja10056&partnerID=40&md5=691695f8e3f159b80b811df7507e5504)

[bja10056&partnerID=40&md5=691695f8e3f159b80b811df7507e5504](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095885522&doi=10.1163%2f15730255-bja10056&partnerID=40&md5=691695f8e3f159b80b811df7507e5504)

AFFILIATIONS: Department of International Law, Faculty of Law, Al-Zaytoonah University of Jordan, Amman, 18914, Jordan;

Al-Zaytoonah University of Jordan, Amman, 18914, Jordan;

Al-Zaytoonah University of Jordan, Amman, 18914, Jordan

ABSTRACT: This study aims to identify difficulties and challenges facing countries without a National Registration Law, with the Hashemite Kingdom of Jordan as model. Jordan, in compliance with the United Nations High Commissioner for Refugees (UNHCR), regulates the presence of refugees and asylum

seekers inside the Kingdom and at its borders in accordance with the UNHCR 1998 Memorandum of Understanding. Many such individuals have lost their identification documents when forced to leave their homelands due to armed conflict. Jordanian authorities try to solve such problems through the use of a magnetic-card system and iris scans. This study concludes that Jordan, in ratio to its population, is the second country worldwide to host the largest number of refugees. This study recommends that Jordan enact a National Asylum Law to regulate the presence of such refugees in the Kingdom. © Koninklijke Brill NV, Leiden, 2020

Dalky, H.F., Hamdan-Mansour, A.M., Amarnah, B.H., AlAzzam RN, M., Yacoub, N.R., Khalifeh, A.H., Aldalaykeh, M., Dalky, A.F., Rawashdeh, R.A., Yehia, D.B., Alnajjar, M.
Social discrimination perception of health-care workers and ordinary people toward individuals with COVID-19
(2020) Social Influence, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095821589&doi=10.1080%2f15534510.2020.1838945&partnerID=40&md5=2062f07edbe08d65e7540e8410c7afb6>
AFFILIATIONS: Psychiatric Mental Health, Faculty of Nursing, Jordan University of Science Technology, Irbid, Jordan;
Mental Health Nursing, School of Nursing, The University of Jordan, Amman, Jordan;
Psychiatric Mental Health, Epidemiology, and Biostatistics, Jordan University of Science Technology, Irbid, Jordan;
Associate professor/Psychiatric Mental Health Nursing, Princess Salma Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan;
Academic Wing, Royal Medical Services, Amman, Jordan;
Department of Nursing, Prince Hamzah Hospital, Ministry of Health, Amman, Jordan;
Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan;
Faculty of Medicine, Jordan University of Science & Technology, Irbid, Jordan;
Psychiatric Mental Health Nursing, RMS, Amman, Jordan;
Faculty of Nursing, Al-zytoonah University of Jordan, Amman, Jordan;
Clinical Instructor, Faculty of Health Science/Nursing Department, Higher Colleges of Technology, Sharjah, United Arab Emirates
ABSTRACT: The purpose of this study is to explore perception of social discrimination among ordinary people and health-care workers toward individuals with COVID-19 in Jordan. A cross-sectional descriptive-comparative design was used to collect data from a convenience sample of 272 ordinary people and 109 HCWs utilizing an online survey format. HCWs reported low to medium social discrimination (SDS) level, while ordinary people reported a higher level with statistical difference ($t = 8.64$, $p < .001$). SDS had positive and significant correlation with years of experience, specialty of nursing, education and area of working among HCWs. The study signifies the social discrimination associated with COVID-19 among ordinary people and healthcare workers. Implications to health practices and public policies discussed. © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Alkhatib, A.A.A.
Proposed simple low cost system for road traffic counting
(2020) International Journal of Systems, Control and Communications, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095735819&doi=10.1504%2fIJSCC.2020.110851&partnerID=40&md5=efe9a47c821bb4db96d05a16e23837ed>
AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Traffic congestion and the increasing number of vehicles is one of the major issues in most countries due to infrastructures with limited capacity. One of the finest solutions for road congestion is an intelligent transportation system (ITS) to be used for traffic optimisation. Most traffic management measurements are aimed at improving the safety and flow of traffic, reducing traffic emissions, and utilising traffic artery capacity more effectively. This paper proposes a simple low-cost system using cheap infrared sensors and timers for collecting the required data, such as number of vehicles and time and lane location information to be used in future traffic management systems. The proposed method can take the length and speed of the vehicle into account as part of traffic statistics. Copyright © 2020 Inderscience Enterprises Ltd.

Habash, I.W., Al-Shdefat, R.I., Hailat, M.M., Dayyih, W.A.
A stability indicating rp-hplc method development for simultaneous estimation of alogliptin, pioglitazone, and metformin in pharmaceutical formulations
(2020) Acta Poloniae Pharmaceutica - Drug Research, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85095706438&doi=10.32383%2fappdr%2f125774&partnerID=40&md5=030772f7bee5ad876abda2880e2246e9>
AFFILIATIONS: Faculty of Pharmacy and Medical Sciences, University of Petra, Amman, Jordan;

Faculty of Pharmacy, Jadara University, Irbid, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Alogliptin, dipeptidyl peptidase-4 (DPP-4) inhibitor, Pioglitazone, thiazolidinediones (TZDs) and Metformin, biguanides are antidiabetic drugs that usually used in the management of type 2 diabetes that can be used solely or as combinations. In this article, a selective, simple, economical, precise, and stability-indicating RP-HPLC method has been developed and validated for assessing Alogliptin, Pioglitazone, and Metformin inside the bulk drug and tablet pharmaceutical dosage form. The mobile phase that used to separate the drug was consists of acetonitrile: buffer (potassium dihydrogen phosphate), (30: 70 v/v) on an ACE C18 \bar{n} (250 mm \times 4.6 mm), 5 μ m column at a flow rate of 1.0 mL/min at 250C and detection was at 230 nm. The linearity of the detector was established in concentrations ranging from 20-250 ppm; the regression coefficient was 0.9998. The ICH guidelines were followed to evaluate stability, where the API is stressed by acid, base, neutral, oxidation, and sunlight. Several parameters were used for validation, including linearity, precision, accuracy, the limit of detection, and limit of quantification. The results were fulfilling expectations based on ICH guidelines. Robustness of the method was verified in terms of changes in pH of the mobile phase, detector wavelength, mobile phase composition, and temperature. Also, the method results in low relative standard deviation and high recovery value, that ensure the convenience applicability of the method for routine analysis of tablet containing Alogliptin, Pioglitazone, and Metformin. © 2020 by Polish Pharmaceutical Society.

Al Omari, O., Al Sabei, S., Al Rawajfah, O., Abu Sharour, L., Aljohani, K., Alomari, K., Shkman, L., Al Dameery, K., Saifan, A., Al Zubidi, B., Anwar, S., Alhalaiqa, F.

Prevalence and Predictors of Depression, Anxiety, and Stress among Youth at the Time of COVID-19: An Online Cross-Sectional Multicountry Study

(2020) Depression Research and Treatment, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85094885018&doi=10.1155%2f2020%2f8887727&partnerID=40&md5=1b6de27dd8f697c97a7dfdbed6bff257)

[85094885018&doi=10.1155%2f2020%2f8887727&partnerID=40&md5=1b6de27dd8f697c97a7dfdbed6bff257](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85094885018&doi=10.1155%2f2020%2f8887727&partnerID=40&md5=1b6de27dd8f697c97a7dfdbed6bff257)

AFFILIATIONS: Sultan Qaboos University, College of Nursing, Muscat, Oman;

Curtin University, School of Nursing, Midwifery and Paramedicine, Perth, WA, Australia;

College of Nursing, Al Al-Bayt University, Jordan;

AlZaytoonah University of Jordan, College of Nursing, Amman, Jordan;

Taibah University, College of Nursing, Saudi Arabia;

Applied Science Private University, Amman, Jordan;

Baghdad University, College of Nursing, Baghdad, Iraq;

Alexandria University, College of Nursing, Alexandria, Egypt;

Philadelphia University, College of Nursing, Amman, Jordan

ABSTRACT: Depression and anxiety are prevalent mental illnesses among young people. Crisis like the Coronavirus Disease 2019 (COVID-19) pandemic may increase the current prevalence of these illnesses.

A cross-sectional, descriptive design was used to (1) explore the prevalence of depression, anxiety, and stress among youth and (2) identify to what extent certain variables related to COVID-19 could predict depression, anxiety, and stress (DAS) among young people in six different countries.

Participants were requested to complete an online survey including demographics and the DAS scale. A total of 1,057 participants from Oman (n=155), Saudi Arabia (n=121), Jordan (n=332), Iraq (n=117), United Arab Emirates (n=147), and Egypt (n=182) completed the study. The total prevalence of depression, anxiety, and stress was 57%, 40.5%, and 38.1%, respectively, with no significant differences between countries. Significant predictors of stress, anxiety, and depression were being female, being in contact with a friend and/or a family member with mental illness, being quarantined for 14 days, and using the internet. In conclusion, COVID-19 is an epidemiological crisis that is casting a shadow on youths' DAS. The restrictions and prolonged lockdowns imposed by COVID-19 are negatively impacting their level of DAS. Healthcare organisations, in collaboration with various sectors, are recommended to apply psychological first aid and design appropriate educational programmes to improve the mental health of youth. © 2020 Omar Al Omari et al.

Jaradat, Y., Masoud, M., Al-Jazzar, S.

A comparative study of the effect of node distributions on 2D and 3D heterogeneous WSN

(2020) International Journal of Sensor Networks, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85093530032&doi=10.1504%2fIJSNET.2020.109187&partnerID=40&md5=a757625da3efb45f850b5940ac2fd40d)

[85093530032&doi=10.1504%2fIJSNET.2020.109187&partnerID=40&md5=a757625da3efb45f850b5940ac2fd40d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85093530032&doi=10.1504%2fIJSNET.2020.109187&partnerID=40&md5=a757625da3efb45f850b5940ac2fd40d)

AFFILIATIONS: Faculty of Engineering and Technology, Communications and Computer Engineering

Department, AL-Zaytoonah University of Jordan Amman, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Two comparative studies of the impact of different node deployment strategies on 2D and 3D heterogeneous wireless sensor network (WSN) are conducted. Uniform, normal, and exponential node deployment distributions are utilised. Three 3D network geometries are introduced, namely, cube, sphere, and cylinder networks. Stable election protocol (SEP) is used to evaluate the performance of different node distributions in terms of network energy, throughput, stability period and network

lifetime. Broadly speaking, it is noticed that normal distribution of nodes outperforms other distributions in the 2D and 3D comparative study, and in the study of different 3D network geometries with the exception of sphere network in which the uniform distribution performs almost the same as the normal distribution. It is also noticed that any node distribution performs better in a particular 3D network geometry than others. The paper also introduces the optimal cylinder network parameters for optimal network performance. Copyright © 2020 Inderscience Enterprises Ltd.

Al Zyoud, A., Othman, A., Manasrah, A., Abdelhafez, E.

Investment analysis of a solar water pumping system in rural areas in Jordan

(2020) International Journal of Energy for a Clean Environment, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092799020&doi=10.1615%2fINTERJENERCLEANENV.2020033565&partnerID=40&md5=916ffd5dce4f26f494f07d522d76dedf)

[85092799020&doi=10.1615%2fINTERJENERCLEANENV.2020033565&partnerID=40&md5=916ffd5dce4f26f494f07d522d76dedf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092799020&doi=10.1615%2fINTERJENERCLEANENV.2020033565&partnerID=40&md5=916ffd5dce4f26f494f07d522d76dedf)

AFFILIATIONS: Faculty of Engineering, Alternative Energy Department, Al Zaytoonah University, Amman, Jordan;

Faculty of Engineering, Mechanical Engineering Department, Al Zaytoonah University, Amman, Jordan

ABSTRACT: Several photovoltaic applications, especially of water pumping systems, have been introduced to contribute to the socioeconomic development in Jordan. This paper shows the achievability of utilizing photovoltaic (PV) modules to power water pumps in an assigned irrigation system in the Mafraq desert, Jordan. The irrigation system is built for an olive tree farm with an area of 50 km². The 91-kW photovoltaic system cost is around 63,000 USD, and the results of the analysis showed that the system generated energy savings of a little over 16,000 USD. The return on investment was calculated to be around 26% and the payback period was estimated to be 61 months. The system will start generating revenues after year 5. Further, an evaluation of carbon dioxide emission was conducted and it was found that the photovoltaic system will cut down the annual emissions of carbon dioxide by 2.12 tons/year. The utilization of this PV-irrigation system will almost certainly add to the socioeconomic development and it is considered one of the proposed solutions for the Jordanian farmers. © 2020 by Begell House, Inc.

Alsmadi, A.A., Oudat, M.S., Hasan, H.

Islamic finance value versus conventional finance, dynamic equilibrium relationships analysis with macroeconomic variables in the Jordanian economy: An ardl approach

(2020) Change Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092662124&partnerID=40&md5=20c541e66531163c0c36f98ffe85d2bf)

[85092662124&partnerID=40&md5=20c541e66531163c0c36f98ffe85d2bf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092662124&partnerID=40&md5=20c541e66531163c0c36f98ffe85d2bf)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

Accounting and Finance Department, Applied Science University, Bahrain

ABSTRACT: The aim of this paper is to investigate the long and short run equilibrium relationship between conventional finance volume (CFV) and macroeconomic variables in one hand, and the long run and short run equilibrium relationships between Islamic finance volume (IFV) and macroeconomic variables in the other hand. Autoregressive Distributed Lag (ARDL) approach has been utilized for the sample of (1983-2015) period, to analyze the short and long run relationship between IFV and macroeconomic variables. The results show that there are existed evidences of long run and short run relationships among variables of this study. Also the results of error correction term (ECTt-1) showed that the IFV achieved high adjusted speed from the short run to the long run equilibrium by (17 months and 27 days) compared with CFV which needs to (20 months and 10 days). This study recommended that this is an opportune time to using Islamic finance system in order to reduce reliance on conventional system products and move into Islamic finance system which is closer to equity-based products and risk-sharing instruments. This paper uses empirical evidence to compare between Islamic finance and conventional finance. To the best of the authors' knowledge, the study on the role of Islamic finance industry towards reducing of economic obstacles, particularly in the context of Jordan economy. © 2020, Common Ground Research Networks. All rights reserved.

Najm, N.A., Yousif, A.S.H., Aboassin, N.A., Alhmeidiyeen, M.S., Al Zoubi, J.

The role of national culture in change management in Jordanian firms

(2020) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092625495&doi=10.1504%2fIJPQM.2020.110044&partnerID=40&md5=dd32c766e272a081945b9399d6928d8f)

[85092625495&doi=10.1504%2fIJPQM.2020.110044&partnerID=40&md5=dd32c766e272a081945b9399d6928d8f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85092625495&doi=10.1504%2fIJPQM.2020.110044&partnerID=40&md5=dd32c766e272a081945b9399d6928d8f)

AFFILIATIONS: Department of Business Administration, Faculty of Business, Al Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Public Administration, School of Business, University of Jordan, Queen Rania Street, Amman, 11942, Jordan

ABSTRACT: This study seeks to expand the five dimensions of the Hofstede's model of national culture with a sixth dimension that is religiosity. This study was conducted in an Arab country that is Jordan. The researchers developed the questionnaire items related to the religiosity. This study aims

to determine the impact of these six dimensions on two factors of change management: the change culture and outcomes (as two dependent variables). This study considered the change culture as a mediator variable affecting the relationship between the six dimensions of national culture and the outcomes of change. Results of the study revealed, through field primary data collected from the questionnaire, that all dimensions of national culture, with the exception of the collectivism, have a positive and significant impact on the change culture, while only three dimensions (uncertainty avoidance, long-term orientation, and religiosity) positively affect the change outcomes. Copyright © 2020 Inderscience Enterprises Ltd.

Alhroob, A.M., Alzyadat, W., Imam, A.T., Jaradat, G.M.

The genetic algorithm and binary search technique in the program path coverage for improving software testing using big data

(2020) Intelligent Automation and Soft Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85092504451&doi=10.32604%2fiasc.2020.010106&partnerID=40&md5=0ab9e4f9f49fb73efcf7c32cccb46c6e

AFFILIATIONS: Faculty of Information Technology, Isra University, Amman, Jordan;

Faculty of Science and Information Technology, Al-Zaytoonah University, Amman, Jordan;

Faculty of Computer Science and Information Technology, Jerash University, Jerash, Jordan

ABSTRACT: Software program testing is the procedure of exercising a software component with a selected set of test cases as a way to discover defects and assess quality. Using software testing automation, especially the generating of testing data increases the effectiveness and efficiency of software testing as a whole. Instead of creating testing data from scratch, Big Data (BD) offers an important source of testing data. Although it is a good source, there is a need to select a proper set of testing data for the sake of selecting an optimal sub-domain input values from the BD. To refine the efficiency of software testing, this paper proposes a hybrid Genetic Algorithm and Binary Search (BSGA) technique that is used for detecting the error-prone path in a program. The BSGA combines the Genetic Algorithm (GA) with the Binary Search (BS) algorithm that uses the BD as input values for the program path coverage, and thus enhances the software testing. The BSGA represents a robust nonlinear search technique and a better quality solution, which therefore results in a cost reduction in the software testing industry. The experiments show that the results approved the impact of using the BS to enhance the performance of the GA, in terms of finding optimal test cases and test data for the input Big Data domain values. Whereas, these results minimize the cost of testing. © 2020, Tech Science Press. All rights reserved.

Naser, W.

Recently emerged bioactive cosmeceuticals for skin rejuvenation: A review

(2020) Pharmacologyonline, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85092252914&partnerID=40&md5=fb527ea1b6b391d94b965af92cb1471d

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Cosmeceuticals are cosmetic products with biologically active ingredients purporting to have medical or drug-like benefits. Cosmeceuticals are commonly used in skincare regimens to maintain healthy skin and improve visible signs of aging. A review of the biomedical literature was conducted using a peer-reviewed journal articles to identify laboratory, animal, and clinical studies that evaluated the most recent breakthroughs in the biological properties and potential dermatologic uses of the different bioactive ingredients used in cosmeceuticals. Bioactive ingredients in cosmeceutical products are derived from various sources including food, herbs, tissue engineering and stem cell therapy. Their bioactive components and pharmacologic activities have been shown to provide dermatologic benefits with potential applications for skin rejuvenation, photo protection, wound healing, and more. The information provided by this article is valuable to get the picture of the latest trends and also helpful for clinicians and related manufacturing companies. Despite several developments in this field, extensive research is required for performing successful and precise clinical trials in the future. Further improvements would enable the researchers to develop new products in this field. © 2020, SILAE (Italo-Latin American Society of Ethnomedicine). All rights reserved.

Awad, A.S., Abulghanam, Z., Fayyad, S.M., Alsaqoor, S., Alahmer, A., Aljabarin, N., Piechota, P., Andruszkiewicz, A., Wędrychowicz, W., Synowiec, P.

Measuring the fluid flow velocity and its uncertainty using monte carlo method and ultrasonic technique

(2020) WSEAS Transactions on Fluid Mechanics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85092220093&doi=10.37394%2f232013.2020.15.17&partnerID=40&md5=d68eb0d919c72d6bb5dd8e88c55ea21c

AFFILIATIONS: Mechanical Engineering Department, Faculty of Engineering Technology, Al-Balqa` Applied University, Amman, Jordan;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;

Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Department of Natural Resources and Chemical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;

Wrocław University of Science and Technology, Wybrzeże Stanisława Wyspiańskiego 27, Wrocław, 50-370, Poland

ABSTRACT: One of the most important challenges in fluid mechanics, gas dynamics, and hydraulic machinery fields is measuring the flow velocity with high accuracy. It is more important in large systems; such as thermal power stations, large scale power generations, and combined cycle power plants. The exact estimation of the measurement uncertainty inflow velocity is extremely important in evaluating the accuracy of the measurement. This work describes the problem of estimating measurement uncertainty when there are two or more dominant components of the uncertainty budget. Two methods, analytical and numerical methods are used to study the comparative analysis for the results of determining the expanded uncertainty of measurement using two methods: analytical method and the numerical method. The analytical method uses the law of uncertainty propagation and is based on the estimation of uncertainty values of type A and B, while the numerical technique depends on the evaluation of measured samples by the Monte Carlo method using a random number generator. The aim of this article is to show the Monte Carlo method as an alternative way to determine the distribution of individual components of the measurement uncertainty budget. Also, the measurement of liquid flow velocity by an ultrasonic method has been analyzed, which is commonly used due to high measurement accuracy and non-invasiveness. Due to the complexity of the equation defining the measured flow velocity, determining the measurement uncertainty is not an easy task. © 2020, World Scientific and Engineering Academy and Society. All rights reserved.

Al-Shahrabi, R., Kasabri, V., Al-Hiari, Y., Arabiyat, S., Al Bashiti, R., Alalawi, S., Alhadid, A. Functionalised Flouroquinolones as a Potentially Novel Class of Anti-inflammatory and Anti-glycation Compounds; Synthesis and Pharmacological Appraisal

(2020) Analytical Chemistry Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091900190&doi=10.1080%2f2297928.2020.1777196&partnerID=40&md5=11d1a0d186ed77d246c705904e51b12e)

[85091900190&doi=10.1080%2f2297928.2020.1777196&partnerID=40&md5=11d1a0d186ed77d246c705904e51b12e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091900190&doi=10.1080%2f2297928.2020.1777196&partnerID=40&md5=11d1a0d186ed77d246c705904e51b12e)

AFFILIATIONS: School of Pharmacy, The University of Jordan, Queen Rania Street, Amman, 11942, Jordan; Salt College, Al-Balqa Applied University, Salt, 9117, Jordan;

School of Pharmacy, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: New synthetic 36 fluoroquinolones (FQs) have been developed. Their anti-inflammatory and 2,2-diphenyl-1-picrylhydrazyl (DPPH)- and nitric oxide (NO)- radicals scavenging propensities were delineated in vitro. The anti-inflammation related NO radical scavenging bioactivities of new FQs compounds against lipopolysaccharide (LPS)-prompted NO production in RAW 264.7 macrophages were examined using the Griess assay. Selectively nitro FQ compound 2-AnisCEtA exerted an exceedingly superior anti-inflammatory effects ($p < 0.001$ vs. indomethacin IC50 value of $103.35 \pm 4.4 \mu\text{M}$) while 7 nitro FQs, 10 reduced FQs and 9 triazolo FQs were moderately more efficacious than indomethacin. The remaining 9 Compounds could display appreciable anti-inflammatory capacity. Unequivocally their DPPH radical scavenging effects were of substantially lesser efficacy than ascorbic acid. Using $400 \mu\text{M}$ methylglyoxal as the choice glucotoxicity concentration in RAW264.7 macrophages; it was shown that 18 out of 36 FQs could exhibit an exceedingly more superior than or significantly comparable cytoprotection against methylglyoxal-induced carbonyl toxicity to antiglycation aminoguanidine. Suggestively dual modulation of glycation-inflammation can be linked with FQs lipophilicity-chelating properties. FQs can serve as scaffolds for the development and designing of new druggable deglycation and antiglycation therapeutic candidates via duality of antiglycation-antiinflammatory capacities. © 2020 Har Krishan Bhalla & Sons.

Masoud, M.Z., Jaradat, Y., Manasrah, A.A., Taleb, B.

Designing of a general purpose soft programmable logic controller (PLC) for the internet of things (IoT) era

(2020) International Review of Automatic Control, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091789035&doi=10.15866%2fireaco.v13i4.19328&partnerID=40&md5=488951c7244fd227507db2b011ac9704)

[85091789035&doi=10.15866%2fireaco.v13i4.19328&partnerID=40&md5=488951c7244fd227507db2b011ac9704](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091789035&doi=10.15866%2fireaco.v13i4.19328&partnerID=40&md5=488951c7244fd227507db2b011ac9704)

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Programmable Logic Controllers (PLCs) have dominated in the automation and in the controlling processes in industrial environments in the past decade. However, with the emergence of Internet of Things (IoT), the controlling and the automation processes have escalated to complex

levels. Data should be harvested from different locations to make one decision for different devices. Communication and networking over the Internet is an important feature of the new controlling process. Moreover, smart control requires the implementation of different heavy-computing machine learning in Clouds or in edge devices. These new issues require an upgrade of the ossified PLC design. In this paper, a new soft-PLC device has been designed. The new design tackles three main issues. First, designing a simple interface to read data from analog and serial sensors without any modifications of the PLC. Second, proposing an enhanced LADDER programmer (ELADDER) to allow networking between servers and PLCs without the complexity of learning other programming languages. Finally, enhancing the computational power of the PLC by introducing multi-threading to control different processes in a parallel method. The proposed soft-PLC has been designed utilizing a system on board for the computational process and a micro-controller for sensor interfacing. The proposed soft-PLC has been tested in a Lab with different controlling tasks, reporting and networking. © 2020 Praise Worthy Prize S.r.l.-All rights reserved.

Manasrah, A., Alkhalil, S.

A 2-dof skin stretch display on palm: Effect of stimulation shape, speed and intensity (2020) Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091302946&doi=10.1007%2f978-3-030-58147-3_2&partnerID=40&md5=33a944282b68b6be2d37ea349a154046

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, 11947, Jordan

ABSTRACT: Skin stretch has been widely utilized as a tactile display in different haptic applications. However, there has been little research focusing on skin stretch as a modality on the palm of the hand. In this study, a two dimensional tactor apparatus was designed and built to investigate the effects of stimulation speeds, shapes and intensities of skin stretch display on the palm. The tactor moved across the palm at different speeds to create stimulation shapes on the skin. Subjects reported the intensity of perceived stimuli and predicted speed rate of the tactor and stimulation shape and size. The results showed that there were statistically significant differences in the intensity of perceived tactile displays between different stimulation shapes and sizes. The results also showed the sizes and intensity of the stimulus grow larger with slower tactor speeds. © The Author(s) 2020.

Almaiah, M.A., Al-Khasawneh, A., Althunibat, A., Khawatreh, S.

Mobile Government Adoption Model Based on Combining GAM and UTAUT to Explain Factors According to Adoption of Mobile Government Services

(2020) International Journal of Interactive Mobile Technologies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091267269&doi=10.3991%2fijim.v14i03.11264&partnerID=40&md5=5e2cb06aff75253dbd9dcf9a07aaebbf>

AFFILIATIONS: King Faisal University, Al-Ahsa, Saudi Arabia;

Hashemite University of Jordan, Zarqa, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Al Ahliyya Amman University, Amman, Jordan

ABSTRACT: This research examines the mobile-government services adoption, by combining both UTAUT and GAM models with adding new constructs for explaining the key factors that affect on adoption of mobile-government services. As a result, the study identified the critical factors that influence users' to adopt the system, and developed an integrated model as a powerful tool that assists in the adoption process of mobilegovernment applications. The novelty of this research will be an added value to the body of knowledge and its implications will be vital for researchers and decision/policy makers who are willing to make a change. © 2020, iJIM. All rights reserved

Suleiman, K., Kalaldehy, M.A., Sharour, L.A.

The development of a new understanding of symptom cluster during pregnancy using the mediation model (2020) Open Public Health Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85091142301&doi=10.2174%2f1874944502013010388&partnerID=40&md5=50a3c9c50a57cd392dbb96779e9aa60d>

AFFILIATIONS: School of Nursing, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: Background: Fatigue, depression and sleep disturbance are regarded as a symptom cluster associated with pregnancy. The mediation effect of sleep disturbance on the relationship between depression on fatigue is still unclear. Objective: To assess the mediation effect of sleep disturbance on the established relationship between depression and fatigue among pregnant women. Methods: This study used a cross-sectional design. Pregnant women (n = 130) at a private gynecology and obstetrics outpatient clinic in Amman, Jordan. Participants were recruited to complete the Brief Fatigue Inventory, the Insomnia Severity Index, and the Zung depression scale, in addition to the demographic questionnaire. The mediation effect was examined through a Hierarchical Multiple Regression model. Results: A total of 130 pregnant women participated (mean of ages= 27.3). Of those, 41.5% were

in the first trimester, while the rest were in their second and the third trimesters (27.7%, and 30.8%, respectively). Regression analysis indicated that about 23% of the variation of fatigue was explained by depression. Nonetheless, 47% of the variance of fatigue was explained by depression after identifying the mediation effect of sleep disturbance. Conclusion: The mediation role of sleep disturbance between depression and fatigue added a new approach to the assessment and prognosis of fatigue during pregnancy. © 2020 Suleiman et al.

Mhailan, M., Abu Hammad, M., Al Horani, M., Khalil, R.

On fractional vector analysis

(2020) Journal of Mathematical and Computational Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090641797&doi=10.28919%2fjmc%2f4863&partnerID=40&md5=0ae31436fc57947133937317d66319f3)

[85090641797&doi=10.28919%2fjmc%2f4863&partnerID=40&md5=0ae31436fc57947133937317d66319f3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090641797&doi=10.28919%2fjmc%2f4863&partnerID=40&md5=0ae31436fc57947133937317d66319f3)

AFFILIATIONS: Department of Mathematics, University of Jordan, Jordan;

Department of Mathematics, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In this paper, we introduce fractional vector operators: the gradient, the divergence and the curl operators. Further we discuss fractional line integral and prove a fractional form of Green's Theorem, using conformable derivative. © 2020 the author(s).

Jaradat, Y., Masoud, M., Zeidan, D.

Network lifetime evaluation in heterogeneous wsn with different node placement distributions

(2020) International Journal on Communications Antenna and Propagation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090625039&doi=10.15866%2firecap.v10i3.18580&partnerID=40&md5=133e5f2eeb59baa23b70fd558043efd9)

[85090625039&doi=10.15866%2firecap.v10i3.18580&partnerID=40&md5=133e5f2eeb59baa23b70fd558043efd9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090625039&doi=10.15866%2firecap.v10i3.18580&partnerID=40&md5=133e5f2eeb59baa23b70fd558043efd9)

AFFILIATIONS: Electrical Engineering/Communications and Computer, Faculty of Engineering and

Technology, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: In this paper, the effect of different node placement strategies on maximizing the lifetime of heterogeneous wireless sensor network is investigated. Normal, exponential, and uniform node placement distributions are utilized. Maximum likelihood estimation technique and the locations of nodes with uniform distribution are utilized to estimate the defining parameters of the normal and the exponential distributions. Stable Election Protocol (SEP) and LEACH protocols are used to evaluate the performance of different node location distributions in terms of stability and instability periods, network lifetime and throughput. It has been noticed that different node distributions have almost the same stable and unstable regions in SEP protocol with the same heterogeneity parameters. Moreover, an improvement of 25% in stability region is noticed in SEP protocol with uniform and normal distributions compared to LEACH protocol with the same heterogeneity parameters. Likewise, an improvement of 30% is noticed in stability region of the exponential distribution compared to LEACH protocol with the same heterogeneity parameters. It has been also shown that normal distribution has a slightly larger throughput compared to the uniform and exponential distributions. © 2020 Praise Worthy Prize S.r.l.-All rights reserved.

Alkam, S.A., Saleh, A.M.

Jerusalem in the Modern Arab Theatre "Selected Models"

(2020) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090590552&partnerID=40&md5=9095d09ff756ceff8720198ed6993090)

[85090590552&partnerID=40&md5=9095d09ff756ceff8720198ed6993090](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090590552&partnerID=40&md5=9095d09ff756ceff8720198ed6993090)

AFFILIATIONS: Faculty of Arts, Al Zaytoonah University of Jordan, Jordan;

Faculty of Arts, Amman Private University, Jordan

ABSTRACT: This paper aims at introducing a reading in selected models of the Modern Arab Theatre, which tackled the city of Jerusalem in the past and present. The selected models are namely: "Martyrdom on the Al-Aqsa Gates" by the Iraqi author Qasem Mohammed, "The Way to Holy Jerusalem" by the Jordanian author Ibrahim Al Sa'afeen, and "without an Address" by the Jordanian author Mufleh Al Adwan. The focus comes to reiterate the value of the city and Al Aqsa Mosque historically and symbolically and its status for Arabs and Muslims. It also sheds light on how playwrights are affected by the suffering of Jerusalem and its people, and how keen they are to appropriate their plays to the painful reality and the harsh calamities that hit Jerusalem in implicature sometimes and explicitly at other times. The reason is that they seek the utilization of inspiring words aiming at the termination of the occupation of Jerusalem and liberating it. © 2020 University of Jordan, Deanship of Scientific Research. All rights reserved.

Qawaqneh, H., Alsamir, H., Aydi, H., Noorani, M.S., Shatanawi, W.

Fixed point results in α - η -complete metric spaces via w -distances

(2020) Italian Journal of Pure and Applied Mathematics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090159387&partnerID=40&md5=c58259bc4221424a9bcb05c01dacac7f)

[85090159387&partnerID=40&md5=c58259bc4221424a9bcb05c01dacac7f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090159387&partnerID=40&md5=c58259bc4221424a9bcb05c01dacac7f)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Mathematical Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, UKM, Selangor Darul Ehsan, 43600, Malaysia;
Université de Sousse, Institut Supérieur d'Informatique et des Techniques de Communication H, Sousse, 4000, Tunisia;
Department of Mathematics, General Courses, Prince Sultan University, Riyadh, 11586, Saudi Arabia
ABSTRACT: We introduce the concepts of $(\alpha, \eta, F, \psi, \phi, p)$ -rational contractions via wdistances. For such type contractions, we ensure the existence and uniqueness of a fixed point in the setting of $\alpha - \eta$ -complete metric spaces. An example is also given to support our given theorems. Our paper generalizes the work of Lakzian et al. [11] and several related articles in the literature. © 2020 Forum-Editrice Universitaria Udinese SRL. All rights reserved.

Saleh, I., Abu Afifa, M.

The effect of credit risk, liquidity risk and bank capital on bank profitability: Evidence from an emerging market

(2020) Cogent Economics and Finance, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090088543&doi=10.1080%2f23322039.2020.1814509&partnerID=40&md5=80d50929ecbd2c20e03f8fb793a28d84)

[85090088543&doi=10.1080%2f23322039.2020.1814509&partnerID=40&md5=80d50929ecbd2c20e03f8fb793a28d84](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090088543&doi=10.1080%2f23322039.2020.1814509&partnerID=40&md5=80d50929ecbd2c20e03f8fb793a28d84)

AFFILIATIONS: College of Business, Department of Accounting, Al Zaytoonah University of Jordan, Jordan Queen Alia Airport St., Amman, 11733, Jordan

ABSTRACT: This paper aims to investigate the effect of credit risk, liquidity risk and bank capital on bank profitability over a nine-year period (2010–2018) by examining empirical evidence from an emerging market. This study is grounded on econometric panel data using GMM methods. The results indicate that credit risk, liquidity risk, and bank capital variables have an impact on bank profitability. Understanding the Basel requirements and their importance by local and foreign bank managers is significant as enforcing them can improve the efficiency of the bank and increases profitability while barricading it from risk. © 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

EL-Qirem, F., Malak, M.Z., Bani Salameh, A.

Virtual Reality (VR) in Nursing Education: Jordan Case Study

(2020) Advances in Intelligent Systems and Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088245353&doi=10.1007%2f978-3-030-50838-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088245353&doi=10.1007%2f978-3-030-50838-8_9&partnerID=40&md5=14372f914cd49c4f0f7ab6ba18f37c7c)

[8_9&partnerID=40&md5=14372f914cd49c4f0f7ab6ba18f37c7c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088245353&doi=10.1007%2f978-3-030-50838-8_9&partnerID=40&md5=14372f914cd49c4f0f7ab6ba18f37c7c)

AFFILIATIONS: Multimedia Technology Department, AL-Zaytoonah University of Jordan, Amman, Jordan; Department of Nursing, AL-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: There are many considerations of how Virtual Reality simulation will applied in nursing education in one of the third world countries, despite the advancing of technology in some of these countries. This case study offers an insight into the methods, the practicalities of how virtual reality study will perform, and lessons learned through research team perspectives. © 2020, The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG.

Yaseen, S.G., El Qirem, I.A., Dajani, D.

A Critical Review of Absorptive Capacity Measurement and Misspecification in Business Research

(2020) Advances in Intelligent Systems and Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088232570&doi=10.1007%2f978-3-030-50791-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088232570&doi=10.1007%2f978-3-030-50791-6_64&partnerID=40&md5=d3f552427c003f5a632095a5a01791a2)

[6_64&partnerID=40&md5=d3f552427c003f5a632095a5a01791a2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088232570&doi=10.1007%2f978-3-030-50791-6_64&partnerID=40&md5=d3f552427c003f5a632095a5a01791a2)

AFFILIATIONS: Faculty of Business, Department of Business Administration, Department of Marketing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of this research is to critically review absorptive capacity conceptualization and operationalization. Although Cohen and Levinthal [1] emphasized multidimensionality of absorptive capacity, researchers have conceptualized it as a unidimensional construct, encompassing knowledge acquisition, assimilation, transformation and exploitation. From epistemological and ontological perspectives, knowledge acquisition and assimilation differ from other capacities, namely, knowledge transformation and exploitation. Knowledge acquisition and assimilation represent knowledge conversion from explicit-to- tacit and tacit-to-tacit processes that should be done at the individual level of analyses. Accumulated and assimilated knowledge with organization learning facilitate the transformative process to exploit knowledge for business purposes. Thus, absorptive capacity (ACAP) should be conceptualized and operationalized as a multilevel, multidimensional and latent construct involving distinctly dynamic capabilities. It involves a new way of thinking from epistemological and ontological perspectives. In addition, there is a paucity of research regarding ACAP measurement and specification. The current research provides a theoretical framework on how the measurement of ACAP should be taken in terms of its relation to indicators and order level. © 2020, The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG.

Khdair, S.I., Jarrar, W., Jarrar, Y.B., Bataineh, S., Al-Khalidi, O.

Association of hla-drbl1 and-dq alleles and haplotypes with type 1 diabetes in Jordanians

(2020) Endocrine, Metabolic and Immune Disorders - Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088161874&doi=10.2174%2f1871530319666191119114031&partnerID=40&md5=c5af3a91b1ebc3d8afdcea883eb9249d)

85088161874&doi=10.2174%2f1871530319666191119114031&partnerID=40&md5=c5af3a91b1ebc3d8afdcea883eb9249d

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Diabetes Center, King Abdullah University Hospital, P.O.Box 630001, Irbid, 21110, Jordan

ABSTRACT: Background: The Human Leukocyte Antigen (HLA) class II genes, particularly the HLA-DR and-DQ loci, have been shown to play a crucial role in Type 1 Diabetes (T1D) development. Objective: This study is the first to examine the contribution of the HLA-DR/DQ alleles and haplo-types to T1D susceptibility in Jordanians. Methods: Polymerase chain reaction sequence-specific primers (PCR-SSP) were used to genotype 41 Jordanian healthy controls and 50 insulin-dependent diabetes mellitus (IDDM) patients. Results: The following alleles were found to be significant high risk alleles in T1D Jordanian patients: DRB1*04 (OR=3.95, $p<0.001$), DRB1*0301 (OR=5.27, $p<0.001$), DQA1*0301 (OR=5.67, $p<0.001$), DQA1*0501 (OR=3.18, $p=0.002$), DQB1*0201 (OR=2.18, $p=0.03$), DQB1*0302 (OR=5.67, $p<0.001$). However, Jordanians harboring the DRB1*0701 (OR=0.37, $p=0.01$), DRB1*1101 (OR=0.2, $p=0.01$), DQA1*0505 (OR=0.31, $p=0.02$), DQA1*0103 (OR=0.33, $p=0.04$), DQA1*0201 (OR=0.45, $p=0.04$), DQB1*0301 (OR=0.23, $p=0.001$), DQB1*0501 (OR=0.18, $p=0.009$) alleles had a significantly lower risk of developing T1D. Conclusion: A strong positive association of DRB1*04-DQA1*0301-DQB1*0302 (OR=5.67, $p<0.001$) and DRB1*0301-DQA1*0501-DQB1*0201 (OR=6.24, $p<0.001$) putative haplotypes with IDDM was evident in Jordanian IDDM patients whereas DRB1*1101-DQA1*0505-DQB1*0301 (OR=0.23, $p=0.03$) was shown to have a protective role against T1D in Jordanians. Our findings show that specific HLA class II alleles and haplotypes are significantly associated with susceptibility to T1D in Jordanians. © 2020 Bentham Science Publishers.

Hammad, M.A., Awad, A., Khalil, R.

Properties of conformable fractional Chi-square probability distribution

(2020) Journal of Mathematical and Computational Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85088013047&doi=10.28919%2fjmc%2f4583&partnerID=40&md5=7fdde1dc5b5431483fe2a734065b1596)

85088013047&doi=10.28919%2fjmc%2f4583&partnerID=40&md5=7fdde1dc5b5431483fe2a734065b1596

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Jordan;

Department of Mathematics, University of Jordan, Jordan

ABSTRACT: The paper introduces conformable fractional analogs of some basic concepts related to probability distributions of random variables, namely density, cumulative distribution, survival and hazard functions. Moreover, it introduces conformable fractional analogs to expected values, r th moments, r th central moments, mean, variance, skewness and kurtosis. In addition, it introduces conformable fractional analogs to some entropy measures, namely, Shannon, Renyi and Tsallis entropy measures together with Awad sup-entropy counter parts of these three measures. All these concepts had been applied to the conformable fractional chi-square probability distribution. © 2020 the author(s).

Al-Showarah, S., Alzyadat, W., Alhroob, A., Al-Assam, H.

User identification based on the dynamic features extracted from handwriting on touchscreen devices

(2020) International Journal of Interactive Mobile Technologies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087935388&doi=10.3991%2fijim.v14i11.11859&partnerID=40&md5=a011c0835b808d1cbbd7ec8a29e9b7c1)

85087935388&doi=10.3991%2fijim.v14i11.11859&partnerID=40&md5=a011c0835b808d1cbbd7ec8a29e9b7c1

AFFILIATIONS: Mutah University, Karak, Jordan;

Alzaytoonah University of Jordan, Jordan;

Isra University, Amman, Jordan;

University of Buckingham, Buckingham, United Kingdom

ABSTRACT: This research presents a methodology for user identification using ten English words handwritten on smartphone and mini-tablet. This research considers three features, namely Signature Precision (SP), Finger Pressure (FP), and Movement Time (MT) that were extracted from each of the ten English words using dynamic time warping. The features are then used individually and combined for the purpose of user identification based on the Euclidean distance and the k-nearest neighbor classifier. We concluded that the best identification accuracy results from the combinations of the SP and the FP features with average accuracies of 74.55% and 69% were achieved on small smartphone and Minitablet respectively using a dataset of 42 users. © 2020 International Association of Online Engineering.

Subbotina, V., Sobol, O., Belozarov, V., Al-Qawabeha, U.F., Tabaza, T.A., Al-Qawabah, S.M., Shnyder, V.

A study of the electrolyte composition influence on the structure and properties of mao coatings formed on AMG6 alloy

(2020) Eastern-European Journal of Enterprise Technologies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087889040&doi=10.15587%2f1729-4061.2020.205474&partnerID=40&md5=73965b1d173b72646edecd0297587e70>

AFFILIATIONS: Department of Materials Science, National Technical University 'Kharkiv Polytechnic Institute', Kyrpychova str., 2, Kharkiv, 61002, Ukraine;

Department of Mechanical Engineering, Faculty of Engineering Al-Zaytoonah University, Queen Alia Airport str., 594, Amman, 11733, Jordan;

Faculty of Engineering and Technology, Department of Mechanical Engineering, Faculty of Engineering Al-Zaytoonah University, Queen Alia Airport str., 594, Amman, 11733, Jordan

ABSTRACT: The influence of electrolysis conditions at different electrolyte compositions on the phase formation and properties of coatings obtained by microarc oxidation (MAO) on an aluminum alloy AMg6 was studied. For electrolysis, three types of electrolytes were used: alkaline electrolyte ((KOH) solution in distilled water), silicate electrolyte (with different percentages of Na₂SiO₃ component) and complex alkaline silicate electrolyte with liquid glass (1/12 g/l Na₂SiO₃) and potassium hydroxide (1/6 g/l KOH). An analysis of the results showed that the choice of electrolyte type and conditions of the microarc oxidation process allows a wide variation in the phase-structural state, thickness and properties of the AMg6 aluminum alloy. The criterion for the expected phase-structural state of the coatings as a result of microarc oxidation is the completeness of the γ -Al₂O₃→ α -Al₂O₃ transformation process during coating formation. The use of an alkaline electrolyte does not allow achieving a high hardness of the coating due to the formation of the γ -Al₂O₃ phase and the absence of thermodynamic conditions for the γ -Al₂O₃→ α -Al₂O₃ transition. When using a silicate electrolyte, it is possible to significantly increase the growth rate of the coating, but at the same time, the presence of a large specific Si concentration stimulates the formation of mullite and an amorphous-like phase. The use of a combined alkaline silicate electrolyte (with different percentages of KOH+Na₂SiO₃) with a low content (6 g/l) of Na₂SiO₃ in solution stimulates the formation of mullite. This is manifested to the greatest extent with the lowest content (1 g/l) of the KOH component. At a higher content (2 g/l) of the KOH component, the processes characteristic of an alkaline electrolyte become dominant. This leads to an incomplete transformation reaction and the formation of only the γ -Al₂O₃ phase. The achievement of the thermodynamic conditions of the γ -Al₂O₃→ α -Al₂O₃ conversion became possible with an increase in the specific Na₂SiO₃ content in the electrolyte solution to 12 g/l. In this case, MAO coatings were formed on the AMg6 alloy with the highest hardness of 1500 kg/mm² and high electric strength of 12 V/μm. © 2020 V. Subbotin, O. Sobol, V. Belozarov, Ubeidulla F. Al-Qawabeha, Taha A. Tabaza, Safwan M. Al-Qawabah, Valentin Shnayder.

Alqerem, W., Ling, J., Jarrar, W.

Validation of the Arabic version of the childhood illness attitudes scales [Validation de la version arabe de l'échelle d'attitude à l'égard de la maladie Chez l'enfant]

(2020) Eastern Mediterranean Health Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087473007&doi=10.26719%2femhj.20.068&partnerID=40&md5=02ba62d08328adff71e3027d283cca07)

[85087473007&doi=10.26719%2femhj.20.068&partnerID=40&md5=02ba62d08328adff71e3027d283cca07](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087473007&doi=10.26719%2femhj.20.068&partnerID=40&md5=02ba62d08328adff71e3027d283cca07)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah Private University of Jordan, Amman, Jordan;

School of Nursing and Health Sciences, University of Sunderland, Sunderland, United Kingdom

ABSTRACT: Background: Excessive health anxiety can lead to significant disorders such as hypochondriasis. In children, assessment of the severity of health anxiety has been performed using the Childhood Illness Attitudes Scales (CIAS); however, no validated Arabic version of this tool exists. Aims: This study developed and validated an Arabic version of the CIAS questionnaire in Jordan in 2017 to provide a tool to measure the severity of health anxiety in the Arabic-speaking world. Methods: The CIAS was translated from English to Arabic then back-translated by a different translator and the 2 versions were compared before cognitive interviews were conducted. The final version of the questionnaire was circulated to 597 children. Of these, 200 were asked to retake the questionnaire after 10-15 days to evaluate test-retest reliability. Confirmatory factor analysis (CFA) on the 4-factor model suggested by the original questionnaire version was performed. Internal consistency and test-retest reliability were evaluated. Results: The CFA showed good fit (goodness of fit index = 0.92) with the 4-factor model of fears, help seeking, treatment experience, and symptom effects. Test-retest reliability was high and the model had good discriminant validity and internal consistency. Conclusions: The Arabic version of the CIAS provides a suitable tool to investigate the prevalence and severity of childhood anxiety in the Middle East. © World Health Organization (WHO) 2020.

Al-Samydai, M.J., Qrimea, I.A., Yousif, R.O., Al-Samydai, A., Aldin, M.K.

The impact of social media on consumers' health behavior towards choosing herbal cosmetics

(2020) Journal of Critical Reviews, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087375848&doi=10.31838%2fjcr.07.09.214&partnerID=40&md5=e44d0fec3cd87771d8d754e896fcca89)

[85087375848&doi=10.31838%2fjcr.07.09.214&partnerID=40&md5=e44d0fec3cd87771d8d754e896fcca89](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087375848&doi=10.31838%2fjcr.07.09.214&partnerID=40&md5=e44d0fec3cd87771d8d754e896fcca89)

AFFILIATIONS: Department of Marketing, Faculty of Business, Al-Zaytoonah University, Jordan;

Department of Marketing, Faculty of Economics and Administrative Sciences, Zarqa University, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, Jordan;
UC Davis School of Medicine, University of California, California, United States

ABSTRACT: There is an increasing demand of cosmetics for maintaining and enhancing human beauty, but cosmetics products, may include a number of harmful toxins which can be produce sever side effect. Global interest toward Herbal cosmetic is rising because of safety, as a products or homemade formula. The aim of the present study is to know the role of social media on consumers' health behavior toward Herbal cosmetic. depth interviews are used to collect the data by asking face-to-face to the respondent. Our results finds, that most of people in Jordan preferred Herbal cosmetic due to its safety, and 61.33% of sample agree that social media played an important role in switching them desire from Organic cosmetic to Herbal cosmetic, and Social Media Stars are the mean influencer in desire change. The innovative way to advert natural cosmetics in Jordan, throw inviting Social media influencers to drive people into Herbal cosmetic. © 2020 by Advance Scientific Research. This is an open-access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>)

Al-Masaeid, H.R., Bazlamit, S.M., Al-Zedaneen, A.E., Al-Mofleh, H.M.

Impact of fasting on traffic accidents

(2020) Jordan Journal of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087102899&partnerID=40&md5=d0688057360ac505acf748e5a8a88836)

[85087102899&partnerID=40&md5=d0688057360ac505acf748e5a8a88836](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087102899&partnerID=40&md5=d0688057360ac505acf748e5a8a88836)

AFFILIATIONS: Civil Engineering Dept., Jordan University of Science and Technology, Irbid, Jordan;
Civil and Infrastructure Engineering Dept, Al-Zaytoonah University of Jordan, Amman, Jordan;
Dept., of Mathematics, Tafila Technical University, Tafila, Jordan

ABSTRACT: In the Islamic religion, fasting is considered as one of the Islam's cornerstones. In Jordan, there is a belief that traffic accidents are higher in the month of Ramadan compared with other months of the year. The major objectives of this study were to investigate the impact of fasting on traffic accidents and model traffic accidents in Ramadan. To achieve these objectives, twelve major urban multilane segments in Amman, the capital of Jordan, were selected. Data on hourly, daily and monthly traffic volumes and accidents from 2013 to 2017 were obtained from related sources. Analysis results revealed that daily traffic volume values and hourly peak volume values in Ramadan as well as before and after Ramadan are approximately comparable. In contrast, results indicated that daily accident rate and number of accidents in Ramadan were found to be significantly larger than those before or after Ramadan. Using time-series analysis, ARIMA (9, 8) and ARIMA (7, 4) were found to be suitable to model daily accident rate and number of accidents in Ramadan, respectively. Finally, it was recommended to conduct behavioral and medical studies in order to clarify the issue of accident increase in Ramadan. © 2020 JUST. All Rights Reserved.

Alghusin, N., Al-Ajlouni, M.I.

Transformational leadership as an antecedent for organisational commitment and job performance in the banking sector of Jordan

(2020) International Journal of Productivity and Quality Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087019898&doi=10.1504%2fIJPQM.2020.107814&partnerID=40&md5=d42b68c7fda2d7a6a890628eff47e1a4)

[85087019898&doi=10.1504%2fIJPQM.2020.107814&partnerID=40&md5=d42b68c7fda2d7a6a890628eff47e1a4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087019898&doi=10.1504%2fIJPQM.2020.107814&partnerID=40&md5=d42b68c7fda2d7a6a890628eff47e1a4)

AFFILIATIONS: Department of Banking and Finance, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Guided by social-exchange-theory, present study examined transformational leadership (TL) as an antecedent for organisational commitment (OC) and its subsequent influence on job performance (JP). Through using a structured self-administered questionnaire, data were collected surveying (439) non-executive employees operating in (15) banks listed in Amman-Stock-Exchange through non-probability purposive sampling. Structural-equation-modelling using SMART-PLS was utilised and the result reported that TL components achieved 44%, 42.5% and 35.4% of the variance in affective, continuous and normative commitment respectively. Idealised influence did not have any significant effect on any level of OC, whereas intellectual stimulation influenced the three levels of OC. Individualised consideration influenced only affective and continuous commitment, and inspirational motivation influenced only normative and continuous commitment. Moreover, only affective commitment was significant in influencing JP and accounted for 82% of the variance. Following the results, discussion and implication were provided. Also, directions and suggestions for future researches were presented. © 2020 Inderscience Enterprises Ltd.. All rights reserved.

Khalaf, R.A., Masalha, D., Sabbah, D.

Dpp-iv inhibitory phenanthridines: Ligand, structure-based design and synthesis

(2020) Current Computer-Aided Drug Design, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086354213&doi=10.2174%2f157340991566618121114743&partnerID=40&md5=97d4a9a9b36f0fd2f834fd450db157d7)

[85086354213&doi=10.2174%2f157340991566618121114743&partnerID=40&md5=97d4a9a9b36f0fd2f834fd450db157d7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086354213&doi=10.2174%2f157340991566618121114743&partnerID=40&md5=97d4a9a9b36f0fd2f834fd450db157d7)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Lately, diabetes has become the main health concern for millions of people around the world. Dipeptidyl peptidase-IV (DPP-IV) inhibitors have emerged as a new class of oral antidiabetic agents. Formerly, acridines, N4-sulfonamido-succinamic, phthalamic, acrylic and benzoyl acetic acid derivatives, and sulfamoyl-phenyl acid esters were designed and developed as new DPP-IV inhibitors. Objective: This study aims to develop a pharmacophore model of DPP-IV inhibitors and to evaluate phenanthridines as a novel scaffold for inhibiting DPP-IV enzyme. In addition, to assess their binding interactions with the enzyme through docking in the binding site of 4A5S (PDB). Methods: Herein, Quantum-Polarized Ligand Docking (QPLD) and ligand-based pharmacophore modeling investigations were performed. Three novel 3,8-disubstituted-6-phenyl phenanthridine derivatives 3-5 have been designed, synthesized and characterized. In vitro biological testing against DPP-IV was carried out using fluorometric assay kit. Results: QPLD study demonstrates that compounds 3-5 forms H-bond with Lys554, Trp629, and Tyr631, besides charge transfer interaction between their aromatic rings and the aromatic rings of Tyr547 and Tyr666. Moreover, they fit the three pharmacophoric point features of DPP-IV inhibitors and were proven to have in vitro DPP-IV inhibitory activity where compound 5 displayed a % inhibition of 45.4 at 100 μ M concentration. Conclusion: Phenanthridines may serve as a potential lead compound for developing new DPP-IV inhibitors as a promising antidiabetic agent. Computational results suggest future structural simplification. © 2020 Bentham Science Publishers.

Hawashin, B., Aqel, D., Alzubi, S., Elbes, M.

Improving recommender systems using co-appearing and semantically correlated user interests

(2020) Recent Advances in Computer Science and Communications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85086138686&doi=10.2174%2f2213275912666190115162311&partnerID=40&md5=9aee7bbc4276887f84cc88e0859ec78c

AFFILIATIONS: Department of Computer Information Systems, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Recommender Systems use user interests to provide more accurate recommendations according to user actual interests and behavior. Methods: This work aims at improving recommender systems by discovering hidden user interests from the existing interests. User interest expansion would contribute in improving the accuracy of recommender systems by finding more user interests using the given ones. Two methods are proposed to perform the expansion: Expanding interests using correlated interests' extractor and Expanding interests using word embeddings. Results: Experimental work shows that such expanding is efficient in terms of accuracy and execution time. Conclusion: Therefore, expanding user interests proved to be a promising step in the improvement of the recommender systems performance. © 2020 Bentham Science Publishers.

Olimat, A.N., Awad, A.S., Shaban, N.A.

Experimental investigation on the effect of fire-resistant coatings on combustion and flame spread characteristics by medium density fiber boards commonly used in Jordan

(2020) International Review of Mechanical Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85085680816&doi=10.15866%2fireme.v14i1.18498&partnerID=40&md5=cccf147cb4b6f9f66a887f6d0a2637df

AFFILIATIONS: Department of Fire Safety Engineering, Prince AL-Hussein bin Abdullah Second Academy of Civil Protection, Al-Balq'a Applied University, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University, Jordan

ABSTRACT: The rate of flame spread on surfaces indicates how quickly the hazardous stages will be reached in low ventilation compartments. Building codes and standards want building authorities to achieve the minimum flame spread requirements. Several types of wood have been used in the series of conducted tests for this research since most of the furniture products in Jordan depend on it. Jordan imports all of its needs from natural wood at a high cost. Medium density fiberboard has become very popular in Jordan as an alternative source of wood. For comparison, white pine and Medium density fiberboard have been tested according to the methodology of American Society for Testing and Materials standard using lateral ignition and flame transport apparatus. Ignition experiments of treated wood with fire resistant paint have been performed. The aim of this work is to investigate the effect of fire resistant paint on the performance of tested specimens by comparing ignitibility and flame spread parameters between unpainted and painted specimens. A comparison of six parameters that have been identified to demonstrate the capability of wood specimens to withstand a flame when fire resistant paint is applied will be presented. The sought parameters included are the minimum heat flux, the ignition time, the ignition parameter, the thermal inertia, the flame spread rate, and the peak heat release rate. The results have showed the propensity of specimens for flaming have been decreased with fire resistant paint. Flaming ignition temperature for pine specimen has been increased from 460 K to 530 K due to fire resistant painting. Furthermore, the flame of painted wood is weaker than the unpainted wood specimen while the flame spread parameter is lower for painted specimens. It has been 2.61 kW2/m3 for unpainted compared with 1.78 kW2/m3 for painted Medium density

fiberboard. © 2020 Praise Worthy Prize S.r.l.-All rights reserved.

Shrouf, H., Al-Qudah, S., Al Khawaldeh, K., Obeidat, A.M., Al Rawashdeh, A.

A study on relationship between human resources and strategic performance: The mediating role of productivity

(2020) Management Science Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085646152&doi=10.5267%2fj.msl.2020.5.002&partnerID=40&md5=d8a9f6afeb3a32a55e558975b1f31417)

[85085646152&doi=10.5267%2fj.msl.2020.5.002&partnerID=40&md5=d8a9f6afeb3a32a55e558975b1f31417](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085646152&doi=10.5267%2fj.msl.2020.5.002&partnerID=40&md5=d8a9f6afeb3a32a55e558975b1f31417)

AFFILIATIONS: Department of Business Administration, Faculty of Business, Applied Science Private University, Jordan;

Department of Business Administration, Faculty of Business, Amman Arab University, Jordan;

Department of Business Administration, Business Collage, JADARA University, Jordan;

Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The objective of the study is to investigate the mediating role of the productivity of the banks sector in Jordan based on the relationship between human resources and strategic performance from the point of view of the senior management managers and functional unit managers (human resources, marketing, finance and accounting). Human resources were measured through human resource activities. The population of the current study represented all the commercial banks in Jordan, the total number of which is 26. A survey questionnaire is prepared based on the published literature, and the data are collected from 371 respondents from the targeted banks. The necessary tests to ensure reliability and validity are performed using SPSS. The results indicate that human resources positively affected strategic performance and productivity. The findings also revealed that productivity positively mediated the relationship between human resources and the commercial banks' strategic performance. © 2020 by the authors; licensee Growing Science.

Hadid, L.A.A., Al Barmawi, M., Al Hmamat, N.A.A., Shoqirat, N.

Factors Associated with Prehospital Delay among Men and Women Newly Experiencing Acute Coronary Syndrome: A Qualitative Inquiry

(2020) Cardiology Research and Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085544646&doi=10.1155%2f2020%2f3916361&partnerID=40&md5=ee9670056a8bb2fff1f76f540abbf2c3)

[85085544646&doi=10.1155%2f2020%2f3916361&partnerID=40&md5=ee9670056a8bb2fff1f76f540abbf2c3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085544646&doi=10.1155%2f2020%2f3916361&partnerID=40&md5=ee9670056a8bb2fff1f76f540abbf2c3)

AFFILIATIONS: Department of Nursing, Aisha Bint Al Hussein College of Nursing and Health Sciences, Al Hussein Bin Talal University, P.O. Box: 20, Ma'an, 71111, Jordan;

Department of Nursing, Faculty of Nursing, Alzaytoonah University of Jordan (ZUJ), Amman, Jordan;

Fatima College of Health Sciences, Abu Dhabi, United Arab Emirates;

Nursing Faculty, Mutah University, Karak, Jordan

ABSTRACT: Background. Delaying seeking health care for patients with acute coronary syndrome (ACS) causes high mortality and morbidity with variations among men and women regarding reasons for this delay. Objectives. This study explored factors associated with prehospital delay among men and women experiencing acute coronary syndrome for the first time in Jordan. Methods. 35 men and 33 women with ACS admitted and treated at the coronary and postcoronary care units. Results. Themes emerging from the data are knowledge about ACS, the resources related to health care, and concerns around family wellbeing. Owing to the traditional roles of men and women within the family, women felt responsible for maintaining the family, assisting in the financial conditions, and supporting family coherence by delaying hospitalization. Men were worried about the structural safety and maintenance of the family. Conclusion and Implications. Prehospital delay is common among first-timer ACS patients from both sexes, and thus, increasing awareness about ACS among the public from all age groups is necessary. Availability of specialized health care centers and equity in health care services are vital to improve public confidence in these health care settings and health outcomes. © 2020 Lourance A. Al Hadid et al.

Sabbah, D.A., Hajjo, R., Sweidan, K.

Review on epidermal growth factor receptor (EGFR) structure, signaling pathways, interactions, and recent updates of EGFR inhibitors

(2020) Current Topics in Medicinal Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085479196&doi=10.2174%2f1568026620666200303123102&partnerID=40&md5=a86d93af555dd95ee0f275c2943fe26d)

[85085479196&doi=10.2174%2f1568026620666200303123102&partnerID=40&md5=a86d93af555dd95ee0f275c2943fe26d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085479196&doi=10.2174%2f1568026620666200303123102&partnerID=40&md5=a86d93af555dd95ee0f275c2943fe26d)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The epidermal growth factor receptor (EGFR) belongs to the ERBB family of tyrosine kinase receptors. EGFR signaling cascade is a key regulator in cell proliferation, differentiation, division, survival, and cancer development. In this review, the EGFR structure and its mutations, signaling pathway, ligand binding and EGFR dimerization, EGF/EGFR interaction, and the progress in the development of EGFR inhibitors have been explored. © 2020 Bentham Science Publishers.

Amarin, N., Al-Saleh, A.

The effect of color use in designing instructional aids on learners' academic performance (2020) Journal of E-Learning and Knowledge Society, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085475051&doi=10.20368%2f1971-8829%2f1135246&partnerID=40&md5=971f80a5cfccf1189d25d6d4da974f4b>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Arts, Amman, Jordan

ABSTRACT: As a result of the rapid development in educational technology, the design of instructional aids has been gaining a lot of significance. To date, researchers have studied the effect of using instructional aids on the learners' academic performance, and a positive effect has often been proven. This study reviews and analyses existing literature and empirical evidence in relation to color use in designing instructional aids. Two major areas reviewed in the study are the Color Theory and the psychological and physiological impacts of color on learners. The results show that using colors in designing instructional aids plays an important role in enabling learners to concretize concepts and relations. Results also indicate that the effects of using color reflect on both the learners' and the teachers' emotional experiences. The results of the study may benefit educators, teachers, and pre-service teachers in designing the right and favourable learning environments for their teaching strategies. © Italian e-Learning Association.

Al Hwaitat, A.K., Almaiah, M.A., Almomani, O., Al-Zahrani, M., Al-Sayed, R.M., Asaifi, R.M., Adhim, K.K., Althunibat, A., Alsaaidah, A.

Improved security particle swarm optimization (PSO) algorithm to detect radio jamming attacks in mobile networks

(2020) International Journal of Advanced Computer Science and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085327959&doi=10.14569%2fIJACSA.2020.0110480&partnerID=40&md5=715922239f24cb4d1236644a7595c504>

AFFILIATIONS: Faculty of King Abdullah II School for Information Technology, The University of Jordan, Amman, Jordan;

Faculty of Computer Sciences and Information Technology, King Faisal University, Al-Ahsa, Saudi Arabia;

Faculty of Information Technology, The World Islamic Sciences and Education University, Amman, Jordan;

Faculty of Business, The University of Jordan, Amman, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Jamming attack is one of the most common threats on wireless networks through sending a high-power signal to the network in order to corrupt legitimate packets. To address Jamming attacks problem, the Particle Swarm Optimization (PSO) algorithm is used to describe and simulate the behavior of a large group of entities, with similar characteristics or attributes, as they progress to achieve an optimal group, or swarm. Therefore, in this study enhanced version of PSO is proposed called the Improved PSO algorithm aims to enhance the detection of jamming attack sources over randomized mobile networks. The simulation result shows that Improved PSO algorithm in this study is faster at obtaining the location of the given mobile network at which coverage area is minimal and hence central compared to other algorithms. The Improved PSO as well was applied to a mobile network. The Improved PSO algorithm was evaluated with two experiments. In the First experiment, The Improved PSO was compared with PSO, GWO and MFO, obtained results shown the Improved PSO is the best algorithm among others to fine obtain the location for jamming attack. In Second experiment, Improved PSO was compared with PSO in mobile network environment. The obtain results prove that Improved PSO is better than PSO for obtaining the location in mobile network where coverage area is minimal and hence central. © 2020 Science and Information Organization.

Taybeh, E.O., Al-Alami, Z.M., Albasha, A.

Statin use in Jordan: Patients experience and attitude toward adverse drug reactions (2020) Jordan Journal of Pharmaceutical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084427609&partnerID=40&md5=2e03388f145bf8f8864fbcc88b123a02>

AFFILIATIONS: Department of Applied Pharmaceutical Sciences and Pharmacy Practice, Faculty of Pharmacy, Isra University, Amman, Jordan;

Department of Medical Laboratory Sciences, Faculty of Allied Medical Sciences, Al-Ahliyya Amman University, Amman, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: the aim of this study is to evaluate patients' experience of adverse drug reactions (ADRs) associated with statins "HMG-CoA-reductase inhibitors" use and the patients' attitude toward these ADRs in Jordan, in terms of reporting ADRs, patient adherence and patients' beliefs, from the patients' point of view. Methods: A cross sectional study was used via a paper-based questionnaire that was distributed among community pharmacies in the capital Amman to be filled

by eligible adult patients. A total of 153 patients had completely answered the questionnaire. Results: A percentage of (72.5%) of the patients reported experiencing ADRs associated with statin drugs. Percentages of patients experienced symptoms related to myopathy, peripheral neuropathy, and some incidents of memory loss problems were (64.7%) (41.2%) (35.9%), respectively. The prevalence of ADRs was influenced by drug generics; simvastatin showed the highest rate of ADRs. Patient adherence to statin therapy was affected by the presence of ADRs, only 58.2% of participants were adherent to their statin drug. Conclusion: There were differences between different statin agents in the pattern of reporting ADRs. The variability between associated ADRs needs to be considered by physicians when prescribing this drug. Determining the best tolerated statin drug may enhance the patient's adherence. © 2020 DSR Publishers/The University of Jordan. All Rights Reserved.

Alghusin, N., Alsmadi, A.A., Alkhatib, E., Alqtish, A.M.

The impact of financial policy on economic growth in Jordan (2000-2017): An ardl approach [Utjecaj finansijske politike na gospodarski rast u Jordanu (2000-2017): Ardl pristup] (2020) Ekonomski Pregled, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084058998&doi=10.32910%2fep.71.2.1&partnerID=40&md5=0482544674fcdabb6ce8aa70c73538e7>

AFFILIATIONS: Al Zaytoonah University of Jordan, Faculty of Business, Jordan

ABSTRACT: The aim of this paper is to examine the impact of financial policy on rate of economic growth in Jordan for the period of (2000-2017) taking into the considerations the fluctuations of taxation system. Autoregressive Distributed Lag (ARDL) approach has been utilized in order to analyze the long term relationship between study variable which are; money supply (M2), domestic credit provided by banks (DCBS) and real Gross Domestic Product GDP. The results shows that, money (M2) and domestic credit provided by banks (DCBS) can effects on GDP in Jordan for the study period. The taxation system in Jordan has been fluctuated many times during 2017 and 2018, which made the data partly not available. This led the research-ers to spend long time to find an accurate data in order to finalize this study. This study will add good practical evidence on the impact of changing the taxation system positively or negatively on the economic growth. © 2020, Hrvatsko Drustvo Ekonomista. All rights reserved.

Al-Omoush, K.S.

The role of top management support and organizational capabilities in achieving e-business entrepreneurship (2020) Kybernetes, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85083986306&doi=10.1108%2fK-12-2019-0851&partnerID=40&md5=8e5189b4ee59297c0e4bf326e115e288>

AFFILIATIONS: Department of Management Information Systems (MIS), Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The purpose of this study is to investigate the role of top management support and organizational capabilities in achieving e-business entrepreneurship. Design/methodology/approach: Data were collected through a self-administered questionnaire from 26 manufacturing firms with a sample of 282 respondents. Data were analyzed using SmartPLS. Findings: The results show a significant impact of top management support on e-business entrepreneurship. The findings also show a direct impact of organizational capabilities, involving organizational agility and organizational learning on the e-business entrepreneurship. Moreover, the results of the study highlight the pivotal role of top management in preparing an organizational environment that fosters organizational learning and organizational agility capabilities to establish e-business entrepreneurship. Originality/value: This study contributes to the body of knowledge and understanding of e-business entrepreneurship and the pivotal role of top management support in today's very dynamic environment. Furthermore, the present study offers new insights into the impact of organizational capabilities on establishing e-business entrepreneurship. © 2020, Emerald Publishing Limited.

Al-Mnayyis, A., Alasal, S.A., Alsmirat, M., Baker, Q.B., Al Zu'bi, S.

Lumbar disk 3D modeling from limited number of MRI axial slices

(2020) International Journal of Electrical and Computer Engineering, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85083093568&doi=10.11591%2fijece.v10i4.pp4101-4108&partnerID=40&md5=db549c5bb7eaf4da9cf7ed9842b1eced>

AFFILIATIONS: Department of Clinical Sciences, Radiology Division, MSK Radiologist, Faculty of Medicine, Yarmouk University, Jordan;

Department of Computer Science, Jordan University of Science and Technology, Jordan;

Computer Science Department, Al Zaytoonah University of Jordan, Jordan

ABSTRACT: This paper studies the problem of clinical MRI analysis in the field of lumbar intervertebral disk herniation diagnosis. It discusses the possibility of assisting radiologists in reading the patient's MRI images by constructing a 3D model for the region of interest using simple computer vision methods. We use axial MRI slices of the lumbar area. The proposed framework works

with a very small number of MRI slices and goes through three main stages. Namely, the region of interest extraction and enhancement, inter-slice interpolation, and 3D model construction. We use the Marching Cubes algorithm to construct the 3D model of the region of interest. The validation of our 3D models is based on a radiologist's analysis of the models. We tested the proposed 3D model construction on 83 cases and We have a 95% accuracy according to the radiologist evaluation. This study shows that 3D model construction can greatly ease the task of the radiologist which enhances the working experience. This leads eventually to a more accurate and easy diagnosis process. Copyright © 2020 Institute of Advanced Engineering and Science. All rights reserved.

Ahmad, F.B., Qawaqneh, H., Qwider, S.A.

The training needs of the mathematics teachers in the light of integrating technology in teaching at Jordan country from their perspectives

(2020) Universal Journal of Educational Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85082798632&doi=10.13189%2fujer.2020.080435&partnerID=40&md5=c50902d31745776ecb8dc79d120079c4

AFFILIATIONS: Faculty of Educational Sciences, Middle East University, Jordan;

Department of Mathematical Sciences, Faculty of Science and Technology, Al-Zaytoonah University, Jordan

ABSTRACT: The process of identifying training needs is an important factor for training teachers in general and mathematics teachers in particular, which helps to achieve the desired goals of the educational process. This study pointed to distinguish the training needs of the Mathematics teachers in the light of integrating technology in teaching from their points of view. The descriptive approach, which branches into the methodology of studies of mutual relations, was used as a research methodology and a questionnaire was developed for the training needs of mathematics teachers as a study tool. The study population consisted of all teachers in private schools at Qwaisma district in Jordan country which is (80). The stratified random example of the study was (70) members with (40) females and (30) males. The study conclusion explains that the needs were medium emphasized on (35) training needs. The result also indicates that there was no statistically significant difference in assessing the training needs of Mathematics teachers belonging to the gender and experience since both of them need training and qualification to integrate technology in education. This study may contribute to enhancing learning among learners, developing their learning outcomes and encouraging teachers to use technology with education in mathematics in particular as a result of the rapid changes and developments that occur in the curricula. Copyright © 2020 by authors, all rights reserved.

Ali, N., Al Ganideh, S.F.

Syrian refugees in Jordan: Burden or Boon

(2020) Research in World Economy, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85082763259&doi=10.5430%2frwe.v11n1p180&partnerID=40&md5=10a6d8edb23e800df9f51e266f0365da

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The growing number of Syrian refugees in Jordan broadens the importance of exploring Jordanians' attitudes toward increasingly protracted Syrian refugees. The purpose of this study is to examine the extent to which demographic and socio-psychological variables shape Jordanians' attitudes toward Syrian refugees. The study design is mainly quantitative with a qualitative technique to support and expand upon the study findings. Data were collected from 199 Jordanians over a sixteen-week period in 2015. Quantitative data were analyzed using a hierarchical regression method. The results reveal that attitudes toward Syrian refugees in Jordan are determined by issues such as unemployment and pressure on resources. Income, geographical location and patriotism were found to have statistically significant influence on Jordanians' attitude toward Syrian refugees. Jordanians who live in the North of the country (large number of Syrian refugees reside in this area), high income Jordanians, and Jordanian with high level of patriotism hold the least positive attitudes toward Syrian refugees. © 2020 Sciedu Press.

Hamza, M., Al-Hashem, A.O.

Knowledge discovery tools for digital advertising effectiveness in jordanian telecommunications sector

(2020) International Journal of Control and Automation, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85082728224&partnerID=40&md5=2c8003a96ff5c15cdfbefc9f7b96d4b9

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

Al-Balqa Applied University, Jordan

ABSTRACT: Nowadays, various popular knowledge discovery tools are available to help companies extract of hidden predictive information from databases and data warehouses. A huge amount of data provide opportunity to predict future trends and assist businesses to enhance the effectiveness of digital

advertising campaigns in order to promote their products and services through various offered advertisements. The purpose of this study is to investigate knowledge discovery tools (data mining, web mining, OLAP, social media mining) which effect on digital advertising effectiveness (Exposure, Interactivity). data were collected using a developed questionnaire with a random sample 449 employees from the Jordanian telecommunications sector companies. Findings revealed that there is a significantly positive impact of knowledge discovery tools on the effectiveness of digital advertising. It concluded that researched companies should be maintaining the necessary requirements and advanced technical needs and provide financial, administrative support to keep up with knowledge discovery tools for enabling the effectiveness of digital advertising. © 2020 SERSC.

Jarrar, Y., Zihlif, M., Bawab, A.Q.A., Sharab, A.

Effects of intermittent hypoxia on expression of glucose metabolism genes in MCF7 breast cancer cell line

(2020) Current Cancer Drug Targets, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082542198&doi=10.2174%2f1568009619666191116095847&partnerID=40&md5=2bffa9e3715a0072d29ad65cd74192e0)

[85082542198&doi=10.2174%2f1568009619666191116095847&partnerID=40&md5=2bffa9e3715a0072d29ad65cd74192e0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082542198&doi=10.2174%2f1568009619666191116095847&partnerID=40&md5=2bffa9e3715a0072d29ad65cd74192e0)

AFFILIATIONS: Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, Faculty of Medicine, The University of Jordan, Amman, Jordan

ABSTRACT: Background: Hypoxic condition induces molecular alterations which affect the survival rate and chemo-resistant phenotype of cancer cells. Objective: The aim of this study is to investigate the influence of intermittent hypoxic conditions on the expression of glucose metabolism genes in breast cancer MCF7 cell line. Methods: The gene expression was analyzed using a polymerase chain reaction-array method. In addition, the cell resistance, survival and migration rates were examined to assure the hypoxic influence on the cells. Results: 30 hypoxic episodes induced the Warburg effect through significant (p -value < 0.05) upregulation of the expression of PCK2, PHKG1, ALDOC, G6PC, GYS2, ALDOB, HK3, PKLR, PGK2, PDK2, ACO1 and H6PD genes that are involved in glycolysis, were obtained. Furthermore, the expression of the major gluconeogenesis enzyme genes was significantly (ANOVA, p -value < 0.05) downregulated. These molecular alterations were associated with increased MCF7 cell division and migration rate. However, molecular and phenotypic changes induced after 30 episodes were normalized in MCF7 cells exposed to 60 hypoxic episodes. Conclusion: It is concluded, from this study, that 30 intermitted hypoxic episodes increased the survival rate of MCF7 breast cancer cells and induced the Warburg effect through upregulation of the expression of genes involved in the glycolysis pathway. These results may increase our understanding of the molecular alterations of breast cancer cells under hypoxic conditions. © 2020 Bentham Science Publishers.

Bazlamit, S.M., Al-Suleiman (Obaidat), T.I., Ahmad, H.S.

Practices of Sustainable Development in Higher Education Institutions: Case Study of Al-Zaytoonah University of Jordan

(2020) Lecture Notes in Mechanical Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082111643&doi=10.1007%2f978-981-15-1910-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082111643&doi=10.1007%2f978-981-15-1910-9_2&partnerID=40&md5=60bf82b169b5129407344e6a4738de0a)

[9_2&partnerID=40&md5=60bf82b169b5129407344e6a4738de0a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082111643&doi=10.1007%2f978-981-15-1910-9_2&partnerID=40&md5=60bf82b169b5129407344e6a4738de0a)

AFFILIATIONS: Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Al-Zaytoonah University of Jordan (ZUJ) has recently carried out a large-scale sustainable energy project in an attempt to reduce its operational expenses. This comes as the university is seeking a sustainable campus in the areas of water, energy use and waste management. A number of sustainable development projects have been completed in the last four years and their benefits are just being realized. This paper will focus on these projects and cover their impact in terms of energy savings, sustainability advancement and environmental preservation. An economic analysis of energy savings that resulted from the installation of photovoltaic panel is also presented. In addition, the university had also adopted an irrigation system which utilizes reclaimed water from its wastewater treatment plant. The university also uses a network of dripping perforated pipes to water the vegetation on its campus. The education and awareness of sustainable development is also being disseminated among the students and faculty to create a partnership in sustainable development throughout the campus aimed at implementing a solid waste management plan. The university had also invested in energy efficient light fixtures, and smart appliances in the air conditioning and heating. This paper will detail the practices of the university in this sustainable development transformation. This research is intended to document sustainable development engineering projects which encompasses lean management and aimed at reducing cost and waste. © 2020, Springer Nature Singapore Pte Ltd.

Ayoush, M.D., Ahmad, H.S.

Investigating the Use of Electronic Documents in the Jordanian Construction Projects

(2020) Lecture Notes in Mechanical Engineering, .

https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082103141&doi=10.1007%2f978-981-15-1910-9_14&partnerID=40&md5=ceef87fde477912b27ec90337053e45a

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, P.O. Box: 130, Amman, 11733, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, P.O. Box: 130, Amman, 11733, Jordan

ABSTRACT: Construction processes normally require large exchange of information among project parties on a daily basis. The wide development in Information and Communication Technology (ICT) in recent decades has helped to provide easy processing of data during the life-cycle of construction projects. However, traditional manual methods of filing are still common in the construction industry. The aim of this study is to investigate the use of different electronic documents in the construction projects. A quantitative survey was conducted with 91 respondents from the construction projects' engineers and practitioners. Also, the questionnaire survey investigates if there is an Electronic Document Management System (EDMS) applied in construction projects. Finally, the types of electronic files and the extent of using electronic-based documents were investigated. The results of this study help to understand the context of the documents in the construction projects that may be useful to seek opportunities for improvement, and provide effective solutions for EDMS application. © 2020, Springer Nature Singapore Pte Ltd.

Abu Salem, Z.T., Suleiman, A.

Risk factors causing time delay in the Jordanian construction sector

(2020) International Journal of Engineering Research and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082036493&partnerID=40&md5=074c0a6e0e7f7a4c24d14c92fbbd443e)

[85082036493&partnerID=40&md5=074c0a6e0e7f7a4c24d14c92fbbd443e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082036493&partnerID=40&md5=074c0a6e0e7f7a4c24d14c92fbbd443e)

AFFILIATIONS: Department of Civil Engineering, Applied Science Private University, Amman, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The construction sector in Jordan is an important economic area, contributing 3.1% to Jordan's GDP in 2016. The sector has changed over the past two decades since the end of gulf war; even changed rapidly in the last five years as a result of Arab spring, companies are encountered with more risks and uncertainties than before. One of major risks in the Jordanian construction industry is time delay, it is considered as inevitable. The goal of this study is to identify risk factors that cause time delay and then to explain the risk matrix for these factors in building projects in Jordan from the point of view of key construction project parties. The approach followed in the study is identifying main risk factors causing time delay. These factors are tabled in a questionnaire form and sent to construction professionals asking for their input in defining the risk framework of the 38 factors in terms of the effect and possibility of each hazard event. The framework was split into three categories (green, orange, and red) by the degree of severity over the time delay of the projects. Assessment of the 38 risk factors reveals that six elements of minor importance as they are in the green zone, 29 factors of medium importance in the yellow zone, and eight factors of critical importance in the red zone. This study's findings and suggestions will direct the project managers to improve their performance, which will have a significant impact on the sector. © International Research Publication House.

Alhroob, A., Alzyadat, W., Almukahel, I., Altarawneh, H.

Missing data prediction using correlation genetic algorithm and SVM approach

(2020) International Journal of Advanced Computer Science and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081284035&doi=10.14569%2fijacsa.2020.0110288&partnerID=40&md5=8b9f0dbbe7bcd68510b4799a049bf388)

[85081284035&doi=10.14569%2fijacsa.2020.0110288&partnerID=40&md5=8b9f0dbbe7bcd68510b4799a049bf388](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081284035&doi=10.14569%2fijacsa.2020.0110288&partnerID=40&md5=8b9f0dbbe7bcd68510b4799a049bf388)

AFFILIATIONS: Department of Software Engineering, Isra University, Jordan;

Department of Software Engineering, Al-Zaytoonah University, Jordan;

Department of Computer Science, Middle East University, Jordan

ABSTRACT: Data exists in large volume in the modern world, it becomes very useful when decoded correctly to inform decision making towards tackling real word issues. However, when the data is conflicting, it becomes a daunting task to get obtain information. Working on missing data has become a very important task in big data analysis. This paper considers the handling of the missing data using the Support Vector Machine (SVM) based on a technique called Correlation-Genetic Algorithm-SVM. This data is to be subjected to the SVM classification technique after identifying the attribute's correlation and application of the genetic algorithm. The application of the correlation enables a clear view of the attributes which are highly correlated within a particular dataset. The results indicate that apart from the SVM, the application of the proposed hybrid algorithm produces better outcomes identification rate and accuracy is considered. The proposed approach is also compared with depicts the Mean Identification rate of applying the neural network, the result indicate a consistent accuracy hence making it better. © Science and Information Organization.

Alahmer, A., Wang, X., Alam, K.C.A.

Dynamic and economic investigation of a solar thermal-driven two-bed adsorption chiller under Perth climatic conditions

(2020) Energies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081128536&doi=10.3390%2fen13041005&partnerID=40&md5=c644974320a1bfd0b9886c6d980be952)

85081128536&doi=10.3390%2fen13041005&partnerID=40&md5=c644974320a1bfd0b9886c6d980be952

AFFILIATIONS: Department of Alternative Energy Technology, Faculty of Engineering and Technology, Al-Zaytoonah University, P.O. Box 130, Amman, 11733, Jordan;

Department of Mechanical Engineering, Faculty of Engineering, Tafila Technical University, P.O. Box 179, Tafila, 66110, Jordan;

School of Engineering, University of Tasmania, Private Bag 65, Hobart, 7001, Australia

ABSTRACT: Performance assessment of a two-bed silica gel-water adsorption refrigeration system driven by solar thermal energy is carried out under a climatic condition typical of Perth, Australia. A Fourier series is used to simulate solar radiation based on the actual data obtained from Meteororm software, version 7.0 for Perth, Australia. Two economic methodologies, Payback Period and Life-Cycle Saving are used to evaluate the system economics and optimize the need for solar collector areas. The analysis showed that the order of Fourier series did not have a significant impact on the simulation radiation data and a three-order Fourier series was good enough to approximate the actual solar radiation. For a typical summer day, the average cooling capacity of the chiller at peak hour (13:00) is around 11 kW while the cyclic chiller system coefficient of performance (COP) and solar system COP are around 0.5 and 0.3, respectively. The economic analysis showed that the payback period for the solar adsorption system studied was about 11 years and the optimal solar collector area was around 38 m² if a compound parabolic collector (CPC) panel was used. The study indicated that the utilization of the solar-driven adsorption cooling is economically and technically viable for weather conditions like those in Perth, Australia. © 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

Alhroob, A.M., Alzyadat, W.J., Almukahel, I.H., Jaradat, G.M.

Adaptive Fuzzy Map Approach for Accruing Velocity of Big Data Relies on Fireflies Algorithm for Decentralized Decision Making

(2020) IEEE Access, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081098111&doi=10.1109%2fACCESS.2020.2969204&partnerID=40&md5=61c04f69d15097fd2cae26305a700c3b)

85081098111&doi=10.1109%2fACCESS.2020.2969204&partnerID=40&md5=61c04f69d15097fd2cae26305a700c3b

AFFILIATIONS: Department of Software Engineering, Faculty of Information Technology, Isra University, Amman, 11622, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, 11191, Jordan;

Department of Computer Science, Faculty of Computer Science and Information Technology, Jerash University, Jerash, 26150-311, Jordan

ABSTRACT: Velocity and volume are two important factors that affect the accuracy of streaming data during the transfer process in Big data applications. This paper presents an Adaptive Fuzzy Map Approach that Relies on Fireflies Algorithm for Accruing Velocity of Big Data and Decentralized Decision Making. A key advantage of the Firefly algorithm is the providing of a small number of iterations comparing to the other methods, which minimize the execution time. Furthermore, the Firefly algorithm is significant to the fuzzy logic system to get its inputs. In addition to the Firefly algorithm, Kalman filter is used to scale the distances of Big data datasets, where it generates output by assigning the match and mismatch. This work used a real dataset to extract variables and values through fuzzification function and be able to coexist as categorical data. After 10 dependent runs that are dealing with certain parameters to be available on aspects of velocity and volume of Big data existing in two parameters Goal and Dimension, the meaningful aspect scale by minimizes the randomness parameter by approximately 1.6%. The other aspect is decision making that is gained through exploration and exploitation that is covered by attraction base and attraction_min parameters. The evaluation has been made by making a comparison between the proposed Adaptive Fuzzy Map Approach and ANOVA model based on the variables like travelled time, road, speed, and distance, which showed clear enhancement produced by the proposed Adaptive Fuzzy Map Approach in terms of the accruing velocity of Big Data. © 2020 IEEE.

Muhairat, M., Alzu'bi, S., Hawashin, B., Elbes, M., Al-Ayyoub, M.

An intelligent recommender system based on association rule analysis for requirement engineering (2020) Journal of Universal Computer Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079899108&partnerID=40&md5=207f63708b383a08cd0bf8bc923e495c)

85079899108&partnerID=40&md5=207f63708b383a08cd0bf8bc923e495c

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Requirement gathering is a vital step in software engineering. Even though many recent researches concentrated on the improvement of the requirement gathering process, many of their works

lack completeness especially when the number of users is large. Data Mining techniques have been recently employed in various domains with promising results. In this work, we propose an intelligent recommender system for requirement engineering based on association rule analysis, which is a main category in Data Mining. Such recommender would contribute in enhancing the accuracy of the gathered requirements and provide more comprehensive results. Conducted experiments in this work prove that FP Growth outperformed Apriori in terms of execution and space consumption, while both methods were efficient in term of accuracy. © 2020, IICM. All rights reserved.

Saleh, K.A., Albinhassan, T.H., Al-Ghazzawi, A.M., Mohaya, A., Shati, A.A., Ayoub, H.J., Abdallah, Q.M.

Anticancer property of hexane extract of Suaeda fruticosa plant leaves against different cancer cell lines

(2020) Tropical Journal of Pharmaceutical Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85078927173&doi=10.4314%2ftjpr.v19i1.20&partnerID=40&md5=37bed03c244d432a8a5efaab702f126e

AFFILIATIONS: Department of Biology, Science College, King Khalid University, PO Box 9004, Abha, Saudi Arabia;

Department of Chemistry, Science College, King Khalid University, PO Box 9004, Abha, Saudi Arabia;

Asser Toxicology Center, King Abdullah Street, PO Box 1988, Abha, 61441, Saudi Arabia;

Department of Pharmacognosy, Pharmacy College, Alzaytoonah University, Amman, Jordan;

Department of Pharmacology, Pharmacy College, University of Petra, Amman, Jordan

ABSTRACT: Purpose: To evaluate the bioactivity of hexane extract of *S. fruticosa* leaves against the cancer cell lines HepG2, MCF-7, and HCT-116, and to determine the chemical composition-function relationship. Methods: Using the liquid-liquid extraction method, the nonpolarL constituent compounds were isolated from the leaves. The cytotoxicity of the hexane extract was evaluated using an SRB assay. Mechanism of action was verified by observing the appearance of apoptotic bodies using fluorescence microscopy, while anti-proliferative activity was assayed via flow cytometry. Results: The results revealed that secondary metabolites in the hexane extract demonstrated the highest cytotoxicity, and thus anticancer activity, against HCT-116 cells, with an IC50 of 17.15 ± 0.78 mg/mL. The presence of apoptotic bodies indicate an ability to induce apoptosis. Flow cytometry results suggest that the secondary metabolites stalled the cell cycle at the G0/G1 phase. Conclusion: The results indicate that *S. fruticosa* hexane extract may be considered a potential new source of the anti-cancer compound, momilactone B. © 2020 The authors.

Mahmoud, I.S., Altaif, K.I., Sini, M.K.A., Daoud, S., Aqel, N.N.

Determination of antimicrobial drug resistance among bacterial isolates in two hospitals of Baghdad

(2020) Jordan Journal of Pharmaceutical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85078910841&partnerID=40&md5=c832b33256efbc498391690a8d9067b5

AFFILIATIONS: Faculty of Pharmacy, Al-Rafidain University College, Baghdad, Iraq;

Department of Pharmacy, Faculty of Pharmacy, Middle East University, Amman, Jordan;

Department of pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objective To evaluate the resistance of clinical isolates from two main hospitals in Baghdad, Iraq, against commonly used antimicrobial drugs. Methods Five hundred clinical samples were collected from various sources at two hospitals in Baghdad and subjected to establish microbiological methods to determine their sensitivity to commonly used antimicrobial drugs. The antimicrobial sensitivity test used was the Kirby-Bauer disc diffusion method. Interpretations of the test outcomes were according to international values. Results Out of 500 clinical specimens, it was possible to obtain 239 bacterial isolates. The predominant isolates (74 specimens; 31%) were from throat swabs from which 40 isolates were of GABHS followed by 16 of *Klebsiella pneumoniae*. The second group of isolates were from blood (67 specimens; 28%) in which *Staphylococcus aureus* was represented by 20 specimens followed by *Proteus* species by 16 specimens. The third group of isolates was from the urine specimens (42 specimens; 17.6%). The urine isolates were distributed as *Proteus* spp (20 specimens) followed by bacterial isolates of *Pseudomonas aeruginosa* and *K. pneumoniae* (8 specimens each). The fourth group of isolates was from sputum (40 specimens; 16.7%) in which GABHS represented 18 isolates followed by 12 isolates of *K. pneumoniae*. No *Proteus* spp was isolated from either sputum or purulent wounds. Similarly, no GABHS and *K. pneumoniae* were isolated from purulent wounds. The results of the antimicrobial resistance tests among the bacterial isolates revealed that all isolates were highly resistant to most of the drugs used in this study. GABHS was resistant to all of the drugs except for Cefotaxime (76.7%). *Ps. aeruginosa* isolates were completely resistant to Cefotaxime, Cephalexin and Amoxicillin. Conclusion From this study it is concluded that multiple-resistant bacteria isolates are common and that antimicrobial resistance is widespread in Iraq. A policy to overcome this crisis will be urgently needed. © 2020 DSR Publishers/The University of Jordan.

Maria, K.A., Alia, M.A., Alsarayreh, M.A., Maria, E.A.

Un-substituted video steganography

(2020) KSII Transactions on Internet and Information Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078907037&doi=10.3837%2ftiis.2020.01.021&partnerID=40&md5=1c34b7055a27e47c310aee03a69e1a8a)

85078907037&doi=10.3837%2ftiis.2020.01.021&partnerID=40&md5=1c34b7055a27e47c310aee03a69e1a8a

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Steganography is the art of concealing the existence of a secret data in a non-secret digital carrier called cover media. While the image of steganography methods is extensively researched, studies on other cover files remain limited. Videos are promising research items for steganography primitives. This study presents an improved approach to video steganography. The improvement is achieved by allowing senders and receivers exchanging secret data without embedding the hidden data in the cover file as in traditional steganography methods. The method is based mainly on searching for exact matches between the secret text and the video frames RGB channel pixel values. Accordingly, a random key-dependent data is generated, and Elliptic Curve Public Key Cryptography is used. The proposed method has an unlimited embedding capacity. The results show that the improved method is secure against traditional steganography attacks since the cover file has no embedded data. Compared to other existing Steganography video systems, the proposed system shows that the method proposed is unlimited in its embedding capacity, system invisibility, and robustness. The system achieves high precision for data recovery in the receiver. The performance of the proposed method is found to be acceptable across different sizes of video files. Copyright © 2020 KSII.

Malak, M.Z., Suleiman, K.H., Al-Amer, R.M., Al-Zayyat, A.-K., Salameh, O.A.

Screening of bone mineral density (BMD) among elderly population in Jordan

(2020) Malaysian Journal of Medicine and Health Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078521306&partnerID=40&md5=26d35adb1be17d7202cff50698faa17d)

85078521306&partnerID=40&md5=26d35adb1be17d7202cff50698faa17d

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Isra' University, Amman, Jordan;

School of Nursing and Midwifery, Western Sydney University, Australia;

Florida University, United States

ABSTRACT: Introduction: : The health of the skeletal system is a vital issue in elderlies, hence, screening studies that investigate elders' bone health and identify associated factors affecting bone density are of prime importance. This study purposed to evaluate bone mineral density levels and examine its relationship with socio-demographic and clinical data, and body measurements among Jordanian elderlies aged 60 years and over. Methods: A cross-sectional, descriptive correlational study was used using a systematic random sampling technique to recruit 155 participants in Amman governorate. A questionnaire consists of socio-demographic and clinical data, and a form measures bone mineral density and body mass index were used. Bone mineral density was measured using a CM200 light device, where the T-score used to assess the bone mineral density. The T -scores equal $-1 < -2.5$ indicate osteopenia, while < -2.5 reflect osteoporosis. Results: Of the 151 subjects with completed data, 34.5% osteopenia, and 9.2% osteoporosis. The lowest bone mineral density was observed among older participants, divorced, illiterate, experiencing arthritis disease, and had a family history of osteoporosis and fractures. Sex, marital status, number of cola glasses, and number of cigarettes had a negative correlation with T-score, conversely, arthritis and family history of fracture had a positive correlation. The number of cola glasses was the main predictor. Conclusion: Jordanian elderlies experienced low bone mineral density. Developing appropriate health promotion programs for changing unhealthy behaviors and screening purposes are needed to enhance the knowledge of bones health and reduce the risks of developing osteopenia or osteoporosis. © 2020 UPM Press. All rights reserved.

Alia, M., Suwais, K.

Improved steganography scheme based on fractal set

(2020) International Arab Journal of Information Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078240907&doi=10.34028%2fiajit%2f17%2f1%2f15&partnerID=40&md5=b9e85e0418537dd8552148a08b6cda6c)

85078240907&doi=10.34028%2fiajit%2f17%2f1%2f15&partnerID=40&md5=b9e85e0418537dd8552148a08b6cda6c

AFFILIATIONS: Faculty of Sciences and Information Technology, Al-Zaytoonah University of Jordan, Jordan;

Faculty of Computer Studies, Arab Open University, Saudi Arabia

ABSTRACT: Steganography is the art of hiding secret data inside digital multimedia such as image, audio, text and video. It plays a significant role in current trends for providing secure communication and guarantees accessibility of secret information by authorised parties only. The Least-Significant Bit (LSB) approach is one of the important schemes in steganography. The majority of LSB-based schemes suffer from several problems due to distortion in a limited payload capacity for stego-image. In this paper, we have presented an alternative steganographic scheme that does not rely on cover images as in existing schemes. Instead, the image which includes the secure hidden data is

generated as an image of a curve. This curve is resulted from a series of computation that is carried out over the mathematical chaotic fractal sets. The new scheme aims at improving the data concealing capacity, since it achieves limitless concealing capacity and disposes of the likelihood of the attackers to realise any secret information from the resulted stego-image. From the security side, the proposed scheme enhances the level of security as the scheme depends on the exact matching between secret information and the generated fractal (Mandelbrot-Julia) values. Accordingly, a key stream is created based on these matches. The proposed scheme is evaluated and tested successfully from different perspectives. © 2020, Zarka Private University. All rights reserved.

Al-Zyoud, W., Hajjo, R., Abu-Siniyeh, A., Hajjaj, S.

Salivary microbiome and cigarette smoking: A first of its kind investigation in Jordan (2020) International Journal of Environmental Research and Public Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077581814&doi=10.3390%2fijerph17010256&partnerID=40&md5=52e8f6940ff0a38d0f688a89231c8275)

[85077581814&doi=10.3390%2fijerph17010256&partnerID=40&md5=52e8f6940ff0a38d0f688a89231c8275](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077581814&doi=10.3390%2fijerph17010256&partnerID=40&md5=52e8f6940ff0a38d0f688a89231c8275)

AFFILIATIONS: Department of Biomedical Engineering, School of Applied Medical Sciences, German Jordanian University, Amman, 111s80, Jordan;

Department of Pharmaceutical Sciences, School of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Clinical Laboratory Sciences Department, College of Applied Medical Science, Taif University, Taif, 11099, Saudi Arabia

ABSTRACT: There is accumulating evidence in the biomedical literature suggesting the role of smoking in increasing the risk of oral diseases including some oral cancers. Smoking alters microbial attributes of the oral cavity by decreasing the commensal microbial population and increasing the pathogenic microbes. This study aims to investigate the shift in the salivary microbiota between smokers and non-smokers in Jordan. Our methods relied on high-throughput next-generation sequencing (NGS) experiments for V3-V4 hypervariable regions of the 16S rRNA gene, followed by comprehensive bioinformatics analysis including advanced multidimensional data visualization methods and statistical analysis approaches. Six genera—Streptococcus, Prevotella, Veillonella, Rothia, Neisseria, and Haemophilus—predominated the salivary microbiota of all samples with different percentages suggesting the possibility for the salivary microbiome to be restored after quitting smoking. Three genera—Streptococcus, Prevotella, and Veillonella—showed significantly elevated levels among smokers at the expense of Neisseria in non-smokers. In conclusion, smoking has a definite impact on shifting the salivary microbiota in smokers. We can suggest that there is a microbial signature at the genera level that can be used to classify smokers and non-smokers by Linear Discriminant Analysis Effect Size (LEfSe) based on the salivary abundance of genera. Proteomics and metabolomics studies are highly recommended to fully understand the effect of bacterial endotoxin release and xenobiotic metabolism on the bacterial interrelationships in the salivary microbiome and how they affect the growth of each other in the saliva of smokers. © 2019 by the authors. Licensee MDPI, Basel, Switzerland.

Alkubaisi, M.I.

Capacity Estimation of Multi-lane Rural Highway: A Comparative Study

(2020) Lecture Notes in Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077527272&doi=10.1007%2f978-3-030-32816-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077527272&doi=10.1007%2f978-3-030-32816-0_12&partnerID=40&md5=2fb5bc0b8edb4c625a5505bb365b79fb)

[0_12&partnerID=40&md5=2fb5bc0b8edb4c625a5505bb365b79fb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077527272&doi=10.1007%2f978-3-030-32816-0_12&partnerID=40&md5=2fb5bc0b8edb4c625a5505bb365b79fb)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The highway capacity manual (HCM) of the United States of America provides techniques for evaluating the capacity and the quality of service of any facility. The present study is an attempt to determine the adequacy of the techniques in US HCM to predict the traffic performance of highways in Al-Anbar, Iraq. Capacity of the multi-lane rural highway that connects two cities in Al-Anbar Governorate, Iraq was estimated. Twenty sections of the multi-lane rural highway were selected and observed for this purpose. Data were collected using the video recording technique. Data were abstracted, processed and then analyzed using computer programs developed for this purpose. Three methods for estimating capacity were applied, which are, the enveloping curve technique, the best-fit technique, and the US HCM methodology. Results showed that the capacity estimation methodology using US HCM has limited application for the heterogeneous traffic situation prevailing in the studied sites. This finding is consistent with that obtained by previous studies in developing countries, such as India, Thailand, and Indonesia. The capacity estimate showed that the US HCM methodology tends to underestimate capacity unlike other techniques because the adjustment factor for the traffic composition is not applicable for all vehicle types in the traffic stream that has different equivalency units. Further, the underestimation is attributed partly by differences in driver behavior, vehicle characteristics, and roadside activities. © Springer Nature Switzerland AG 2020.

Sharour, L., Omari, O., Malak, M., Salameh, A., Yehia, D., Subih, M., Alrshoud, M.

Using Mixed-Methods Research to Study Coping Strategies among Colorectal Cancer Patients

(2020) Asia-Pacific Journal of Oncology Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076812216&doi=10.4103%2fapjon.apjon_20_19&partnerID=40&md5=fc9c3c875ff7c39a431ec7dfbf3e82f5)

85076812216&doi=10.4103%2fapjon.apjon_20_19&partnerID=40&md5=fc9c3c875ff7c39a431ec7dfbf3e82f5

AFFILIATIONS: Nursing Department, Faculty of Nursing, AL-Zaytoonah University of Jordan, Amman, Jordan;

Adult Health and Critical Care Department, College of Nursing, Sultan Qaboos University, Amman, Jordan

ABSTRACT: Objective: The objective was to identify and understand the coping strategies of colorectal cancer (CRC) patients. Methods: A mixed-methods approach including quantitative and qualitative methods was used to collect data from Jordanian patients. In the quantitative phase, we aimed to determine the coping strategies employed in a representative sample (n = 200) of Jordanian adult patients with CRC using the Jalowiec Coping Scale. In the qualitative phase, we aimed to understand these coping strategies through an in-depth and detailed exploration. A sample of ten participants was chosen purposefully based on their coping score in the quantitative phase, and interviews were conducted. Quantitative data were analyzed using SPSS software version 23. Qualitative data were analyzed using directed content analysis. Results: Results from the quantitative phase indicated that evasive coping strategies were used predominantly, followed by confrontive coping strategies and optimistic coping strategies. In contrast, fatalistic and emotive coping strategies had the lowest scores. In addition, the results indicated that the total scores for the effectiveness of coping strategies ranged from 42 to 143, with a mean of 93.45 (standard deviation 13.67); higher scores reflected greater effectiveness. Content analysis in the qualitative phase identified three themes, and subcategories emerged, including perceived collaborative support, increased awareness of treatment, and internal power. Conclusions: CRC patients used different coping strategies to face the new challenge. Oncology nurses can play a pivotal role in enhancing these coping strategies through implementing multidisciplinary programs. © 2020 Wolters Kluwer Medknow Publications. All rights reserved.

Becker, C., Deeb, A.A., Teutenberg, T., Jochmann, M.A., Schmidt, T.C.

Determination of liquid chromatography/flame ionization detection response factors for N-heterocycles, carboxylic acids, halogenated compounds, and others

(2020) Analytical and Bioanalytical Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076610970&doi=10.1007%2fs00216-019-02222-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076610970&doi=10.1007%2fs00216-019-02222-1&partnerID=40&md5=f7c6444c607b56e65202f1f5cddc16288)

1&partnerID=40&md5=f7c6444c607b56e65202f1f5cddc16288

AFFILIATIONS: BGB Analytik AG, Rohrmattstr.4, Böckten, 4461, Switzerland;

Instrumental Analytical Chemistry, University of Duisburg-Essen, Universitätsstr. 5, Essen, 45141,

Germany;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Energie- und Umwelttechnik e.V. (IUTA), Bliersheimer Str. 58 - 60, Duisburg, 47229,

Germany;

Centre for Water and Environmental Research (ZWU), University of Duisburg-Essen, Universitätsstraße

2, Essen, 45141, Germany

ABSTRACT: Many gas chromatography-flame ionization detection (GC/FID) studies are dealing with response behavior of analytes such as alcohols and alkanes. Studies in the field of liquid chromatography (LC)/FID mainly focused on volatile analytes. In contrast, studies on LC/FID by conveyor type interface covered high molecular weight non-volatile biopolymers, whereby no response factors were calculated. With this study, we fill the gap and present response factors of volatile and non-volatile analytes by LC/FID in terms of flow injection (FIA) measurements of the single compounds without an analytical separation by an LC column. In the present study, 56 different compounds such as carboxylic acids, N-heterocycles, halogenated acids, pharmaceuticals, and other compounds were investigated. In some cases, the obtained response factor data confirmed aspects known from GC/FID studies. But this study also disproves several assumptions done in previous response studies as well as the prediction models based upon the experimental data and literature. Especially the response factors and effective carbon number (ECN) values of structural isomers such as pyrazine, pyridazine, and pyrimidine are assumed to be equal in current response prediction models.

Contradictory to these assumptions, the experimental response factors and ECN values of, e.g., the structural isomers pyrazine (RFExp = 0.59; ECNExp = 3.66), pyridazine (RFExp = 0.66; ECNExp = 4.1), and pyrimidine (RFExp = 0.63; ECNExp = 3.93) reveal different experimental response factors and ECN than proposed by response factor prediction models (RFExp = 0.64; ECNExp = 4). [Figure not available: see fulltext.] © 2019, Springer-Verlag GmbH Germany, part of Springer Nature.

Al Omari, O., Wynaden, D., Alkhaldeh, A., Al-Delaimy, W., Heslop, K., Al Dameery, K., Bani Salameh, A.

Knowledge and Attitudes of Young People toward Mental Illness: A Cross Sectional Study

(2020) Comprehensive Child and Adolescent Nursing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85074017798&doi=10.1080%2f24694193.2019.1670752&partnerID=40&md5=8ed49175c74a75536c24f5b52d4e4ab5

AFFILIATIONS: College of Nursing, Sultan Qaboos University, Muscat, Oman;
School of Nursing, Midwifery and Paramedicine, Curtin University, Perth, WA, Australia;
Faculty of Nursing, Jerash University, Jerash, Jordan;
Family Medicine and Public Health, University of California, San Diego, CA, United States;
Faculty of Nursing, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The aim of the study was to investigate young Jordanians' knowledge and attitudes toward people who have a mental illness. A cross sectional design was utilized. A convenient sample of 858 participants aged between 15-24 years old completed a survey. Participants under 19 years were accessed through their schools and those 19 years and above were accessed through universities. Results showed that although the majority of university and school students' responses were generally consistent, they disagreed on 11 items on the survey; for example, 186 (39.3%) of university students agreed that mental illness has a biological origin compared with only 119 (30%) of school students. The majority of young people 737 (85.9%) were willing to learn and 792 (92.3%) felt that they have to help people with mental illness, which make them willing to learn. In conclusion, the findings provide insights for decision makers and researchers in Jordan about young peoples' knowledge and attitudes toward mental illness. Increasing young adults' literacy through introducing educational programs such as mental health first aid courses will enrich their knowledge; help change attitudes and reduce stigma toward people living with mental illness. © 2019 Taylor & Francis.

El-Hneiti, M., Shaheen, A.M., Bani Salameh, A., Al-dweeri, R.M., Al-Hussami, M., Alfaouri, F.T., Ahmad, M.

An explorative study of workplace violence against nurses who care for older people (2020) Nursing Open, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074015747&doi=10.1002%2fnop2.389&partnerID=40&md5=931751c4a6d70c7e8873c2d02a51cc5e)

85074015747&doi=10.1002%2fnop2.389&partnerID=40&md5=931751c4a6d70c7e8873c2d02a51cc5e

AFFILIATIONS: School of Nursing, The University of Jordan, Amman, Jordan;
School of Nursing, Al-Zaytoonah University, Amman, Jordan;
Business School, The University of Jordan, Amman, Jordan;
Faculty of Law, University of Petra, Amman, Jordan

ABSTRACT: Aim: To explore the prevalence of workplace violence among nurses who care for older people and its association with working stress, job satisfaction and quality of care in Jordan. Design: A cross-sectional design was used. Methods: A cluster random sampling was used to select three public hospitals, three private hospitals and 17 healthcare centres in Amman, Jordan. The researcher used a convenience sampling method to select 485 nurses. Data were collected between 2015-2016. Results: Almost 60% of the participants have been victims of violence at the workplace during the past year. Nurses who consider violence a problem at work have high levels of working stress ($p < .01$) as well as lower levels of quality of care ($p < .01$) and job satisfaction ($p < .001$). © 2019 The Authors. Nursing Open published by John Wiley & Sons Ltd.

Yaseen, S.G.

Potential absorptive capacity, realized absorptive capacity and innovation performance (2020) Advances in Intelligent Systems and Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070000818&doi=10.1007%2f978-3-030-25629-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070000818&doi=10.1007%2f978-3-030-25629-6_135&partnerID=40&md5=8d1f015ad7d882e5050ce36d8ec99115)

6_135&partnerID=40&md5=8d1f015ad7d882e5050ce36d8ec99115

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: The aim of this research is to investigate the relationship between potential absorptive capacity, realized absorptive capacity, and innovation performance. Drawing on the knowledge-based theory, the current research conceptualizes absorptive capacity as two distinct and separated knowledge dynamic capabilities: potential absorptive capacity and realized absorptive capacity. The research addresses potential ACAP and realized ACAP separately and analyzed their influence on the firm's innovation performance. Using structural equation modeling (SEM) in a sample of 12 firms from Jordanian pharmaceutical industry, the research revealed that potential and realized absorptive capacities have significant and direct relations with firm's innovation performance. The results confirm that potential ACAP along with components (acquisition, assimilation), and realized ACAP (encompassing transformation, exploitation) are antecedents to the firm's innovation performance. The research advances the concept of absorptive capacity by exploring it as two different dynamic capabilities. © 2020, Springer Nature Switzerland AG.

Al-Dahoud, A., Fezari, M., Mehamdia, H.

Water Quality Monitoring System Using WSN in Tanga Lake (2020) Advances in Intelligent Systems and Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065874300&doi=10.1007%2f978-3-030-19501-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065874300&doi=10.1007%2f978-3-030-19501-4_1&partnerID=40&md5=dab89c2da856a989b8801c04b175f0de)

4_1&partnerID=40&md5=dab89c2da856a989b8801c04b175f0de

AFFILIATIONS: Faculty of IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Laboratory of Automatic and Signals Annaba, Badji Mokhtar Annaba University, BP 12, Annaba, 23000, Algeria

ABSTRACT: Continuous Lake water quality monitoring is an important tool to a different aspect which includes catchment management authorities, providing real-time data for environmental protection and tracking pollution sources in lakes around ANNABA reagent. In order to assist catchment managers to maintain the health of aquatic ecosystems taking into consideration a cost-effective water quality data collection a low-cost low power system is proposed. The proposed system is constituted by spreading the sensor nodes and the base station. The nodes and base stations are linked using WSN technology (e.g. Zigbee). Base stations will be connected to the Internet using the Ethernet shield. The results indicate that a reliable monitoring system can be designed with appropriate calibration of sensors; this will allow us to continue monitoring the quality of the water at higher spatial resolution. © 2020, Springer Nature Switzerland AG.

Yehia, D.B.M., Malak, M.Z., Al-Thwabih, N.N., Awad, R.R., Al-Ajouri, E.S., Darwish, S.S., Hamad, A.S. Psychosocial factors correlate with fatigue among pregnant women in Jordan (2020) Perspectives in Psychiatric Care, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063194751&doi=10.1111%2fppc.12372&partnerID=40&md5=911eacf4659f167319859bd0c75afc14)

[85063194751&doi=10.1111%2fppc.12372&partnerID=40&md5=911eacf4659f167319859bd0c75afc14](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063194751&doi=10.1111%2fppc.12372&partnerID=40&md5=911eacf4659f167319859bd0c75afc14)

AFFILIATIONS: Gynecology and Maternity Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Adult Health Nursing, Marj Al-Hamam Health Center, Ministry of Health, Amman, Jordan;

Adult Health Nursing, Al-jweida Health Center, Ministry of Health, Amman, Jordan;

Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Health Education, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: The study aimed to assess the correlation between fatigue and psychological factors, namely stress, social support, self-esteem, and depression among pregnant women in Jordan. Design and Methods: A cross-sectional design was suggested. Cluster stratified random sampling technique was adopted. Fatigue assessment scale, Rosenberg Self-Esteem Scale, Perceived Stress Scale, Multidimensional Social Support Scale, and Beck's Depression Inventory were used. Findings: A total of 580 pregnant women were included. Overall, 67.4% of the participants experienced fatigue, about 74.0% had moderate to high stress, 56.0% had moderate social support, around 89.0% had normal self-esteem, and 43.1% experienced moderate to extreme depression. Stress, self-esteem, and depression were correlated with fatigue. Practice Implications: This study can help develop proper psychosocial care and sustain mental health among women during pregnancy. © 2019 Wiley Periodicals, Inc.

Almimi, H.M., Shahin, S.A., Daoud, M.S., Al Fayoumi, M., Ghadi, Y.

Enhanced E-voting protocol based on public key cryptography

(2019) Proceedings - 2019 International Arab Conference on Information Technology, ACIT 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081534537&doi=10.1109%2fACIT47987.2019.8990991&partnerID=40&md5=73599f55c8f050014e5dc28486ddb1f)

[85081534537&doi=10.1109%2fACIT47987.2019.8990991&partnerID=40&md5=73599f55c8f050014e5dc28486ddb1f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081534537&doi=10.1109%2fACIT47987.2019.8990991&partnerID=40&md5=73599f55c8f050014e5dc28486ddb1f)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Dept. of Computer Science, Jordan;

Princes Sumaya University for Technology, King Hussein School of Computing Sciences, Jordan;

Al Ain University, Faculty of Engineering, Abu Dhabi, United Arab Emirates

ABSTRACT: This paper proposes an e-voting protocol to allow voting to be done from any location and still abide with the laws of security including identification, authentication, integrity, and anonymity. The proposed method relies on public key encryption that uses two pairs of certificates one for citizens containing private/public key pairs and the second for National Information Technology Center (NITC) that also contains private/public key pairs. NITC will be acting as a trusted certificate authority by to citizens and government. It is considered an objective and neutral unprejudiced party where no other governmental party has authority upon elections and is auditable by the independent election commission. © 2019 IEEE.

Al-Ajlouni, M.I., Nawafleh, S., Alsari, H., Almarshad, M.N., Tbaishat, R.

Determinants of User Acceptance of Electronic-HRM through the Extension of UTAUT Model via the Structural Equation Modelling Approach

(2019) Journal of Information and Knowledge Management, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078016894&doi=10.1142%2fS0219649219500448&partnerID=40&md5=aaf9e7deb8f1cdb95142cc2fa2941a82)

[85078016894&doi=10.1142%2fS0219649219500448&partnerID=40&md5=aaf9e7deb8f1cdb95142cc2fa2941a82](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078016894&doi=10.1142%2fS0219649219500448&partnerID=40&md5=aaf9e7deb8f1cdb95142cc2fa2941a82)

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Jordan;

Department of Public Administration, Yarmouk University, Jordan;

Hstats Consulting, Jordan;

Princess Alia University College, Al-Balqa Applied University, Jordan

ABSTRACT: Despite the assured benefits of strategic primacy for HR administrators, performance effectiveness and cost reduction provided by Electronic-Human Resource Management (e-HRM), user

acceptance of these systems is a critical factor for the initiative's success. Accordingly, current research addresses factors that permit or hamper e-HRM adoption in private universities of Jordan. Conceptual theoretical model which extends the proposed UTAUT model was used, self-administered questionnaire was developed and data from 243 administrative employees who operate in four selected private universities in Jordan were collected through non-probabilistic self-selection sampling. Covariance-Based Structural Equation Modelling was employed to analyse relationships, performance expectancy and habits achieved (53%) of the varying behavioural intentions (BIs). Contrary to expectations, effort expectancy and social influence were not significant in achieving the variance, as facilitating conditions and BIs (43%) achieved the variance in e-HRM use. Accordingly, practical and theoretical implications were provided, with suggestions and directions for future studies. © 2019 World Scientific Publishing Co.

Alsamydai, M.J.

Marketing engineering and making marketing decisions
(2019) International Journal of Scientific and Technology Research, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077340876&partnerID=40&md5=a690a143be0381ffb00a4f2c3399b20d>

AFFILIATIONS: Department of marketing, The Faculty of Business, Al-Zaytoonah University, P.O box-130, Amman, Jordan

ABSTRACT: The concept of marketing engineering has become, today, an issue of great importance because it has helped in enabling marketing management to gain information and analyze it by using computer devices, communication networks, software and marketing decisions support systems, thus helping marketing management to take marketing decisions. The term marketing engineering can be traced back to Lilien et al. in "The Age of Marketing Engineering" published in 1998. In this article the authors defined marketing engineering as the use of computer decision models in making marketing decisions. The definition of marketing engineering was also developed by Lilien et al. 2002, who defined marketing engineering as "the systematic process of putting marketing data and knowledge to practical use through the planning, design, and construction of decision aids and marketing management support systems (MMSSs)". Among the driving factors toward the development of marketing engineering are the use of high-powered personal computers connected to LANs and WANs, the exponential growth in the volume of data, and the reengineering of marketing functions. Other researcher also called marketing engineering "the systematic process of putting marketing data and knowledge to practical use through the planning, design, and construction of decision aids and marketing management support systems." Marketing management works in a variable and unstable environment, where it is requested to be flexible and interactive with these changes in the internal and external environment of the organization. There is a tremendous flow of information, where marketing engineering has to collect and analyze, by adopting information systems, information technology management decision support systems. Marketing engineering played the major role in that and enabled marketing management to adapt to and accommodate external environmental factors and take the proper marketing decisions. The objective of this paper is to know the relation between marketing engineering and the process of making marketing decisions and to provide the knowledge frame for marketing engineering, the supporting phrases of it, the technology used, as well as the information technology, marketing technology, market technology and phrases used in support of marketing engineering. © IJSTR 2019.

Al-Abdallah, A.M., Malak, M.Z.

Factors correlating with prolonged fatigue among emergency department nurses
(2019) Journal of Research in Nursing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074786332&doi=10.1177%2f1744987119880309&partnerID=40&md5=d9dec938fa7af5133cc3e468b0d1aae0>

AFFILIATIONS: Adult Health Nursing, Al-Shmaisani Hospital, Jordan;

Community Health Nursing, Al-Zaytoonah University of Jordan, Jordan;

Adult Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Background: Fatigue affects nurses negatively and leads to physical, cognitive and emotional problems that may influence nurses' quality of life. However, there is a lack of studies about prolonged fatigue and its relationship with socio-demographic characteristics and job-related psychosocial factors among nurses, especially emergency nurses, worldwide and in Jordan. Aims: This study aims to assess the relationship between demographic factors, physical health, psychological distress and job-related psychosocial factors (psychological job demands, job control and social support) and prolonged fatigue among emergency department nurses in Jordan. Methods: A descriptive correlational study using a convenience sample was used to recruit 153 emergency nurses. Physical health Questionnaire, General Health Questionnaire, Job Content Questionnaire and Checklist Individual Strength were used. Results: The majority of emergency nurses experienced abnormally prolonged fatigue, moderate health, high psychological distress, high job demands and low job control and social support. Significant negative relationships were addressed between job control, social

support and prolonged fatigue, whereas income had a negative weak relationship. Psychological distress and job demands had a positive weak relationship with prolonged fatigue. There was a significant positive weak relationship between psychological distress, job demands and prolonged fatigue. Job-related psychosocial factors (with exception of social support) and mental health were the predictors of prolonged fatigue. Conclusions: Prolonged fatigue is a multidimensional phenomenon that can be affected by several factors such as job-related psychosocial factors and psychological health. These factors should be taken into consideration when testing and developing interventions to minimise prolonged fatigue among emergency nurses. © The Author(s) 2019.

Al-Amer, R., Subih, M., Aldaraawi, H., Randall, S., Othman, W.M.M., Salamonson, Y.
Prevalence of Depression and Its Influence on the Quality of Life of Jordanians Living in Residential Care Facilities

(2019) Journal of Nursing Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074553019&doi=10.1097%2fJNR.0000000000000337&partnerID=40&md5=be19ccd3405821d5afaa04d0b53217ac)

[85074553019&doi=10.1097%2fJNR.0000000000000337&partnerID=40&md5=be19ccd3405821d5afaa04d0b53217ac](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074553019&doi=10.1097%2fJNR.0000000000000337&partnerID=40&md5=be19ccd3405821d5afaa04d0b53217ac)

AFFILIATIONS: School of Nursing and Midwifery, Isra University of Jordan, Amman, Jordan;

School of Nursing and Midwifery, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Nursing, Western Sydney University, Penrith, Australia;

Susan Wakil School of Nursing and Midwifery, University of Sydney, Camperdown, Australia;

School of Nursing and Midwifery, Hashemite University, Zarqa, Jordan

ABSTRACT: Background As a third-world country experiencing a rise in the elderly population and changes to traditional family structures, improving psychological health is critical to improving quality of life (QoL) in the older adults living in residential care facilities in Jordan. Purpose This study aimed to (a) estimate the prevalence of depression among nursing home (NH) residents in Jordan; (b) measure perceived QoL in these NH residents in the dimensions of mobility, self-care, usual activity, pain and discomfort, and anxiety/depression; and (c) assess the influence of depression on each of these QoL dimensions. Methods This cross-sectional study recruited a convenience sample of 155 participants living in a residential care facility in Jordan. The instruments used included a sociodemographic and clinical questionnaire, the Mini-Mental State Examination, a Geriatric Depression Scale (GDS), and the EuroQoL, which is a five-dimension, five-level questionnaire. The data were presented as means, standard deviations, and percentages as well as adjusted odds ratios (AORs) with 95% confidence intervals (CIs). Results A high prevalence of depression was found in the study population, with 72.3% having a score between 6 and 9 on the GDS, which is suggestive of depression. Moreover, 18.1% scored ≥ 10 on the GDS, which is indicative of a nearly continual state of depression. With regard to the QoL dimensions, 84.5% of the participants reported experiencing pain, 81.9% reported anxiety/depression, 80.6% reported problems performing usual activities, 75.5% reported problems with self-care, and 63.2% reported mobility difficulties. Pain, anxiety, and depression were found to be significantly associated with level of depression (AOR = 2.78 and 95% CI [1.18, 6.57], AOR = 5.81 and 95% CI [2.14, 15.78], and AOR = 4.75 and 95% CI [1.87, 12.07], respectively). Conclusions Depression is common among NH residents in Jordan and is associated significantly with poor QoL. This study yielded empirical data that may be used to develop strategies to enhance or promote the mental health status and QoL of NH residents in Jordan. © 2019 The Authors. Published by Wolters Kluwer Health.

Ayyash, M., Shehabi, A.A., Mahmoud, N.N., Al-Bakri, A.G.

Antibiofilm properties of triclosan with EDTA or cranberry as Foley Catheter lock solutions

(2019) Journal of Applied Microbiology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073941593&doi=10.1111%2fjam.14439&partnerID=40&md5=2cf06dfc45424413caca824657793a4a)

[85073941593&doi=10.1111%2fjam.14439&partnerID=40&md5=2cf06dfc45424413caca824657793a4a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073941593&doi=10.1111%2fjam.14439&partnerID=40&md5=2cf06dfc45424413caca824657793a4a)

AFFILIATIONS: Department of Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, Jordan;

Department of Pathology-Microbiology, School of Medicine, The University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutics and Pharmaceutical Science, Faculty of Pharmacy, The Applied Science Private University, Amman, Jordan

ABSTRACT: Aims: To investigate the efficiency of triclosan, ethylenediaminetetraacetic acid (EDTA) and cranberry alone or in combinations against *Escherichia coli* strains as urinary catheter lock solutions to reduce catheter-associated urinary tract infections. Methods and Results: Viable counting was used to assess antibiofilm activities for triclosan, EDTA and cranberry alone or in combinations against *E. coli* strains embedded in biofilm onto all-silicon Foley catheter surface. The results revealed that combination of triclosan (10 mg ml⁻¹/EDTA 30 mg ml⁻¹) when filling the catheter balloon was able to eradicate and prevent biofilm formation among all tested *E. coli* including the resistant strains, whereas triclosan (8.5 mg ml⁻¹)/ cranberry (103 mg ml⁻¹) combination was a successful catheter lock solution by preventing all tested strains from adhering onto catheter surface when filled via the eye hole. Conclusions: The combinations of triclosan/EDTA and

triclosan/cranberry were significantly effective in eradicating and preventing biofilm formation of the tested *E. coli* strains on Foley catheters. Significance and Impact of the Study: Combinations of triclosan/EDTA and triclosan/cranberry have a promising application as nonantibiotic catheter lock solution. © 2019 The Society for Applied Microbiology

Abul-Futouh, H., Daraosheh, A.Q., Windhager, J., Görls, H., Weigand, W.
Synthesis and characterization of [FeFe]-hydrogenase models mediated by a 1,2,4-trithiolane derivative: Insight into molecular structures and electrochemical characteristics
(2019) Polyhedron, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073258419&doi=10.1016%2fj.poly.2019.114155&partnerID=40&md5=d16eb8a45c6e40baa02cc0245feaed7d)

[85073258419&doi=10.1016%2fj.poly.2019.114155&partnerID=40&md5=d16eb8a45c6e40baa02cc0245feaed7d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073258419&doi=10.1016%2fj.poly.2019.114155&partnerID=40&md5=d16eb8a45c6e40baa02cc0245feaed7d)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Chemistry, College of Arts and Sciences, University of Petra, P.O. Box: 961343, Amman, 11196, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany

ABSTRACT: In this report two diiron hexacarbonyl complexes containing sulphur-rich heterocycles have been prepared as [FeFe]-hydrogenase mimics. These two complexes are obtained from the reaction of Fe₃(CO)₁₂ with 3,11-dibenzyl-7,14,15-trithia-3,11-diazadispiro[5.1.58.26]pentadecane. They have been characterized by different spectroscopic techniques (¹H and ¹³C{¹H} NMR, IR and MS) as well as X-ray diffraction analysis. Moreover, we have investigated the influence of the sulphur-rich heterocycles linker on the redox potentials of the complexes and their catalytic ability in the presence of acetic acid (AcOH) by applying cyclic voltammetry. © 2019 Elsevier Ltd

Mahmoud, N.N., Alhusban, A.A., Ali, J.I., Al-Bakri, A.G., Hamed, R., Khalil, E.A.

Preferential Accumulation of Phospholipid-PEG and Cholesterol-PEG Decorated Gold Nanorods into Human Skin Layers and Their Photothermal-Based Antibacterial Activity
(2019) Scientific Reports, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064081952&doi=10.1038%2fs41598-019-42047-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064081952&doi=10.1038%2fs41598-019-42047-7&partnerID=40&md5=3e0370483512f1cbbaa7559d41d9d97)

[7&partnerID=40&md5=3e0370483512f1cbbaa7559d41d9d97](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064081952&doi=10.1038%2fs41598-019-42047-7&partnerID=40&md5=3e0370483512f1cbbaa7559d41d9d97)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Pharmaceutics & Pharmaceutical Technology, School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Herein, a library of gold nanorods (GNR) decorated with polyethylene glycol-thiol (PEG-SH) containing different functionalities were synthesized and characterized by optical absorption spectroscopy, zeta potential, dynamic light scattering (DLS), transmission electron microscope (TEM) and proton nuclear magnetic resonance (¹H-NMR). The colloidal stability of GNR when exposed to skin, and their preferential accumulation into excised human skin layers were investigated. Confocal laser scanning microscopy, transmission electron microscope (TEM) and inductively coupled plasma-optical emission spectroscopy (ICP-OES) were utilized to track the penetration of GNR into different skin layers. The results demonstrated that cholesterol-PEG coated GNR were preferentially loaded up in the upper layers of skin (stratum corneum), while phospholipid-PEG coated counterparts were drastically deposited in skin dermis. Neutral methoxy-PEG-coated GNR were distributed in both SC and dermis skin layers, while charged GNR (anionic-carboxylic acid-PEG-GNR and cationic-amine-PEG-GNR) revealed a minimal accumulation into skin. DSPE-PEG-GNR and Chol-PEG-GNR demonstrated antibacterial activities against *Staphylococcus aureus* (*S. aureus*) at MIC values of 0.011 nM and 0.75 nM, respectively. Photothermal treatment for *S. aureus* at sub-MIC concentrations resulted in a significant bactericidal effect when using Chol-PEG-GNR but not DSPE-PEG-GNR. Gold-based nanoscale systems have great value as a promising platform for skin diseases therapy. © 2019, The Author(s).

Shattnawi, K.K., Alomari, M.A., Al-Sheyab, N., Salameh, A.B.

Correction to: The relationship between plasma ferritin levels and body mass index among adolescents
(Scientific Reports, (2018), 8, 1, (15307), 10.1038/s41598-018-33534-4)

(2019) Scientific Reports, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85060511229&doi=10.1038%2fs41598-018-37077-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85060511229&doi=10.1038%2fs41598-018-37077-6&partnerID=40&md5=f38ce784c48c354fe9ee5f5f57ba3cdc)

[6&partnerID=40&md5=f38ce784c48c354fe9ee5f5f57ba3cdc](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85060511229&doi=10.1038%2fs41598-018-37077-6&partnerID=40&md5=f38ce784c48c354fe9ee5f5f57ba3cdc)

AFFILIATIONS: Jordan University of Science and Technology, Maternal & Child Health Nursing Department, Irbid, 22110, Jordan;

Jordan University of Science and Technology, Division of Physical Therapy, Department of Rehabilitation Sciences, Irbid, 22110, Jordan;

Qatar University, Division of Physical Education, Department of Educational Sciences, Doha, Qatar;

Al-Zaytoonah University of Jordan, Faculty of Nursing, Amman, 11733, Jordan

ABSTRACT: A correction to this article has been published and is linked from the HTML and PDF

versions of this paper. The error has been fixed in the paper. © 2019, The Author(s).

Sunoqrot, S., Al-Debsi, T., Al-Shalabi, E., Hasan Ibrahim, L., Faruqu, F.N., Walters, A., Palgrave, R., Al-Jamal, K.T.

Bioinspired Polymerization of Quercetin to Produce a Curcumin-Loaded Nanomedicine with Potent Cytotoxicity and Cancer-Targeting Potential in Vivo

(2019) ACS Biomaterials Science and Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074716461&doi=10.1021%2facsbiomaterials.9b01240&partnerID=40&md5=b449517fe1f6fe616782727d7b535c07)

85074716461&doi=10.1021%2facsbiomaterials.9b01240&partnerID=40&md5=b449517fe1f6fe616782727d7b535c07

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Institute for Pharmaceutical Science, King's College London, London, SE1 9NH, United Kingdom;

Department of Chemistry, University College London, London, WC1H 0AJ, United Kingdom

ABSTRACT: Nanomedicine has had a profound impact on the treatment of many diseases, especially cancer. However, synthesis of multifunctional nanoscale drug carriers often requires multistep coupling and purification reactions, which can pose major scale-up challenges. Here, we leveraged bioinspired oxidation-triggered polymerization of catechols to synthesize nanoparticles (NPs) from the plant polyphenol quercetin (QCT) loaded with a hydrophobic anticancer drug, curcumin, and functionalized with poly(ethylene glycol) (PEG) for steric stabilization in one reaction step. NPs were formed by base-catalyzed oxidative self-polymerization of QCT in the presence of curcumin and thiol-terminated PEG upon mixing in a universal solvent (dimethyl sulfoxide), followed by self-assembly with the gradual addition of water. Dynamic light scattering and X-ray photoelectron spectroscopy were used to confirm NP PEGylation. Drug loading was verified by UV-vis spectroscopy. Curcumin-loaded NPs were efficiently internalized by CT26 murine colon cancer cells as determined by flow cytometry and confocal microscopy. NPs also demonstrated sustained release and potent cytotoxicity in vitro. Moreover, in vivo imaging of CT26 tumor-bearing Balb/c mice following tail vein injection of DiR-labeled QCT NPs showed steady tumor accumulation of the NPs up to 24 h. This was further supported by significant tumor uptake of curcumin-loaded QCT NPs as measured by flow cytometry analysis of tumor homogenates. Our findings present a greener synthetic route for the fabrication of drug-loaded surface-functionalized NPs from poorly water-soluble plant polyphenols such as QCT as promising anticancer delivery systems. Copyright © 2019 American Chemical Society.

Staegemann, D., Volk, M., Nahhas, A., Abdallah, M., Turowski, K.

Exploring the specificities and challenges of testing big data systems

(2019) Proceedings - 15th International Conference on Signal Image Technology and Internet Based Systems, SISITS 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084792372&doi=10.1109%2fSITIS.2019.00055&partnerID=40&md5=c8ff73f037f5f9ed17a1ddb7e6ad0a75)

85084792372&doi=10.1109%2fSITIS.2019.00055&partnerID=40&md5=c8ff73f037f5f9ed17a1ddb7e6ad0a75

AFFILIATIONS: MRCC VLBA, Otto-von-Guericke University, Magdeburg, Germany;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Today, the amount and complexity of data that is globally produced increases continuously, surpassing the abilities of traditional approaches. Therefore, to capture and analyze those data, new concepts and techniques are utilized to engineer powerful big data systems. However, despite the existence of sophisticated approaches for the engineering of those systems, the testing is not sufficiently researched. Hence, in this contribution, a comparison of traditional software testing, as a common procedure, and the requirements of big data testing is drawn. The determined specificities in the big data domain are mapped to their implications on the implementation and the consequent challenges. Furthermore, those findings are transferred into six guidelines for the testing of big data systems. In the end, limitations and future prospects are highlighted. © 2019 IEEE.

Alzu'bi, S., Alsmirat, M., Al-Ayyoub, M., Jararweh, Y.

Artificial Intelligence Enabling Water Desalination Sustainability Optimization

(2019) Proceedings of 2019 7th International Renewable and Sustainable Energy Conference, IRSEC 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084672128&doi=10.1109%2fIRSEC48032.2019.9078166&partnerID=40&md5=5981939cea6b053a0ed4589491f7eda3)

85084672128&doi=10.1109%2fIRSEC48032.2019.9078166&partnerID=40&md5=5981939cea6b053a0ed4589491f7eda3

AFFILIATIONS: Zaytoonah University of Jordan, Computer Science Department AI, Amman, Jordan;

Jordan University of Science and Technology, Computer Science Department, Irbid, Jordan;

Mathematics and Computer Science, Duquesne University, Pittsburgh, PA 15282, United States

ABSTRACT: Recently, water desalination has been developing increasingly worldwide. Many new plants are contracted constantly. Strategic planning and many other technical decisions are significant to these strategic systems. The proposed Artificial Intelligent (AI) methods provide decision makers with different choices for investment, where each is comprised of different desalination combinations regarding to locations, capacities, and energy sources in terms of several performance metrics. The

intelligent decisions determine the optimal stations location and the water desalination system capacity for future expectations. Other smart decisions select the optimal desalination technologies for available existing and suggested desalination planting. In addition, AI methods provide decision makers to configure the pipeline network and transport water among the planting locations. The proposed work is a method to upkeep strategic decision making for the best water desalination facility. Our methodology offers a set of AI alternatives for several desalination plans. Decision support systems and tools are imperfect to deliver a set of alternatives. Therefore, the proposed work provides a systematic decision process to validate several water desalination alternatives, considering intelligent water pumping to the locations through the pumping network and water storage at every location. The proposed approach is validated for a case study in Jordan, which is a beginner country in desalination. The results show where economic and environmental benefits occurs. It shows how the AI methods can introduce an optimal settings of the desalination process to the people who makes decisions. © 2019 IEEE.

Aldalahmeh, S., Al-Jazzar, S.O., McLernon, D., Raza Zaidi, S.A., Cardenas, M.

Distributed Combining Techniques for Distributed Detection in Fading Wireless Sensor Networks (2019) 2019 2nd IEEE Middle East and North Africa COMMUNICATIONS Conference, MENACOMM 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081100223&doi=10.1109%2fMENACOMM46666.2019.8988544&partnerID=40&md5=36032e2d88cfd30780776f5bb00f25e0)

[85081100223&doi=10.1109%2fMENACOMM46666.2019.8988544&partnerID=40&md5=36032e2d88cfd30780776f5bb00f25e0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081100223&doi=10.1109%2fMENACOMM46666.2019.8988544&partnerID=40&md5=36032e2d88cfd30780776f5bb00f25e0)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Engineering and Technology, Amman, Jordan;

University of Leeds, School of Electronic and Electrical Eng., Leeds, United Kingdom;

Autonomous University of San Luis Potosi, Faculty of Sciences, Mexico City, Mexico

ABSTRACT: We investigate distributed combining techniques for distributed detection in wireless sensor networks (WSNs) over Rayleigh fading multiple access channel (MAC). The MAC also suffers from path loss and additive noise. The WSN is modelled as a Poisson point process (PPP). Two distributed transmit combining techniques are proposed to mitigate fading; distributed equal gain transmit combining (ddEGTC) and distributed maximum ratio transmit combining (dMRTC). The performance of the previous methods is analysed using stochastic geometry tools, where the mean and variance of the detector's test statistic are found thus enabling the fitting of the received signal distribution by a log-normal distribution. Surprisingly, simulation results show that ddEGTC outperforms dMRTC. © 2019 IEEE.

Hamici, Z., Abu Elhaija, W.

Novel Current Unbalance Estimation and Diagnosis Algorithms for Condition Monitoring with Wireless Sensor Network and Internet of Things Gateway

(2019) IEEE Transactions on Industrial Informatics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077491363&doi=10.1109%2fTII.2019.2935743&partnerID=40&md5=1f889201a10fa187a9591641537a3895)

[85077491363&doi=10.1109%2fTII.2019.2935743&partnerID=40&md5=1f889201a10fa187a9591641537a3895](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077491363&doi=10.1109%2fTII.2019.2935743&partnerID=40&md5=1f889201a10fa187a9591641537a3895)

AFFILIATIONS: Electrical Engineering Department, Zaytoonah University of Jordan, Amman, 11733, Jordan;

Electrical Engineering Department, Princess Sumaya University for Technology, Amman, 11941, Jordan

ABSTRACT: This article presents two novel algorithms for the estimation and diagnosis of the current unbalance factor (CUF) for three-phase power systems from single period of three-phase acquired data samples. The CUF is evaluated by an algorithm named circular phase shift (CPS), and the three-phase parameters are estimated by a circular cross-correlation (CCC) algorithm for unbalance diagnosis. The estimated CUF along with multisensory data is transmitted and monitored through a remote web server for diagnosis and detection of incipient three-phase power systems faults including three-phase machines. The CPS algorithm estimation has an accuracy that exceeds 95% for CUF values exceeding 5%. The CCC time-complexity and the Cramer-Rao Lower Bound analysis are presented for performance evaluation. The CCC algorithm outperforms the IEEE-Standard-1057 estimation method in both phase accuracy and processing memory requirements compatible with low-cost microcontrollers. Experimental results on condition monitoring of industrial induction machines (1.5 to 7.5 KW) are also presented with custom designed 2.4-GHz wireless sensor network and an IEEE 802.11 Internet of Things gateway with multisensory data which carries out the effectiveness of the system. © 2005-2012 IEEE.

Suleiman, K., Al Kalaldehy, M., AbuSharour, L., Yates, B., Berger, A., Mendoza, T., Malak, M., Salameh, A.B., Cleeland, C., Menshawi, A.

Validation study of the Arabic version of the Brief Fatigue Inventory (BFI-A) [Étude de validation de la version arabe du Brief Fatigue Inventory (BFI-A)]

(2019) Eastern Mediterranean Health Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075782376&doi=10.26719%2femhj.19.032&partnerID=40&md5=6a8a1dd2b77376997655f8e789ea070c)

[85075782376&doi=10.26719%2femhj.19.032&partnerID=40&md5=6a8a1dd2b77376997655f8e789ea070c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075782376&doi=10.26719%2femhj.19.032&partnerID=40&md5=6a8a1dd2b77376997655f8e789ea070c)

AFFILIATIONS: School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Nursing, University of Nebraska Medical Centre, Omaha, United States;
MD Anderson Cancer Center, Houston, United States;
King Hussein Cancer Center, Amman, Jordan

ABSTRACT: Background: Fatigue is the most reported and most distressing symptom among patients with cancer. However, no questionnaire that measures fatigue and fatigue interference with life has been translated into Arabic. Aims: This study aimed to translate and validate the Arabic version of the Brief Fatigue Inventory (BFI-A). Methods: The BFI was translated into Arabic using the forward-backward translation technique. This cross-sectional study collected data from cancer patients through a self-administered questionnaire that included the BFI-A, Insomnia Severity Index (ISI), Zung Depression Scale (ZDS), MD Anderson Symptom Inventory total score (MDASI), and Medical Outcome Study Short Form 36 (SF-36) Vitality Subscale. Descriptive and inferential statistics were used including mean, standard deviation, internal consistency, and correlation coefficient using Pearson's correlation. Results: A total of 79 patients were recruited in Amman, Jordan, in 2015. Mean of the total BFI-A was 4.01 (2.4), showing that 83.5% had nonsevere fatigue. Cronbach's α coefficient of the BFI-A was 0.93. The correlations between total BFI-A scores and BFI-A items were significant ($P < 0.05$) and ranged from 0.75 to 0.86. BFI-A showed a significant correlation ($P < 0.05$) with the following tools: ISI = 0.70, ZDS = 0.69, MDASI = 0.75, and SF-36 Vitality Subscale = -0.57. Conclusions: This study suggests that the BFI-A is a reliable and valid tool to assess fatigue among Arab cancer patients. © World Health Organization (WHO) 2019.

Al Kalaldehy, M., Khamis, S.

The Performance of Emergency Department Nurses Across Sectors in Jordan: An Application of the Work Functioning Model

(2019) Research and theory for nursing practice, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074352912&doi=10.1891%2f1541-6577.33.4.344&partnerID=40&md5=318529686d3ed7974ad0f8132b877336>

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan Amman, Jordan

ABSTRACT: Work functioning is a relatively new conceptual model developed to embrace various aspects surrounding work performance, work participation, and individual capacity. The assessment of work performance (AWP) in nursing has gained inconsistent evidence due to examining it from multidimensional aspects. This study aimed to perform the AWP in nurses working in the emergency departments (EDs) at different healthcare sectors in Jordan. A descriptive, cross-sectional design was used in which ED nurses completed a questionnaire. ED nurses were recruited conveniently from four referral hospitals located in Amman (two government and two private hospitals). The Nursing Work Functioning Questionnaire (NWFQ), in addition to the demographic questionnaire were completed. A total of 179 ED nurses participated in the study (100 government and 79 private nurses). A few differences were found between government and private sector nurses in respect to work functioning domains. Overall, nurses from both sectors reported minimal impairments in their performance represented in seven domains. However, ED nurses from the private sector claimed more frequent work incidences compared to ED nurses from the government sector ($p = .043$). In addition, associate nurses showed higher avoidance behavior than registered nurses in both sectors ($p = .031$). Contrary to former studies, this study found minimal discrepancies in work performance between government and private sectors, and employing the work functioning model is useful to gain a thorough understanding of the AWP. © Copyright 2019 Springer Publishing Company, LLC.

Alzaareer, H.

Differential calculus on multiple products

(2019) Indagationes Mathematicae, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074182855&doi=10.1016%2fj.indag.2019.07.008&partnerID=40&md5=347af19b72cf9f493eeec21a6dff2b35>

AFFILIATIONS: Mathematics Department, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan

ABSTRACT: This paper introduced the calculus of mappings on finite product of spaces, allowing different degrees of differentiability in the different factors. This enables us to prove an important feature in the infinite-dimensional Lie theory, the exponential law in generalized setting for locally convex spaces and for manifolds modelled on locally convex spaces. © 2019 Royal Dutch Mathematical Society (KWG)

Al-Amer, R., Salamonson, Y., Villarosa, A.R., Subih, M., Darwish, R., Maneze, D.

Accuracy of Body Weight Estimation Among Palestinian Refugee Adolescents Living in Jordan: A Cross-Sectional Study

(2019) Journal of Nursing Scholarship, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073922004&doi=10.1111%2fjnu.12517&partnerID=40&md5=13b0bc577c14a62c0f6fc68880b0facc>

AFFILIATIONS: Isra University of Jordan, School of Nursing and Midwifery, Amman, Jordan and Adjunct

Research Fellow, Western Sydney University, School of Nursing and Midwifery, Penrith, NSW, Australia; Western Sydney University, School of Nursing and Midwifery, and Centre for Oral Health Outcomes & Research Translation (COHORT), Ingham Institute for Applied Medical Research, Penrith, NSW, Australia;

Research Assistant, Western Sydney University, School of Nursing and Midwifery, and Centre for Oral Health Outcomes & Research Translation (COHORT), Ingham Institute for Applied Medical Research, Penrith, NSW, Australia;

Al-Zaytoonah University of Jordan (ZUJ), School of Nursing and Midwifery, Amman, Jordan;

Dentist, Ministry of Health, Amman, Jordan;

Multicultural Health Promotion Officer, South Western Sydney Local Health District (SWSLHD), Adjunct Research Fellow, Western Sydney University, School of Nursing and Midwifery, and Centre for Oral Health Outcomes & Research Translation (COHORT), Ingham Institute for Applied Medical Research, Campbelltown, NSW, Australia

ABSTRACT: Purpose: We aimed to examine the prevalence of obesity among adolescents living in a refugee camp in Jordan and analyze the factors influencing their weight perceptions. Design: Cross-sectional survey. Methods: We examined the body weight perception, and the influence of psychological, cultural, and social factors, among Palestinian refugee adolescents living in Jordan using a cross-sectional survey. Univariate, bivariate, and multiple logistic regression analyses were used to investigate the relationships between body weight status, weight perception, satisfaction with weight, screen time, and depression status of these adolescents. Results: A total of 620 adolescents participated in the study, of which 24% were either overweight or obese. Overweight or obese adolescents were more likely to underestimate their weight ($p < .001$), while those with depressive symptoms (Patient Health Questionnaire for Adolescents score > 14), were more likely to overestimate their body weight ($p = .021$). Having symptoms indicative of depression (adjusted odds ratio [AOR] = 1.70; 95% confidence interval [CI] = 1.16–2.50) and having a body mass index in the overweight/obese range (AOR = 4.16; 95% CI = 2.73–6.35) were predictors of discordant weight perception. Conclusions: This study showed that excess body weight is a significant issue among Palestinian refugee adolescents living in a refugee camp in Jordan. Underlying depression is an important factor in excess weight and distorted weight perceptions especially among this vulnerable group. Clinical Relevance: The study highlights the importance of addressing discordant body weight perception and depression in weight management in nursing interventions for vulnerable adolescent groups. © 2019 Sigma Theta Tau International

Elbes, M., Alkhatib, A., Al-Fuqaha, A., Qadir, J.

Using phase shift fingerprints and inertial measurements in support of precise localization in urban areas

(2019) Personal and Ubiquitous Computing, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065437423&doi=10.1007%2fs00779-019-01227-y&partnerID=40&md5=01967791e67895506fe809cc726669e1>

AFFILIATIONS: Department of Computer Science, Alzaytoonah University of Jordan, Amman, Jordan; Department of Computer and Information Systems, Alzaytoonah University of Jordan, Amman, Jordan; Information and Computing Technology (ICT) Division, College of Science and Engineering (CSE), Hamad Bin Khalifa University, Doha, Qatar;

Department of Computer Science, Western Michigan University, Kalamazoo, MI 49008, United States;

Department of Electrical Engineering, Information Technology University (ITU), Lahore, Pakistan

ABSTRACT: Localization is an important primitive that is utilized in a number of important applications such as location-based mobile services, augmented reality, and autonomous mobile robotics. While the GPS technology is considered the de facto standard for outdoor localization, it is known to suffer from significant accuracy limitation in urban areas. In this work, we present a particle filter-based data fusion technique for localization in urban areas. The proposed localization technique provides more accurate location estimation results due to its ability to efficiently fuse together information collected from diverse sensor technologies. The novelty of our proposed approach stems from its ability to fuse data from diverse sources, namely, phase shift fingerprints collected from Low Power AM Radio (LPAM) towers and inertial measurement sensors. Our simulation results indicate that the proposed approach can achieve an accuracy of 0.5 m using a limited number of LPAM towers as low as 5. Also, the proposed approach requires the collection of a low number of LPAM phase shift fingerprints. Our simulations indicate that 30 fingerprints are enough to provide 0.5 m accuracy in a 100×100 m² deployment. © 2019, Springer-Verlag London Ltd., part of Springer Nature.

Hamed, R., Al-Adhami, Y., Abu-Huwaij, R.

Concentration of a microemulsion influences the mechanical properties of ibuprofen in situ microgels (2019) International Journal of Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071985593&doi=10.1016%2fj.ijpharm.2019.118684&partnerID=40&md5=e8bd016398e0451edc12395cf1a29f51)

[85071985593&doi=10.1016%2fj.ijpharm.2019.118684&partnerID=40&md5=e8bd016398e0451edc12395cf1a29f51](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071985593&doi=10.1016%2fj.ijpharm.2019.118684&partnerID=40&md5=e8bd016398e0451edc12395cf1a29f51)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmaceutics & Pharmaceutical Technology, Faculty of Pharmacy, Al-Ahliyya Amman University, Amman, Jordan

ABSTRACT: The aim of this study was to develop an ibuprofen microemulsion (IBU-ME) incorporated into in situ gels (microgels) for local delivery into periodontal pockets. The IBU-ME was prepared at a concentration of 1% w/v IBU. Various concentrations of the thermosensitive Pluronic® F127 (P127) solution and a series of combinations of the P127 solution and IBU-ME at a 1:1 ratio were initially developed and tested to determine their sol-gel transition temperatures ($T_{sol \rightarrow gel}$). Based on these studies, a constant concentration of P127 (11.1% w/v) and variable concentrations of IBU-ME were used to prepare the microgels. The mechanical properties ($T_{sol \rightarrow gel}$, gelling time (T_{gel}), viscosity, and viscoelastic properties) of the microgels were evaluated. The release of IBU from the microgels was determined in vitro. Rheological stability studies were performed to investigate the mechanical properties of the microgels after one month. The transition behavior studies demonstrated that the microgels are thermosensitive systems with pseudoplastic flow and their viscoelastic properties indicated that the elastic property was greater than the viscous property ($G' > G''$). The results showed that the mechanical properties of the microgels depend on the concentration of IBU-ME. In addition, rheological stability studies demonstrated that T_{gel} and $T_{sol \rightarrow gel}$ are increased after one month, whereas the viscosity and viscoelastic properties are decreased after one month. Owing to the rigid structure of the microgels, the release of IBU from the microgels followed a controlled-release pattern. © 2019 Elsevier B.V.

Sunoqrot, S., Al-Shalabi, E., Ibrahim, L.H., Zalloum, H.

Nature-inspired polymerization of quercetin to produce antioxidant nanoparticles with controlled size and skin tone-matching colors

(2019) *Molecules*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074147415&doi=10.3390%2fmolecules24213815&partnerID=40&md5=4139e12bdebfa51baa04877039e38676)

[85074147415&doi=10.3390%2fmolecules24213815&partnerID=40&md5=4139e12bdebfa51baa04877039e38676](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074147415&doi=10.3390%2fmolecules24213815&partnerID=40&md5=4139e12bdebfa51baa04877039e38676)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Hamdi Mango Center for Scientific Research, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Plant polyphenols have received considerable attention in recent years due to their ability to undergo oxidation-triggered self-polymerization, forming biocompatible versatile coatings and templated nanoparticles (NPs) that can be leveraged for a variety of biomedical applications. Here we show for the first time that untemplated NPs can be conveniently synthesized from the abundant plant polyphenol quercetin (QCT) simply by incubation with an oxidizing agent in a universal organic solvent, followed by self-assembly upon gradual addition of water. The process yielded NPs of around 180-200 nm in size with a range of colors that resembled light to medium-brown skin tones. The NPs were characterized by UV-Vis, FT-IR, and ¹H-NMR spectroscopy and by dynamic light scattering and transmission electron microscopy to understand their physicochemical properties. Antioxidant and cell viability assays were also conducted to demonstrate the NPs' free-radical scavenging activity and biocompatibility, altogether providing valuable insights into the structure and function of this emerging class of nanomaterials to guide future biomedical applications. © 2019 by the authors.

Jebril, I.H., Datta, S.K., Sarkar, R., Biswas, N.

Common fixed point theorems under rational contractions for a pair of mappings in bicomplex valued metric spaces

(2019) *Journal of Interdisciplinary Mathematics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077851338&doi=10.1080%2f09720502.2019.1709318&partnerID=40&md5=513c4e408abad2d98e2e5b4aed1de0f2)

[85077851338&doi=10.1080%2f09720502.2019.1709318&partnerID=40&md5=513c4e408abad2d98e2e5b4aed1de0f2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077851338&doi=10.1080%2f09720502.2019.1709318&partnerID=40&md5=513c4e408abad2d98e2e5b4aed1de0f2)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Mathematics, University of Kalyani Kalyani, Nadia, West Bengal 741235, India;

Gour Mahavidyalaya Mangalbari, Malda, West Bengal 732142, India;

Department of Mathematics, Chakdaha College, Chakdaha, Nadia, West Bengal 741222, India

ABSTRACT: In this paper, we have proved some common fixed point theorems for a pair of mappings satisfying certain rational contraction condition in the frame work of bicomplex valued metric space (X, d) . We have also defined the max function for the partial order \leq in bicomplex valued metric d . © 2019, © 2019 Taru Publications.

Hammad, M.A., Alzaareer, H., Al-Zoubi, H., Dutta, H.

Fractional Gauss hypergeometric differential equation

(2019) *Journal of Interdisciplinary Mathematics*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077847917&doi=10.1080%2f09720502.2019.1706838&partnerID=40&md5=220ebe81e70d58c44bbda2c43631ec96)

[85077847917&doi=10.1080%2f09720502.2019.1706838&partnerID=40&md5=220ebe81e70d58c44bbda2c43631ec96](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077847917&doi=10.1080%2f09720502.2019.1706838&partnerID=40&md5=220ebe81e70d58c44bbda2c43631ec96)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St

594, Amman, 11733, Jordan;

Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Department of Mathematics, Al Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan;

Department of Mathematics, Gauhati University, Guwahati, Assam 781014, India

ABSTRACT: In this paper, we use the new concept of fractional regular singular point and use the technique of fractional power series to solve the fractional Gauss hypergeometric differential equation. Also, we introduce the forms of the conformable fractional derivative and the integral representation of the fractional Gaussian function. © 2019, © 2019 Taru Publications.

Alzu'Bi, S., Alsmadiv, A., Alqatawneh, S., Al-Ayyoub, M., Hawashin, B., Jararweh, Y.

A Brief Analysis of Amazon Online Reviews

(2019) 2019 6th International Conference on Social Networks Analysis, Management and Security, SNAMS 2019, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85077821418&doi=10.1109%2fSNAMS.2019.8931816&partnerID=40&md5=a264414b2670d97c15c465e074876423

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Shifting from traditional marketing into online marketing has allowed people to share their experiences about various aspects of those products using textual comments known as Product Reviews. As a result of this shifting, people are able to access various websites where they can find reviews for all kind of products, even the rare ones. Thus, these reviews act as a supplementary information and help people to make the right decision before buying products. Reviews that influence one's decision are considered influential reviews, as they provide truthful experiences. Given the list of reviews for a certain product, each user can vote for any given review as helpful or unhelpful. As a result, each review would be given a number that represents how many users found this review helpful. This would indicate how influential each review is. As a result, buyers rely on these reviews and those who wrote these reviews. This study emphasizes on the importance of using user votes as an important source of information for new users. The contribution of this work lies in two aspects. First, it provides a comprehensive statistical analysis of a previously-published dataset containing Amazon reviews. Second, this study insists on the importance of using user votes. This study is the first phase for many future interesting directions. It was shown that the relationship between the number of reviews and the percentage of votes is an inverse relationship. © 2019 IEEE.

Kanan, T., Sadaqa, O., Almhirat, A., Kanan, E.

Arabic Light Stemming: A Comparative Study between P-Stemmer, Khoja Stemmer, and Light10 Stemmer

(2019) 2019 6th International Conference on Social Networks Analysis, Management and Security, SNAMS 2019, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85077820054&doi=10.1109%2fSNAMS.2019.8931842&partnerID=40&md5=25a7d3f9024724586e3fd6ed37452bbe

AFFILIATIONS: Al-Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

Amman Arab University, Department of Computer Science, Amman, Jordan

ABSTRACT: Arabic is a derived language that has a deep structure and words meaning, one of the Arabic challenges is its morphology dependency. Arabic Natural Language Processing (ANLP) tools are required to achieve many tasks, such as Machine learning. For the text classification task, the ANLP is considered as preprocessing steps. These preprocessing steps include but not limited to Stemming, Normalization, and Stop-words Removal. In this work, we collected 2, 000 news articles from Arabic online newspapers, the data were classified using Support Vector Machine (SVM) and Nave Base (NB) classifiers. The classification task was conducted for the purpose of comparing three different Arabic light stemmers; P-Stemmer, Khoja Stemmer, and Light10 Stemmer. The P-Stemmer results was dominating the other two stemmers in both SVM and NB classifiers with accuracy of 0.92 for F1-measure in SVM classifier and 0.90 for F1-Measure in NB classifier. © 2019 IEEE.

Alzu'Bi, S., Badarneh, O., Hawashin, B., Al-Ayyoub, M., Alhindawi, N., Jararweh, Y.

Multi-Label Emotion Classification for Arabic Tweets

(2019) 2019 6th International Conference on Social Networks Analysis, Management and Security, SNAMS 2019, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85077819947&doi=10.1109%2fSNAMS.2019.8931715&partnerID=40&md5=64760ba3a54ab97ce86dba194f012895

AFFILIATIONS: Al Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

Jordan University of Science and Technology, Computer Science Department, Irbid, Jordan;

Jadara University, Computer Science Department, Irbid, Jordan

ABSTRACT: Emotion Analysis (EA) is a process of determining if the text has any emotion. EA spread significantly in the recent years, especially for social media applications as applied to tweets and

Facebook posts. An assumption has been presented recently that each social media post has no intensity or has one emotion. Different cases for public posts have been considered in this work, it focuses on several emotions (multi-label) included in a single post. Tweeter posts (Tweets) have been employed to validate the proposed work, it is possible to have different intensities related to each tweet (multi-target). The proposed work focused on Arabic language tweets unlike previously implemented work, which focused on other languages such as English or Chinese. A multi-label multi-target data set of Arabic tweets annotated for emotion analysis has been built, and different experts participated in the annotation process and Cohens Kappa measure was employed to determine their concordance. © 2019 IEEE.

Alzubi, S., Aqel, D., Mughaid, A., Jararweh, Y.

A Multi-Levels Geo-Location based Crawling Method for Social Media Platforms

(2019) 2019 6th International Conference on Social Networks Analysis, Management and Security, SNAMS 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077817603&doi=10.1109%2fSNAMS.2019.8931856&partnerID=40&md5=dc009410411e6e44cd63f9f32cb8f39b)

[85077817603&doi=10.1109%2fSNAMS.2019.8931856&partnerID=40&md5=dc009410411e6e44cd63f9f32cb8f39b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077817603&doi=10.1109%2fSNAMS.2019.8931856&partnerID=40&md5=dc009410411e6e44cd63f9f32cb8f39b)

AFFILIATIONS: Al Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan;

Hashemite University, Computer Science Department, Zarqa, Jordan;

Mathematics and Computer Science, Duquesne University, Pittsburgh, PA 15282, United States

ABSTRACT: The large size and the dynamic nature of the Web highlight the need for continuous support and updating of Web based information retrieval systems. Crawlers facilitate the process by following the hyperlinks in Web pages to automatically download a partial snapshot of the Web. While some systems rely on crawlers that exhaustively crawl the Web, others incorporate focus within their crawlers to harvest application or topic specific collections. This project studied web crawling and scraping at many different levels. It will aggregate information from multiple sources into one central location. It Specifics a program for downloading web pages. Given an initial set of seed URLs, it recursively downloads every page that is linked from pages in the set, that have content satisfies specific criterion. Social media, web applications, and mobile applications have been employed together in the proposed system to manage the search in the rapidly growing worldwide web. Applying the proposed system is resulting in a fast and comfortable search engine that fulfill the users requests based on specific geolocations. © 2019 IEEE.

Elbes, M., Aldajah, A., Sadaqa, O.

P-Stemmer or NLTK Stemmer for Arabic Text Classification?

(2019) 2019 6th International Conference on Social Networks Analysis, Management and Security, SNAMS 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077814976&doi=10.1109%2fSNAMS.2019.8931818&partnerID=40&md5=0400a123340119ba0e5d9debc192f4a1)

[85077814976&doi=10.1109%2fSNAMS.2019.8931818&partnerID=40&md5=0400a123340119ba0e5d9debc192f4a1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077814976&doi=10.1109%2fSNAMS.2019.8931818&partnerID=40&md5=0400a123340119ba0e5d9debc192f4a1)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Computer Science Department, Amman, Jordan

ABSTRACT: Natural Language Processing (NLP) is a branch of computer science that focuses on developing systems that allow computers to communicate with people using everyday language. NLP tools are Devoted to making computers understand statements written in human language. Indexing, text retrieval and word processing are considered as challenges in the classification process. Hence, Arabic Natural Language Processing ANLP tools are needed to achieve the aforementioned tasks. ANLP includes preprocessing such as Stemming, Normalization, Stop-word Removal, Part of speech POS and other processes. In this work, we collected 1, 000 news articles from Alghad.com newspaper, then we classified our dataset using SVM and NB algorithms using NLTK tool. We compared the results of two stemmers; P-Stemmer and NLTK stemmer using the mentioned classification process. The results of the classification for the P-Stemmer was better than the NLTK stemmer and for the two classifiers. © 2019 IEEE.

Mughaid, A., Obeidat, I., Hawashin, B., Alzu'Bi, S., Aqel, D.

A smart Geo-Location Job Recommender System Based on Social Media Posts

(2019) 2019 6th International Conference on Social Networks Analysis, Management and Security, SNAMS 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077814328&doi=10.1109%2fSNAMS.2019.8931854&partnerID=40&md5=377beed27828a63c761dd36e1121671)

[85077814328&doi=10.1109%2fSNAMS.2019.8931854&partnerID=40&md5=377beed27828a63c761dd36e1121671](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077814328&doi=10.1109%2fSNAMS.2019.8931854&partnerID=40&md5=377beed27828a63c761dd36e1121671)

AFFILIATIONS: Hashemite University, Computer Science Department, Zarqa, Jordan;

Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Social networks in real life is growing quickly, Social media have become a day base use for most of Internet users, because of the huge amount of provided services. Social media shares users' thoughts and data through a virtual networks. The proposed work focuses on implementing a smart job seeking system based on client's geo-location. This work proposes a smart system that mines social media networks, such as Twitter and Facebook to match the best vacancy for the exact job seeker. The matches have been presented based on client's geo-locations, which are located by mining

their social media posts history. This system overcomes recent such systems as it employs modern recommender methods, Geolocation concepts, and Natural Language Processing (NLP) together in social media for real life problem solution. © 2019 IEEE.

Ramadan, R., Alqatawneh, S., Ahalaiqa, F., Abdel-Qader, I., Aldahoud, A., Alzoubi, S.
The Utilization of WhatsApp to Determine the Obsessive-Compulsive Disorder (OCD): A Preliminary Study (2019) 2019 6th International Conference on Social Networks Analysis, Management and Security, SNAMS 2019, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077811925&doi=10.1109%2fSNAMS.2019.8931832&partnerID=40&md5=be48828064ae6aa46d65fad5f4648de8>

AFFILIATIONS: Al-Ahliyya Amman University, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan;

Philadelphia University, Amman, Jordan;

Western Michigan University, Michigan, United States

ABSTRACT: Social media applications such as WhatsApp, Facebook, Instagram, Twitter, etc., are widely used among society; each application has its own uses, differences and market share. According to official Jordanian statistics, WhatsApp is considered to be the most commonly used social media application by Jordanian people for creating, sharing and exchanging information. In this paper, we present a comprehensive preliminary study for the implementation of a national platform that contains information about Obsessive-Compulsive Disorder (OCD) in Jordan using the WhatsApp to collect the information. This project will be a pilot study using a cross-sectional design to determine the potential of the proposed platform in usability and effectiveness as a prototype system. Moreover, it will be the first mental health application that addresses the needs of the Arabic culture and region. The project will be implemented in two phases: the first phase, which includes the design of the OCD-questionnaire and the collection of data using the WhatsApp application, the collected data will be stored to a database which is going to be the first OCD database of its kind. The second phase of the project involves the design of a mobile application that can help to diagnose cases and provide medical advice to help alleviate the symptoms of the OCD. The publicity of using WhatsApp application will help in covering different geographical areas and reaching a variety of people with maintaining their confidentiality. © 2019 IEEE.

El-Khateeb, M., Tanash, Q., Abul-Futouh, H., Gör1s, H., Weigand, W.

Dithiocarbonato nickel, palladium and platinum complexes bearing bis(diphenylphosphino)ferrocene: synthesis and X-ray structure determination

(2019) Journal of Chemical Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-850742426964&doi=10.1007%2fs12039-019-1680-z&partnerID=40&md5=ef4c133a0775fe5dbd498f3baea39e8a>

AFFILIATIONS: Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany

ABSTRACT: Abstract: The dithiocarbonato metal complexes $M(\kappa^2S,S-S_2CO)(\kappa^2P,P-dppf)$ $\{M= Ni, Pd, Pt; dppf= bis(diphenylphosphino)ferrocene\}$ are obtained from the reaction of the metal(II) complexes $[M(\kappa^2S,S-S_2COEt)_2]$ with the dppf ligand or from the chloride substitution of $M(\kappa^2P,P-dppf)Cl_2$ by the O-ethylthiocarbonato anion. These complexes are produced by C-O bond cleavage by the O-ethylthiocarbonato anion present in solution. These new complexes have been characterized by UV-Vis, NMR, IR spectroscopy and elemental analysis. The structures of the three complexes were further confirmed by single-crystal X-ray diffraction analysis. Graphical Abstract: The dithiocarbonato metal complexes $M(\kappa^2S,S-S_2CO)(\kappa^2P,P-dppf)$ $\{M= Ni, Pd, Pt, dppf= bis(diphenylphosphino)ferrocene\}$ are obtained from the reaction of the metal(II) complexes $[M(\kappa^2S,S-S_2COEt)_2]$ with the dppf ligand or from the chloride substitution of $M(\kappa^2P,P-dppf)Cl_2$ by the O-ethylthiocarbonato anion. These new complexes have been characterized by UV-Vis, NMR, IR spectroscopy and elemental analysis. The structures of complexes 1-3 were further confirmed by single-crystal X-ray diffraction analysis. [Figure not available: see fulltext.]. © 2019, Indian Academy of Sciences.

Yousif, R.O., Alsamydai, M.J.

Perspective of technological acceptance model toward electric vehicles

(2019) International Journal of Mechanical and Production Engineering Research and Development, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073507644&doi=10.24247%2fijmperdoct201977&partnerID=40&md5=38cb3f178431ce0923b48c110274b9df>

AFFILIATIONS: Department of Marketing, Faculty of Economics and Administrative Sciences, Zarqa University, Jordan;

Department of Marketing, The Faculty of Business, Al-Zaytoonah University, Jordan

ABSTRACT: The invention of electric vehicles (EVs) is a leap in the fields of automobile industry,

rationalization of energy and conservation of the environment. This study focuses on adapting the model of acceptance of technology to identify consumer's behavior on the use of EV. The technology acceptance model was developed by Fred Davis (1989). The study community consists of 550 consumers from Amman city, the results show there is strong relation between independent variables (Perceived usefulness, Attitude toward using EV, Perceived ease of Use EV, Perceived the challenges of use) and the dependent variable (EV Use), where the value of the coefficient indicator is positive (0.415) and the value of the calculated F is (21.767), which is greater than the tabular value (2.89), and the moral value is (0.0), which is less than (0.05). This is an indicator that there is statistical impact for independent factors on consumer behavior. © TJPRC Pvt. Ltd.

Dajani, D., Abu Hegleh, A.S.

Behavior intention of animation usage among university students

(2019) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073155530&doi=10.1016%2fj.heliyon.2019.e02536&partnerID=40&md5=2fbae5e51c12d57fd406d73c92d99ad8)

[85073155530&doi=10.1016%2fj.heliyon.2019.e02536&partnerID=40&md5=2fbae5e51c12d57fd406d73c92d99ad8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073155530&doi=10.1016%2fj.heliyon.2019.e02536&partnerID=40&md5=2fbae5e51c12d57fd406d73c92d99ad8)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Marketing Department, Jordan;

Picasso School "Malga for Design", Jordan

ABSTRACT: This research aims to test the antecedents that influence behavior intention of animation usage among marketing students in universities depending on the extended unified theory of acceptance and use of technology (UTAUT2) introduced by Venkatesh et al. (2012). Partial least square structural equation modeling approach was used to analyze information gathered from undergraduate marketing students in Jordanian universities. The results revealed that hedonic motivation, performance expectancy, students' innovativeness, learning value and effort expectancy were significant constructs influencing the behavior intention of animation usage. The research extended UTAUT2 in the field of animation usage by integrating the constructs of learning value and students' innovativeness to the model. The research provides practitioners and teachers in the marketing field with advantageous methods in their learning process. © 2019

Al Zyoud, A., Abu Elhaija, W.

Solar power lead battery storage solution using cycle recovery charging method

(2019) Journal of Energy Storage, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069692687&doi=10.1016%2fj.est.2019.100843&partnerID=40&md5=024fc829eb16ecacf99e8e09b986ed9f)

[85069692687&doi=10.1016%2fj.est.2019.100843&partnerID=40&md5=024fc829eb16ecacf99e8e09b986ed9f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069692687&doi=10.1016%2fj.est.2019.100843&partnerID=40&md5=024fc829eb16ecacf99e8e09b986ed9f)

AFFILIATIONS: Alternative Energy Technology Department, Faculty of Engineering and Technology, Al Zaytoonah University of Jordan, Jordan;

Electrical Engineering Department, King Abdullah II School of Engineering, Princess Sumaya University for Technology, Amman, Jordan;

Royal Scientific Society (RSS), Amman, Jordan

ABSTRACT: Battery energy storage is becoming a viable economic option for standalone solar power systems in the Levant region. The lead battery is one of the most important current options in solar energy storage systems. Batteries are subject to many factors, during its operation that causes batteries' de-gradation and impacting its shelf life. This paper presents features of the cycle recovery charging (CRC) method in refreshing and settling utilized lead batteries that have been utilized as a part of home solar energy storage systems. Experimental tests were performed on the utilized gel - lead battery (12 V 97 Ah C/5 h solar battery). The findings of these experiments show that this new recovery charging method that established important improvements in terms of charging realization. The foregoing improvements contributed to increasing the shelf life of the battery, capacity recovery, maintaining the cell stability and refreshing the batteries. © 2019 Elsevier Ltd

AlZu'bi, S., Hawashin, B., Mujahed, M., Jararweh, Y., Gupta, B.B.

An efficient employment of internet of multimedia things in smart and future agriculture

(2019) Multimedia Tools and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062642199&doi=10.1007%2fs11042-019-7367-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062642199&doi=10.1007%2fs11042-019-7367-0&partnerID=40&md5=c0575973b883a4676641b3f2f3487f5c)

[0&partnerID=40&md5=c0575973b883a4676641b3f2f3487f5c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062642199&doi=10.1007%2fs11042-019-7367-0&partnerID=40&md5=c0575973b883a4676641b3f2f3487f5c)

AFFILIATIONS: Department of Computer Science and CIS, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Jordan University of Science and Technology, Irbid, Jordan;

Department of Computer Engineering, National Institute of Technology Kurukshetra, Kurukshetra, India

ABSTRACT: Efficiently managing the irrigation process has become necessary to utilize water stocks due to the lack of water resources worldwide. Parched plant leads into hard breathing process, which would result in yellowing leaves and sprinkles in the soil. In this work, yellowing leaves and sprinkles in the soil have been observed using multimedia sensors to detect the level of plant thirstiness in smart farming. We modified the IoT concepts to draw an inspiration towards the perspective vision of 'Internet of Multimedia Things' (IoMT). This research focuses on the smart employment of internet of Multimedia sensors in smart farming to optimize the irrigation process. The

concepts of image processing work with IOT sensors and machine learning methods to make the irrigation decision. sensors reading have been used as training data set indicating the thirstiness of the plants, and machine learning techniques including the state-of-the-art deep learning were used in the next phase to find the optimal decision. The conducted experiments in this research are promising and could be considered in any smart irrigation system. The experimental results showed that the use of deep learning proves to be superior in the Internet of Multimedia Things environment. © 2019, Springer Science+Business Media, LLC, part of Springer Nature.

AlZu'bi, S., Jararweh, Y., Al-Zoubi, H., Elbes, M., Kanan, T., Gupta, B.

Multi-orientation geometric medical volumes segmentation using 3D multiresolution analysis

(2019) Multimedia Tools and Applications, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058486647&doi=10.1007%2fs11042-018-7003-4&partnerID=40&md5=827c78983a8d269552d0a473a7e8d499>

AFFILIATIONS: Department of Computer Science, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Jordan University of Science and Technology, Irbid, Jordan;

Department of Mathematics, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Engineering, National Institute of Technology Kurukshetra, Kurukshetra, India

ABSTRACT: Medical images have a very significant impact in the diagnosing and treating process of patient ailments and radiology applications. For many reasons, processing medical images can greatly improve the quality of radiologists' job. While 2D models have been in use for medical applications for decades, wide-spread utilization of 3D models appeared only in recent years. The proposed work in this paper aims to segment medical volumes under various conditions and in different axel representations. In this paper, we propose an algorithm for segmenting Medical Volumes based on Multiresolution Analysis. Different 3D volume reconstructed versions have been considered to come up with a robust and accurate segmentation results. The proposed algorithm is validated using real medical and Phantom Data. Processing time, segmentation accuracy of predefined data sets and radiologist's opinions were the key factors for methods validations. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.

Alshurafa, H., El-khateeb, M., Abul-Futouh, H., Görls, H., Weigand, W.

Cyclopentadienyl ruthenium complexes of mixed heterocyclic thiol and Bis(diphenylphosphino)ferrocene ligands

(2019) Journal of Molecular Structure, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064732476&doi=10.1016%2fj.molstruc.2019.04.008&partnerID=40&md5=256be038e7d273358dce7937274db87d>

AFFILIATIONS: Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Straße 8, Jena, 07743, Germany

ABSTRACT: Cyclopentadienyl ruthenium complexes bearing mixed heterocyclic thiol and bis(diphenylphosphino)ferrocene (dppf)ligands are presented. The complex-salts [CpRu(dppf)(κ 1S-HS-het)]PF₆ {Cp = η -5-C₅H₅; HS-het = 2-mercaptobenzothiazole (1), 2-mercaptobenzimidazole (2)} were synthesized from the reaction of CpRu(dppf)Cl with the thiol in the presence of KPF₆ salt under reflux. Complexes 1 and 2 have been characterized by spectroscopic methods (1H-NMR, 31P{1H}-NMR, MS)and elemental analysis. The solid-state structures of [CpRu(dppf)(κ 1S[*s*bdn]S2C7H5N)]PF₆ (1)and [CpRu(dppf)(κ 1S-SC7H6N2)]PF₆ (2)have been determined by X-ray crystallography. The cyclic voltammetry of these two complexes are measured. © 2019 Elsevier B.V.

Hamici, Z., Obaidat, T.I.A.-S.

Pavement Images Denoising with Cracks Detection and Classification Using 2D Discrete Wavelet Transform and Savitzky-Golay Filters

(2019) Proceedings of the 2019 IEEE International Conference on Signal and Image Processing Applications, ICSIPA 2019, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084767119&doi=10.1109%2fICSIIPA45851.2019.8977762&partnerID=40&md5=2850f6b84da77dfa69132c17854d1116>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Electrical Engineering Dept., Amman, Jordan;

Al-Zaytoonah University of Jordan, Civil Engineering Dept., Amman, Jordan, Jordan

ABSTRACT: Image processing has gained an increased usage and impact in modern pavement networks automatic distress severity classification (DSC). DSC defines priorities and maintenance resources optimum allocation in order to achieve a cost-effective rehabilitation process. This paper presents a novel computer vision algorithm having the ability to process, isolate and evaluate the distress severity level of a pavement. A pavement color image is converted to grayscale and then processed for

image denoising of the granularity and complex texture that represent and artifact in cracks edge detection. The processing is achieved by a 2D dual-tree double density wavelet transform filter banks that significantly reduces the granularity noise while preserving the pavement cracks for edge detection. The 2D wavelet FIR filters perform analysis, soft thresholding then a synthesis of the image. The second step is then an edge detection process followed by morphological filtering and labeled components size-histogram filter to isolate false edges as residuals of denoising. A final step is performed by two Savitzky-Golay filters for the detection of longitudinal and transverse alligator cracks projections. A weighted score function with multiple parameters is used for DSC. © 2019 IEEE.

Al-Hgaish, A., Alzyadat, W., Al-Fayoumi, M., Alhroobis, A.M., Thunibat, A.
Preserve quality medical drug data toward meaningful data lake by cluster
(2019) International Journal of Recent Technology and Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073724828&doi=10.35940%2fijrte.C4129.098319&partnerID=40&md5=d93bbb15725899c4a1592127a1198c67)

[85073724828&doi=10.35940%2fijrte.C4129.098319&partnerID=40&md5=d93bbb15725899c4a1592127a1198c67](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073724828&doi=10.35940%2fijrte.C4129.098319&partnerID=40&md5=d93bbb15725899c4a1592127a1198c67)

AFFILIATIONS: Department of Software Engineering, Faculty of Information Technology, Isra University, Amman, Jordan;

Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Big data is facing many challenges in different aspects, which appear in characteristics such as: Velocity, Volume, Value and Veracity. Processing and analysis of big data are challenging issues to acquire quality information in order to support accurate medical drug practice. The quality of data taxonomy is indicated by three basic elements: are meaningful, predication and decision-making. These elements have been encouraged in previous work that focused on the same challenges of big data. Consequently, the proposed approach preserves the quality of medical drug data toward meaningful data lake by clustering. It consists of four components. Data collection and pre-processing represent the first component in the data lake. Profile data is treated with semi-structured data to clean it up. The second component is extracting data through enforcing rules on whole data to produce different groups and generate weight based on constraints within groups. In component three, data is organized and clustering. This component complies with schema profiling referring to component two in the data lake. Weight outputs of component three are inputs for component four, where K-Mean clustering is applied to obtain different clusters. Each cluster presents an alternative drug to achieve meaningful drug data that is consistent with component three in the data lake. This paper addressed two main challenges; the first challenge is extracting meaningful data from big data; whereas the second challenge is using big data technique with K-Mean clustering algorithm. An experimental approach was followed through using Food and Drug Administration (FDA) data and symptoms in R framework. ANOVA statistical test was carried out to calculate sum of square error, P-Value and F-Value for the evaluation of variances between clusters and variances within clusters. The results showed the efficiency of the proposed approach. © BEIESP.

Abd-Alhamid, F., Kent, M., Bennett, C., Calautit, J., Wu, Y.

Developing an Innovative Method for Visual Perception Evaluation in a Physical-Based Virtual Environment

(2019) Building and Environment, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073706022&doi=10.1016%2fj.buildenv.2019.106278&partnerID=40&md5=1958d406ef876e3ea8c2a409b0e88837)

[85073706022&doi=10.1016%2fj.buildenv.2019.106278&partnerID=40&md5=1958d406ef876e3ea8c2a409b0e88837](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073706022&doi=10.1016%2fj.buildenv.2019.106278&partnerID=40&md5=1958d406ef876e3ea8c2a409b0e88837)

AFFILIATIONS: Department of Architecture and Built Environment, Faculty of Engineering, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom;

Department of Architecture, Faculty of Architecture and Design, Al-Zaytoonah University of Jordan, Amman, Jordan;

Berkeley Education Alliance for Research in Singapore, Singapore

ABSTRACT: With the developments in virtual reality technologies, significant researches have been conducted for human response on indoor luminous environment using head-mounted display to replace those in real environment. However, the limited resolution and luminance values offered by the devices might affect the perceived appearance and high-order impressions in the simulated virtual environment. In this study, a simulated 3-dimensional virtual office was compared against a real one. Both settings presented similar physical and luminous conditions to twenty participants (N = 20). The study investigated subjective and objective visual responses and participants' interaction with the virtual environment based on measurements of perceived presence. Subjective assessments included questions on luminous environment appearance (brightness, colour-temperature, distribution) and high-order perceptions (pleasantness, interest, spaciousness, excitement and complexity). Objective assessments measured contrast-sensitivity and colour-discrimination tasks to assess visual performance across the two representation environments. Results showed no significant differences between the two environments based on the studied parameters, indicating a high level of perceptual accuracy of appearance and high-order perceptions. Minor physical symptoms related to the headset use and high level of perceived presence were found, indicating the proposed methodology's capability to

provide realistic immersive environments. Although attributes regarding scene quality: colours, details, and contrast were perceived significantly different to the real environment, objective tasks showed that similar contrast and colour appearance can be produced in the virtual environment with minor impact on fine-details due to limited resolution. Virtual reality maybe a promising alternative representation medium to investigate visual perceptions as the overall appearance of the scene can still be correctly acquired. © 2019 Elsevier Ltd

Jarrar, Y.B., Lee, S.-J.

Molecular functionality of cytochrome P450 4 (CYP4) genetic polymorphisms and their clinical implications

(2019) International Journal of Molecular Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071745745&doi=10.3390%2fijms20174274&partnerID=40&md5=24b55a1f9dc9be4c458f83967c8e0cb6)

[85071745745&doi=10.3390%2fijms20174274&partnerID=40&md5=24b55a1f9dc9be4c458f83967c8e0cb6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071745745&doi=10.3390%2fijms20174274&partnerID=40&md5=24b55a1f9dc9be4c458f83967c8e0cb6)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Amman, 11734, Jordan;

Department of Pharmacology and Pharmacogenomics Research Center, Inje University College of Medicine, Inje University, Busan, 47392, South Korea

ABSTRACT: Enzymes in the cytochrome P450 4 (CYP4) family are involved in the metabolism of fatty acids, xenobiotics, therapeutic drugs, and signaling molecules, including eicosanoids, leukotrienes, and prostanoids. As CYP4 enzymes play a role in the maintenance of fatty acids and fatty-acid-derived bioactive molecules within a normal range, they have been implicated in various biological functions, including inflammation, skin barrier, eye function, cardiovascular health, and cancer. Numerous studies have indicated that genetic variants of CYP4 genes cause inter-individual variations in metabolism and disease susceptibility. Genetic variants of CYP4A11, 4F2 genes are associated with cardiovascular diseases. Mutations of CYP4B1, CYP4Z1, and other CYP4 genes that generate 20-HETE are a potential risk for cancer. CYP4V2 gene variants are associated with ocular disease, while those of CYP4F22 are linked to skin disease and CYP4F3B is associated with the inflammatory response. The present study comprehensively collected research to provide an updated view of the molecular functionality of CYP4 genes and their associations with human diseases. Functional analysis of CYP4 genes with clinical implications is necessary to understand inter-individual variations in disease susceptibility and for the development of alternative treatment strategies. © 2019 by the authors. Licensee MDPI, Basel, Switzerland.

Abdel Qader, A.

A novel intelligent model for classifying and evaluating non-functional security requirements form scenarios

(2019) Indonesian Journal of Electrical Engineering and Computer Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071707480&doi=10.11591%2fijeecs.v15.i3.pp1578-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071707480&doi=10.11591%2fijeecs.v15.i3.pp1578-1585&partnerID=40&md5=cebc9409f75db205b426bce33f8368f5)

[1585&partnerID=40&md5=cebc9409f75db205b426bce33f8368f5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071707480&doi=10.11591%2fijeecs.v15.i3.pp1578-1585&partnerID=40&md5=cebc9409f75db205b426bce33f8368f5)

AFFILIATIONS: Department of Software Engineering, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Software requirements with its functional and non-functional methods are the first important phase in producing a software system with free errors. The functional requirements are the visual actions that may easily evaluated from the developer and from the user, but non-functional requirements are not visual and need a lot of efforts to be evaluated. One of the main important non-functional requirements is security, which focuses on generating secure systems from strangers. Evaluating the security of the system in earlier steps will help to reduce the efforts of reveals critical system threats. Security threats found because of leaking of security scenarios in requirement phase. In this paper, we purpose an intelligent model to extract and evaluate security features from scenarios based on set of security system goals and a set of security requirements saved on rich story scenarios dataset (RSSD). This model will used a support vector machine (SVM) classifier to classify the security requirement based on RSS dataset. The using of SVM will enhance the overall process of evaluating the security requirements. The results show a significant enhancement in security improvements. © 2019 Institute of Advanced Engineering and Science. All rights reserved.

Suleiman, K., Hijazi, Z., Al Kalalkeh, M., Abu Sharour, L.

Quality of nursing work life and related factors among emergency nurses in Jordan

(2019) Journal of Occupational Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071615923&doi=10.1002%2f1348-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071615923&doi=10.1002%2f1348-9585.12068&partnerID=40&md5=d758bab104c3851aef0da22d48e2be10)

[9585.12068&partnerID=40&md5=d758bab104c3851aef0da22d48e2be10](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071615923&doi=10.1002%2f1348-9585.12068&partnerID=40&md5=d758bab104c3851aef0da22d48e2be10)

AFFILIATIONS: School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objectives: The objective of this study is to assess quality of nursing work life (QNWL) and related factors among nurses working in emergency room (ER). Methods: A cross-sectional descriptive design was employed. Data were collected from a convenient sample of nurses working in ER. Eligible participants were required to complete a demographic and work related variables sheet, the

Brooks Quality of Nursing Work Survey (BQNWLS). Results: A total of (186) nurses participated in the study. Study participants reported a BQNWL mean score of ($M = 140.15$, $SD = 28.34$) indicating a moderate BQNWL. Additionally, the participants scored moderate levels on all BQNWL subscales. The mean score of BQNWL was statistically better for nurses who had training courses on emergency department ($t = -2.663$, $P = 0.008$). However, no other statistically significant differences were found in BQNWL scores in regarding to demographic and work related variables. Conclusion: The results of this study reported a noticeable alteration in QNWL among nurses working in ER. The nurses had a moderate QNWL levels. Also, the results emphasized on the importance of conducting further interventional research studies in the future to establish effective measures to enhance nurse QNWL. Consequently, this may improve the provided nursing care for the patients and their families. © 2019 The Authors. Journal of Occupational Health published by John Wiley & Sons Australia, Ltd on behalf of The Japan Society for Occupational Health

Bader, R.M.I., Hamad, N.A.

A multi-agent system model for controlling traffic congestions

(2019) ICIC Express Letters, Part B: Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071276445&doi=10.24507%2fjicelb.10.09.841&partnerID=40&md5=efd5ca10c2c58a0971f398b342215965)

[85071276445&doi=10.24507%2fjicelb.10.09.841&partnerID=40&md5=efd5ca10c2c58a0971f398b342215965](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071276445&doi=10.24507%2fjicelb.10.09.841&partnerID=40&md5=efd5ca10c2c58a0971f398b342215965)

AFFILIATIONS: Faculty of Siene and Information Tehnology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Traffic congestions in urban cities occur due to the massively increasing number of automobiles, the inadequate mass transit and road systems, and other reasons that are all the results of overdevelopment. Accordingly, the necessity to solve such an issue arises. One of the suggested solutions to solve such a problem is to use traffic management systems in order to control the congestions and improve the road traffic flow. Therefore, this paper proposes the state-of-the-art of a centralized traffic agent-model control system with an algorithm that aims to improve the traffic flow. The proposed model is a multi-agent model which consists of the Controller Agent, Global Positioning System (GPS) Agent, Sensors Agent, and Traffic Light Agent. The agents will work together as one system to assist the Controller Agent to adjust the time period of the traffic lights to reduce the traffic congestion as much as possible. © ICIC International 2019.

Abdel-Fattah, F., Farhan, K.A.-F., Al-Tarawneh, F.H., Al-Naimat, A.M.

Dynamic intrusion detection technique for dynamic mobile ad hoc network

(2019) ICIC Express Letters, Part B: Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071257912&doi=10.24507%2fjicelb.10.09.813&partnerID=40&md5=bb1110d521ae2863a96c9a010c6b7db6)

[85071257912&doi=10.24507%2fjicelb.10.09.813&partnerID=40&md5=bb1110d521ae2863a96c9a010c6b7db6](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071257912&doi=10.24507%2fjicelb.10.09.813&partnerID=40&md5=bb1110d521ae2863a96c9a010c6b7db6)

AFFILIATIONS: Faculty of Siene and Information Tehnology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Faculty of Information Tehnology, The World Islami Sienes and Eduation, University Tabarbour, P.O. Box 1101, Amman, 11947, Jordan

ABSTRACT: In this paper, we present the architecture and operation of a dynamic agent-based intrusion detection technique in Mobile Ad Hoc Network (MANET). The proposed technique has cooperative agents' architecture. Traditional intrusion detection techniques have trouble dealing with dynamic environments such as collecting real-time attack related audit data and cooperative global detection. The proposed detection technique comprises a set of static and mobile agents. Autonomous agents can perform specific intrusion detection tasks which are used to collect data, detect intrusions, distribute aggregated intrusion information to all other mobile nodes in MANET in an intelligent way, and collaborate with other agents. © 2019, ICIC International. All rights reserved.

Alkhatib, E., Ojala, H., Collis, J.

Determinants of the voluntary adoption of digital reporting by small private companies to Companies House: Evidence from the UK

(2019) International Journal of Accounting Information Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069732001&doi=10.1016%2fj.accinf.2019.06.004&partnerID=40&md5=a5044a74a8f9172e1e70682b4366c704)

[85069732001&doi=10.1016%2fj.accinf.2019.06.004&partnerID=40&md5=a5044a74a8f9172e1e70682b4366c704](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069732001&doi=10.1016%2fj.accinf.2019.06.004&partnerID=40&md5=a5044a74a8f9172e1e70682b4366c704)

AFFILIATIONS: Department of Accounting, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Brunel Business School, Brunel University, Kingston Lane, Uxbridge, Middlesex, UB8 3PH, United Kingdom;

University of Tampere, School of Management, Kalevantie 4, Tampere, 33100, Finland

ABSTRACT: This study examines the factors that influence the voluntary adoption of the digital reporting of the statutory accounts and returns to the company registry (Companies House) by small private companies in the UK. We analyse survey data from 343 members of the Association of Chartered Certified Accountants working in small companies or in practices with small company clients in the UK. The data is examined using statistical methods, mainly PLS-SEM. Our results show the following

factors positively influence the voluntary adoption of digital reporting by small private companies: the relative advantage from standardisation benefits, the company's technology competence and support from top management. We also provide evidence that the complexity of the company's accounting system and technology costs inversely influence this voluntary adoption. The study contributes to the emerging literature by expanding our understanding of how the standardisation of financial information flows benefits small private companies. The results should be of interest to small companies and their accountants, regulators in the UK and other jurisdictions planning digital reporting initiatives or seeking to reduce administrative burdens on smaller entities. © 2019 Elsevier Inc.

Al-Ghabeesh, S.H., Al-Kalaldah, M., Rayan, A., Al-Rifai, A., Al-Halalqa, F.
Psychological distress and quality of life among Jordanian women diagnosed with breast cancer: The role of trait mindfulness
(2019) European Journal of Cancer Care, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065504254&doi=10.1111%2fecc.13082&partnerID=40&md5=662037d731cfd92e7d01f46bf29364fd)

[85065504254&doi=10.1111%2fecc.13082&partnerID=40&md5=662037d731cfd92e7d01f46bf29364fd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065504254&doi=10.1111%2fecc.13082&partnerID=40&md5=662037d731cfd92e7d01f46bf29364fd)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Nursing, Zarqa University, Al-Zarqa, Jordan;

King Hussein Cancer Center, Amman, Jordan;

Faculty of Nursing, Philadelphia University, Jarash, Amman, Jordan

ABSTRACT: Background: Patients diagnosed with breast cancer were reported to have high levels of psychosocial distress and poor quality of life (QOL). Mindfulness is believed to improve QOL and reduce psychological distress in various populations, but its unique association with QOL and psychological distress in women with breast cancer has yet to be established. Objectives: This study was conducted to examine the relationship of mindfulness with depression, anxiety and QOL of women diagnosed with breast cancer. Methods: A descriptive, correlation design was used. Results: A sample of 234 Jordanian women completed the study. 24% of the participants scored above the cut-off for clinical depression, 36.3% scored above the cut-off for clinical anxiety, and 35.5% scored above the cut-off for poor QOL. Mindfulness accounted for significant unique variance in depression, anxiety and QOL above and beyond the variance accounted for by the demographic variables, clinical variables and social support. Conclusion: The current study provided preliminary evidence for the relationship of social support and mindfulness with the psychological well-being and QOL among Jordanian women with breast cancer. Future research may want to tailor an intervention that combines social support and mindfulness-based interventions and identify their benefits to support Jordanian women with breast cancer. © 2019 John Wiley & Sons Ltd

Aldalahmeh, S.A., Al-Jazzar, S.O., McLernon, D., Zaidi, S.A.R., Ghogho, M.

Fusion rules for distributed detection in clustered wireless sensor networks with imperfect channels
(2019) IEEE Transactions on Signal and Information Processing over Networks, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062154775&doi=10.1109%2fTSPN.2019.2901198&partnerID=40&md5=776786dc0b0bf4d12b7bf2a98e24bc07)

[85062154775&doi=10.1109%2fTSPN.2019.2901198&partnerID=40&md5=776786dc0b0bf4d12b7bf2a98e24bc07](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062154775&doi=10.1109%2fTSPN.2019.2901198&partnerID=40&md5=776786dc0b0bf4d12b7bf2a98e24bc07)

AFFILIATIONS: Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom;

Department of Computer Science, Universit Internationale de Rabat, Rabat, 11100, Morocco

ABSTRACT: In this paper, we investigate fusion rules for distributed detection in large random clustered wireless sensor networks with a three-Tier hierarchy; the sensor nodes (SNs), the cluster heads (CHs), and the fusion center (FC). The CHs collect the SNs' local decisions and relay them to the FC, which then fuses them to reach the ultimate decision. The SN-CH and the CH-FC channels suffer from additive white Gaussian noise. In this context, we derive the optimal log-likelihood ratio (LLR) fusion rule, which turns out to be intractable. So, we develop a sub-optimal linear fusion rule (LFR) that weighs the cluster's data according to both its local detection performance and the quality of the communication channels. In order to implement it, we propose an approximate maximum likelihood based LFR (LFR-AML), which estimates the required parameters for the LFR. We also derive Gaussian-Tail upper bounds for the detection and false alarms probabilities for the LFR. Furthermore, an optimal CH transmission power allocation strategy is developed by solving the Karush-Kuhn-Tucker conditions for the related optimization problem. Extensive simulations show that the LFR attains a detection performance near to that of the optimal LLR and confirms the validity of the proposed upper bounds. Moreover, when compared to equal power allocation, simulations show that our proposed power allocation strategy achieves a significant power saving at the expense of a small reduction in the detection performance. © 2015 IEEE.

Al Khabbas, M.H., Ata, S.A., Abu-Dari, K.I., Tutunji, M.F., Mubarak, M.S.

Corrigendum to "Synthesis and characterization of new 1-hydroxy-2-pyridinethione derivatives: Their lead complexes and efficacy in the treatment of acute lead poisoning in rats" [J. Trace Elem. Med.

Biol. 44 (December 2017) 209–217](S0946672X17306508)(10.1016/j.jtemb.2017.08.004)

(2019) Journal of Trace Elements in Medicine and Biology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85044784680&doi=10.1016%2fj.jtemb.2018.01.008&partnerID=40&md5=a229259d091f2e3f7a7ed0df33c56a6e)

85044784680&doi=10.1016%2fj.jtemb.2018.01.008&partnerID=40&md5=a229259d091f2e3f7a7ed0df33c56a6e

AFFILIATIONS: Chemistry Department, Faculty of Science, University of Hail, PO Box 2440, Saudi Arabia;

Pharmacy Department, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, 130, Amman, 11733, Jordan;

Department of Chemistry, Faculty of Science, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: The authors regret that there is a mistake in one of the structures in Fig. 1. Please find below the updated figure [Figure presented] The authors would like to apologise for any inconvenience caused. © 2018 Elsevier GmbH

Hamadneh, L.A., Sabbah, D.A., Hikmat, S.J., Al-Samad, L.A., Hasan, M., Al-Qirim, T.M., Hamadneh, I.M., Al-Dujaili, A.H.

Hypolipidemic effect of novel 2,5-bis(4-hydroxybenzylidenamino)-1,3,4-thiadiazole as potential peroxisome proliferation-activated receptor- α agonist in acute hyperlipidemic rat model

(2019) Molecular and Cellular Biochemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064269716&doi=10.1007%2fs11010-019-03528-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064269716&doi=10.1007%2fs11010-019-03528-5&partnerID=40&md5=db7a459e6bf840c1c146e6221fd82616)

5&partnerID=40&md5=db7a459e6bf840c1c146e6221fd82616

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Chemistry, Faculty of Science, University of Jordan, Amman, Jordan;

Hamdi Mango Center for Scientific Research, University of Jordan, Amman, Jordan

ABSTRACT: The development of new antihyperlipidemic agents with higher potency and lower side effects is of high priority. In this study, 1,3,4 thiadiazole Schiff base derivatives were synthesized as potential peroxisome proliferation-activated receptor- α (PPAR α) agonists and characterized using elemental analysis, FTIR, ¹H-NMR, ¹³C-NMR and mass spectroscopy and then tested for their hypolipidemic activity in Triton WR-1339-induced acute hyperlipidemic rat model in comparison with bezafibrate. The compounds showed significant hypolipidemic activity. Induced fit docking showed that the compounds are potential activators of PPAR α with binding scores - 8.00 Kcal/mol for 2,5-bis(4-hydroxybenzylidenamino)-1,3,4-thiadiazole. PCR array analysis showed an increase in the expression of several genes involved in lipid metabolism through mitochondrial fatty acid β oxidation and are part of PPAR α signaling pathway including Acsm3, Fabp4 and Hmgcs1. Gene expression of Lrp12 and Lrp1b involved in LDL uptake by liver cells and Cyp7a1 involved in cholesterol catabolism were also found to be upregulated. © 2019, Springer Science+Business Media, LLC, part of Springer Nature.

Khdair, A.I., Abu-Rumman, G., Khdair, S.I.

Pollution estimation from olive mills wastewater in Jordan

(2019) Heliyon, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071466854&doi=10.1016%2fj.heliyon.2019.e02386&partnerID=40&md5=89b3f1d0422616f2efd308d2c251113d)

85071466854&doi=10.1016%2fj.heliyon.2019.e02386&partnerID=40&md5=89b3f1d0422616f2efd308d2c251113d

AFFILIATIONS: Jordan University of Science and Technology (JUST), P.O.Box: 3030, Irbid, 22110, Jordan;

King Abdulaziz University, College of Engineering, P.O.Box: 80204, Jeddah, 21589, Saudi Arabia;

Department of Civil Engineering, Isra University, Amman, 11622, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Olive mill wastewaters (OMWWs) are a significant source of environmental pollution, especially in important olive oil producing countries such as Spain, Greece, Syria, Jordan and other countries in the Mediterranean. Due to cost issue no treatments plants are currently available at the mills; therefore, OMWW is normally discharged into the environment causing serious environmental problems such as: coloring and pollution of surface and ground waters, soil surface, and foul odors problems. Approximately 209,000 tons of olives have been processed in Jordan in 2017, which generated 175,000 m³ of OMWWs. They generated roughly 3,069 tons of BOD₅, 7,956 tons of COD, 149 tons of residual olive oil, 2.07 tons of phenols, 3,753 ton total suspended solids and 4.2 ton of phosphorous. The OMWW is rich in organic matter expressed as BOD₅ and COD with COD/BOD₅ of 2.6 indicated that OMWWs is not suitable for biological treatment and therefore must be treated before discharge to the environment or sewer system. Cleaner production options and proper environmental waste management systems at the mills are needed to reduce their environmental impact. This may include the adoption of the two-phase mills to reduce water use to less than half the quantities used in traditional and three phases mills. © 2019 The Author(s)

Mahmoud, N.N., Al-Kharabsheh, L.M., Khalil, E.A., Abu-Dahab, R.

Interaction of gold nanorods with human dermal fibroblasts: Cytotoxicity, cellular uptake, and wound healing

(2019) Nanomaterials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071190234&doi=10.3390%2fnano9081131&partnerID=40&md5=ded3e284ca0cd5d4dd5a1978e00e4936)

85071190234&doi=10.3390%2fnano9081131&partnerID=40&md5=ded3e284ca0cd5d4dd5a1978e00e4936

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Herein, the cytotoxicity, cellular uptake and wound healing of human dermal fibroblasts were investigated upon treatment with gold nanorods (GNR) decorated with different ligands. Neutral and cationic poly ethylene glycol (PEG)-decorated GNR demonstrated the least cytotoxicity and cellular internalization, while anionic-and bovine serum albumin (BSA)-coated GNR revealed significant cytotoxicity and cellular uptake into human dermal fibroblasts. The cell scratch test demonstrated that neutral, cationic PEGylated GNR and anionic-decorated GNR have accelerated the wound healing rate in vitro after 24 h of incubation with scratched human dermal fibroblasts compared to control, while there was a drastic retardation of wound healing rate of scratched fibroblasts upon exposure to BSA-GNR accompanied with a significant release of the inflammatory cytokine; interleukin-1 β (IL-1 β). The cytotoxicity of GNR against the dermal cells and their ability to enhance the wound healing in vitro are greatly linked to their surface modifications. © 2019 by the authors. Licensee MDPI, Basel, Switzerland.

Al Rawajbeh, M.

Performance evaluation of a computer network in a cloud computing environment

(2019) ICIC Express Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069543926&doi=10.24507%2fificel.13.08.719&partnerID=40&md5=90d86926bcbe5307e0a8f4b2c4818fae)

85069543926&doi=10.24507%2fificel.13.08.719&partnerID=40&md5=90d86926bcbe5307e0a8f4b2c4818fae

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The cloud service platforms number has increased and this resulted in an increased number of its providers. This emphasizes the investigation of the factors which influence its services and overall performance. Therefore, this study explores the performance evaluation of the cloud services which are critical provisioning quality services and distribution of the workload. A performance evaluation method has been designed to assess the cloud computing services used for the computer network. The performance of 1.76 GFLOPS was achieved through the cluster with one node to advertise the peak performance as depicted by Amazon (66%). A total of 52.4 GFLOPS or 39.87% has been obtained for 16 instances from the 85% efficiency and the theoretical peak. The experiment performed in this study showed that the reliability and performance of the investigated clouds are beneath the expectations. Therefore, this cloud is inadequate and inefficient for scientific computation comprehensively, although it shows a dire adaptation based on temporarily and immediate resources. © 2019, ICIC International. All rights reserved.

El-khateeb, M., Abul-Futouh, H., Görls, H., Weigand, W.

Towards the synthesis of piano-stool iron complexes mediated by S-alkyl selenothiocarbonato ligands and their substitution reactions

(2019) Monatshefte für Chemie, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069430541&doi=10.1007%2fs00706-019-02470-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069430541&doi=10.1007%2fs00706-019-02470-y&partnerID=40&md5=ccd922d24fbb1034d985c3692323c23e)

y&partnerID=40&md5=ccd922d24fbb1034d985c3692323c23e

AFFILIATIONS: Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P. O. Box 130, Amman, 11733, Jordan; Institut für Anorganische Und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany

ABSTRACT: Abstract: The S-alkyl selenothiocarbonato iron complexes of the general formula CpFe(CO)₂SeC(O)SR (R = Et, n-Pr, i-Pr) are made by the reactions of (μ -Se)[FeCp(CO)₂]₂ and S-alkyl chlorothioformates RSC(O)Cl. The CO-substitution reactions of CpFe(CO)₂SeC(O)SEt with triphenylphosphine, triphenylarsine, or triphenylantimony (EPH₃) gave the monosubstituted complexes CpFe(CO)(EPH₃)SeC(O)SEt (E = P, As, Sb) in high yields. All the S-alkyl selenothiocarbonato iron complexes have been characterized by IR, MS, ¹H, ⁷⁷Se, ³¹P, ¹³C NMR spectroscopy, and elemental analysis. The solid-state structures of CpFe(CO)₂SeC(O)SiPr and CpFe(CO)(PPh₃)SeC(O)SEt, were determined by X-ray crystal structure analysis. The cyclic voltammetry of the same two complexes was also investigated. Graphic abstract: [Figure not available: see fulltext.]. © 2019, Springer-Verlag GmbH Austria, part of Springer Nature.

Mizher, M.A., Sulaiman, R., Abdalla, A.M., Mizher, M.A.

An improved simple flexible cryptosystem for 3D objects with texture maps and 2D images

(2019) Journal of Information Security and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067632779&doi=10.1016%2fj.jisa.2019.06.005&partnerID=40&md5=8fd11a7e31721e5871d92ee7e52bf540)

85067632779&doi=10.1016%2fj.jisa.2019.06.005&partnerID=40&md5=8fd11a7e31721e5871d92ee7e52bf540

AFFILIATIONS: Institute of Visual Informatics, Universiti Kebangsaan Malaysia, Bangi, Malaysia;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: With the continued evolution of three dimensional (3D) object presentation and usage, the security of such objects has become an increasingly desirable research area. Previous efforts mostly concentrated on the encryption of point clouds, solid models, meshes, and 3D textured models. The (texture map) part of meshed 3D objects was overlooked by previous encryption techniques of 3D meshed objects in spite of its importance because they require preprocessing to be extracted. Therefore, this paper provides a system for the full encryption of 3D textured objects with their texture maps. It provides an improved system based on an existing flexible cryptosystem named Flexible cryptosystem based on Cellular Automata (FcCA). The FcCA system has two drawbacks. One drawback is shuffling plain data without changing their values, which yields the same histogram and nonstandard encryption ratios. The other drawback is the need for many generations to make the keyspace very large, which is unsuitable for the large size of textured object data. This work overcomes these drawbacks of FcCA and fully encrypts 3D textured objects with their texture maps. The improvements to FcCA include making intersect start points change with every generation and encrypting the values of plain data while shuffling them using cellular automata. At first, the plain 3D object is extracted to vertices, faces, and texture, in addition to its texture map. After that, extracted data are encrypted using the proposed improved FcCA (iFcCA) cryptosystem. Implementation and analysis of this new system showed its preponderance as it can encrypt and decrypt 3D textured objects better than FcCA and other existing methods. Moreover, it reduces the need for many generations of cellular automata, and consequently, reduces execution time. In addition, iFcCA has a very robust key, and it can resist different types of attacks. © 2019 Elsevier Ltd

Sunoqrot, S., Abujamous, L.

pH-sensitive polymeric nanoparticles of quercetin as a potential colon cancer-targeted nanomedicine (2019) Journal of Drug Delivery Science and Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066120973&doi=10.1016%2fj.jddst.2019.05.035&partnerID=40&md5=cdd7e8cd7a778cd3fffc7f45b23c5bcbf)

[85066120973&doi=10.1016%2fj.jddst.2019.05.035&partnerID=40&md5=cdd7e8cd7a778cd3fffc7f45b23c5bcbf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066120973&doi=10.1016%2fj.jddst.2019.05.035&partnerID=40&md5=cdd7e8cd7a778cd3fffc7f45b23c5bcbf)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Quercetin (QCT) is an abundant plant polyphenol with demonstrated efficacy in several diseases including colon cancer. Herein we have developed polymeric nanoparticles (NPs) of QCT based on the pH-sensitive polymer Eudragit® S100 to achieve colon pH-specific drug release following oral administration. NPs were prepared by the nanoprecipitation technique and showed a mean diameter of 66.8 nm and a partially negative surface charge of -5.2 mV. NPs contained on average 2.2% w/w QCT at an encapsulation efficiency of 41.8%. IR spectroscopy and differential scanning calorimetry (DSC) both revealed the presence of intermolecular interactions, most likely H-bonding, between QCT and Eudragit® S100, which likely contributed to drug loading. DSC also indicated that the drug was present in the NPs in an amorphous state, which was further confirmed by X-ray diffraction. In vitro release testing showed a delay in drug release in acidic pH, but complete release within 24 h at pH 7.2. A cytotoxicity assay was performed on CT26 murine colon carcinoma cells, where QCT-loaded NPs displayed significantly higher potency (IC50 = 0.8 µM) than free QCT (IC50 = 65.1 µM). Our findings present a promising nanomedicine for colon-targeted delivery of QCT in diseases such as colon cancer. © 2019 Elsevier B.V.

Awadallah, M.A., Al-Betar, M.A., Bolaji, A.L., Alsukhni, E.M., Al-Zoubi, H.

Natural selection methods for artificial bee colony with new versions of onlooker bee (2019) Soft Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85048585397&doi=10.1007%2fs00500-018-3299-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85048585397&doi=10.1007%2fs00500-018-3299-2&partnerID=40&md5=7014dfce39965fb2854e1697a19855d2)

AFFILIATIONS: Department of Computer Science, Al-Aqsa University, P. O. Box 4051, Gaza, Palestine; Department of Information Technology, Al-Huson University College, Al-Balqa Applied University, P.O. Box 50, Al-Huson, Irbid, Jordan;

Department of Computer Science, Federal University Wukari, Wukari, Taraba State, Nigeria;

Computer Science Department, Yarmouk University, Irbid, Jordan;

Department of mathematics, Faculty of Science and Information Technology, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: Artificial bee colony (ABC) algorithm is one of the most recent swarm intelligence-based algorithms simulate the foraging behavior of honey bees in their hive. ABC starts with a colony of artificial bees with sole aim of discovering the place of food sources with high nectar amount using the solution search equation in the employed bee and onlooker bee operators. However, the solution search equation is good in exploration and poor in exploitation. In this paper, the solution search equation of the onlooker bee is modified by using a value of the fittest food sources selected by a set of selection schemes inspired from the evolutionary algorithms. This is to guide the search process of onlooker bee toward the fittest food sources from the population in order to empower the

exploitation capability and convergence. Four selection schemes are incorporated with the ABC algorithm to choose the fittest food sources in four versions as follows: global-best, tournament, linear rank, and exponential rank. For evaluation purposes, 10 classical benchmark optimization functions are used to study the sensitivity analysis of each ABC algorithm to its parameters. The performance of the proposed ABC versions is compared with the original ABC version in order to study the effectiveness of the modifications. In addition, a comparative evaluation of ABC algorithms is carried out against the state-of-the-art methods that worked on CEC2005 benchmark functions, CEC2015 benchmark functions, and two real-world cases of economic load dispatch problem. The experimental results show that the selection schemes incorporated within the search equation of the onlooker bee directly affects the performance of ABC algorithm. © 2018, Springer-Verlag GmbH Germany, part of Springer Nature.

Al Omoush, K.S.

Harnessing mobile-social networking to participate in crises management in war-torn societies: The case of Syria

(2019) Telematics and Informatics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85037557858&doi=10.1016%2fj.tele.2017.12.002&partnerID=40&md5=02a0398440e0fa04a29d45dc1ae8db57)

85037557858&doi=10.1016%2fj.tele.2017.12.002&partnerID=40&md5=02a0398440e0fa04a29d45dc1ae8db57

AFFILIATIONS: Al Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The convergence of social networks and mobile computing has generated new horizons to explore and use the capabilities of mobile social networking in humanitarian crises. Whereas there is extensive and evolving interest in mobile social networking in cohesive societies that have stable normal living conditions, comparatively little research exists on harnessing mobile social networking to foster participation in crisis management. Far less attention has been focused on investigating the motivations and determinants to continue the use of mobile social networking in humanitarian crises that have arisen out of civil wars. Therefore, using the Syrian crisis as a case study, the purpose of this study is to investigate the motivations and determinants to continue the use of mobile social networking to participate in crisis management in civil war-torn societies. An online questionnaire was used to collect data from Syrians who have remained in Syria. Smart PLS was used to analyze the data. The results indicated that mobile social networking plays a significant role in the fulfillment of basic humanitarian needs, including survival, safety, a sense of community, freedom of speech and expression, pressures for peace, cognitive motivations and self-actualization. In addition, the results indicated that users of mobile social networking encounter a wide range of risks on the individual and societal levels, including direct personal threats, the penetration of terrorism ideology, the incitement of violence, and the advocacy of hatred. The present study sheds light on the critical role of mobile social networking in providing an opportunity for the participation of society's members in the crisis management. It also investigates the impact of trust and perceived risks on the continued usage of mobile social networking in war-torn societies. © 2017 Elsevier Ltd

Rawashdeh, A.S., Al-Assaf, A.H.

Impact of Factors Causing Internal Conflict on the Effectiveness of Managing and Handling Conflict in the Jordanian Banks

(2019) Review of Applied Socio-Economic Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85150703188&partnerID=40&md5=2c424fe454320e0fe8e75aecf8a71564)

85150703188&partnerID=40&md5=2c424fe454320e0fe8e75aecf8a71564

AFFILIATIONS: Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The purpose of this paper is to investigate whether the factors causing internal conflict affect the effectiveness of the methods used in handling these conflicts. The main instruments of research used in this study were the survey questionnaire. Data gathered from the (192) respondents were statistically treated and analyzed using arithmetic weighted mean, it was interpreted based on the Likert scale, in testing the hypotheses multiple regression was used. The results showed that the following causes of conflict, task interdependencies, different goals of subunits, bureaucratic factors, communication problems, competition for scarce resources, differences in the performance standards, and differentiation were noted to be linked to the effectiveness of the conflict handling methods. Management, departments, units, division's heads, and team leaders of the Jordanian commercial banks favor resolving conflicts. It was found that, regardless of what causes conflicts, they were able to contain and resolve conflicts, using all different styles and modes of conflict handling methods. The result of the multiple regression test revealed that there was a significant positive effect of the factors causing conflict on all different styles and techniques, used in handling conflicts. It was concluded that avoidance style, would not resolve the conflict, and it might negatively affect the behavior of individuals, so it should be averted. Using the collaborating mode would encourage positive interactions among members of the organization, resulting in a more cooperative working environment. The compromising method should be used in a way that will satisfy

all conflicting parties, to ensure that, the focus would be on achieving goals of the entire organization. © 2019, Pro Global Science Association. All rights reserved.

Najm, N.A., Alhmeidiyeen, M.S.

Managerial Innovation: An Attempt to Interpretation and Evaluation

(2019) Review of Applied Socio-Economic Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85147447089&partnerID=40&md5=4498527cc2c5b228ab26ceaa1d3c1a28

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study is to explore the relationship between technological innovation and managerial innovation. The great emphasis has been on technological innovation, with neglect of managerial innovation, which has had major contributions to improving technology management and increasing the availability of companies through the three main forms of managerial innovation: general managerial Innovation, the innovation of managerial concepts and Re-innovation of the company. In the post-industrial age, innovation has reached its peak in the creation of the Internet and its integrated technologies and applications. Management innovation has reached its peak in the innovation of knowledge management and the productivity of knowledge work. © 2019, Pro Global Science Association. All rights reserved.

Al-Fawaeer, M., Ridha, M.B., Yousi, A.S.H.

An investigation into the Relationship between Business Processes Re-engineering (BPR) and Employees' Performance: An empirical study at the Jordanian public shareholding companies

(2019) Review of Applied Socio-Economic Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85089984484&partnerID=40&md5=f8e86649dce5e3c97870be55616d3891

AFFILIATIONS: Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study is aiming at exploring and analyzing the relationship between the three dimensions of Business Re-engineering Processes (Organization's Structural, Procedural and Technological) (BPR) and the three aspects of employees' performance (knowledge, skill, and attitude). The main results of this study have revealed that there is a positive, strong, and significant relationship between the BPR dimensions and employee performance. It also indicates that there is a statistically significant effect of the BPR dimensions on the employee's performance. © 2019, Pro Global Science Association. All rights reserved.

Al-Bakri, A.G., Mahmoud, N.N.

Photothermal-induced antibacterial activity of gold nanorods loaded into polymeric hydrogel against pseudomonas aeruginosa biofilm

(2019) Molecules, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85069680112&doi=10.3390%2fmolecules24142661&partnerID=40&md5=d98b4470195f04fa1e0fab1467d59cbc

AFFILIATIONS: School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: In this study, the photothermal-induced bactericidal activity of phospholipid-decorated gold nanorods (DSPE-AuNR) suspension against Pseudomonas aeruginosa planktonic and biofilm cultures was investigated. We found that the treatment of planktonic culture of Pseudomonas aeruginosa with DSPE-AuNR suspension (0.25-0.03 nM) followed by a continuous laser beam exposure resulted in ~6 log cycle reduction of the bacterial viable count in comparison to the control. The percentage reduction of Pseudomonas aeruginosa biofilm viable count was ~2.5-6.0 log cycle upon laser excitation with different concentrations of DSPE-AuNR as compared to the control. The photothermal ablation activity of DSPE-AuNR (0.125 nM) loaded into poloxamer 407 hydrogel against Pseudomonas aeruginosa biofilm resulted in ~4.5-5 log cycle reduction in the biofilm viable count compared to the control. Moreover, transmission electron microscope (TEM) images of the photothermally-treated bacteria revealed a significant change in the bacterial shape and lysis of the bacterial cell membrane in comparison to the untreated bacteria. Furthermore, the results revealed that continuous and pulse laser beam modes effected a comparable photothermal-induced bactericidal activity. Therefore, it can be concluded that phospholipid-coated gold nanorods present a promising nanoplatfrom to eradicate Pseudomonas aeruginosa biofilm responsible for common skin diseases. © 2019 by the authors.

Abu Sharour, L.

A cross-sectional study on oncology nurses' knowledge and practice of oral mucositis among cancer patients in Jordan

(2019) International Journal of Nursing Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85067692850&doi=10.1016%2fj.ijnss.2019.05.005&partnerID=40&md5=2b8dc81ca9a64afe2febe2d322a1013c

AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan, Jordan

ABSTRACT: Objectives: This study was conducted to evaluate oncology nurses' knowledge and compliance with oral mucositis (OM) management guidelines. Methods: A cross-sectional design with a nonparticipant observation approach was utilized. In phase I, a cross-sectional convenience sample (n = 140) of oncology nurses completed the knowledge test. In phase II, a random sample (n = 20) of oncology nurses from participants in phase I was observed during their practice. Results: Fifty-seven (40.7%) of the participants had an unsatisfactory level of knowledge. Most of them had knowledge deficits regarding pathology, OM definition, assessment, scoring, treatment, and patient education and advice. A significant difference existed among nurses with diploma, bachelor, and postgraduate degrees as determined by one-way ANOVA (P = 0.001). There were no significant difference between average scores of male and female nurses were higher than those of nurses (P = 0.45). No significant difference was observed among knowledge scores of nurses with different job titles (P = 0.51). The average score of male nurses in terms of skill performance was higher than that of female nurses (29.20 ± 2.10 vs 27.10 ± 1.80) without statistical significance. Conclusion: The knowledge and compliance with OM management guidelines among Jordanian oncology nurses need to be improved. National OM prevention and management guidelines are adopted in Jordan. Continuing education and training are also recommended. © 2019 Chinese Nursing Association

Aburjai, T., Yousif, R.O., Alsamydai, M.J., Al-Samydai, A., Al-Mamoori, F., Azzam, H.
Protein supplements between consumer's opinion and quality control: An applied study in Jordan
(2019) International Journal of Research in Pharmaceutical Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070645594&doi=10.26452/2fijrps.v10i3.1402&partnerID=40&md5=cab04ef2eea6160dcefd13418c7f0482)

[85070645594&doi=10.26452/2fijrps.v10i3.1402&partnerID=40&md5=cab04ef2eea6160dcefd13418c7f0482](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070645594&doi=10.26452/2fijrps.v10i3.1402&partnerID=40&md5=cab04ef2eea6160dcefd13418c7f0482)

AFFILIATIONS: Department of Pharmaceutical Sciences, Faculty of Pharmacy, University of Jordan, Amman, Jordan;

Department of Marketing, Faculty of Economics and Administrative Sciences, Zarqa University, Jordan;

Department of Marketing, Faculty of Business, AL-Zaytoonah University, Jordan;

Hamdi Mango Center for Scientific Research, University of Jordan, Amman, Jordan

ABSTRACT: The consumption of dietary supplements has nowadays become popular, especially in Jordanian sports clubs and gyms. In fact, there is a widespread idea, among consumers, that these proteins contain hormones in order to increase their efficiency. The objective of this study is to develop a better understanding of customer opinion in an era that increased growth in Jordan and improves a chromatographic method to detect the testosterone in protein supplements. The method of this study, six popular types of proteins in the Jordan market have been chosen after conducting a primary study of the pro-teins' users by questionnaires to identify their opinions about these proteins. These proteins have been analyzed by reverse-phase high-performance liquid chromatography by developing an easy and fast method to detect testosterone signal between 8-9 minutes of the chromatogram. The results of the study showed that 61% of the users believe that sport proteins contain hormones and other substances that are not mentioned in the list of ingredients. While 39% believe otherwise. On the other side, HPLC results of six proteins showed no signs for testosterone hormone. The main reason that drives them to take sport proteins is for building muscles in spite of they believe it could be harmful due to containing hormones and other substances. So in future investigations, it might be possible to use different brands and investigate them by using the same method. © International Journal of Research in Pharmaceutical Sciences.

Al-Ghabeesh, S.H., Qattom, H.

Retraction Note to: Workplace bullying and its preventive measures and productivity among emergency department nurses (Israel Journal of Health Policy Research (2019) 8 (44) DOI: 10.1186/s13584-019-0314-8)

(2019) Israel Journal of Health Policy Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068569640&doi=10.1186%2fs13584-019-0330-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068569640&doi=10.1186%2fs13584-019-0330-8&partnerID=40&md5=3d1bc6615b99fe10113f2de78aab9907)

[8&partnerID=40&md5=3d1bc6615b99fe10113f2de78aab9907](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068569640&doi=10.1186%2fs13584-019-0330-8&partnerID=40&md5=3d1bc6615b99fe10113f2de78aab9907)
AFFILIATIONS: Faculty of Nursing, Head of the Clinical Nursing Department, AL-Zaytoonah University of Jordan, Airport Street, Amman, Jordan

ABSTRACT: The Publisher has retracted this article [1] because it was published in this journal in error. This article is republished in BMC Health Services Research [2]. © 2019 The Author(s).

Narasimman, P., Dutta, H., Jebril, I.H.

Stability of mixed type functional equation in normed spaces using fuzzy concept

(2019) International Journal of General Systems, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063221774&doi=10.1080%2f03081079.2019.1586683&partnerID=40&md5=5762bb4dd4fdd9d7bd460b793b777309)

[85063221774&doi=10.1080%2f03081079.2019.1586683&partnerID=40&md5=5762bb4dd4fdd9d7bd460b793b777309](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063221774&doi=10.1080%2f03081079.2019.1586683&partnerID=40&md5=5762bb4dd4fdd9d7bd460b793b777309)

AFFILIATIONS: Department of Mathematics, Thiruvalluvar University College of Arts and Science, Tirupattur, India;

Department of Mathematics, Gauhati University, Guwahati, India;

Department of Mathematics, Taibah University, Almunawwarah, Saudi Arabia;
Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: S. M. Ulam once addressed the problem 'when is it true that a mathematical object satisfying a certain property approximately must be close to an object satisfying the property exactly?'. This problem was solved by D. H. Hyers in 1941 using the functional equation and thereafter numerous research papers and monographs have been published for various types of functional equations in different spaces. The solution proposed by D. H. Hyers (1941) later developed into the famous generalized Hyers-Ulam-Rassias stability of functional equations. In this paper, we intend to attain the general solution to a new mixed type functional equation and interrogate the generalized Hyers-Ulam-Rassias stability in fuzzy normed spaces. Also, we seek to provide its application for generating secret keys in client-server environment. © 2019, © 2019 Informa UK Limited, trading as Taylor & Francis Group.

Al-Ghabeesh, S.H., Qattom, H.

Workplace bullying and its preventive measures and productivity among emergency department nurses (2019) BMC Health Services Research, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068573727&doi=10.1186%2fs12913-019-4268-x&partnerID=40&md5=7a8b5f648f856bc0553d8c28c20e0117>

AFFILIATIONS: Faculty of Nursing, Clinical Nursing Department, Al-Zaytoonah University of Jordan, Airport Street, Amman, Jordan

ABSTRACT: Background: Workplace bullying has adverse effects on nurses' productivity and emotional well-being and increases nurses' desire to leave their jobs. Bullying is a common phenomenon that has been reported worldwide. Emergency Department (ED) nurses are particularly exposed to bullying as a result of their job stressors and demands. Purposes: To examine the prevalence of bullying and the impact of preventive measures on productivity among Jordanian ED nurses; and to examine bullying in relation to personal and organizational factors. Methods: We surveyed ED nurses in five hospitals in Amman, Jordan - two government hospitals and three private hospitals. The eligibility criteria for the study, met by 134 persons, were having at least an associate degree and having worked in the ED for at least six months. We used a four-part questionnaire that included demographic data, the Negative Acts Questionnaire, questions on prevention of bullying, and a health and productivity survey. Data analysis included descriptive and inferential statistics. Results: A total of 120 ED nurses joined the study, an 89.6% response rate. The majority of participants were male (65%) and their mean age was 29.4 years. Ninety percent of the participants reported being bullied. Nurses with less experience in the ED were exposed to more bullying compared to other nurses. Of nurses who reported being bullied, 61.7% reported associated decreased productivity, including the ability to respond to cognitive demands, provide support, appropriate communication, safe care, and competent care. The overall mean score for the prevention of bullying questionnaire was 94.51 out of 168 (SD = 23.43). Drilling down, the highest mean score was for the "Individual sub-scale", and the highest item mean score was for "I know the process of how to report bullying". Conclusion: Bullying is prevalent among ED nurses in Jordan; it has significantly influenced the nurses' perception of their productivity and the quality of care they provide. Although nurses reported adopting measures to prevent bullying, they were insufficient to address this widespread problem. Implications for nursing and health policy: Bullying is a common occurrence in nursing practice in Jordan, as in other places. It has a detrimental effect on the quality of health care. Accordingly, interventions, which we describe, should be undertaken to minimize the incidence and impact of bullying. © 2019 The Author(s).

Althunibat, A., Zahrawi, A.A., Tamimi, A.A., Altarawneh, F.H.

Measuring the Acceptance of Using Enterprise Resource Planning (ERP) System in Private Jordanian Universities Using TAM Model

(2019) International Journal of Information and Education Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073289963&doi=10.18178%2fijiet.2019.9.7.1254&partnerID=40&md5=88e27cbff57e2ae2fa2ff7428d349603)

[85073289963&doi=10.18178%2fijiet.2019.9.7.1254&partnerID=40&md5=88e27cbff57e2ae2fa2ff7428d349603](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073289963&doi=10.18178%2fijiet.2019.9.7.1254&partnerID=40&md5=88e27cbff57e2ae2fa2ff7428d349603)

AFFILIATIONS: Software Engineering Department, Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan;

Management Information System Department, Faculty of Information Technology and Computer Science, Yarmouk University, Irbid, Jordan

ABSTRACT: Enterprise resource planning (ERP) systems play very significant role in automated business processes. However, Private Jordanian universities should think more about implementing ERP systems to manage their processes and produce high quality output. Certainly, many research on ERP adoption have revealed that the organizations often faced many barriers and the failure rate is very high. In addition, different research projects conclude that, oftentimes, universities do not gain the expected benefits from adoption the ERP system. The universities in Jordan should understand the factors that affect the acceptance of ERP in order to gain the expect benefits of ERP. Hence, it is significant to determine the factors affect the acceptance of ERP in Jordanian Universities. The main

objective of this research is to determine the factors that affect the acceptance of using ERP by Jordanian universities. © 2019 International Journal of Information and Education Technology. All rights reserved.

Hamadah, S.

Cloud-based disaster recovery and planning models: An overview

(2019) ICIC Express Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070361380&doi=10.24507%2f13.07.593&partnerID=40&md5=4f3be8658cda5c2f1b6a3eb65fd2fb4b)

[85070361380&doi=10.24507%2f13.07.593&partnerID=40&md5=4f3be8658cda5c2f1b6a3eb65fd2fb4b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070361380&doi=10.24507%2f13.07.593&partnerID=40&md5=4f3be8658cda5c2f1b6a3eb65fd2fb4b)

AFFILIATIONS: Computer Information System Department, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: Disaster recovery of information technology is a hot area of security for protecting data against unsatisfactory events, which involves a set of procedures for system continuation. Disaster recovery is a subset of business continuity, while the disaster recovery planning is a subset of business continuity planning. There are many policies for disaster recovery. This paper begins with an illustrative study of some models for disaster recovery. Then, it gives a discussion of some cloud-based disaster recovery strategies and compares them with the traditional disaster recovery. The results show that the cloud-based disaster recovery achieved better results than traditional disaster recovery. Also, the paper highlights importance of disaster recovery planning. © 2019, ICIC International. All rights reserved.

Al-Doaiss, A.A., Jarrar, Y.B.

Investigation of in vivo protective effect of orally administered vitamin e and selenium against gentamicin-induced renal and hepatic toxicity

(2019) Tropical Journal of Pharmaceutical Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070199457&doi=10.4314%2ftjpr.v18i7.10&partnerID=40&md5=6b55d99279dc9a35a20cbbcdf369c666)

[85070199457&doi=10.4314%2ftjpr.v18i7.10&partnerID=40&md5=6b55d99279dc9a35a20cbbcdf369c666](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070199457&doi=10.4314%2ftjpr.v18i7.10&partnerID=40&md5=6b55d99279dc9a35a20cbbcdf369c666)

AFFILIATIONS: Department of Biology, College of Science, King Khalid University, Abha, Saudi Arabia; Anatomy and Histology Department, Faculty of Medicine, Sana'a University, Sana'a, Yemen;

Department of Pharmacy, College of Pharmacy, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: To investigate the protective effect of vitamin E (Vit E) and selenium (Se) combination against gentamycin (GM)-induced renal and hepatic toxicity in rats. Methods: Forty-eight male Wistar albino rats were administrated GM at a dose of 80 mg/kg/day, with or without Se (1.5 mg/kg/day), and/or Vit E (250 mg/kg/day) for a period of 4 weeks. Serum samples from each rat were subjected to biochemical analysis for kidney and liver functions, while kidney and liver biopsies were also investigated by histological examination. Results: GM significantly increased serum creatinine, urea, alanine aminotransferase (ALT), aspartate aminotransferase (AST) and free radicals ($p < 0.05$). Moreover, GM induced significant histological and ultrastructural alterations in the renal and hepatic tissues of the rats. Exposure to a combination of Vit E and Se did not attenuate the GM-induced toxicity in renal and hepatic tissues. Conclusion: These results suggest that Vit E and Se combination have no significant protective role against GM-induced hepatic and renal toxicity. © 2019 The authors.

Hamici, Z.

Fast beamforming with fault tolerance in massive phased arrays using intelligent learning control

(2019) IEEE Transactions on Antennas and Propagation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068857500&doi=10.1109%2fTAP.2019.2905723&partnerID=40&md5=5439abd604f36dda26e6d4b022e392e3)

[85068857500&doi=10.1109%2fTAP.2019.2905723&partnerID=40&md5=5439abd604f36dda26e6d4b022e392e3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068857500&doi=10.1109%2fTAP.2019.2905723&partnerID=40&md5=5439abd604f36dda26e6d4b022e392e3)

AFFILIATIONS: Department of Electrical Engineering, Faculty of Engineering and Technology, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: This paper presents a novel algorithm called the recursive intelligent optimizer (RIO) applied to a digital phase control in dynamically reconfigurable phased arrays with applications mainly in radar systems and communication antennas. The RIO belongs to the class of iterative learning control algorithms and operates in deterministic, stochastic, and population initialization modes which are valuable in fast dynamic array reconfiguration. The array factor of a centrosymmetric array is modeled by a linear transformation and mainly optimized for the sidelobe level (SLL), beam steering, and interference suppression. The RIO dynamic reconfiguration is achieved in less than 1.2 s for an array of 100 elements where initial phases are optimized with recursive learning adding up to 5.7 and 8.5 dB to the SLL of 100 and 200 elements arrays, respectively. Failed phase shifters are turned off and the array synthesis is reoptimized for new digital phases with a minimal performance loss. Indeed, the failure of 10% of elements producing a heavy loss of 5.9 dB is fully compensated to a minor loss of 0.3 dB in 441 ms. © 1963-2012 IEEE.

Quiam, F., Nabulsi, M., Alqatawneh, S.

Verifying the validity of implications that involve quantifiers using the simplification and logical

inference methods

(2019) ICIC Express Letters, Part B: Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068840428&doi=10.24507%2fificelb.10.07.571&partnerID=40&md5=1be9b68c876b24b173bcd7deb0fdd8ba)

85068840428&doi=10.24507%2fificelb.10.07.571&partnerID=40&md5=1be9b68c876b24b173bcd7deb0fdd8ba

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Airport Road, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: A computer scientist aims to develop an algorithm that if followed will solve the related problem. Algorithms are finite processes that contain a step by step list of instructions in solving a problem. In the same context, discrete mathematics is the background behind many computer operations, and it is concerned with structures which take on a discrete value often infinite. Besides, it analyzes data whose values are separated (such as integers) and provide the needed understanding of important topics such as logical inferences and mathematical proof. Moreover, it shows that algorithms always produce the correct results. This paper proposes a new approach to prove the validity of implications involving quantifiers and logical operators. The new approach is based on simplification and logical inference methods which are used for the first time in solving such problems. Therefore, the proposed methods were used to verify the validity of different implications. The results for all previously known to be valid formulas using the simplification method were valid. And when using the logical inference method, the conclusions were true in all cases; accordingly, the arguments were valid. © 2019, ICIC International. All rights reserved.

Al-Qerem, W.A., Hammad, A.M., AlQirem, R.A., Ling, J.

Do the global lung function initiative reference equations reflect a sample of adult Middle Eastern population?

(2019) Clinical Respiratory Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064662582&doi=10.1111%2fcrj.13027&partnerID=40&md5=7112ab89de98f96648f59ed3b1eeba33)

85064662582&doi=10.1111%2fcrj.13027&partnerID=40&md5=7112ab89de98f96648f59ed3b1eeba33

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Sunderland, United Kingdom

ABSTRACT: Introduction: The global lung function initiative (GLI) 2012 introduced new multi-ethnic spirometry reference values for numerous ethnicities. Objectives: The aim of this study was to investigate the suitability of the GLI reference values for the adult Jordanian population. Methods: About 1875 (1029 females and 846 males) healthy non-smoking adults were enrolled from several locations in Jordan. Spirometry tests were performed. z-scores and predicted normal values were calculated for each participant using GLI 2012 equations in addition to other local equations from the Middle East. Results: Our results indicated that none of the GLI 2012 or other regional equations studied produced an acceptable fit to our data. Conclusion: A need to formulate a specific equation for the Jordanian population is urgently required to better evaluate their respiratory conditions. © 2019 John Wiley & Sons Ltd

Al-Kalaldeh, M., Suleiman, K., Abu-Shahroor, L., Al-Mawajdah, H.

The impact of introducing the Modified Early Warning Score 'MEWS' on emergency nurses' perceived role and self-efficacy: A quasi-experimental study

(2019) International Emergency Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064273887&doi=10.1016%2fj.ienj.2019.03.005&partnerID=40&md5=5bfa6e32bd543f747a55c513156e2754)

85064273887&doi=10.1016%2fj.ienj.2019.03.005&partnerID=40&md5=5bfa6e32bd543f747a55c513156e2754

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Background: Early warning Score is a bedside track and trigger system used to facilitate early detection and management of deteriorating patients. Although emergency department nurses are the key to implement this task, their interaction and contribution to provide an estimate of patients' severities is still suboptimal and neglected. Aim: This study aimed to introduce an educational programme using the Modified Early Warning Score (MEWS) to nurses working in the emergency departments and to assess the programme impact on nurses' self-efficacy and perceived role. Methods: This non-equivalent, multi-centre, quasi-experimental study, assigned two groups of emergency nurses into intervention and control. The intervention group received three interactive educational sessions totalling 12 h relevant to the application of MEWS in emergency situations using a validated programme called 'COMPASS'. The other group received no intervention. Both groups were assessed for self-efficacy and perceived role in the pre-test, immediate post-test, and three months later follow-up phase. Results: A total of 232 participants were divided into intervention and control groups (118 and 114, respectively), having no variations in age, gender, or experience as registered nurses. The intervention group showed a significant improvement in the self-efficacy scores for the nurses (F: 152.21, df: 2, p < 0.001). Similarly, the intervention nurses exhibited a significant improvement in the perceived role scores after the intervention (F: 121.20, df: 2, p < 0.001). The control group showed no changes in either variable across the three phases. While older nurses with longer experience showed higher self-efficacy after the programme, the perceived role

explained an additional 57.0% of the variance in self-efficacy after controlling these two demographics (Beta: 0.743, $p < 0.001$, CI: 1.18-1.66). Conclusion: The existence of an early warning system in the emergency department is able to enhance nurses' self-efficacy and perceived role coinciding with nursing interactions with the multidisciplinary team. © 2019

Ismail, K.M., Malak, M.Z., Alamer, R.M.

Psychosocial correlates of work-related fatigue among Jordanian emergency department nurses

(2019) Perspectives in Psychiatric Care, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061271475&doi=10.1111%2fppc.12354&partnerID=40&md5=9351eee0541b6e7770094ca0a20d703a)

[85061271475&doi=10.1111%2fppc.12354&partnerID=40&md5=9351eee0541b6e7770094ca0a20d703a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061271475&doi=10.1111%2fppc.12354&partnerID=40&md5=9351eee0541b6e7770094ca0a20d703a)

AFFILIATIONS: Department of Adult Health Nursing, Najran University, Najran, Saudi Arabia;

Department of Community Health Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Psychiatric Health Nursing, Faculty of Nursing, Isra University, Amman, Jordan;

Adjunct Fellow, Western Sydney University, School of Nursing and Midwifery, Sydney, NSW, Australia

ABSTRACT: Purpose: This study purposed to assess the psychosocial correlates of work-related fatigue among Jordanian emergency department nurses. Design and Methods: A cross-sectional study was conducted among Jordanian emergency nurses ($n = 220$). Measures included Occupational Fatigue Exhaustion/Recovery Scale (OFER15) and Copenhagen Psychosocial Questionnaire version Two (COPSOQ II). Findings: The psychosocial factors correlated with all types of work-related fatigue (acute, chronic, and inter-shift [recovery]) were quantitative demands, work-family conflict, sexual harassment, threats of violence, physical violence, and bullying. Importantly, quantitative demands and sexual harassment were the main predictors of all types of work-related fatigue. Practice Implications: The psychosocial correlated factors should be considered when developing interventions to minimize work-related fatigue phenomenon. This would lead to a more positive working environment which will promote safe nursing care. © 2019 Wiley Periodicals, Inc.

Mahmoud, N.N., Hikmat, S., Abu Ghith, D., Hajeer, M., Hamadneh, L., Qattan, D., Khalil, E.A.

Gold nanoparticles loaded into polymeric hydrogel for wound healing in rats: Effect of nanoparticles' shape and surface modification

(2019) International Journal of Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065406822&doi=10.1016%2fj.ijpharm.2019.04.079&partnerID=40&md5=8bc8dcb1a04ce3744ee4047eebaf9e21)

[85065406822&doi=10.1016%2fj.ijpharm.2019.04.079&partnerID=40&md5=8bc8dcb1a04ce3744ee4047eebaf9e21](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065406822&doi=10.1016%2fj.ijpharm.2019.04.079&partnerID=40&md5=8bc8dcb1a04ce3744ee4047eebaf9e21)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Medicine, The University of Jordan, Amman, 11942, Jordan;

School of Pharmacy, The University of Jordan, Amman, 11942, Jordan

ABSTRACT: Nanotechnology-based platforms have gained a growing interest in skin wound healing. Herein, gold nanoparticles (AuNPs) of different shapes (rods and spheres) and surface modifications (neutral, cationic and anionic charged polymers) were synthesized, characterized and loaded into a thermosensitive hydrogel (poloxamer 407). AuNPs-hydrogels exhibited excellent colloidal stability and demonstrated slow and prolonged release behavior over a 48-h of exposure using in vitro model. Hydrogels of poly ethylene glycol (PEG)-gold nanorods (AuNRs) and cationic poly allyl amine hydrochloride (PAH)-AuNRs demonstrated remarkable wound healing properties upon topical application on wounds using an animal model. PEGylated and cationic charged-AuNRs hydrogels have enhanced skin re-epithelization and collagen deposition after 14 days of daily wound treatment compared to controls, and they affected the gene expression of several inflammatory and anti-inflammatory mediators. Hydrogels of PEG-AuNRs and PAH-AuNRs exhibited potent in vitro antibacterial activity against staphylococcus aureus (*S. aureus*) and Pseudomonas aeruginosa (*P. aeruginosa*). Furthermore, AuNPs of different shapes and surface modifications demonstrated low percentages of deposition into the main body organs after 21 days of daily wound treatment. Hydrogels of AuNRs could be a promising nano-platform for wound healing. © 2019 Elsevier B.V.

Hamed, R., Kamal, A.

Concentration Profiles of Carvedilol: A Comparison Between In Vitro Transfer Model and Dissolution Testing

(2019) Journal of Pharmaceutical Innovation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85049630585&doi=10.1007%2fs12247-018-9337-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85049630585&doi=10.1007%2fs12247-018-9337-x&partnerID=40&md5=42083598eac2ebb3eda283a8cad39ed8)

[x&partnerID=40&md5=42083598eac2ebb3eda283a8cad39ed8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85049630585&doi=10.1007%2fs12247-018-9337-x&partnerID=40&md5=42083598eac2ebb3eda283a8cad39ed8)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O.

Box 130, Amman, 11733, Jordan

ABSTRACT: Purpose: The study aims to investigate the transfer behavior of the weakly basic BCS class II model drug carvedilol from the stomach to the small intestine and compare the concentration profiles of carvedilol that were determined during the in vitro transfer model and dissolution testing. Methods: An in vitro transfer model, previously introduced by Kostewicz et al., was used in this study. A donor phase of simulated gastric fluid was used to predissolve Dilatrend® tablet (25 mg

carvedilol). Media that simulate and cover the physiological pH and buffer capacity ranges of the intestinal fluid were used as acceptor phases. pH measurements were reported to investigate the effect of addition of donor phase containing predissolved carvedilol on lowering the pH of the acceptor media. The f2 similarity factor was used to compare the concentration profiles of carvedilol determined during the in vitro transfer model. Results: Carvedilol was completely dissolved in all tested acceptor phases, resulted in no precipitation. The buffering capacity of the acceptor phase plays an important role in determining its pH. A discrepancy was found between the concentrations of carvedilol in all tested acceptor phases obtained using the transfer model and those reported using dissolution apparatus II in corresponding media. Conclusions: Results showed that dissolution testing using apparatus II might not be sufficient to predict its transfer from the stomach into the small intestine and that the in vitro transfer model may be more effective at mimicking the conditions in the gastrointestinal tract. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.

Hawashin, B., Alzubi, S., Kanan, T., Mansour, A.

An efficient semantic recommender method for Arabic text

(2019) Electronic Library, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066991359&doi=10.1108%2fEL-12-2018-0245&partnerID=40&md5=c8c46db4872be9aedf1d87cbe295b04b>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Tafila Technical University, Tafila, Jordan

ABSTRACT: Purpose: This paper aims to propose a new efficient semantic recommender method for Arabic content. Design/methodology/approach: Three semantic similarities were proposed to be integrated with the recommender system to improve its ability to recommend based on the semantic aspect. The proposed similarities are CHI-based semantic similarity, singular value decomposition (SVD)-based semantic similarity and Arabic WordNet-based semantic similarity. These similarities were compared with the existing similarities used by recommender systems from the literature. Findings: Experiments show that the proposed semantic method using CHI-based similarity and using SVD-based similarity are more efficient than the existing methods on Arabic text in term of accuracy and execution time. Originality/value: Although many previous works proposed recommender system methods for English text, very few works concentrated on Arabic Text. The field of Arabic Recommender Systems is largely understudied in the literature. Aside from this, there is a vital need to consider the semantic relationships behind user preferences to improve the accuracy of the recommendations. The contributions of this work are the following. First, as many recommender methods were proposed for English text and have never been tested on Arabic text, this work compares the performance of these widely used methods on Arabic text. Second, it proposes a novel semantic recommender method for Arabic text. As this method uses semantic similarity, three novel base semantic similarities were proposed and evaluated. Third, this work would direct the attention to more studies in this understudied topic in the literature. © 2019, Emerald Publishing Limited.

Hawashin, B., Aqel, D., Alzu'Bi, S., Jararweh, Y.

Novel weighted interest similarity measurement for recommender systems using rating timestamp

(2019) 2019 6th International Conference on Software Defined Systems, SDS 2019, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073892072&doi=10.1109%2fSDS.2019.8768548&partnerID=40&md5=8b33726b49ff2c38dacddb380c53548>

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, Jordan;

Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: This paper proposes a novel similarity measurement for recommender systems that uses weighted user interests and rate timestamps. Although some works were proposed previously to include the time factor in the recommendation process, these works were based on the use of the time factor with user rates. In this work, we show that using user rates could be misleading in some cases, and we propose the use of the time factor with the hidden user interest(s) instead of user rates. The user interests are weighted according to the time factor so that recent interests are given more weight than the older ones as they are more important. Experimental results proved that our proposed similarity measurement is efficient in terms of accuracy and recommendation time. © 2019 IEEE.

Aqel, D., Alzu'Bi, S., Hamadah, S.

Comparative study for recent technologies in arabic language parsing

(2019) 2019 6th International Conference on Software Defined Systems, SDS 2019, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073888783&doi=10.1109%2fSDS.2019.8768587&partnerID=40&md5=35107ba0dab0d2d00973fcd73f2fb6aa>

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Parsing the natural language is an interesting issue for many of natural language processing (NLP) applications. Parsing a complex language such as Arabic represents a challenging task for many researchers. Arabic is a complex language due to the rich morphology and the complicated structure of its sentences, since it contains difficult linguistic features. This

comparative study discusses the existing and the developed Arabic parsing systems, we describe here current technologies which are employed for parsing Arabic text. A comparison between several parsing systems is proposed in this paper as well, by stating the key features and limitations for each of them. Finally, solutions to address the main limitations of these Arabic parsing systems have been suggested. © 2019 IEEE.

Badinjki, T.

The trauma of condemnation and the embellishment of an illegitimate child as a source of regeneration in Lizzie Leigh and Ruth

(2019) *Ars Aeterna*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068938454&doi=10.2478%2faa-2019-0005&partnerID=40&md5=84e6947d724071f0d20755349f640161>

AFFILIATIONS: Dept. of English Faculty of Arts, Al-Zaytoonah University, PO. Box 1089, Amman, Jordan
ABSTRACT: This paper focuses on Mrs Gaskell's treatment of the erring girl in Lizzie Leigh (1850) and Ruth (1853) and the new elements that she introduces which brand the treatment as different. Contrary to her Victorian contemporaries, Mrs Gaskell stresses the role of religion, the use of biblical quotations on the treatment of the sinner, and the role of motherhood. The paper also shows how Mrs Gaskell makes the illegitimate child an incentive towards repentance and hope of reclamation. Through her motherly love and devotion to her child, a mother rises and grows in character and faith. Moreover, the paper demonstrates Mrs Gaskell's condemnation of the falsity of the traditional taxonomy of "illegitimate" or "fallen", and her assertion that social value lies in the inherent properties within the individual. It also highlights how she makes forgiveness for the sinner a duty which society has to fulfil, and maintains that if the charitable and the kind are forced "to lie" because of the existing social and moral attitudes, then it is imperative that they should be changed so that "lies" are unnecessary. It concludes by investigating the stormy reception and the controversy it created among readers. © 2019 Taher Badinjki, published by Sciendo 2019 Allott, Miriam. I960.

Masoud, M.Z., Jaradat, Y., Jannoud, I., Al Sibahee, M.A.

A hybrid clustering routing protocol based on machine learning and graph theory for energy conservation and hole detection in wireless sensor network

(2019) *International Journal of Distributed Sensor Networks*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067645908&doi=10.1177%2f1550147719858231&partnerID=40&md5=79145bad5cf59a9ac9886d782c4a012c>

AFFILIATIONS: Department of Electrical Engineering/Communications and Computer, Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan;
Computer Science Department, Huazhong University of Science and Technology (HUST), Wuhan, China
ABSTRACT: In this work, a new hybrid clustering routing protocol is proposed to prolong network life time through detecting holes and edges nodes. The detection process attempts to generate a connected graph without any isolated nodes or clusters that have no connection with the sink node. To this end, soft clustering/estimation maximization with graph metrics, PageRank, node degree, and local cluster coefficient, has been utilized. Holes and edges detection process is performed by the sink node to reduce energy consumption of wireless sensor network nodes. The clustering process is dynamic among sensor nodes. Hybrid clustering routing protocol-hole detection converts the network into a number of rings to overcome transmission distances. We compared hybrid clustering routing protocol-hole detection with four different protocols. The accuracy of detection reached 98%. Moreover, network life time has prolonged 10%. Finally, hybrid clustering routing protocol-hole detection has eliminated the disconnectivity in the network for more than 80% of network life time. © The Author(s) 2019.

Khdair, A.I., Khdair, S.I., Abu-Rumman, G.A.

Dataset on some soil properties improvement by the addition of olive pomace

(2019) *Data in Brief*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063759426&doi=10.1016%2fj.dib.2019.103878&partnerID=40&md5=c570758c5d76b6809b64d66bee46a68b>

AFFILIATIONS: Jordan University of Science and Technology (JUST), P.O.Box: 3030, Irbid, 22110, Jordan;

King Abdulaziz University, College of Engineering, P.O.Box: 80204, Jeddah, 21589, Saudi Arabia;

Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Civil Engineering, Isra University, Amman, 11622, Jordan

ABSTRACT: Soil amendment with olive cake produced from olive mills waste (olive pomace/cake) is an ordinary practice in olive producing countries in the Middle East. It is used to improve soil physical and chemical properties as well as cheap waste management approach. But, the olive cake contains small percentage of residual oil which may affect water holding capacity of soil and penetration rate in agricultural lands. The data provided in this article shows the influence of

adding olive pomace to clay and sand clay soils in terms of water holding capacity (WHC), penetration depth and accumulate intake. © 2019 The Authors

Sharour, L.A.

Improving oncology nurses' knowledge, self-confidence, and self-efficacy in nutritional assessment and counseling for patients with cancer: A quasi-experimental design (2019) Nutrition, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062879873&doi=10.1016%2fj.nut.2018.12.004&partnerID=40&md5=c66a37be24181257d8a4116a9585b91b)

[85062879873&doi=10.1016%2fj.nut.2018.12.004&partnerID=40&md5=c66a37be24181257d8a4116a9585b91b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062879873&doi=10.1016%2fj.nut.2018.12.004&partnerID=40&md5=c66a37be24181257d8a4116a9585b91b)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Objective: Our objective was to assess the effectiveness of a structured educational program on improving oncology nurses' knowledge, self-confidence, and self-efficacy in nutritional assessment and counseling for patients with cancer. Methods: A pretest-posttest quasi-experimental design was used. A sample of 60 nurses from oncology units participated as an experimental group (n = 30) and a control group (n = 30). The participants completed a knowledge test before completing the educational program. Self-confidence and self-efficacy also were assessed pre- and postintervention. Results: There was a significant difference between the experimental (mean [M] = 26.00, SD = 8.00) and control (M = 10.00, SD = 3.75) groups regarding knowledge after the interventional sessions (t = -16.00, P = 0.001). Furthermore, the results indicated a significant difference (t = -24.00, P = 0.001) between the experimental group (M = 60.50, SD = 13.10) and the control group (M = 36.50, SD = 7.60) regarding self-confidence in managing cancer patients. Finally, there was a significant difference between the experimental group (M = 33.50, SD = 3.10) and control group (M = 23.25, SD = 2.75) regarding self-efficacy (t = -10.25, P = 0.001). Conclusions: The educational program improved the oncology nurses' knowledge, self-confidence, and self-efficacy in relation to nutritional assessment and counseling. Improving nurses' competencies will improve the quality of care provided to the patients and patient health outcomes. © 2018 Elsevier Inc.

Elbes, M., Alzubi, S., Kanan, T., Al-Fuqaha, A., Hawashin, B.

A survey on particle swarm optimization with emphasis on engineering and network applications (2019) Evolutionary Intelligence, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061964791&doi=10.1007%2fs12065-019-00210-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061964791&doi=10.1007%2fs12065-019-00210-z&partnerID=40&md5=c8d6cec24a3a2db0dd9b9c8ae7e0092f)

[z&partnerID=40&md5=c8d6cec24a3a2db0dd9b9c8ae7e0092f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061964791&doi=10.1007%2fs12065-019-00210-z&partnerID=40&md5=c8d6cec24a3a2db0dd9b9c8ae7e0092f)

AFFILIATIONS: Department of Computer Science, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Western Michigan University, Kalamazoo, MI, United States;

Department of Computer Information Systems, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Swarm intelligence is a kind of artificial intelligence that is based on the collective behavior of the decentralized and self-organized systems. This work focuses on reviewing a heuristic global optimization method called particle swarm optimization (PSO). This includes the mathematical representation of PSO in contentious and binary spaces, the evolution and modifications of PSO over the last two decades. We also present a comprehensive taxonomy of heuristic-based optimization algorithms such as genetic algorithms, tabu search, simulated annealing, cross entropy and illustrate the advantages and disadvantages of these algorithms. Furthermore, we present the application of PSO on graphics processing unit and show various applications of PSO in networks. © 2019, Springer-Verlag GmbH Germany, part of Springer Nature.

El-Hneiti, M., Shaheen, A.M., Bani Salameh, A., Al-Hussami, M., Ahmad, M.

Predictors of nurses' stress working with older people admitted to acute care setting (2019) International Journal of Older People Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85060609230&doi=10.1111%2fopn.12222&partnerID=40&md5=ab5942ad1b138576157924407a7ec54f)

[85060609230&doi=10.1111%2fopn.12222&partnerID=40&md5=ab5942ad1b138576157924407a7ec54f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85060609230&doi=10.1111%2fopn.12222&partnerID=40&md5=ab5942ad1b138576157924407a7ec54f)

AFFILIATIONS: School of Nursing, The University of Jordan, Amman, Jordan;

School of Nursing, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: Aim: To identify the predictors of nurses' work stressors who care for older people (i.e., over age 65 years) in Jordan. Background: Nurses sometimes experience stress which could occur as results of caring for older people, for example, with multiple physical and psychological needs. This stress could affect the job satisfaction and reduce the quality of care provided to older people. Thus, identifying sources of stress and predictors that cause stress for nurses is required to enhance quality of care for older people. Design: A cross-sectional design. Methods: Cluster random sampling was used to select study settings (i.e., 3 public hospitals, 3 private hospitals and 17 healthcare centres) in Amman, Jordan. A convenience sampling method was used to select 485 nurses. The Quality-Work-Competence questionnaire and Nurses' Working Life Questionnaire were used. Multiple linear regressions were used to identify predictors of job stress for nurses providing care for older people. The data were collected between June 2016 and January 2017. Results: Job satisfaction, competence, development skills, gender, organisational climate and employee development, all have demonstrated significant correlations with stress. The regression analysis showed that the model

significantly predicted a sizable portion of variance ($R^2 = 0.27$, $p < 0.001$) in the physical and psychological stress among nurses working in the older people care settings. Conclusion: The nursing profession and the employing agencies should support nurses who care for older people in practice by conducting special training programmes to cope with stress. Interventional studies should be conducted to confirm the association between the nurses' work stress who care for older people and job satisfaction, competence, development skills, gender, organisational climate and employee development. Implications for practice: It is recommended that rotating appropriate competent nurses who care for older people, in particular dementia patients who are usually very ill may have greater needs due to their cognitive status, through other wards would temporarily reduce the nurses' stress. The nursing profession and the employing agencies should support nurses who care for older people in practice by conducting special training programmes focusing on the teaching skills and knowledge of how to deal with stress. © 2019 John Wiley & Sons Ltd

Jarab, A.S., Alefishat, E., Mukattash, T.L., Albawab, A.Q., Abu-Farha, R.K., McElnay, J.C. Exploring variables associated with poor health-related quality of life in patients with type 2 diabetes in Jordan

(2019) Journal of Pharmaceutical Health Services Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85052646333&doi=10.1111%2fjphs.12255&partnerID=40&md5=a6ad3ced302ad23a96421d14663d2695)

[85052646333&doi=10.1111%2fjphs.12255&partnerID=40&md5=a6ad3ced302ad23a96421d14663d2695](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85052646333&doi=10.1111%2fjphs.12255&partnerID=40&md5=a6ad3ced302ad23a96421d14663d2695)

AFFILIATIONS: Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Biopharmaceutics and Clinical Pharmacy, Faculty of Pharmacy, the University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Therapeutics and Clinical Pharmacy, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Clinical and Practice Research Group, School of Pharmacy, Queen's University of Belfast, Ireland

ABSTRACT: Objective: The study aim was to evaluate health-related quality of life (HRQoL) and to explore factors associated with poor HRQoL in patients with type 2 diabetes in Jordan. Methods: The EQ-5D questionnaire was used to assess HRQoL in outpatients ($n = 196$) with type 2 diabetic during their clinic appointment at three major Hospitals in Jordan. Sociodemographic and medical data were collected from patient interviews and medical files. Multiple linear regression was performed to build a model with variables associated with poor HRQoL. Key findings: The mean score of the total EQ-5D index of the 196 participants was 0.724. Most of the patients reported 'some problems' through the five dimensions, with the highest percentage (46.1%) related to mobility domain. Regression analysis identified women gender ($\beta = -0.252$; $P < 0.01$), duration of diabetes ($\beta = -0.344$; $P < 0.01$) number of medications ($\beta = -0.423$; $P < 0.01$), and insulin therapy ($\beta = -0.205$; $P < 0.05$) as being significantly associated with poor HRQoL. Conclusions: The quality of life for patients with type 2 diabetes in Jordan has considerable scope for improvement. Future diabetes management programs should focus on improving HRQoL, with specific attention to be given for women patients, those who have long duration of diabetes, and patients receiving multiple medications or insulin therapy. © 2018 Royal Pharmaceutical Society

Al-Ghabeesh, S.H., Qattom, H.

Workplace bullying and its preventive measures and productivity among emergency department nurses

(2019) Israel Journal of Health Policy Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065909313&doi=10.1186%2f13584-019-0314-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065909313&doi=10.1186%2f13584-019-0314-8&partnerID=40&md5=0eb1bd04a468a57f1e0ddf6a56a58cfb)

[8&partnerID=40&md5=0eb1bd04a468a57f1e0ddf6a56a58cfb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065909313&doi=10.1186%2f13584-019-0314-8&partnerID=40&md5=0eb1bd04a468a57f1e0ddf6a56a58cfb)

AFFILIATIONS: Faculty of Nursing, Head of the Clinical Nursing Department, Al-Zaytoonah University of Jordan, Airport Street, Amman, Jordan

ABSTRACT: Background: Workplace bullying has adverse effects on nurses' productivity and emotional well-being and increases nurses' desire to leave their jobs. Bullying is a common phenomenon that has been reported worldwide. Emergency Department (ED) nurses are particularly exposed to bullying as a result of their job stressors and demands. Purposes: To examine the prevalence of bullying and the impact of preventive measures on productivity among Jordanian ED nurses; and to examine bullying in relation to personal and organizational factors. Methods: We surveyed ED nurses in five hospitals in Amman, Jordan-two government hospitals and three private hospitals. The eligibility criteria for the study, met by 134 persons, were having at least an associate degree and having worked in the ED for at least six months. We used a four-part questionnaire that included demographic data, the Negative Acts Questionnaire, questions on prevention of bullying, and a health and productivity survey. Data analysis included descriptive and inferential statistics. Results: A total of 120 ED nurses joined the study, an 89.6% response rate. The majority of participants were male (65%) and their mean age was 29.4 years. Ninety percent of the participants reported being bullied. Nurses with less experience in the ED were exposed to more bullying compared to other nurses. Of nurses who reported being bullied, 61.7% reported associated decreased productivity, including the ability to respond to

cognitive demands, provide support, appropriate communication, safe care, and competent care. The overall mean score for the prevention of bullying questionnaire was 94.51 out of 168 (SD = 23.43). Drilling down, the highest mean score was for the "Individual sub-scale", and the highest item mean score was for "I know the process of how to report bullying". Conclusion: Bullying is prevalent among ED nurses in Jordan; it has significantly influenced the nurses' perception of their productivity and the quality of care they provide. Although nurses reported adopting measures to prevent bullying, they were insufficient to address this widespread problem. Implications for nursing and health policy: Bullying is a common occurrence in nursing practice in Jordan, as in other places. It has a detrimental effect on the quality of health care. Accordingly, interventions, which we describe, should be undertaken to minimize the incidence and impact of bullying. © 2019 The Author(s).

Al-Ramahi, N., Hnaif, A.A., Awad, K.

Advanced weighted exact matching algorithm (AWEMA)

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067132285&doi=10.1109%2fJEEIT.2019.8717417&partnerID=40&md5=c4513d0fe89e54943e7ba7f9eab82703)

85067132285&doi=10.1109%2fJEEIT.2019.8717417&partnerID=40&md5=c4513d0fe89e54943e7ba7f9eab82703

AFFILIATIONS: Computer Science Department, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Enhanced Weighted Exact Matching Algorithm (EWEMA) is an exact string matching algorithm that finds the pattern 'P' in the text 'T.' EWEMA contains two phases, the preparing phase, and the matching phase. This paper aims to enhance EWEMA and reduce its time complexity using the proposed algorithm called Advanced Weighted Exact Matching Algorithm (AWEMA). The simulation results presented the improvement in the algorithm AWEMA over EWEMA. © 2019 IEEE.

Farhan, K.A., Abdel-Fattah, F., Altarawneh, F., Lafi, M.

Survey Paper on Multicast Routing in Mobile Ad-hoc Networks

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067132249&doi=10.1109%2fJEEIT.2019.8717477&partnerID=40&md5=5043596259e8b2e205794fb5507ba22b)

85067132249&doi=10.1109%2fJEEIT.2019.8717477&partnerID=40&md5=5043596259e8b2e205794fb5507ba22b

AFFILIATIONS: Computer Science Dept., Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper surveys the various multicast routing protocols proposed for mobile ad-hoc networks. Some of the protocols use tree based approaches for creating multicast routes, some use graphs to construct multicast trees for routing, some protocol use the flooding approach to send multicast packets. This paper makes a detailed analysis and talks about the merits and demerits of various multicast protocols for mobile ad-hoc networks. The paper focuses on the number of control messages used in every protocol, the data structures used to maintain information, the merits of the protocol, the demerits and overhead involved during routing, the bandwidth utilized due to these message overheads. Also this paper studies the advantages and disadvantages of using trees, graphs and flooding for routing. © 2019 IEEE.

Abdel-Fattah, F., Farhan, K.A., Al-Tarawneh, F.H., Altamimi, F.

Security challenges and attacks in dynamic mobile ad hoc networks MANETs

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067132124&doi=10.1109%2fJEEIT.2019.8717449&partnerID=40&md5=92c59f22e6b8cf2f33e5d4b4cef43b5b)

85067132124&doi=10.1109%2fJEEIT.2019.8717449&partnerID=40&md5=92c59f22e6b8cf2f33e5d4b4cef43b5b

AFFILIATIONS: Faculty of Science IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Mobile Ad hoc Network (MANET for short) is a new art of wireless technology that connect a group of mobile nodes in a dynamically decentralized fashion without the need of a base station, or a centralized administration, whereas each mobile node can work as a router. MANET topology changes frequently, because of the MANET dynamically formation nature, and freely to move randomly. MANET can function as standalone or can be connected to external networks. Mobile nodes are characterized with minimal human interaction, weight, less memory, and power. Despite all the pros of MANET and the widely spreading in many and critical industries, MANET has some cons and suffers from severe security issues. In this survey we emphasize on the different types of attacks at MANET protocol stack, and show how MANET is vulnerable to those attacks. © 2019 IEEE.

Kanan, T., Sadaqa, O., Aldajeh, A., Alshwabka, H., Al-Dolime, W., Alzurbi, S., Elbes, M., Hawashin, B., Alia, M.A.

A review of natural language processing and machine learning tools used to analyze Arabic social media

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85067132053&doi=10.1109%2fJEEIT.2019.8717369&partnerID=40&md5=982c97706ce0e6e04805c575c66fc043
AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Computer Informaiton Systems, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Arabic Language is spoken widely in the world. It has very special characteristics that made it hard to be handled by computers. Recently, Social Media is considered as one of the richest source for knowledge sharing and information gathering in the internet. Arabic Natural Language Processing (ANLP) tools play major role when trying to understand the content of any Arabic textual data (e.g. social media), it helps clean noisy data, stem words, etc. Also, it assists with understanding of the semantic or sentiment contents. We use Arabic Machine Learning (Classification and Clustering) with social media to discover the polarity or opinion in the contents. Many kinds of classifiers and clusters used with Social Media content detection, like SVM and K-Mean. In this paper we review the literature of the popular ANLP tools with AML software on social media contents toward identifying the best tools in these domains. © 2019 IEEE.

Tamimi, A.A., Dawood, R., Sadaqa, L.

Disaster recovery techniques in cloud computing

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067129295&doi=10.1109%2fJEEIT.2019.8717450&partnerID=40&md5=d6848b0279686d4c93bf86a9d28470ac)

85067129295&doi=10.1109%2fJEEIT.2019.8717450&partnerID=40&md5=d6848b0279686d4c93bf86a9d28470ac

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Electronic data has been created today in large quantities requiring data recovery services organization's work may experience the various type of disasters whether it was natural or man-made, which may result in huge loss of data. The purpose of recovery technology is the possibility of retrieving information from the backup server when the main data server is lost in the event of disasters. There are some difficulties such as time and cost complexity that make it difficult to implement such techniques. When you use disaster conditions as a service, these disasters can be remedied and data recovery speeds at low cost. In this paper, we compared and discuss the various techniques to create a unique backup and recovery system. In general, all these techniques focus on three different aspects: cost control, data replication, and security issues. © 2019 IEEE.

Abdallah, M.M., Abdalla, A.M.

Using clause slicing as program robustness measurement technique

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067128584&doi=10.1109%2fJEEIT.2019.8717424&partnerID=40&md5=095fe2841cfbb28342af682b8b3d0863)

85067128584&doi=10.1109%2fJEEIT.2019.8717424&partnerID=40&md5=095fe2841cfbb28342af682b8b3d0863

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The program slicing technique is an abstracting technique that focuses on the program code. Clause Slicing is the type of program slicing that focuses only on the code clauses, which allows the quality assurance to measure program robustness by measuring every code clause against the programming language standards. The proposed model gives a new way for measuring the robustness quality factor using program clause slicing. © 2019 IEEE.

Hammad, M.A., Alaroud, M., Arqub, O.A., Edwan, R., Al-Smadi, M., Momani, S.

Solving fuzzy fractional IVPs of order 2β by residual power series algorithm

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067127901&doi=10.1109%2fJEEIT.2019.8717378&partnerID=40&md5=607f7b93b0f82e294d14bf034bd72b4f)

85067127901&doi=10.1109%2fJEEIT.2019.8717378&partnerID=40&md5=607f7b93b0f82e294d14bf034bd72b4f

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11942, Jordan;

School of Mathematical Sciences, Universiti Kebangsaan Malaysia, Bangi Selangor, 43600, Malaysia;

Department of Mathematics, University of Jordan, Amman, 11942, Jordan;

Department of Mathematics, Taibah University, Madinah Munawwarah, Saudi Arabia;

Applied Science Dep., Al-Balqa Applied University, Ajloun, 26816, Jordan

ABSTRACT: In this paper, an efficient numeric-analytic algorithm has been applied based on the residual power series approach to solve fuzzy fractional initial value problems of order 2β , $0 < \beta \leq 1$, under the strongly generalized differentiability. The present method relies basically upon the concept of the residual functions and generalized Taylor formula that constructs analytical and approximate solutions in the form of rapidly convergent series according to their parametric form. To validate the efficiency, reliability, and applicability of the proposed approach, the experimental data has been presented. © 2019 IEEE.

Hamadah, S., Aqel, D.

A proposed virtual private cloud-based disaster recovery strategy

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067125680&doi=10.1109%2fJEEIT.2019.8717404&partnerID=40&md5=e187a5b4e556068cc7aa71f761f561c5>

AFFILIATIONS: Computer Information System Department, Al-Zaytoonah University of Jordan Amman, Jordan;

Computer Science-Artificial Intelligent Department, Al-Zaytoonah University of Jordan Amman, Jordan

ABSTRACT: Disaster is an unexpected event in a system lifetime, which can be made by nature or even human errors. Disaster recovery of information technology is an area of information security for protecting data against unsatisfactory events. It involves a set of procedures and tools for returning an organization to a state of normality after an occurrence of a disastrous event. So the organizations need to have a good plan in place for disaster recovery. There are many strategies for traditional disaster recovery and also for cloud-based disaster recovery. This paper focuses on using cloud-based disaster recovery strategies instead of the traditional techniques, since the cloud-based disaster recovery has proved its efficiency in providing the continuity of services faster and in less cost than the traditional ones. The paper introduces a proposed model for virtual private disaster recovery on cloud by using two metrics, which comprise a recovery time objective and a recovery point objective. The proposed model has been evaluated by experts in the field of information technology and the results show that the model has ensured the security and business continuity issues, as well as the faster recovery of a disaster that could face an organization. The paper also highlights the cloud computing services and illustrates the most benefits of cloud-based disaster recovery. © 2019 IEEE.

Hasan, S., Al-Smadi, M., Freihet, A., Arqub, O.A., Hammad, M.A., Momani, S.

Application of Power Series Method for Solving Obstacle Problem of Fractional Order

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067125192&doi=10.1109%2fJEEIT.2019.8717520&partnerID=40&md5=7bf07ea6518f8a74a51d63d6c73f2150>

AFFILIATIONS: Applied Science Dep, Al-Balqa Applied University, Ajloun, 26816, Jordan;

Department of Mathematics, University of Jordan, Amman, 11942, Jordan;

Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11942, Jordan

ABSTRACT: An effective numerical method depends on the fractional power series is applied to solving a class of boundary value problems associated with obstacle, unilateral, and contact problems of fractional order 2α , $0 \leq \alpha \leq 1$. The fractional derivative is considered in the Caputo sense. This method constructs a convergent sequence of approximate solutions for the obstacle problem. A numerical example is given to illustrate the higher accuracy of this technique. © 2019 IEEE.

Osman, M.S., Alabwaini, N.Z., Jaber, T.B., Alrawashdeh, T.

Generate use case from the requirements written in a natural language using machine learning

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067123877&doi=10.1109%2fJEEIT.2019.8717428&partnerID=40&md5=27d20450aaa47963325f18d2ef7a1f90>

AFFILIATIONS: Software Engineering, AlZaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Recently it has become important to focus on the requirements of the system and how to take them and analyze them to determine the system infrastructure through which they will be relied upon in the rest of the system building. Some difficulties have been encountered in the process of understanding and analyzing the data taken from the user to convert it to UML diagrams. In this paper, we create a new approach that focuses mainly on increasing accuracy for this technique, reducing time in the systems of generating the use case of text written in natural language and finding solutions to some problems in current technologies because people need a smart and accurate system to meet their needs and save their time and increase the reliability of the reliance on software. © 2019 IEEE.

Zmasoud, M., Jaradat, Y., Manasrah, A., Taleb, B.

What i Have in My Cup? A Liquid Identification Mechanism Based on Electrical Connectivity

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067123762&doi=10.1109%2fJEEIT.2019.8717482&partnerID=40&md5=da93579c77f52d9784a7b498da1f0158>

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Designing and Developing of Sensors to assess and evaluate the presents of different physical phenomena in the environments has heavily introduced in the past decade. Different methods and techniques have been studied to develop a direct micro-sensors. With the introduction of microcontrollers and machine learning, sensors data may be used to predict other indirect phenomena in the environment. In this work, the electrical conductivity is utilized to predict the type of a solution or liquid in a cup. A simple sensor electric circuit based on ATmega328 micrcontroller has been designed to detect the electrical conductivity values in different liquids. Subsequently, these values have been utilized to train an artificial neural network model (ANN) to predict the liquids commercial names. The designed circuit and the ANN model have been tested with different 15 liquids diluted with water. eleven liquids are drinkable, the other 4 are chemical cleaning liquids. Our simple ANN model with this tiny dataset and two features only can detect the liquid type with an accuracy of more than 80% and a MSE value of less than 1%. © 2019 IEEE.

Abusukhon, A., Mohammad, Z., Al-Thaher, A.

An Efficient and Secure Key Exchange Protocol Based on Elliptic Curve and Security Models

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067123711&doi=10.1109%2fJEEIT.2019.8717496&partnerID=40&md5=a50bc4f01452b7bb0fbbd0c90a4351de)

[85067123711&doi=10.1109%2fJEEIT.2019.8717496&partnerID=40&md5=a50bc4f01452b7bb0fbbd0c90a4351de](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067123711&doi=10.1109%2fJEEIT.2019.8717496&partnerID=40&md5=a50bc4f01452b7bb0fbbd0c90a4351de)

AFFILIATIONS: Computer Science Dept. IT Faculty, Al-Zaytoonah University of Jordan, Amman, Jordan; IT Faculty Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: nowadays, the success of many online applications relays on keeping the data sent through the global network secure and far away from hackers. To carry out this task, the two communicating parties must exchange keys during their session. Some of the key exchange protocols are called key agreement protocols. The Elliptic Curve-Diffie Hellman (ECDH) is one of the most efficient algoiithms for securing data. The ECDH is more efficient than other traditional techniques such as Rivest-Shamir-Adleman (RSA) in terms of key size, computation and network bandwidth. The Authenticated Key Agreement (AKA) protocol is used for establishing a common session key between the two communicating parties. The common session key is used for subsequent cryptography goals. Most of the key agreement protocols (e.g. Menezes-Qu-Vanstone(MQV) family) generate one key per session therefore increasing the opportunities for guessing the session key. In this paper, we focus on developing an enhanced multiple sessions key which is based on ECDH. We propose an efficient and secure AKA protocol which is based on the ideas of the hashed MQV (HMQV), the YAK protocol as a robust key agreement based on public key authentication and multiple session keys. The proposed protocol generates multiple common keys per a session, where the generated common key depends on the static and ephemeral keys. Furthermore, the proposed protocol overcomes the attacks on the HMQV and YAK protocols and provides desirable security properties as compared with the relatedworks in this paper. © 2019 IEEE.

Salah, M., Okush, B.A., Rifaee, M.A.

A Comparison of Web Data Extraction Techniques

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067123530&doi=10.1109%2fJEEIT.2019.8717519&partnerID=40&md5=63a58a83339514ae6166b7d7fb9a53b21)

[85067123530&doi=10.1109%2fJEEIT.2019.8717519&partnerID=40&md5=63a58a83339514ae6166b7d7fb9a53b21](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067123530&doi=10.1109%2fJEEIT.2019.8717519&partnerID=40&md5=63a58a83339514ae6166b7d7fb9a53b21)

AFFILIATIONS: Dept. of Multimedia Technology, Alzaytoonah University of Jordan, Amman, Jordan; Dept.of Computer Science, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Extracting a structured text data from a published webpages has drawn attention in the last decade, the process of web data extraction has many challenges, due to variety of web data and the unstructured from of HTML files. The aim of this survey is to provide a comprehensive overview of current web data extraction techniques, in term of extracted data quality, where the redundant and the noise data should be eliminated. Merits and demerits for each web information extraction technique will be stated, and finally a classification framework for the discussed techniques will be provided. © 2019 IEEE.

Jaradat, Y., Masoud, M., Jannoud, I., Abu-Sharar, T., Zerek, A.

Performance Analysis of Homogeneous LEACH Protocol in Realistic Noisy WSN

(2019) 19th International Conference on Sciences and Techniques of Automatic Control and Computer Engineering, STA 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067121981&doi=10.1109%2fSTA.2019.8717254&partnerID=40&md5=3301c24aed096bc0a5cbc3e6a4a5ca30)

[85067121981&doi=10.1109%2fSTA.2019.8717254&partnerID=40&md5=3301c24aed096bc0a5cbc3e6a4a5ca30](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067121981&doi=10.1109%2fSTA.2019.8717254&partnerID=40&md5=3301c24aed096bc0a5cbc3e6a4a5ca30)

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan; Computer Center, Al-Zaytoonah University of Jordan, Amman, Jordan;

Electrical Engineering Department, Zawia University, Zawia, State of Libya

ABSTRACT: In this research paper, a simulation model is proposed which can be used to evaluate the performance of LEACH protocol in realistic noise-prone WSN environment. In this model, the noise-

level is represented by the probability of reception ($p\{-r\}$) of packets. When $p\{-r\}$ is one the network environment is considered noise-free and all packets sent are received and when $p\{-r\}$ is less than one the environment is considered noise-prone. The noise effect is specified by generating a uniform random number U ; if U is less than $p\{-r\}$ the packet is delivered successfully to the receiving node, otherwise, packets are dropped. The proposed simulation model was implemented utilizing Python programming language. The effect of various noise levels on the performance of homogeneous LEACH algorithm was investigated for different network metrics. An energy model incorporating noise was derived analytically. © 2019 IEEE.

Dababneh, A., Albarmawi, B., Hammad, M.A., Zraiqat, A., Hamadneh, T.

Conformable Fractional Bernoulli Differential Equation with Applications

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067121899&doi=10.1109%2fJEEIT.2019.8717456&partnerID=40&md5=74ae73a9b227f8a1990a9bee86d05ba8)

[85067121899&doi=10.1109%2fJEEIT.2019.8717456&partnerID=40&md5=74ae73a9b227f8a1990a9bee86d05ba8](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067121899&doi=10.1109%2fJEEIT.2019.8717456&partnerID=40&md5=74ae73a9b227f8a1990a9bee86d05ba8)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In This paper we study certain fractional forms of Abel's equation: $y'=P(x)+Q\{-1\}(x)y+Q\{-2\}(x)y^2+Q\{-3\}(x)y^3$. We solve the fractional form of the equation for the cases: $Q\{-2\} = 0$ or $Q\{-3\}= 0$. Such cases reduce the equation to Bernoulli fractional differential equation. © 2019 IEEE.

Tamimi, A., Abunaser, M., Atawalbeh, A., Saleh, K.

Intelligent traffic light based on genetic algorithm

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067118600&doi=10.1109%2fJEEIT.2019.8717401&partnerID=40&md5=a06df6ef524228cbe890a249bf146e09)

[85067118600&doi=10.1109%2fJEEIT.2019.8717401&partnerID=40&md5=a06df6ef524228cbe890a249bf146e09](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067118600&doi=10.1109%2fJEEIT.2019.8717401&partnerID=40&md5=a06df6ef524228cbe890a249bf146e09)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Princess Sumaya University for Technology, Amman, Jordan

ABSTRACT: The genetic algorithm is used in many applications and one of these applications is the traffic signal system. The traditional traffic light suffers from several problems such as long waiting period and thus increasing the number of vehicles. Genetic algorithms a type of optimization algorithm, meaning they are used to find the optimal solution based on the theory of natural selection and evolutionary biology so they have several steps starts from the initial population, calculate the fitness function for each solution (Chromosome) and ends with selections, crossover, and mutation. The result of the genetic algorithm is increasing the total number of vehicles passing through the traffic signal system. © 2019 IEEE.

Abunaser, M., Alkhatib, A.A.A.

Advanced survey of blockchain for the internet of things smart home

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067117450&doi=10.1109%2fJEEIT.2019.8717441&partnerID=40&md5=0317d71adbbe6de55d952886576a3dbb)

[85067117450&doi=10.1109%2fJEEIT.2019.8717441&partnerID=40&md5=0317d71adbbe6de55d952886576a3dbb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067117450&doi=10.1109%2fJEEIT.2019.8717441&partnerID=40&md5=0317d71adbbe6de55d952886576a3dbb)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Internet of things have many applications, one of them is smart homes. The main drawback of IoT that depends on a centralized cloud. The Blockchain approach with a decentralized technique will solve the centralized cloud approach. Smart homes have many security issues, threats, attacks, user privacy, integrity, etc. Blockchain is playing role in many IoT applications also the solution of these security problems. This paper explains the Blockchain in smart home with the main three tiers, how Blockchain can help to secure the data, transaction, also describe the security analysis in IoT smart homes. © 2019 IEEE.

Hamad, N.A., Nabulsi, M.A.

Implementing the Unique Existential Quantifier in Digital Logic Design

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067114836&doi=10.1109%2fJEEIT.2019.8717466&partnerID=40&md5=1264b93fe6c48609fdc45d5b0faae6fd)

[85067114836&doi=10.1109%2fJEEIT.2019.8717466&partnerID=40&md5=1264b93fe6c48609fdc45d5b0faae6fd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067114836&doi=10.1109%2fJEEIT.2019.8717466&partnerID=40&md5=1264b93fe6c48609fdc45d5b0faae6fd)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Nowadays, digital circuits are widely applied in different equipment such as computers, cell phones, digital watches, etc. As a result, new approaches to implement digital circuits are needed. Applying predicate logic is one way for achieving that. In particular, quantification (which is a commonly studied topic in predicate logic) can be used in the translation of a given logical statement which would assist in designing digital circuits. As a result, this paper proposes a new

approach to implement the unique existential quantifier in digital circuits. © 2019 IEEE.

Alzurbi, S., Mughaid, A., Hawashin, B., Elbes, M., Kanan, T., Alrawashdeh, T., Aqel, D.
Reconstructing big data acquired from radioisotope distribution in medical scanner detectors
(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information
Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067113921&doi=10.1109%2fJEEIT.2019.8717367&partnerID=40&md5=b5695a4105a54bba0f564afc8a0a2492)

85067113921&doi=10.1109%2fJEEIT.2019.8717367&partnerID=40&md5=b5695a4105a54bba0f564afc8a0a2492

AFFILIATIONS: Computer Science Department, Al Zaytoonah University of Jordan, Amman, Jordan;

Computer Science Department, Hashemite University, Zarqa, Jordan;

Software Engineering Department, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In the last few years, CAD systems has been optimized significantly medical applications. Digital systems have been employed recently in diagnosing procedures and facilitate the process in determining illness in patients. Different scanner system have been used to acquire medical images, which are different the quality output. The main problem associated to image acquisition is the amount of information in the acquired images, and what are the exact time and bed displacement in each scan. This work tests different factors in PET scanners leading to standards for optimizing the scanner variables in medical diagnosis area. Simulated body phantom is experimented here due to the closure properties regarding to real patient data. The phantom out put images were acquired under different circumstances with different scanning time at each bed scan. The segmentation process is then applied on the best slice evaluating the actual spheres size. We propose an efficient way to set the best scanner variables during the scanning process, which lead to the most accurate segmentation result. © 2019 IEEE.

Al-Saket, A., Arman, D.

An Active Set Method for Solving Certain Support Vector Machine Problems

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information
Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067113653&doi=10.1109%2fJEEIT.2019.8717488&partnerID=40&md5=4ec27d33515f500eac978f9cde15b189)

85067113653&doi=10.1109%2fJEEIT.2019.8717488&partnerID=40&md5=4ec27d33515f500eac978f9cde15b189

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University, Amman, Jordan;

Computer Engineering, Jordanian Engineers Association, Amman, Jordan

ABSTRACT: We propose an active set method to solve the dual of the convex quadratic programming problem which is the core of the support vector machine (SVM) training. The method stems from the more general method developed by the first author. By using the special handling of certain quadratic programming problems where the Hessian matrix in the objective function is given as a product of a matrix and its transpose, and by simplifying the solution of the linear system arising at each iteration of the method, we were able to produce an implementation for certain SVMs. The results of an experiment using MATLAB are reported. © 2019 IEEE.

Lafi, M., Osman, M.S., Wasmi, H.A.

Improved Monkey Tool for Random Testing in Mobile Applications

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information
Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067113323&doi=10.1109%2fJEEIT.2019.8717506&partnerID=40&md5=0cdd03be2c7391e4ddd391cdd82470)

85067113323&doi=10.1109%2fJEEIT.2019.8717506&partnerID=40&md5=0cdd03be2c7391e4ddd391cdd82470

AFFILIATIONS: Faculty of Science and IT, AL-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The growth of developing mobile application increases the need for mobile application testing to create free of errors application. Random testing such as monkey tool is frequently used to test mobile application. However, monkey tool suffers from shortcomings such as long time and low accuracy. In this paper, we propose an approach to improve the monkey tool. The proposed approach solves the monkey tool shortcoming and it decreases the time needed to run the test and increases the ability of the tool to catch errors to become more accurate and effective. © 2019 IEEE.

Abdallah, M., Jaber, T., Alabwaini, N., Alnabi, A.A.

A Proposed Quality Model for the Internet of Things Systems

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information
Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067113147&doi=10.1109%2fJEEIT.2019.8717516&partnerID=40&md5=f595df2fa9c8d1648558a0a609cde347)

85067113147&doi=10.1109%2fJEEIT.2019.8717516&partnerID=40&md5=f595df2fa9c8d1648558a0a609cde347

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The Internet of things systems (IoT) has a significant impact on different aspects of our lives. For that reason, IoT systems should be in high quality and clean of defects. The quality measurements for IoT systems vary according to the type of the IoT system and its applications. Therefore, IoT systems should be quality measured differently considering the presence of

heterogeneous objects bound together to build the IoT system. This diversity leads to a variety of quality measurement model, which makes the process of measuring quality more challengeable, less accurate, and less applicable. In this research, different quality models for IoT systems have been studied and compared regarding the quality factors. Besides, a new quality model for IoT has been proposed. The new model focused on all the characteristics related to IoT systems, by introducing quality factors that measure them. © 2019 IEEE.

Shehab, M., Khader, A.T., Alia, M.A.

Enhancing cuckoo search algorithm by using reinforcement learning for constrained engineering optimization problems

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067111337&doi=10.1109%2fJEEIT.2019.8717366&partnerID=40&md5=42c8d4b462ad517e2e98c5b23750039b)

[85067111337&doi=10.1109%2fJEEIT.2019.8717366&partnerID=40&md5=42c8d4b462ad517e2e98c5b23750039b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067111337&doi=10.1109%2fJEEIT.2019.8717366&partnerID=40&md5=42c8d4b462ad517e2e98c5b23750039b)

AFFILIATIONS: School of Computer Science, Universiti Sains Malaysia, Penang, Malaysia;

Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Cuckoo Search Algorithm (CSA) has been successfully applied to a range of various fields such as engineering, medical, and image processing. However, it typically suffers from a lack of effective exploration, loose diversity, and premature convergence. This paper aspires to develop a new version of CSA that is based on the features of Reinforcement Learning (RL) to enhance the research technique of CSA, which will be called CSARL. The performance of CSARL is evaluated by applying set of unimodal and multimodal benchmark functions. The results demonstrate that the CSARL outperforms the basic CSA, genetic, harmony search and krill herd algorithms, in terms of convergence speed, the diversity, and exploration search. © 2019 IEEE.

Hourani, H., Wasmi, H., Alrawashdeh, T.

A code complexity model of object oriented programming (OOP)

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067111081&doi=10.1109%2fJEEIT.2019.8717448&partnerID=40&md5=596596d8910197842a17ac0acb5e22ba)

[85067111081&doi=10.1109%2fJEEIT.2019.8717448&partnerID=40&md5=596596d8910197842a17ac0acb5e22ba](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067111081&doi=10.1109%2fJEEIT.2019.8717448&partnerID=40&md5=596596d8910197842a17ac0acb5e22ba)

AFFILIATIONS: Faculty of Science and IT, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The Code Complexity and Object Oriented Programming (OOP) is an import topic due to the role of OOP playing in most of the software design and architectures nowadays. In OOP there are key design concepts like Encapsulation, Polymorphisms and Inheritance that affect the coding design, structure and style. The challenge is how to minimize the Complexity in OOP and complying with the key concepts of OOP design. This paper reviews the literature on current solutions for code complexity and proposes a new model for OOP code complexity. The new model has added into OOP complexity metrics the following characteristics: abstraction and class details complexity. The proposed model is based on the following attributes selection criteria: Readability, Understandability, Maintainability, Reusability, Extensibility and Consistency of the programming code. © 2019 IEEE.

Masoud, M.Z., Jaradat, Y., Zaidan, D., Jannoud, I.

To Cluster or Not to Cluster: A Hybrid Clustering Protocol for WSN

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-850671110351&doi=10.1109%2fJEEIT.2019.8717524&partnerID=40&md5=1f2931cded6545f691e7c8b82c61a40e)

[850671110351&doi=10.1109%2fJEEIT.2019.8717524&partnerID=40&md5=1f2931cded6545f691e7c8b82c61a40e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-850671110351&doi=10.1109%2fJEEIT.2019.8717524&partnerID=40&md5=1f2931cded6545f691e7c8b82c61a40e)

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 1733, Jordan

ABSTRACT: Clustering protocols in wireless sensors networks (WSN) have dominated as a tailored routing protocols to harvest and route data from sensors's nodes to the sink station. A lot of clustering protocols have been proposed in the literature. However, does clustering algorithms work correctly in all cases? In other words, is it necessary for the nodes to be clustered during the network lifetime? In this work, a new Hybrid Clustering Routing Protocol (HCP) is proposed. The new protocol consists of two main phases; cluster formation and data forwarding. In the first phase, sensors's nodes decide to forward the traffic to the cluster head or directly to the sink node according to a threshold value. In this case, if the number of nodes in the network becomes small and scattered, no clustering will be performed. We simulated HCP and compared its performance with LEACH and LEACH-T. The results show reduction in network power consumption and an increase of the network lifetime by 30%. © 2019 IEEE.

Al-Zoubi, H., Al-Mashaleh, W.

Surfaces of finite type with respect to the third fundamental form

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067109296&doi=10.1109%2fJEEIT.2019.8717507&partnerID=40&md5=cae77921022c05e53bab1a8f9ba9baf8>
AFFILIATIONS: Dept. of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: In this article, we consider surfaces in the 3dimensional Euclidean space E3without parabolic points which are of finite III-type, that is, they are of finite type, in the sense of B.-Y. Chen, with respect to the third fundamental form. We present an important family of surfaces, namely, surfaces of revolution in E3. We study a special case of this family, namely, surfaces of revolution where the sum of the radii of the principal curvature R is constant. © 2019 IEEE.

Lafi, M., Botros, J.W., Kafaween, H., Al-Dasoqi, A.B., Al-Tamimi, A.
Code Smells Analysis Mechanisms, Detection Issues, and Effect on Software Maintainability
(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067107233&doi=10.1109%2fJEEIT.2019.8717457&partnerID=40&md5=a654351732e3007e516733badf845445>
AFFILIATIONS: Department of Software Engineering, AL-Zaytoonah University of Jordan, Amman, Jordan
ABSTRACT: Software evolution is an inevitable need in most of the modern businesses, software that doesn't accommodate changes is hard to survive the market needs. Also, software changes can affect the overall design of the software and sometimes in a corrupting way, affecting the maintainability and evolvability of the software, which introduces technical debt that needs to be solved by continuous refactoring and restructuring of software. Code smells are useful indicators to identify the parts of the code to be refactored to improve the overall maintainability of the software. We present an overview of software code smells, detection and analysis mechanisms and difficulties. Also, we address the effect of refactoring on software maintainability and error-proneness of software. © 2019 IEEE.

Althunibat, A., Al-Mahadeen, B.M., Altarawneh, F., Qarem, F.A.A.N.
The acceptance of using enterprise resource planning (ERP) system in higher education: A case study of jordanian universities
(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067105803&doi=10.1109%2fJEEIT.2019.8717451&partnerID=40&md5=570c438237442233b179af2a6d4db550>
AFFILIATIONS: Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan; Department of Computer Science, Mu'Tah University, Amman, Jordan
ABSTRACT: Enterprise resource planning (ERP) systems become very significant in managing business processes. However, higher education institution (HEI) should think more about implementing ERP systems to manage their processes and produce high quality output. Certainly, many research on ERP adoption have revealed that the organizations often faced many barriers and the failure rate is very high. In addition, different research projects conclude that, oftentimes, universities do not gain the expected benefits from adoption the ERP system. The HEI in Jordan should understand the factors that affect the acceptance of ERP in order to gain the expect benefits of ERP. Hence, it is significant to determine the factors affect the adoption of ERP in HEI in Jordan, that is, whether the universities is ready for implementing it. Therefore, the main purpose of this study is to determine the factors that affect the acceptance of using ERP by Jordanian universities, by evaluating through the questionnaire survey, in order find the most appropriate and prepared universities that willing to adopt ERP system in Jordan. © 2019 IEEE.

Jebril, I.H., Jablawi, A.
Some properties of fuzzy D-coimplication
(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067105594&doi=10.1109%2fJEEIT.2019.8717414&partnerID=40&md5=8f19de9e9164f2141546ef7d147b7952>
AFFILIATIONS: Dept. of Mathematics, Al-Zaytoonah University of Jordan, Amman, Jordan;
Dept. of Mathematics, Taibah University, Saudi Arabia
ABSTRACT: In this paper, we will introduce the definition of fuzzy D-Coimplications, then study the equivalences between D-coimplication and other fuzzy coimplication classes. Also, some examples are also discussed as well. © 2019 IEEE.

Hourani, H., Hammad, A., Lafi, M.
The impact of artificial intelligence on software testing
(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information

Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067104930&doi=10.1109%2fJEEIT.2019.8717439&partnerID=40&md5=c3ac77fdeb9d65801eceaede52a62d08)

85067104930&doi=10.1109%2fJEEIT.2019.8717439&partnerID=40&md5=c3ac77fdeb9d65801eceaede52a62d08

AFFILIATIONS: Faculty of Science and IT, Al Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Artificial Intelligence (AI) plays an important role in our life and touch base most of our surrounding applications and systems. A huge amounts of data are created every day from many different sources that need to be monitored and analyzed properly and report results and take actions. A more complex software applications have been built, time is becoming a critical factor to release applications that must be fully tested and comply with Business Requirements. AI plays a key role in Software Testing and can get more accurate results and saves time. This paper discuss the Artificial Intelligence key pillars that can be used in Software Testing. It also open a window on how the future will look like in terms of Artificial Intelligence and the Software Testing. The results show that AI can achieve better results in Software Testing and AI-driven testing will lead the new era of the quality assurance (QA) work in the near future. AI Software Testing will reduce time to market and will increase the efficiency of the organization to produce more sophisticated software and will create smarter automated testing. © 2019 IEEE.

Al-Tarawneh, F.H., Althunibat, A.

Pilot study of healthcare cots software evaluation and selection

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067104543&doi=10.1109%2fJEEIT.2019.8717402&partnerID=40&md5=8bf0eae459ebe629ad8db2991abaf072)

85067104543&doi=10.1109%2fJEEIT.2019.8717402&partnerID=40&md5=8bf0eae459ebe629ad8db2991abaf072

AFFILIATIONS: Department of Software Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In the recent years, the healthcare Commercial Off-The-Shelf (COTS) products are being increasingly integrated in the healthcare industry in order to decrease the development cost and increase the overall system productivity. Consequence, the selecting process of healthcare COTS software becomes problematic and more difficult, thus the well-defined method for evaluating and selecting the appropriate products that will be accepted in the real life becomes a necessity. Thus, this study was carried out to investigate the current practices, problems, activities and techniques of the evaluation and selection healthcare COTS software in healthcare industry. The survey and data collection was carried out in Jordanian healthcare sector. The descriptive statistics analysis was applied to categorize the identification techniques based to their importance. This paper presents the data, the analysis and finding based on pilot survey. These actual findings of this survey will facilitate constructing new framework for healthcare COTS software evaluation and selection, and also will provide useful information to those who are interesting in the same field. © 2019 IEEE.

Masoud, M.Z., Jaradat, Y., Jannoud, I., Zaidan, D.

CarChain: A Novel Public Blockchain-based Used Motor Vehicle History Reporting System

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067103376&doi=10.1109%2fJEEIT.2019.8717495&partnerID=40&md5=8b6c77022544713a675a9c8eebb0a143)

85067103376&doi=10.1109%2fJEEIT.2019.8717495&partnerID=40&md5=8b6c77022544713a675a9c8eebb0a143

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Blockchain Technology has been proposed to tackle author, centrality and storage issues. It converts centralized applications into dynamic distributed ones. Many researchers have proposed protocols and applications for mapping the old central applications into blockchain based distributed application. In this work, new system framework for Public World Wide Used Motor Vehicle History Reporting System, named CarChain, is proposed and designed. The new framework has not been constructed based on any of the popular well-known public blockchain networks. The framework constructs a peer-to-peer (P2P) overlay network that broadcasts transactions as any end system multicasting system in P2P live streaming applications. The framework allows car owners, repairing companies and insurance agencies to register and add new histories for cars in a simple method. Four different smart contracts control block updates in CarChain. In addition, database technology has been leveraged to cache intermediate data. We show in this paper the challenges and research opportunities that encounter blockchain based applications, such as CarChain. © 2019 IEEE.

Musa, K., Alshehadeh, A.-R., Alqerem, R.

The Role of Data Mining Techniques in the Decision-Making Process in Jordanian Commercial Banks

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067102738&doi=10.1109%2fJEEIT.2019.8717461&partnerID=40&md5=1973bf858f597edab5389ed2361f8638)

85067102738&doi=10.1109%2fJEEIT.2019.8717461&partnerID=40&md5=1973bf858f597edab5389ed2361f8638

AFFILIATIONS: Management Information Systems, Alzaytoonah University of Jordan, Amman, Jordan;

Accounting Department, Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Technology is one of the most essential factors that affect the business environment of modern banking organizations, allowing new capabilities to support the decision making process at all levels of the organizations to influence the immediate working environment. The use of data mining is one of the important recommendations of the study that will affect the efficiency and effectiveness efficiency of banking operations. The use of data mining technology strengthen the knowledge base and provide all the necessary data that will assist the Jordanian commercial banking industry in its decision-making process. The purpose of this study is to examine the role of applying data mining tools in the industry and decision making in Jordanian commercial banks. To achieve this objective, the researchers will use descriptive analytical methodology based on the questionnaire distributed to the members of the study community. © 2019 IEEE.

Mohammad, Z., Abusukhon, A., Qattam, T.A.

A Survey of Authenticated Key Agreement Protocols for Securing IoT

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067102140&doi=10.1109%2fJEEIT.2019.8717529&partnerID=40&md5=a2554ae864651bb3b0e2a785b5b1fca1)

[85067102140&doi=10.1109%2fJEEIT.2019.8717529&partnerID=40&md5=a2554ae864651bb3b0e2a785b5b1fca1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067102140&doi=10.1109%2fJEEIT.2019.8717529&partnerID=40&md5=a2554ae864651bb3b0e2a785b5b1fca1)

AFFILIATIONS: IT Faculty, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Internet of Things (IoT) is defined as an inanimate object which is designed with built-in wireless connectivity, and monitored, controlled and linked over the internet. As any new technology, IoT is confusing for the normal consumer especially as debates swirl around standardization, security and privacy. This paper presents the IoT applications such as home automation, healthcare, smart grid, smart city and smart car and focuses on how to secure the generated data by IoT devices from an unauthorized access. The IoT consists of devices which are constrained in their computational capability, network bandwidth, packet size and memory such as sensor nodes. This paper demonstrates that a lightweight and mutual authentication protocols are a fundamental building block for providing the mutual authentication between user and devices in the IoT applications. Furthermore, this paper surveys some of authenticated key agreement protocols for securing IoT and presents a comparison between them in terms of security and performance. © 2019 IEEE.

Kanan, T., Obaidat, A.T., Al-Lahham, M.

SmartCert BlockChain Imperative for Educational Certificates

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067097992&doi=10.1109%2fJEEIT.2019.8717505&partnerID=40&md5=a31b2c0ea28932bdf7f6ba3ce91734cf)

[85067097992&doi=10.1109%2fJEEIT.2019.8717505&partnerID=40&md5=a31b2c0ea28932bdf7f6ba3ce91734cf](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067097992&doi=10.1109%2fJEEIT.2019.8717505&partnerID=40&md5=a31b2c0ea28932bdf7f6ba3ce91734cf)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, Amman, Jordan;

Global RD Products Senior Engineer Avertra Corporation, Amman, Jordan

ABSTRACT: The electronic authentication system authenticates the documents electronically using the blockchain technology, which enables us to implement an integrated system of official documents of all kinds for Al-Zaytoonah University of Jordan. This technology allows us to build a robust database system that cannot be tampered with, modified, destroyed or altered. It further ensures the safety of documents issued within the University departments and those exported or deported outside the University system; such as, financial documents, official documents and academic certificates. Moreover, this system guarantees us a very high level of data and information security and confidentiality. Our system will be built using a database that provides 100% true information about the exports of that system. This technology will help users prevent the forgery of the data and official documents issued by the University of Al-Zaytoonah, both internally and externally, and also enables the departments within the University to issue documents to third parties while ensuring confirmed, undeniable delivery and sound content. © 2019 IEEE.

Mohammad, Z., Qattam, T.A., Saleh, K.

Security weaknesses and attacks on the internet of things applications

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067097724&doi=10.1109%2fJEEIT.2019.8717411&partnerID=40&md5=d14e1398eaa21a19221ae5200dcc2f79)

[85067097724&doi=10.1109%2fJEEIT.2019.8717411&partnerID=40&md5=d14e1398eaa21a19221ae5200dcc2f79](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067097724&doi=10.1109%2fJEEIT.2019.8717411&partnerID=40&md5=d14e1398eaa21a19221ae5200dcc2f79)

AFFILIATIONS: IT Faculty, Al-Zaytoonah University of Jordan Amman, Jordan;

Department of Computer Science, Al-Zaytoonah University of Jordan Amman, Jordan

ABSTRACT: Internet of Things (IoT) is a contemporary concept for connecting the existing things in our environment with the Internet for a sake of making the objects information are accessible from anywhere and anytime to support a modern life style based on the Internet. With the rapid development of the IoT technologies and widely spreading in most of the fields such as buildings, health,

education, transportation and agriculture. Thus, the IoT applications require increasing data collection from the IoT devices to send these data to the applications or servers which collect or analyze the data, so it is a very important to secure the data and ensure that do not reach a malicious adversary. This paper reviews some attacks in the IoT applications and the security weaknesses in the IoT environment. In addition, this study presents the challenges of IoT in terms of hardware, network and software. Moreover, this paper summarizes and points to some attacks on the smart car, smart home, smart campus, smart farm and healthcare. © 2019 IEEE.

Hamadneh, T., Athanasopoulos, N., Ali, M.

Minimization and Positivity of the Tensorial Rational Bernstein Form

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067095606&doi=10.1109%2fJEEIT.2019.8717503&partnerID=40&md5=99902d4819a39c6b8653b4db488b1a75)

[85067095606&doi=10.1109%2fJEEIT.2019.8717503&partnerID=40&md5=99902d4819a39c6b8653b4db488b1a75](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067095606&doi=10.1109%2fJEEIT.2019.8717503&partnerID=40&md5=99902d4819a39c6b8653b4db488b1a75)

AFFILIATIONS: Department of Mathematics, Al Zaytoonah University of Jordan, Amman, Jordan;

School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, Belfast, United Kingdom;

Department of Mathematics and Statistics, Jordan University of Science and Technology, Irbid, Jordan

ABSTRACT: Polynomials and rational functions of total degree l defined on n dimensional box have a representation in the Bernstein form. The range of these functions is bounded by the smallest and the largest Bernstein coefficients. In this paper, bounding properties of the range of monomials are extended to the multivariate rational Bernstein case. First, algebraic identities certifying the positivity of a given rational function over a box are addressed. Subsequently, we investigate certificates of positivity by minimization, and bounding functions which are independent of the given dimension. © 2019 IEEE.

Jannoud, I., Masoud, M., Jaradat, Y., Zerek, A.

Applications' Startups: Predicting Future of Smartphones Applications

(2019) 19th International Conference on Sciences and Techniques of Automatic Control and Computer Engineering, STA 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067094735&doi=10.1109%2fSTA.2019.8717201&partnerID=40&md5=a0ab76a1bba9d3fed92eb9e8b8c20f3c)

[85067094735&doi=10.1109%2fSTA.2019.8717201&partnerID=40&md5=a0ab76a1bba9d3fed92eb9e8b8c20f3c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067094735&doi=10.1109%2fSTA.2019.8717201&partnerID=40&md5=a0ab76a1bba9d3fed92eb9e8b8c20f3c)

AFFILIATIONS: Department of Electrical Engineering, Alzaytoonah University of Jordan, Amman, Jordan; Faculty of Engineering, Zawia University, Zawia, State of Libya

ABSTRACT: Start-ups are fast growing entrepreneurship. They have emerged for fast propagating of new technology, products or services. In this work, a measurement study of mobile phone applications will be conducted. This study aims to reveal the popular applications' fields in smartphones world. This popularity is utilized to recommend a field for a new startup. To this end, a new model based on supervised machine learning back propagation neural network (BPNN) model is proposed. The new model is trained and utilized to predict the popularity of new applications in any application field. To facilitate our process, a web-crawler has been written to harvest smartphones' applications information from a popular Android platform's market. The crawled data consists of download count, applications categories and users' reviews. These data has been fed to train the proposed model. Our results show that the model has been trained with a mean square error root approximately 0.002, which show the relation between download count and application category. This relation reflects the popularity of some categories in smartphone applications' market. © 2019 IEEE.

Hawashin, B., Mansour, A., Abukhait, J., Khazalah, F., Alzurbi, S., Kanan, T., Obaidat, M., Elbes, M.

Efficient Texture Classification Using Independent Component Analysis

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067093420&doi=10.1109%2fJEEIT.2019.8717518&partnerID=40&md5=93525ed57d5e59044f0700d5a0273313)

[85067093420&doi=10.1109%2fJEEIT.2019.8717518&partnerID=40&md5=93525ed57d5e59044f0700d5a0273313](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067093420&doi=10.1109%2fJEEIT.2019.8717518&partnerID=40&md5=93525ed57d5e59044f0700d5a0273313)

AFFILIATIONS: Department of Computer Information Systems, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Communications, Electronic and Computer Engineering, Tafila Technical University, Tafila, Jordan;

Department of Computer Information Systems, Albeit University, Mafrqa, Jordan;

Department of Computer Science, Alzaytoonah University of Jordan, Amman, Jordan;

Department of Mechatronics and Power, Tafila Technical University, Tafila, Jordan

ABSTRACT: Texture classification is the assignment of texture to one or more texture classes. It has been largely used in various fields. This paper proposes a system for Texture Classification using Independent Component Analysis (ICA) using set of classifiers. Independent Component Analysis proved its efficiency in many domains. Our objective is to improve texture classification by adopting the use of ICA with a classifier in this domain. After extracting the main features of the image,

classification using set of classifiers is performed. Experimental results have shown that ICA has a promising performance in texture classification. When combined with neural networks, Texture classification accuracy reached the accuracy of 91%. Furthermore, Naïve Bayes showed both exceptional training and testing times, and therefore, it proved to be efficient for big datasets. © 2019 IEEE.

Hnaif, A.A., Al-Madi, N., Abduljawad, M., Ahmad, A.

An intelligent road traffic management system based on a human community genetic algorithm (2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067092398&doi=10.1109%2fJEEIT.2019.8717388&partnerID=40&md5=8751cf963ce6ce26fa79ddb518239e2a)

85067092398&doi=10.1109%2fJEEIT.2019.8717388&partnerID=40&md5=8751cf963ce6ce26fa79ddb518239e2a

AFFILIATIONS: Computer Science, Al-Zaytoonah University of Jordan, Jordan;

Software Engineering, Al-Zaytoonah University of Jordan, Jordan;

Computer and Communication Engineering, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Traffic congestions recognized as a significant problem in modern urban cities. Jordan considered as one of the top countries worldwide in terms of frequency of traffic accidents where the increase in the number of vehicles had led to the rise in the number of traffic incidents, involving the increase in fatalities and injuries, but the fixed timers still control the current traffic signals system in Jordan. In this paper, an Intelligent Road Traffic Management System based on Human Community Genetic Algorithm (IRTMS) proposed. The IRTMS compared with the current traffic system in the Hashmet Kingdom of Jordan, which concludes that it has the minimum total time and waiting time compared with the current traffic lights system. © 2019 IEEE.

Alia, M.A., Maria, K.A., Alsarayreh, M.A., Maria, E.A., Almanasra, S.

An improved video steganography: Using random key-dependent

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067091755&doi=10.1109%2fJEEIT.2019.8717368&partnerID=40&md5=29170c41a82021020a542bbcecc8889b)

85067091755&doi=10.1109%2fJEEIT.2019.8717368&partnerID=40&md5=29170c41a82021020a542bbcecc8889b

AFFILIATIONS: Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Computer Studies, Arab Open University, Saudi Arabia

ABSTRACT: Steganography is defined as the art of hiding secret data in a non-secret digital carrier called cover media. Trading delicate data without assurance against intruders that may intrude on this data is a lethal. In this manner, transmitting delicate information and privileged insights must not rely on upon just the current communications channels insurance advancements. Likewise should make more strides towards information insurance. This article proposes an improved approach for video steganography. The improvement made by searching for exact matching between the secret text and the video frames RGB channels and Random Key -Dependent Data, achieving steganography performance criteria, invisibility, payload/ capacity and robustness. © 2019 IEEE.

Elbes, M., Almaita, E., Alrawashdeh, T., Kanan, T., Alzurbi, S., Hawashin, B.

An Indoor Localization Approach Based on Deep Learning for Indoor Location-Based Services

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067091721&doi=10.1109%2fJEEIT.2019.8717509&partnerID=40&md5=ae597025a7861aa3f25dcab94f26e2a0)

85067091721&doi=10.1109%2fJEEIT.2019.8717509&partnerID=40&md5=ae597025a7861aa3f25dcab94f26e2a0

AFFILIATIONS: Computer Science Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Electrical Engineering Department, Altafilah Technical University, tafila, Jordan;

Software Engineering Department, Al-Zaytoonah University of Jordan, Amman, Jordan;

Computer Information Systems, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The rapid increase in the demand of location based services (LBS) for indoor environments has attracted scholars to indoor localization based on fingerprinting due its high accuracy. In this paper, we propose our novel indoor localization approach based on fingerprints of Received Signal Strength Indicator (RSSI) measurements. We present our approach of fingerprint preparation and setup and how we utilized machine learning techniques using Long Short-Term Memory (LSTM) Neural Networks for location estimation. Our experimental results shows that our localization approach outperforms well-known existing approaches like the KNN and localization techniques. © 2019 IEEE.

Jaradat, Y., Masoud, M., Jannoud, I., Zaidan, D.

The Impact of Nodes Distribution on Energy Consumption in WSN

(2019) 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067089988&doi=10.1109%2fJEEIT.2019.8717473&partnerID=40&md5=56ab2530a6de664c67feb747c3083cd8)

85067089988&doi=10.1109%2fJEEIT.2019.8717473&partnerID=40&md5=56ab2530a6de664c67feb747c3083cd8

AFFILIATIONS: Department of Electrical Engineering/Communications and Computer, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: In this paper, a study of the effect of different node distributions on energy consumption in wireless sensor network is conducted. Three different node placement distributions are utilized namely, uniform, normal, and exponential distributions. LEACH clustering algorithm is utilized to evaluate the performance of the three node placement strategies in terms of energy expenditure, network throughput and network lifetime. In general, it was noticed that normal distribution of network nodes outperforms the other distributions regarding energy consumption, throughput and network lifetime especially when the sink node is distant. © 2019 IEEE.

Al-Qerem, W., Hammad, A.M., Gassar, E.S., Al-Qirim, R.A., Ling, J.
Spirometry reference equations for an adult Middle Eastern population

(2019) Expert Review of Respiratory Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064521794&doi=10.1080%2f17476348.2019.1601560&partnerID=40&md5=c3275a7c92e5d5874d965708934e285f)

[85064521794&doi=10.1080%2f17476348.2019.1601560&partnerID=40&md5=c3275a7c92e5d5874d965708934e285f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064521794&doi=10.1080%2f17476348.2019.1601560&partnerID=40&md5=c3275a7c92e5d5874d965708934e285f)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Health Sciences and Wellbeing, University of Sunderland, Sunderland, United Kingdom

ABSTRACT: Background: Spirometric reference values are crucial in screening, diagnosis and monitoring the therapeutic course of respiratory diseases. These values from a representative population are key to making a precise interpretation of respiratory diseases. The objective of this study is to determine the spirometric reference values of a healthy Jordanian population. Method: Participants were recruited from Al-Zaytoonah University of Jordan and from several pharmacies, polyclinics and hospitals in different cities in Jordan. To formulate Jordanian-specific spirometric reference values, generalised additive models for location scale and shape (GAMLSS) were used. Results: Spirometric reference values were derived from 1,949 healthy nonsmoking adults (1,061 females) and validated in 300 healthy nonsmoking subjects (150 females). Conclusion: Spirometric reference values were developed for a Middle Eastern adult population. © 2019, © 2019 Informa UK Limited, trading as Taylor & Francis Group.

Abood, N.

Big five traits: A critical review

(2019) Gadjah Mada International Journal of Business, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071984337&doi=10.22146%2f2fgamaijb.34931&partnerID=40&md5=81970e43f8073f7697ecd32c85c23ace)

[85071984337&doi=10.22146%2f2fgamaijb.34931&partnerID=40&md5=81970e43f8073f7697ecd32c85c23ace](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071984337&doi=10.22146%2f2fgamaijb.34931&partnerID=40&md5=81970e43f8073f7697ecd32c85c23ace)

AFFILIATIONS: Al Zaytoonah University of Jordan, Jordan

ABSTRACT: This study seeks to provide a broad and thorough review of the literature on the big five traits (BFT) through a long history of conceptual and applied studies in many areas depending on large samples of individuals, groups and countries. The BFT is the most widely accepted model to describe the structure of personality traits, so this study sought to identify them in order to achieve a better understanding as well as for consideration by researchers in their future studies. This review focused on the eight key observations related to the BFT. These observations are: meaning of the traits; the history of the BFT model; unity or hierarchy of traits; number of the traits; three perspectives on BFT; BFT questionnaires; BFT and performance; and the need for a sixth trait. The results of the study clearly confirmed that there are problems with universal models that tend to generalize a limited number of dimensions in order to interpret personality across borders and cultures. © 2019, Gadjah Mada University. All rights reserved.

Al-Tarawneh, F.H., Al-Naimat, A.M., Abdel-Fattah, F., Al-Tarawneh, B.M.

An empirical study for the current practice of cots software selection in the Jordan organizations

(2019) ICIC Express Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064486879&doi=10.24507%2f2ficicel.13.05.357&partnerID=40&md5=5c967a5453abddc2c60f935004cbb9fd)

[85064486879&doi=10.24507%2f2ficicel.13.05.357&partnerID=40&md5=5c967a5453abddc2c60f935004cbb9fd](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064486879&doi=10.24507%2f2ficicel.13.05.357&partnerID=40&md5=5c967a5453abddc2c60f935004cbb9fd)

AFFILIATIONS: Faculty of Sciences and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Faculty of Information Technology, The World Islamic Sciences and Education University, Tabarbour, P.O. Box 1101, Amman, 11947, Jordan;

Faculty of Engineering and Technology, The University of Jordan, The University of Jordan Street, Amman, 11942, Jordan

ABSTRACT: The increased demands on the COTS software in the last decades have flooded the software market with a huge number of COTS software. Therefore, selecting the most suitable COTS software has become the main challenge to the organizations that intend to use such software. In other words, the wrong decisions will reflect negatively on the organization entirely by increasing the cost, time, and effort. In this paper, an empirical study is oriented towards discovering, describing, validating, and holistic understanding of processes, activities, characteristics of current

practices, and problems of the COTS software evaluation and selection in Jordanian organizations. The findings of this survey that comprise the important processes, activities, techniques, problems, and approaches were delivered based on the developers' preferences. These also form the basis of knowledge from the practitioners' perspectives for researchers to develop and improve the existing theories, models, and techniques so that they would become more acceptable in real life. At the same time, these findings could also be used as feedbacks for organizations to not only improve the COTS software selection process but also encourage the use of a well-defined and systematic method. © 2019, ICIC International. All rights reserved.

Alhusban, A.A., Tarawneh, O.A., Dawabsheh, S.O., Alhusban, A.A., Abumhareb, F.W.
Liquid chromatography-tandem mass spectrometry for rapid and selective simultaneous determination of fluoroquinolones level in human aqueous humor
(2019) Journal of Pharmacological and Toxicological Methods, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063300050&doi=10.1016%2Fj.vascn.2019.03.001&partnerID=40&md5=55ff7abf54abe51c6d31e8276da7631b>
AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Ophthalmology, King Talal Military Hospital, Royal Medical Services, Almafraaq, Jordan
ABSTRACT: Endophthalmitis, an intraocular infection, may lead to irreversible loss of vision. Antimicrobial chemotherapy is prescribed prior to ocular surgical procedures to avoid endophthalmitis. Fluoroquinolones are the most commonly prescribed and used antibiotics during such procedures. However, the selection of a single entity and proper regimen is not specified in medical guidelines. The objective of this study is to develop a rapid and selective simultaneous high-performance liquid chromatography-tandem mass spectroscopic method to explore the bioavailability of 4 fluoroquinolones, including 0.5% moxifloxacin hydrochloride, 0.3% gatifloxacin, 0.3% ciprofloxacin hydrochloride, and 0.3% ofloxacin, in human aqueous humor after antibiotic topical administration using gemifloxacin as Internal Standard according to the European Medicines Agency (EMA) and US Food and Drug Administration (FDA) guidelines. The newly validated method was capable of accurately and precisely quantifying each antibiotic at the lowest reported lower limit of quantification of 10 ng/mL and operating on a very low pipetting volume of 15 µL, indicating a reliable quantitation of all analytes simultaneously using a very small quantity of aqueous humor with total chromatographic run time of 2.5 min. Sixty-seven patients were divided into 4 groups for each antibiotic. Before the cataract surgery, each group received 4 drops of one of the antibiotics over 1 h, separated by 15 min time interval. After 15-20 min from the last drop, approximately 50-100 µL of aqueous humor was collected during surgery for analysis. The average concentrations of moxifloxacin, gatifloxacin, ofloxacin and ciprofloxacin in aqueous humor samples were 891.8, 271.7, 191.4 and 69.5 ng/mL, respectively. Only moxifloxacin average concentration was higher than the minimum inhibitory concentration for the common endophthalmitis pathogens. © 2019 Elsevier Inc.

Islam, M.T., Biswas, S., Bagchi, R., Khan, M.R., Khalipha, A.B.R., Rouf, R., Uddin, S.J., Shilpi, J.A., Bardaweel, S.K., Sabbah, D.A., Mubarak, M.S.
Ponicidin as a promising anticancer agent: Its biological and biopharmaceutical profile along with a molecular docking study
(2019) Biotechnology and Applied Biochemistry, .
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062529331&doi=10.1002%2Fbab.1740&partnerID=40&md5=9aeb1f55057ea6cb1c579ecd594fcc6a>
AFFILIATIONS: Department for Management of Science and Technology Development, Ton Duc Thang University, Ho Chi Minh City, Viet Nam;
Faculty of Pharmacy, Ton Duc Thang University, Ho Chi Minh City, Viet Nam;
Department of Pharmacy, Life Science Faculty, Bangabandhu Sheikh Mujibur Rahman Science & Technology University, Gopalganj, Bangladesh;
Pharmacy Discipline, Life Science School, Khulna University, Khulna, Bangladesh;
Department of Pharmaceutical Sciences, Faculty of Pharmacy, The University of Jordan, Amman, Jordan;
Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;
Department of Chemistry, The University of Jordan, Amman, Jordan

ABSTRACT: Ponicidin, an ent-kaurane diterpenoid derived from *Rabdosia rubescens*, exhibits antitumor activities against several types of cancers. This review summarizes the botanical sources, biological activities, and biopharmaceutical profile of ponidicin. Additionally, a molecular docking study has been undertaken to correlate the interaction of this diterpenoid with biomacromolecules found in the literature. For this purpose, an up-to-date (till December 2018) literature survey was conducted using a number of databases such as PubMed, Science Direct, Web of Science, Scopus, the American Chemical Society, Clinicaltrials.gov, and Google Scholar. Findings suggest that ponidicin exerts antioxidant and anticancer activity in various test systems, including experimental animals and cultured cancer cells. Research findings revealed that anticancer mechanisms of ponidicin include antioxidant/oxidative stress induction, cytotoxic, apoptotic inductive, chemosensitizer,

antiangiogenic, and antiproliferative effects. In silico study suggests that 5ITD (PI3K) was the best protein with which ponocidin interacts to exert its anticancer effect. In conclusion, ponocidin might be a promising plant-derived cancer chemotherapeutic agent. © 2019 International Union of Biochemistry and Molecular Biology, Inc.

Hamici, Z., Abu-Elhaija, W.

Power Conditioning with Intelligent Control Using a Novel Recursive Stochastic Optimization (2019) IEEE Transactions on Industrial Electronics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85050399077&doi=10.1109%2fTIE.2018.2856195&partnerID=40&md5=30baf40b0524650e7409fa472dc99e0f)

[85050399077&doi=10.1109%2fTIE.2018.2856195&partnerID=40&md5=30baf40b0524650e7409fa472dc99e0f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85050399077&doi=10.1109%2fTIE.2018.2856195&partnerID=40&md5=30baf40b0524650e7409fa472dc99e0f)

AFFILIATIONS: Electrical Engineering Department, Zaytoonah University of Jordan, Amman, 11814, Jordan;

Electrical Engineering Department, Princess Sumaya University for Technology, Amman, 11941, Jordan

ABSTRACT: This paper presents a novel smart-grid power-conditioning system with intelligent control for solving a critical issue affecting the performance and life of three-phase asynchronous machines that are highly sensitive to voltage and phase drifts power disturbances of the electric grid. The present work of controlling the power supply of an electric-grid is based on an original power conditioning control algorithm; named recursive stochastic optimization (RSO) algorithm. An asynchronous machine steady-state model is derived based on symmetrical components analysis, permitting the evaluation of the effect of both voltage and phase unbalance using voltage and current unbalance factors. The three-phase power supply is conveyed through a power conditioning and intelligent control system, driven by a digital signal processor (DSP) controller, which measures the input currents, estimates the unbalance factors, and searches for voltage levels that minimize the electric-grid unbalance using the RSO, in order to act on a feedback power-electronics stage. The RSO algorithm shows excellent results along with very fast response time of the order of 20 ms allowing real-time control. Results obtained are validated with a Simulink dynamic model. The intelligent control system architecture based on TMS320C6748 DSP board with signal acquisition and control microcontroller is proposed. © 1982-2012 IEEE.

Mahmoud, N.N., Abu-Dahab, R., Hamadneh, L.A., Abuarqoub, D., Jafar, H., Khalil, E.A.

Insights into the Cellular Uptake, Cytotoxicity, and Cellular Death Modality of Phospholipid-Coated Gold Nanorods toward Breast Cancer Cell Lines

(2019) Molecular Pharmaceutics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072324583&doi=10.1021%2facs.molpharmaceut.9b00470&partnerID=40&md5=d9b3a0f94eb16408f07b8b16f9a6b389)

[85072324583&doi=10.1021%2facs.molpharmaceut.9b00470&partnerID=40&md5=d9b3a0f94eb16408f07b8b16f9a6b389](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072324583&doi=10.1021%2facs.molpharmaceut.9b00470&partnerID=40&md5=d9b3a0f94eb16408f07b8b16f9a6b389)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

School of Pharmacy, University of Jordan, Amman, 11942, Jordan;

Cell Therapy Center, University of Jordan, Amman, 11942, Jordan;

School of Medicine, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Gold nanorods (GNRs) have gained pronounced recognition in the diagnosis and treatment of cancers driven by their distinctive properties. Herein, a gold-based nanosystem was prepared by utilizing a phospholipid moiety linked to thiolated polyethylene glycol, 1,2-distearoyl-sn-glycero-3-phosphoethanolamine-N-PEG-SH, as a surface decorating agent. The synthesized phospholipid-PEG-GNRs displayed good colloidal stability upon exposure to the tissue culture medium. Cytotoxicity of phospholipid-PEG-GNRs was investigated toward MCF-7 and T47D breast cancer cells using sulforhodamine B test. The results revealed that phospholipid-PEG-GNRs demonstrated high cytotoxicity to MCF-7 cells compared to T47D cells, and minimal cytotoxicity to human dermal fibroblasts. The cellular uptake studies performed by imaging and quantitative analysis demonstrated massive internalization of phospholipid-coated GNRs into MCF-7 cells in comparison to T47D cells. The cellular death modality of cancer cells after treatment with phospholipid-PEG-GNRs was evaluated using mitochondrial membrane potential assay (JC-1 dye), gene expression analysis, and flow cytometry study. The overall results suggest that phospholipid-modified GNRs enhanced mainly the cellular apoptotic events in MCF-7 cells in addition to necrosis, whereas cellular necrosis and suppression of cellular invasion contributed to the cellular death modality in the T47D cell line upon treatment with phospholipid-PEG-GNRs. The phospholipid-coated GNRs interact in a different manner with breast cancer cell lines and could be considered for breast cancer treatment. © 2019 American Chemical Society.

Abdallah, M.

Big Data Quality Challenges

(2019) Proceedings of the 2019 International Conference on Big Data and Computational Intelligence, ICBDCI 2019, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065568707&doi=10.1109%2fICBDCI.2019.8686099&partnerID=40&md5=6acc8caa9e8f2bcf98357ddbe05725fb)

[85065568707&doi=10.1109%2fICBDCI.2019.8686099&partnerID=40&md5=6acc8caa9e8f2bcf98357ddbe05725fb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065568707&doi=10.1109%2fICBDCI.2019.8686099&partnerID=40&md5=6acc8caa9e8f2bcf98357ddbe05725fb)

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Big Data, is a growing technique these days. There are many uses of Big Data; Artificial Intelligence, Health Care, Business, and many more. For that reason, it becomes necessary to deal with this massive volume of data with caution and care in a term to make sure that the data used and produced is in high quality. Therefore, the Big Data quality is must, and its rules have to be satisfied. In this paper, the main Big Data Quality Factors, which need to be measured, is presented in the perspective of the data itself, the data management, data processing, and data users. This research highlights the quality factors that may be used later to create different Big Data quality models. © 2019 IEEE.

Abul-Futouh, H., Imhof, W., Weigand, W., Almazahreh, L.R.

Electrochemical and computational insights into the reduction of $[\text{Fe}_2(\text{CO})_6[\text{m}-(\text{SCH}_2)_2\text{GeMe}_2]]$ hydrogenase H-cluster mimic

(2019) Inorganics, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065319690&doi=10.3390%2finorganics7040050&partnerID=40&md5=2d281f18e7c34a798dd30c6a367cc3ca)

[85065319690&doi=10.3390%2finorganics7040050&partnerID=40&md5=2d281f18e7c34a798dd30c6a367cc3ca](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065319690&doi=10.3390%2finorganics7040050&partnerID=40&md5=2d281f18e7c34a798dd30c6a367cc3ca)

AFFILIATIONS: Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Integrierte Naturwissenschaften, Universität Koblenz-Landau, Universitätsstr. 1, Koblenz, D-56070, Germany;

Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany;

ERCOSPLAN Ingenieurbüro Anlagentechnik GmbH, Arnstädter Straße 28, Erfurt, 99096, Germany

ABSTRACT: The electrochemical reduction of the complex $[\text{Fe}_2(\text{CO})_6[\text{m}-(\text{SCH}_2)_2\text{GeMe}_2]]$ (1) under N_2 and CO is reported applying cyclic voltammetry. Reduction of complex 1 in CO saturated solutions prevents the possible release of CO from the dianion 1²⁻, while the latter reacts with additional CO forming a spectroscopically uncharacterized product P1. This product undergoes a reversible redox process at $E_{1/2} = -0.70 \text{ V}$ (0.2 V⁻¹). In this report, the structure of the neutral complex 1, isomers of dianionic form of 1, and P1 are described applying DFT computations. Furthermore, we propose reaction pathways for H₂ production on the basis of the cyclic voltammetry of complex 1 in presence of the strong acid CF₃SO₃H. © 2019 by the authors.

Al-Azzeh, F., Aldahoud, A., Nabulsi, M., Al-Qatawneh, S.

Quality effects of using advanced technologies in learning process at universities

(2019) ICIC Express Letters, Part B: Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065232011&doi=10.24507%2fificelb.10.04.291&partnerID=40&md5=eb925aba3dff01588a79ea66221d44a2)

[85065232011&doi=10.24507%2fificelb.10.04.291&partnerID=40&md5=eb925aba3dff01588a79ea66221d44a2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065232011&doi=10.24507%2fificelb.10.04.291&partnerID=40&md5=eb925aba3dff01588a79ea66221d44a2)

AFFILIATIONS: Faculty of Science and IT, Al-Zaytoonah University of Jordan, Airport Road, P.O.Box 130, Amman, 11733, Jordan

ABSTRACT: This work aims to investigate the quality effects of integrating creative technology as an instructional tool in higher education. In 2015, Al-Zaytoonah University of Jordan established a pilot project entitled "Interactive Learning Using Smartboards". In this project, each faculty received a number of smartboards, desktops, Internet connection, and lecturers training. 450 participants completed a 28-item survey. The questionnaire included questions about demographic information and Likert scale questions related to 4 hypotheses which predicted that lecturers and students would offer favourable opinions about various aspects of smartboards use and benefits, as well as written comments and concerns. The findings indicated a high degree of user's satisfaction with most aspects of the smartboard and its use. Thus, accessibility to such technology should be extended to more lecturers and students by adding smartboards to more classrooms and laboratories in the university. © 2019, ICIC International. All rights reserved.

Mohammad, Z.

Cryptanalysis of an efficient protocol for authenticated key agreement

(2019) ICIC Express Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064632403&doi=10.24507%2fificel.13.04.293&partnerID=40&md5=cfbfd386e299fd491b9720299756029ec)

[85064632403&doi=10.24507%2fificel.13.04.293&partnerID=40&md5=cfbfd386e299fd491b9720299756029ec](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064632403&doi=10.24507%2fificel.13.04.293&partnerID=40&md5=cfbfd386e299fd491b9720299756029ec)

AFFILIATIONS: Department of Computer Science, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In NRSC28, Elkamchouchi and Abu Elkair proposed an efficient protocol for authenticated key agreement, and the authors claimed that the proposed protocol is secure against known attacks. However, this letter shows that Elkamchouchi and Abu Elkair protocol cannot withstand the two types of key compromise impersonation (KCI) attacks namely, general-KCI, and static-KCI. In addition, we show the man-in-the-middle attack and known key security attack on Elkamchouchi and Abu Elkair protocol, and also the protocol cannot provide perfect forward secrecy property. Furthermore, we use the Scyther tool as an automated verification method to demonstrate the security flaws in Elkamchouchi and Abu Elkair protocol. © 2019 ICIC International.

Al Barmawi, M.A., Subih, M., Salameh, O., Sayyah Yousef Sayyah, N., Shoqirat, N., Abdel-Azeez Eid Abu Jebbeh, R.

Coping strategies as moderating factors to compassion fatigue among critical care nurses
(2019) *Brain and Behavior*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064091682&doi=10.1002%2fbrb3.1264&partnerID=40&md5=14342b34232f9e1d592a64b259eedf7f)

[85064091682&doi=10.1002%2fbrb3.1264&partnerID=40&md5=14342b34232f9e1d592a64b259eedf7f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064091682&doi=10.1002%2fbrb3.1264&partnerID=40&md5=14342b34232f9e1d592a64b259eedf7f)

AFFILIATIONS: Faculty of Nursing, Nursing Department, Alzaytoonah University of Jordan (ZUJ), Amman, Jordan;

Nursing Faculty, Mutah University, Karak, Jordan

ABSTRACT: Purpose: This study measured levels of compassion fatigue, burnout and satisfaction among critical care and emergency nurses. It investigated coping strategies as moderating factors and as predictors to levels of compassion fatigue. Methods: Using a cross-sectional design, this study was conducted on 228 (84.4%) out of 270 from four Jordanian hospitals. Nurses worked in different types of critical care units and emergency departments. Nurses completed a demographic questionnaire on the professional quality of life and coping strategies indicator scales. Results: Nurses had low to average compassion satisfaction, burnout and secondary stress syndrome. Problem-solving and avoidance ranged between very low and average levels. Nurses reported having very low to average levels on seeking social support scale. Female nurses had better compassion satisfaction compared with their male colleagues, and the type of unit had a significant impact on the secondary stress syndrome, problem-solving, and seeking social support. Nurses from the surgical cardiovascular ICU scored the highest mean scores on the secondary stress syndrome. Better coping strategies were associated with higher compassion satisfaction and lower levels of secondary stress syndrome. Problem-solving significantly predicted compassion satisfaction, avoidance significantly predicted secondary traumatic syndrome. Conclusions: Coping strategies are moderating factors that could improve compassion satisfaction among critical care nurses. Managers could use findings to create healthier and supportive work environments. We recommend focusing on activities that promote better coping strategies, including improving the social support system. We also recommend replicating this study using a qualitative approach to identify further causes of compassion fatigue. © 2019 The Authors. *Brain and Behavior* published by Wiley Periodicals, Inc.

Sharour, L.A., Subih, M., Salameh, O., Alrshoud, M.

End-of-life care (EOLC) in Jordanian critical care units: Barriers and strategies for improving
(2019) *Critical Care and Shock*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064060698&partnerID=40&md5=adde82c7d9e8cf4a349d068265b6e7ce)

[85064060698&partnerID=40&md5=adde82c7d9e8cf4a349d068265b6e7ce](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064060698&partnerID=40&md5=adde82c7d9e8cf4a349d068265b6e7ce)

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan (ZUJ), Amman, Jordan;

College of Nursing, Sultan Qaboos University, Oman

ABSTRACT: Background: End-of-life care (EOLC) is a pivotal element of work in ICUs and for critical care nurses, thus, it is considered one of the top research priorities recently as number of admission ICUs increasing and high percentage of deaths also. Objective: This study was conducted to explore the obstacles of EOLC and strategies for improvement from nurses' perception. Methods: The questionnaire, that was developed by Beckstrand and Kirchhoff (2005), was used to collect data from 163 critical care nurses from different hospitals. Results: Two hundred questionnaires were distributed. One hundred and sixty-three questionnaires were completed and returned with response rate 81.5%. The majority of the participants were male nurse 104 (63.8%), with bachelor degree 153 (93.9%), working in adult. ICU 105 (64.4%), as bedside nurse 141 (86.5%). The highest obstacles from the nurses' perception were family and friends who continually call the nurse wanting an update on the patient's condition rather than calling the designated family member for information (mean=4.07). Furthermore, the highest three supportive behaviors from the nurses' perception were physicians agreeing about direction of patient care (mean=3.96), family members accept that patient is dying (mean=3.94), and family designating one family member as contact person for the rest of the family (mean=3.89). Conclusion: As the number of deaths is increasing in critical care units, the needs to understand how the EOLC is provided in these units. Identifying obstacles and supportive behaviours will assist the stakeholders and policymakers to set the action plans for improving the quality of EOLC. © 2019, The Indonesian Foundation of Critical Care Medicine. All rights reserved.

Al Bawab, A.Q., Alkhalidi, B.A., Albarahmeh, E., Qassim, S.M.A., Al-Saifi, M.A.D.

Comparative Randomized, Single-Dose, Two-Way Crossover Open-Label Study to Determine the Bioequivalence of Two Formulations of Dalfampridine Tablets

(2019) *Clinical Pharmacology in Drug Development*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063886306&doi=10.1002%2fcdd.574&partnerID=40&md5=334d31baf91cb046b82d5bc8cc6a469a)

[85063886306&doi=10.1002%2fcdd.574&partnerID=40&md5=334d31baf91cb046b82d5bc8cc6a469a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063886306&doi=10.1002%2fcdd.574&partnerID=40&md5=334d31baf91cb046b82d5bc8cc6a469a)

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan Amman, Jordan;

School of Pharmacy, The University of Jordan Amman, Jordan;

School of Applied Medical Sciences, German Jordanian University Amman, Jordan;
Tabuk Pharmaceuticals, Tabuk, Saudi Arabia

ABSTRACT: Dalfampridine is a medication that is approved by the US Food and Drug Administration to improve walking impairments in patients with multiple sclerosis (MS). The branded dalfampridine is enormously expensive; hence, the availability of generic dalfampridine will provide better access to the medication, especially for uninsured patients with MS. Bioequivalence studies are demanded by the regulatory authorities to allow the marketing of new generics of dalfampridine. The aim of this study was to assess the bioavailability of the generic (test) and branded (reference) formulations of 10 mg dalfampridine of extended-release tablets after oral administration to healthy adults under fed conditions. The current report methodology was based on a comparative, randomized, single-dose, 2-way crossover open-label study design. Twenty-seven subjects were given a single dose of the test dalfampridine tablet and completed the clinical study. The pharmacokinetic parameters C_{max} and $AUC_{0 \rightarrow \infty}$, $t_{1/2}$, K_{el} , $AUC_{0 \rightarrow t}$, t_{max} , and $t_{1/2el}$ were estimated to prove bioequivalence. The confidence intervals for the log-transformed test/reference ratios for dalfampridine 100.96% (97.09%–104.97%) and 99.77% (95.81%–103.87%) for C_{max} and $AUC_{0 \rightarrow \infty}$, respectively, were within the allowed limit specified by the regulatory authorities (80%–125%). Hence, clinically, the test tablet can be prescribed as an alternative to the reference for the indication of improving walking impairments in patients with MS. © 2018, The American College of Clinical Pharmacology

Salami, I., Subih, M., Darwish, R., Al-Jbarat, M., Saleh, Z., Maharmeh, M., Alasad, J., Al-Amer, R.
Medication Administration Errors: Perceptions of Jordanian Nurses
(2019) Journal of Nursing Care Quality, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061974215&doi=10.1097%2fncq.000000000000340&partnerID=40&md5=e8e057697ac8bb084666a39bac8afbb9)

[85061974215&doi=10.1097%2fncq.000000000000340&partnerID=40&md5=e8e057697ac8bb084666a39bac8afbb9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061974215&doi=10.1097%2fncq.000000000000340&partnerID=40&md5=e8e057697ac8bb084666a39bac8afbb9)

AFFILIATIONS: School of Nursing, University of Jordan, Amman, 11942, Jordan;

School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Ministry of Health, Amman, Jordan;

University of Jordan Hospital, Amman, Jordan;

School of Nursing, Al-Israá University, Amman, Jordan

ABSTRACT: Background: Medication administration errors (MAEs) have short-and long-Term implications on patients' health as well as on hospitals' accreditation and financial status. Purpose: The purpose was to explore Jordanian nurses' perceptions about MAEs. Methods: A cross-sectional design was used with a convenience sample of 470 nurses. Results: The most common types of MAEs were wrong time (32.6%) and wrong patient (30.5%). In addition, night shifts accounted for 42.9% of MAEs; the factor that contributed the most to MAEs was workload. Conclusion: Developing effective quality assurance programs in relation to medications and medication administration in all Jordanian health care settings is vital to ensure patient safety. Nursing educators in clinical and academic settings need to reinforce the importance of medication rights as well as medication calculation. A distraction-free zone should be created and reinforced in all medication rooms. © 2019 Lippincott Williams and Wilkins. All Rights Reserved.

Jarrar, Y.B., Jarrar, Q., abed, A., Abu-Shalhoob, M.

Effects of nonsteroidal anti-inflammatory drugs on the expression of arachidonic acid-metabolizing Cyp450 genes in mouse hearts, kidneys and livers

(2019) Prostaglandins and Other Lipid Mediators, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061532326&doi=10.1016%2fj.prostaglandins.2019.02.003&partnerID=40&md5=1ca2a77cd13fd5d0724442b5061b00ce)

[85061532326&doi=10.1016%2fj.prostaglandins.2019.02.003&partnerID=40&md5=1ca2a77cd13fd5d0724442b5061b00ce](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061532326&doi=10.1016%2fj.prostaglandins.2019.02.003&partnerID=40&md5=1ca2a77cd13fd5d0724442b5061b00ce)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, AlZaytoonah University of Jordan, Amman, Jordan;

Department of Applied Pharmaceutical Sciences, Faculty of Pharmacy, Al-Isra University, Amman, Jordan

ABSTRACT: Arachidonic acid (ARA) metabolites are involved in cardiovascular diseases and drug-induced cardiotoxicity. The present study aimed to investigate the effects of nonsteroidal anti-inflammatory drugs (NSAIDs) on the gene expression of ARA-metabolizing cyp450 genes in the hearts, kidneys and livers of experimental mice. Thirty five Balb/c mice were divided into 5 groups, and each group contained 7 mice. Then, the groups were administered different NSAIDs, diclofenac mefenamic acid, ibuprofen, or meloxicam, for 14 days in doses equivalent to those used in human treatment.

Subsequently, liver, kidney and heart samples were isolated for analysis of the expression of ARA-metabolizing cyp450 genes using real-time polymerase chain reaction. In addition, the histological alterations induced by mefenamic acid were examined. It was found that 20-HETE synthesizing gene cyp4a12 was upregulated (> 2.2 fold) in the hearts of NSAID-treated mice, which was associated with the 2-fold downregulation of the cardio-protective biomarker GATA4 gene and the induction of cox2 expression (p value < 0.05). In the kidneys, the expression of cyp4a12 was significantly reduced (p value < 0.05) while cyp2c29 expression was upregulated by more than 2 fold. In the liver, all NSAIDs except diclofenac significantly decreased the expression of all genes tested (p value < 0.05) and were

associated with abnormal accumulation of fat in the liver. Furthermore, these molecular findings were in parallel to histological alterations induced in the liver, kidney, and heart after mefenamic acid administration. This study concluded that NSAIDs altered the expression of ARA-metabolizing cyp450 genes and induced histological alterations that may influence the function of the vital organs. © 2019 Elsevier Inc.

Ngah, A., Munro, M., Abdullah, Z., Jalil, M.A., Abdallah, M.

Regression test selection model: A comparison between ReTSE and pythia

(2019) Telkomnika (Telecommunication Computing Electronics and Control), .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059209629&doi=10.12928%2fTELOMNIKA.v17i2.10332&partnerID=40&md5=8936819e58b01f10f01fac5276d8a283)

[85059209629&doi=10.12928%2fTELOMNIKA.v17i2.10332&partnerID=40&md5=8936819e58b01f10f01fac5276d8a283](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059209629&doi=10.12928%2fTELOMNIKA.v17i2.10332&partnerID=40&md5=8936819e58b01f10f01fac5276d8a283)

AFFILIATIONS: School of Informatics and Applied Mathematics, Universiti Malaysia Terengganu (UMT), Kuala Terengganu, 21030, Malaysia;

Department of Computer Science, Durham University, Durham, DL1 3LE, United Kingdom;

Centre of Computing and Informatics, Universiti Malaysia Kelantan, Kota Bharu, Malaysia;

Faculty of Science and IT, Az-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: As software systems change and evolve over time regression tests have to be run to validate these changes. Regression testing is an expensive but essential activity in software maintenance. The purpose of this paper is to compare a new regression test selection model called ReTSE with Pythia. The ReTSE model uses decomposition slicing in order to identify the relevant regression tests. Decomposition slicing provides a technique that is capable of identifying the unchanged parts of a system. Pythia is a regression test selection technique based on textual differencing. Both techniques are compare using a Power program taken from Vokolos and Frankl's paper. The analysis of this comparison has shown promising results in reducing the number of tests to be run after changes are introduced. © 2019 Universitas Ahmad Dahlan.

Senoussi, B., Al-Zoubi, H.

Translation surfaces of finite type in Sol3

(2019) Commentationes Mathematicae Universitatis Carolinae, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101050927&doi=10.14712%2f1213-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101050927&doi=10.14712%2f1213-7243.2020.018&partnerID=40&md5=cd9ca6b8759a8c9d1f0a2c9886430959)

[7243.2020.018&partnerID=40&md5=cd9ca6b8759a8c9d1f0a2c9886430959](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101050927&doi=10.14712%2f1213-7243.2020.018&partnerID=40&md5=cd9ca6b8759a8c9d1f0a2c9886430959)

AFFILIATIONS: Department of Mathematics, Ecole Normale Supérieure, 45 rue d'Ulm, Mostaganem, 75230, Algeria;

Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: In the homogeneous space Sol3, a translation surface is parametrized by, where γ_1 and γ_2 are curves contained in coordinate planes. In this article, we study translation invariant surfaces in Sol3, which has finite type immersion. © 2020. All Rights Reserved.

Jaradat, Y., Masoud, M., Jannoud, I.

A Mathematical Framework of Optimal Number of Clusters in 3D Noise-Prone WSN Environment

(2019) IEEE Sensors Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058189544&doi=10.1109%2fJSEN.2018.2885927&partnerID=40&md5=a00247f98a6dc8039b1b2fc20889a08a)

[85058189544&doi=10.1109%2fJSEN.2018.2885927&partnerID=40&md5=a00247f98a6dc8039b1b2fc20889a08a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058189544&doi=10.1109%2fJSEN.2018.2885927&partnerID=40&md5=a00247f98a6dc8039b1b2fc20889a08a)

AFFILIATIONS: Department of Electrical Engineering, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: In this paper an analytical model of the optimal number of clusters and the corresponding optimal probability are derived for different types of 3D WSN settings utilizing single-hop homogeneous LEACH protocol. Three types of 3D network configurations are analyzed. These include cube, cylinder and sphere network configurations. Energy analysis of these network configurations is done in noise-prone communication environment. The noise is modelled utilizing the probability of reception p_r . A small value of p_r indicates more packets are dropped, which is a sign of large noise. It was shown through analysis and simulation that optimal number of clusters, optimal probability and energy consumption are affected by the geometry of the 3D WSN, noise, and transmission amplification model used. © 2001-2012 IEEE.

Ababneh, A., Albiss, B.A., Lafi, T.

Effect of synthesized calcium carbonate nanoparticles on fresh and mechanical properties of high volume natural pozzolan mortars

(2019) International Review of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068481371&doi=10.15866%2firece.v10i2.15620&partnerID=40&md5=948fa15756cbc2123935be80bf496821)

[85068481371&doi=10.15866%2firece.v10i2.15620&partnerID=40&md5=948fa15756cbc2123935be80bf496821](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068481371&doi=10.15866%2firece.v10i2.15620&partnerID=40&md5=948fa15756cbc2123935be80bf496821)

AFFILIATIONS: Department of Civil Engineering, Jordan University of Science and Technology, Jordan;

Department of Physics, Jordan University of Science and Technology, Jordan;

Department of Civil and Infrastructure Engineering, Al Zaytoonah University of Jordan, Jordan

ABSTRACT: Concrete with high levels of Pozzolan suffers from poor early age strength development and

an extended setting time and may therefore lead to construction delays thus limiting its use in the concrete industry. The main objective of this study has been to evaluate the effectiveness of calcium carbonate nano-particles (CCNPs) on improving the fresh and mechanical properties of high volume natural Pozzolan (HVNP) cement mortars. At the beginning, CCNPs have been synthesized in a simple and inexpensive way, and then the optimum content of nano-CaCO₃ has been determined based on the highest compressive strength achieved by ordinary Portland cement mortar with different proportions of CaCO₃ nanoparticles. In the end, the determined optimum content has been used in order to evaluate the effect of nano-CaCO₃ on the properties of HVNP mortars containing 40% and 60% natural Pozzolan as partial replacement of cement. Scanning electron microscopy (SEM) and X-ray diffractometry (XRD) techniques have been used in order to investigate the microstructure, the properties, and the compositions of the synthesized nano-particles and the cement-Pozzolan mortars. CCNPs have been synthesized efficiently via the simple precipitation method and suitable sonication process has been used to disperse CaCO₃ nanoparticles. The results have indicated that nano-CaCO₃ has increased the compressive strength of the Pozzolan-cement mortars, and the best result has been obtained at an optimum content of 1% nano-CaCO₃. The addition of nano-CaCO₃ to the HVNP mortar improved its setting behavior; on the other hand, it has decreased its workability. However, this reduction in the workability has been offset by an increase due to partial replacement of cement by HVNP. Blending nano-CaCO₃ with HVNP (40 and 60% replacement levels) has compensated for the low compressive and flexural strength at early ages of HVNP mortars. Thus, it has proved to be an effective way for improving the mechanical properties of high volume natural Pozzolan-cement mortars. The XRD and SEM results have confirmed that nano-CaCO₃ has improved the early strength development and the microstructure of HVNP mortars by making it denser with less pores. © 2019 Praise Worthy Prize S.r.l.-All rights reserved.

Knapp, J., Umhang, G., Wahlström, H., Al-Sabi, M.N.S., Ågren, E.O., Enemark, H.L.
Genetic diversity of *Echinococcus multilocularis* in red foxes from two Scandinavian countries:
Denmark and Sweden

(2019) Food and Waterborne Parasitology, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85062278826&doi=10.1016%2fj.fawpar.2019.e00045&partnerID=40&md5=ac87dd233bb9c311a1a6cc27da7918bb

AFFILIATIONS: Department of Chrono-environnement, UMR UFC/CNRS 6249 aff. INRA, University of

Bourgogne Franche-Comté, Besançon, France;

ANSES, Nancy Laboratory for Rabies and Wildlife, Wildlife Surveillance and Eco-epidemiology Unit,
Technopôle Agricole et Vétérinaire, B.P. 40009, Malzéville, 54220, France;

National Veterinary Institute, Uppsala, SE-75189, Sweden;

National Veterinary Institute, Technical University of Denmark, Bülowsvej 27, Frederiksberg C, 1870,
Denmark;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Queen Alia Airport
St. 594, P.O. Box 130, Amman, 11733, Jordan;

Norwegian Veterinary Institute, Department of Animal Health and Food Safety, P.O. Box 750 Sentrum,
Oslo, NO-0106, Norway

ABSTRACT: *Echinococcus multilocularis* is an endemic parasite of red foxes in several European countries. This parasite has been present for decades in central Europe i.e. Switzerland, Eastern France, Southern Germany and Austria, which constitute the core endemic area of Europe. In the Scandinavian countries Sweden and Denmark, several recent findings were made in foxes. To better understand the dynamics and geographic spread of *E. multilocularis* in Europe, genetic studies have been undertaken using the DNA microsatellite marker EmsB. In Europe, the parasite spread in hitherto non-endemic areas was suspected to take place after founder events, in which the core endemic area presents a wider genetic diversity in comparison to newly endemic areas. However, identical parasite profiles can be shared between them, highlighting the parasite spreading in a mainland-island system. In this study, Swedish (27 adult worms from seven red foxes) and Danish (38 adult worms from nine red foxes) isolates were examined using fragment size analyses of the tandemly repeated microsatellite EmsB in order to compare the genetic profiles of the Scandinavian worms with a reference collection of European worm isolates from seven countries. Six EmsB profiles were detected in the Scandinavian panel. Three profiles were described in Denmark and four in Sweden. Only one of these profiles was detected in both countries. All profiles identified in the present study have previously been found in other European countries, suggesting an epidemiological link. Due to the relatively low number of Scandinavian *E. multilocularis* isolates analysed so far, firm conclusions cannot be made regarding the true genetic diversity. Nevertheless, the low genetic variation detected in Sweden and Denmark in this study is similar to the values obtained from peripheral areas of the main European endemic focus, which were more recently colonized by *E. multilocularis*; and continuous surveillance of this parasite is warranted to provide further insight into its epidemiology in Scandinavia. © 2019

Hammad, A.M., Alasmari, F., Sari, Y., Scott Hall, F., Tiwari, A.K.

Alcohol and Cocaine Exposure Modulates ABCB1 and ABCG2 Transporters in Male Alcohol-Preferring Rats

(2019) *Molecular Neurobiology*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85049555946&doi=10.1007%2fs12035-018-1153-2&partnerID=40&md5=adfe0588b9ad1c43f20f9ae4c9b3695e>

AFFILIATIONS: Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Health Science Campus, 3000 Arlington Avenue, Toledo, OH 43614, United States;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Two efflux transporters, ATP-binding cassettes B1 (ABCB1) and G2 (ABCG2), are highly expressed in the endothelial cells of the brain, where they regulate the bioavailability and distribution of several endogenous and xenobiotic compounds. However, whether ABCB1 or ABCG2 has any link with drug dependence, drug withdrawal effects, or the incidence of adverse effects in drug abuser is not known. In this study, we determined the effects of voluntary ethanol consumption following repeated exposure to cocaine or vehicle on the relative mRNA and protein expression of Abcg2/ABCG2 and Abcb1/ABCB1 in the nucleus accumbens (NAc) and medial prefrontal cortex (mPFC) of male alcohol-preferring (P) rats. Male P rats were allowed free choice access to ethanol (15 and 30% v/v) and water for 5 weeks to establish baseline drinking behavior. The following week, rats were either injected with 20 mg/kg i.p. of cocaine or saline, once a day, for 7 days. The relative mRNA and protein expression of Abcb1/ABCB1 and Abcg2/ABCG2 in the NAc and mPFC were significantly decreased in ethanol-saline- and ethanol-cocaine-exposed rats compared to control rats that received neither ethanol nor cocaine. Thus, prolonged exposure to commonly abused drugs, ethanol and cocaine, alters the expression of Abcb1/ABCB1 and Abcg2/ABCG2 mRNA and protein levels in brain areas that play a role in drug dependence. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.

Alsmadi, A.A., Sha'ban, M., Al-Ibbini, O.A.

The relationship between E-banking services and bank profit in Jordan for the period of 2010-2015

(2019) *ACM International Conference Proceeding Series*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064994064&doi=10.1145%2f3317614.3317638&partnerID=40&md5=fea4922ffee5069094f7f5a271338e33>

AFFILIATIONS: Alzaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Purpose: this paper aims to discuss the relationship between electronic bank services and the profit and to measure the impact of this relation on the profit size. Design: Statistical Package for the Social Sciences (SPSS) version 18 has been used to apply on the study variables which are; ROA, ROE and Profit Margin for the period of 2010-2015. Findings: The outcomes of this paper show that, there is a relationship between study variables and E-Banking services. Moreover, according to the testing the relationship between E-Banking and ROE the result approved that there is no impact, in other hand ROE and Margin has a significant effect one banking which means these two variables are affecting the profit. © 2019 Association for Computing Machinery.

El-khateeb, M., Harb, M., Mansour, A., Yousuf, S.

Photochemical substitution of a single CO ligand of CpFe(CO)2SeC(Y)Y'Ar [(Y)Y' = (O)O, (S)O and (S)S] by EPh3 (E = P, As, Sb)

(2019) *Inorganica Chimica Acta*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85057482518&doi=10.1016%2fj.ica.2018.09.063&partnerID=40&md5=d669494baade70e3851b8481a8793643>

AFFILIATIONS: Chemistry Department, Jordan University of Science and Technology, Irbid, 22110, Jordan;

Department of Pharmacy, Al-Zytoonah University of Jordan, Amman, 11733, Jordan;

H.E.J. Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi, 75270, Pakistan

ABSTRACT: New iron complexes containing selenocarbonato, selenothiocarbonato and selenodithiocarbonato ligands in addition to CO/EPh3 mixed ligands are synthesized and characterized. CpFe(CO)(EPh3)SeC(Y)Y'Ar [(Y)Y' = (O)O; Ar = C6H5 (1). (Y)Y' = (S)O; Ar = 4-C6H4Cl (2). (Y)Y' = (S)S; Ar = C6H5 (3). E = P (a), As (b), Sb (c)] are accessible from the reactions of CpFe(CO)2SeC(Y)Y'Ar with EPh3 under photolytic conditions. The new complexes have been characterized by various spectroscopic methods (UV-Vis, IR, 1H-, 31P-, 13C-, 77Se-NMR) and elemental analysis. The determined structure of CpFe(CO)(AsPh3)SeC(O)OC6H5 (1b) has been farther supported by single-crystal X-ray crystal structure analysis. © 2018 Elsevier B.V.

Tarawneh, O.A., Madi, A.M., Hamed, R., Qirem, R., Qerem, W., Alhusban, A., Sunoqrot, S., Mahmoud, N., Ata, S., Alsheikh, I.

In vitro characterization and evaluation of commercialized paracetamol products in Jordan

(2019) *Dissolution Technologies*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065699850&doi=10.14227%2fDT260119P36&partnerID=40&md5=4d1b7709f602babc58aa88be229c0fd5>

AFFILIATIONS: Al-Zaytoonah University of Jordan, Faculty of Pharmacy, Amman, Jordan;

Trinity College Dublin, School of Pharmacy and Pharmaceutical Sciences, Dublin, Ireland
ABSTRACT: Paracetamol (acetaminophen) is one of the most commonly used antipyretic and analgesic drugs worldwide. It is the drug of choice for patients with bronchial asthma, hemophilia, salicylate hypersensitivity, peptic ulcer, and pregnant or breastfeeding women who cannot be treated with nonsteroidal anti-inflammatory drugs. It is marketed and manufactured by many pharmaceutical companies, which necessitates the requirement of quality control investigation. A post-market evaluation was conducted on five commercial paracetamol products (500 mg) available in Jordan, which involved quality control testing in terms of dissolution, disintegration, weight variation, and glass transition temperature (T_g) determination using dynamic mechanical thermal analysis (DMTA). Dissolution and disintegration of the five products were compared under two different conditions, compendial United States Pharmacopeial Convention (USP) and non-compendial. Compendial experiments were conducted under pH 5.8, and non-compendial testing was carried out under pH 1.2. Results revealed variations in the dissolution patterns at the different pH conditions for the same formulation. Generally, faster dissolution was observed when testing the dissolution in compendial USP conditions; pH 5.8 compared to pH 1.2. Disintegration was also affected by pH in the tested formulations. T_g detected via DMTA of the tested formulation was ranged from 18.82 ± 0.77 °C to 23.13 ± 2.46 °C. No correlation was found between T_g variation and drug dissolution. In general, all products met the compendial requirements despite their differences in the early stages of dissolution profiles. Our work highlights the importance of post-market quality control testing of generic equivalents of immediate release dosage forms, which is essential for improving upon existing formulations. It also introduces DMTA as an informative tool for detecting thermal transitions of active pharmaceutical ingredients (APIs) in solid oral dosage forms. © 2019, Dissolution Technologies Inc. All rights reserved.

Al-Samydai, M., Al-Kholaifeh, A., Al-Samydai, A.

The impact of social media in improving patient's mental image towards healthcare provided by private hospitals' in Amman/Jordan

(2019) Indian Journal of Public Health Research and Development, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064182556&doi=10.5958%2f0976-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064182556&doi=10.5958%2f0976-5506.2019.00339.5&partnerID=40&md5=af2d2e6b5d869af886181ad9773ca6e0)

[5506.2019.00339.5&partnerID=40&md5=af2d2e6b5d869af886181ad9773ca6e0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064182556&doi=10.5958%2f0976-5506.2019.00339.5&partnerID=40&md5=af2d2e6b5d869af886181ad9773ca6e0)

AFFILIATIONS: Department of Marketing, Faculty of Economic and Administrative Sciences, Al-Zaytoonah University of Jordan. Jordan, Box130, Amman, 11733, Jordan;

Faculty of Economic and Administrative Sciences, Al-Hussein Bin Talal University, Jordan;

Department of Pharmaceutical Science, Faculty of Pharmacy, Jordan University, Amman, Jordan

ABSTRACT: The main objective of this study is to identify the impact of social media tools on improving patients' mental image of the healthcare provided by private hospitals (an applied study in Amman city). An analytical descriptive style was used to achieve this goal because this method was appropriate for the nature of the study. A questionnaire was designed as a tool to collect data. The questionnaire was first presented to a number of experts in the marketing field. The study population consisted patients treated by private hospitals in Amman, Jordan. The study sample was a proper sample of this population: (550) patients received copy of the questionnaire, and (513) copies were returned and deemed suitable analysis. The study shown that social media had a statistical significant impact on patients' mental image of private hospital, and Facebook shown the greatest effect cognitive and behavioural dimension, whereas Twitter showed the greatest effect on the influence dimension. © 2019, Indian Journal of Public Health Research and Development. All rights reserved.

Yousif, R.O., Al-Samydai, M.J.

Factors influencing woman behavior to visit dental clinic to improve their smile

(2019) Indian Journal of Public Health Research and Development, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064153900&doi=10.5958%2f0976-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064153900&doi=10.5958%2f0976-5506.2019.00341.3&partnerID=40&md5=8a0e16b0ef24de8ab473fcd9a4fe0df1)

[5506.2019.00341.3&partnerID=40&md5=8a0e16b0ef24de8ab473fcd9a4fe0df1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064153900&doi=10.5958%2f0976-5506.2019.00341.3&partnerID=40&md5=8a0e16b0ef24de8ab473fcd9a4fe0df1)

AFFILIATIONS: Department of Marketing, Faculty economics and Administrative science, Zarqa University of Jordan, Jordan;

Department of Marketing, Faculty of Business, AL-Zaytoonah University of Jordan, Jordan

ABSTRACT: Women, nowadays, become more interested or more oriented to plastic surgery including smile improvement. Although smile improvement popularity is increasing among Iraqi women, but published researches are rare in this field. Consequently, the objective of this study is to determine the factors that affect woman behaviour and direct her to improve the smile. The theory of planned behavior, developed by Ajzen in 1985(1), and the variables were adopted and formed according to study objectives, i.e. attitude, social, perceive, cost and dentist. The study approach and methodology depended on collecting data from 367 women in Baghdad city, data was analyzed by using the proper statistical methods (SPSS) and AMOS analysis. There are positive correlations between attitude, social, perceived, cost, dentist and intention; and the results show that the dentist has most significant effect on intention with correlation 0.215** and Sig 0.000. There is positive relationship

between Intention and behavior with correlation 0.298** and Sig 0.000 This paper provides information about factors that impact behaviour of Iraqi woman to improve the smile, and as far as we know, it is considered to be the first study, in this field, in Iraq. © 2019, Indian Journal of Public Health Research and Development. All rights reserved.

Houhamdi, Z., Athamena, B., Abuzaineddin, R., Muhairat, M.

A multi-agent system for course timetable generation

(2019) TEM Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062852363&doi=10.18421%2fTEM81-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062852363&doi=10.18421%2fTEM81-30&partnerID=40&md5=aa00270512077c757e157ee4afe07f30)

[30&partnerID=40&md5=aa00270512077c757e157ee4afe07f30](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062852363&doi=10.18421%2fTEM81-30&partnerID=40&md5=aa00270512077c757e157ee4afe07f30)

AFFILIATIONS: Software Engineering Department, Al Ain University of Science and Technology, Al Ain, Abu Dhabi, United Arab Emirates;

Business Administration Department, Al Ain University of Science and Technology, Al Ain, Abu Dhabi, United Arab Emirates;

Software Engineering Department, Alzaytoonah University, Amman, Jordan

ABSTRACT: In the university, course scheduling and preparation for each semester can be defined as the process of determining what courses to offer, the number of sections needed for each course, assigning of a faculty member to teach each section, and allocating a timeslot and a classroom for each section to avoid clashes. The output of this activity (which is a timetable) affects every faculty member and student in various departments. This process is essentially broken down into three main stages: determining the courses to be offered as well as their section numbers, assigning faculty members to different sections, and scheduling of the sections into timeslots and classrooms. This paper investigates each of these steps and congregates them in a scheduling and Decision Support System (DSS). The DSS is used to make easy the process of course offerings by taking into consideration the students' suggestions because the department resources are limited. The faculty member preferences are also considered in the assignment of sections for the sake of lessening disappointments in the department. Also, the couples (faculty, section) are planned into university timeslots based on faculty member preferences. Our proposed system considers student suggestions and preferences and the time availability of a faculty member since it minimizes disappointments and avoids conflicts between faculty members and classrooms and courses. © 2019 Zina Houhamdi et al.

Tbaishat, R., Rawabdeh, A., Hailat, K.Q., Aladwan, S., Al Balas, S., Al Ajlouny, M.I.

Reforming policy roles in the Jordanian policy-making process

(2019) Journal of Public Affairs, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058044439&doi=10.1002%2fpa.1886&partnerID=40&md5=71a32a71312698ed86c91456e9cf1155)

[85058044439&doi=10.1002%2fpa.1886&partnerID=40&md5=71a32a71312698ed86c91456e9cf1155](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058044439&doi=10.1002%2fpa.1886&partnerID=40&md5=71a32a71312698ed86c91456e9cf1155)

AFFILIATIONS: Department of Public Administration, Faculty of Economics and Administrative Sciences, Yarmouk University, Irbid, Jordan;

Department of Marketing, Faculty of Economics and Administrative Sciences, Yarmouk University, Irbid, Jordan;

Department of Business Administration, Faculty of Business, Al-zaytoonah University of Jordan, Irbid, Jordan

ABSTRACT: The aim of this diagnostic analysis is to identify the weaknesses in the process of reforming policy in Jordan. This study will first present a diagnostic analysis of the characteristics of administrative reform in Jordan. Following this, weaknesses will be identified with a focus on policy roles in the policy-making process. Administrative reform has long been an area of interest and development in Jordan since the early 1980s. Conferences were held, political and technical committees formed, and expertise and resources invested. The outcomes of these programs have been below expectations, with inadequate impact. This investigation paid attention on how Jordan can best invest its resources to maximize efficiency in the public sector, specifically the process of reforming policy. This study concludes that the primary factor impacting efficiency, accountability, and responsiveness is the degree of authority at both national and organizational level. Recent efforts in Jordan to tackle these issues could create more conflicts that threaten the Jordanian government's stability. Other resources have been dedicated to reviewing the rules and values that govern the relationship between state and society. © 2018 John Wiley & Sons, Ltd.

Hyarat, S.Y., Subih, M., Rayan, A., Salami, I., Harb, A.

Health Related Quality of Life Among Patients With Multiple Sclerosis: The Role of Psychosocial Adjustment to Illness

(2019) Archives of Psychiatric Nursing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85051070324&doi=10.1016%2fj.apnu.2018.08.006&partnerID=40&md5=c1ded4a5ca981ce6ec81e15b035af135)

[85051070324&doi=10.1016%2fj.apnu.2018.08.006&partnerID=40&md5=c1ded4a5ca981ce6ec81e15b035af135](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85051070324&doi=10.1016%2fj.apnu.2018.08.006&partnerID=40&md5=c1ded4a5ca981ce6ec81e15b035af135)

AFFILIATIONS: College of Nursing, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia;

School of Nursing, Al-Zaytoonah University of Jordan, Amman, Jordan;

Zarqa University, Faculty of Nursing, Zarqa, Jordan;

School of nursing, The University of Jordan, Amman, Jordan

ABSTRACT: Background: Multiple Sclerosis (MS) is associated with poor quality of life (QOL).

Individuals suffering from MS must make multiple adjustments as their condition changes. To date, little is known about the role of psychosocial adjustment in improving QOL of patients with MS.

Purpose: The purpose of this study is to identify the relationship between psychosocial adjustment and HRQOL controlling for demographic variables among patients with MS. Methods: This study used a descriptive-correlational design. A sample of 160 patients from two hospitals participated in the study. Self-reported data were collected using the demographic survey, Multiple Sclerosis Quality of Life (MSQoL-54) tool and Psychosocial Adjustment to Illness Scale-Self Report (PAIS-SR). Results: Participants reported poor QOL and difficulty with psychosocial adjustment. The QOL and psychosocial adjustment were correlated with various demographic variables. After controlling for demographic variables, psychosocial adjustment explained a large variance in the mental health composite of QOL (r^2 change = 44%) and the physical health composite of QOL (r^2 change = 38%).

Conclusion: Psychosocial care could play a vital role in improving quality of life among MS patients. © 2018 Elsevier Inc.

Hamici, Z.

Human-computer interaction using finger signing recognition with hand palm centroid PSO search and skin-color classification and segmentation

(2019) 2018 8th International Conference on Image Processing Theory, Tools and Applications, IPTA 2018 - Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061893899&doi=10.1109%2fIPTA.2018.8608145&partnerID=40&md5=d0632ab1427a7271f22fd912f71a67ed)

[85061893899&doi=10.1109%2fIPTA.2018.8608145&partnerID=40&md5=d0632ab1427a7271f22fd912f71a67ed](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85061893899&doi=10.1109%2fIPTA.2018.8608145&partnerID=40&md5=d0632ab1427a7271f22fd912f71a67ed)

AFFILIATIONS: Department of Electrical Engineering, Al-Zaytoonah University of Jordan (ZUJ), Jordan

ABSTRACT: This paper presents a novel image processing technique for recognizing finger signs language alphabet. A human-computer interaction system is built based on the recognition of sign language which constitutes an interface between the computer and hearing-impaired persons, or as an assistive technology in industrial robotics. The sign language recognition is articulated on the extraction of the contours of the sign language alphabets, therefore, converting image recognition into one dimensional signal processing, which improves the recognition efficiency and significantly reduces the processing time. The pre-processing of images is performed by a novel skin-color region segmentation defined inside the standard RGB (sRGB) color space, then a morphological filtering is used for non-skin residuals removal. Afterwards, a circular correlation achieves the identification of the sign language after extracting the sign closed contour vector and performing matching between extracted vector and target alphabets vectors. The closed contour vector is generated around the hand palm centroid with position optimized by a particle swarm optimization algorithm search. Finally, a multi-objective function is used for computing the recognition score. The results presented in this paper for skin color segmentation, centroid search and pattern recognition show high effectiveness of the novel artificial vision engine. © 2018 IEEE.

Gharagheer, F.S., Hamdi, M.R., Bazlamit, S.M.

Recovery of recyclables of municipal solid waste: The case of Jordan

(2019) Journal of Environmental Engineering and Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076897757&doi=10.1680%2fjenes.18.00028&partnerID=40&md5=91529762102f916137e03ab42572fb5f)

[85076897757&doi=10.1680%2fjenes.18.00028&partnerID=40&md5=91529762102f916137e03ab42572fb5f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076897757&doi=10.1680%2fjenes.18.00028&partnerID=40&md5=91529762102f916137e03ab42572fb5f)

AFFILIATIONS: Department of Civil Engineering, Zarqa University, Zarqa, Jordan;

Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Civil and Infrastructure Engineering, Dean of Scientific Research and Graduate Studies, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: The low recyclable recovery (RR) rate of municipal solid waste (MSW) (7.0%) in Jordan compared to the average recovery rate of the members of the EU (42%) indicates the necessity of changing the current practices of RR being implemented in Jordan where the latest national strategy of MSW management, launched by the Ministry of Municipal Affairs in May 2015, aims to achieve an RR rate of 50% by the year 2034. This research aims to identify the attributes of an efficient and successful RR programme and recommend an implementable plan for RR that can achieve the target of 50% earlier than the year 2034. Practices of RR currently being implemented in Jordan are analysed and compared with successful practices implemented in developed countries. A public-private partnership is suggested to establish and operate semi-mechanical RR facilities that use the resources currently owned and operated by Joint Service Councils and local municipalities. Utilising the current resources enables the country to achieve the 50% RR rate goal. The rough financial analysis conducted clearly indicates that the 20% RR rate of plastic alone can offset the deficit in the municipality budget resulting from MSW management in Jordan. © 2019 ICE Publishing: All rights reserved.

Farouq, S.

Investigating discourse markers in the annexes of the International Civil Aviation Organization (2019) Southern African Linguistics and Applied Language Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068129763&doi=10.2989%2f16073614.2019.1625275&partnerID=40&md5=a8c3753f5475d8d9d790d76ae82f8068)

85068129763&doi=10.2989%2f16073614.2019.1625275&partnerID=40&md5=a8c3753f5475d8d9d790d76ae82f8068

AFFILIATIONS: English Language and Literature, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper attempts to explore and investigate the role of discourse markers (DMs) in the annexes of the International Civil Aviation Organization (ICAO). Discourse markers are cohesive markers that play an important role in connecting paragraphs, sentences, clauses and phrases to both previous and following items and therefore reflect the speaker's/writer's intended attitude about a certain issue. Several studies were made concerning the realisation of discourse markers in different genres, but as far as the researcher knows no study was considered in terms of the International Civil Aviation legal documents such as the ICAO annexes. Thus, the focus of this study is on examining discourse markers in the selected data in terms of function and usage by adopting Hyland and Tse's classification of discourse markers. The results reveal that the textual function of discourse markers dominates the ICAO annexes, whereas the interpersonal functions were not found. Such results proved the significance of the choice and usage of discourse markers in such a specific register as the legal documents of ICAO which designated the impact they have on the structure and organisation of the texts. © 2019, © 2019 NISC (Pty) Ltd.

Abusukhon, A., Anwar, M.N., Mohammad, Z., Alghannam, B.

A hybrid network security algorithm based on Diffie Hellman and Text-to-Image Encryption algorithm (2019) Journal of Discrete Mathematical Sciences and Cryptography, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062150672&doi=10.1080%2f09720529.2019.1569821&partnerID=40&md5=49ee75ad0faed371005ea797b427293b)

85062150672&doi=10.1080%2f09720529.2019.1569821&partnerID=40&md5=49ee75ad0faed371005ea797b427293b

AFFILIATIONS: Department of Computer Science, Faculty of Science & Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Computer & Information Sciences, Faculty of Engineering and Environment, Northumbria University, Newcastle upon Tyne, NE2 1XE, United Kingdom;

Department of Computer Science, Faculty of Science & Information Technology, Al-Zaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Department of Computer Science and Information System, College of Business Studies, The Public Authority for Applied Education and Training, Kuwait City, Kuwait

ABSTRACT: Nowadays, the rapid growth of Internet applications open the doors for people to communicate and do business around the world and thus saving time, efforts and money. However, the success of these applications is based on protecting the data from hackers. It is well known that preventing sensitive data from hackers while they are sent through the global network is a big challenge. There are many techniques used for securing data. Some of these techniques are based on encrypting a readable text into an unreadable text using mathematical operations, while other techniques are based on encrypting a readable text into an image (e.g., the Text-to-Image Encryption algorithm-TTIE) or into musical notes using an encryption key. The encryption key must be secure and should not be sent through the Internet. This paper proposes adding a new security level to the TTIE algorithm, and demonstrates how the encryption key produced by the TTIE algorithm is exchanged with the other party using the Diffie Hellman technique. Thus, this paper proposes a modified TTIE algorithm called the Diffie Hellman Text-to-Image Encryption algorithm (DHTTIE), and tests and analyses the proposed algorithm. © 2019, © 2019 Taru Publications.

Farman, S.F.

Esthetic of the space in "The Silent House" of Orhan Pamuk [جماليات المكان في رواية "البيت الصامت" لأورهان باموك]

[Esthétique de l'espace dans le roman de « La Maison du Silence»]

(2019) Dirasat: Human and Social Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163444053&partnerID=40&md5=696679cd60dd1153cd55232f468b8bec)

85163444053&partnerID=40&md5=696679cd60dd1153cd55232f468b8bec

AFFILIATIONS: Al-Zaytoonah University, Jordan

ABSTRACT: The paper deals with the element of the narrative space in "The Silent House", written by Nobel Prize winner, the Turkish author, Orhan Pamuk. The study consists, in addition to the introduction, of two parts: the first part focuses on the terminology of the research; the notion of the space and its esthetic; and finally the representation of the author and his works. The second part analyses the relation between the narrative space and the other narrative elements in "The Silent House" such as: the events, the personages and the time. The study ends with certain conclusions concerning this novel in which the space takes a very remarkable place starting from its title. The conclusion shows that the space in this novel isn't just a simple decor but it's a capital element of the novel. © 2019 DAR Publishers/University of Jordan. All Rights Reserved.

Almatarneh, Z., Al-Khatib, A., Alslihat, N.

The effectiveness of strategic of accounting information systems in achieving security in shadow of

the electronic commerce: field study in the Jordanian commercial banks

(2019) Electronic Journal of Applied Statistical Analysis, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113893517&doi=10.1285%2fi20705948v11n1p245&partnerID=40&md5=9250d1e893c3dcbbda7f704e1f578451)

85113893517&doi=10.1285%2fi20705948v11n1p245&partnerID=40&md5=9250d1e893c3dcbbda7f704e1f578451

AFFILIATIONS: Business Faculty, Amman Arab University, Amman, Jordan;

Business Faculty, Al-Zaytoonah University, Amman, Jordan

ABSTRACT: This study aims to identify the extent of strategic effectiveness of the accounting information systems in achieving security in the shadow of the electronic commerce. The study followed the descriptive method, To achieve this purpose, a questionnaire was developed by the researcher. The researcher has developed a (300) item. A survey was performed which included a sample of (309), randomly selected from the total number of the study population. (300) subjects responded to the questionnaire Giving a response rate of (97 %the results showed that The presence of a relation with statistically significance at significance level ($\alpha=0.05$) for the strategic effectiveness of the accounting information systems in achieving security in shadow of the electronic commerce. results showed There's significant difference at significance level ($\alpha=0.05$) of strategic effectiveness of the accounting information systems in achieving security in the shadow of the electronic commerce due to (gender, scientific qualification, occupational experience and occupational level). © 2019. All Rights Reserved.

Al-Sraheen, D.A.-D., Saleh, R.M., Alsmadi, M.H.

Cosmetic Accounting Practices among Jordanian Firms? The Role of Ownership Concentration and Political Influence

(2019) Review of Applied Socio-Economic Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85111282035&partnerID=40&md5=8dfef80dfed61ad668beacf0015bf041)

85111282035&partnerID=40&md5=8dfef80dfed61ad668beacf0015bf041

AFFILIATIONS: Al-Zaytoonah University of Jordan, Business Faculty, Department of Accounting, Jordan;

Accounting Program, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Cosmetic accounting is a process used by accountants who have a vast knowledge of accounting rules to address the figures reported in the financial reports. This study focuses on the crucial role of the concentration of ownership and the political influence on the quality of earnings among Jordanian industrial firms listed on the ASE during the period 2014-2017. The results of regression indicate that there is a negative impact of both of ownership concentration and political connection on the quality of earnings reported in financial reports. This means that the most significant shareholders use their power, and the political role of board members to manipulate earnings to be consistent with their interests. The study found that other important factors may affect the quality of earnings such as foreign ownership, especially with the migration of some capital to Jordan as a safe environment for investment, particularly under the political and economic tension in neighboring countries. © 2019, Pro Global Science Association. All rights reserved.

Shaban, O.S., Al-Attar, M., Hawatmah, Z.A., Ali, N.N.

CONSUMER PRICE INDEX (CPI) AS A COMPETITIVENESS INFLATION MEASURE: EVIDENCE FROM JORDAN

(2019) Journal of Governance and Regulation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85103451191&doi=10.22495%2fjgr_v8_i2_p2&partnerID=40&md5=b63a777e49e95a5c9b57e7a6fcc21d05)

85103451191&doi=10.22495%2fjgr_v8_i2_p2&partnerID=40&md5=b63a777e49e95a5c9b57e7a6fcc21d05

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Business, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: The purpose of this paper is to investigate the Consumer Price Index (CPI) as a competitiveness inflation measure and to determine whether an empirical relationship exists between the rates of inflation represented in CPI and the level of the real exchange rate. In order to achieve the objectives of this paper, the study calculated the consumer price index (CPI) as an inflation rate for the period 2010-2018, and also adopted the real exchange rates for the same period. In order to achieve the objectives of the study, a Pearson correlation analysis between the average CPI rates, and the average exchange rate were conducted. The outcomes of the correlation analysis conducted reflect a negative correlation of 62% between the exchange rates and the CPI's inflation rates, which means that when CPI rates cause direct opposite effect of the determination level of exchange rates on the Jordanian economy. © 2019 The Authors.

Ahmad, H., Al-Suleiman, T., Elhour, A.

Investigation of electronic document management applications in the construction projects: Case study in Jordan

(2019) International Conference on Construction in the 21st Century, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101603550&partnerID=40&md5=38dff45558d57221d1d1ba80d9f9c7bb)

85101603550&partnerID=40&md5=38dff45558d57221d1d1ba80d9f9c7bb

AFFILIATIONS: Al-Zaytoonah University of Jordan, 130 Amman11733, Jordan;

Ministry of Public Works and Housing, 1220 Amman11118, Jordan

ABSTRACT: Document Management System (DMS) is always known to be vital for management of the complexity of construction projects. This study aims at investigating the opinions of DMS practitioners regarding the use of Electronic Document Management System (EDMS) in construction projects. A questionnaire survey was conducted with 91 respondents involved in the construction projects. The respondents were asked to evaluate the extent, motivations and challenges of applying EDMS in the construction projects in Jordan. According to the survey results only 8.8 % of the respondents described the document system in their construction projects as mostly electronic, while 38.5% described their document system as using almost similar percentage of electronic and paper-based documents. The results also showed that the top motivation to the application of EDMS in the construction projects is the improvement of search and retrieval of information, while the top challenge is the high expected financial cost of EDMS. This study helps to evaluate the existing DMS, and investigate the motivations, challenges and opportunities to improve EDMS implementation and application in the construction projects. © 2019 International Conference on Construction in the 21st Century. All Rights Reserved.

Ghazzoul, N.

Linguistic and pragmatic failure of arab learners in direct polite requests and invitations: A cross-cultural study

(2019) Theory and Practice in Language Studies, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087049481&doi=10.17507%2ftpls.0902.13&partnerID=40&md5=ced04192b58c79caf642fab9d9427f6f)

[85087049481&doi=10.17507%2ftpls.0902.13&partnerID=40&md5=ced04192b58c79caf642fab9d9427f6f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087049481&doi=10.17507%2ftpls.0902.13&partnerID=40&md5=ced04192b58c79caf642fab9d9427f6f)

AFFILIATIONS: Dept. of English, Faculty of Arts, Al-Zaytoonah University, PO Box 130, Amman, Jordan

ABSTRACT: In a cross-cultural context, the speakers' cultural disposition, linguistic codes, and social identity may influence their pragmatic behaviour; thus, lead to communication breakdowns. This paper studies the cross-cultural pragmatic failure in polite requests among Arab participants from different cultural backgrounds, and reattempts to test[validate] the universality of Speech Act Theory, and Theory of Politeness. To that end, 96 situations have been collected from 16 Arab participants divided into two groups to examine the polite strategies they use in request and invitation situations. The results of the qualitative data analysis have shown that almost all participants favour conventionally direct strategies in requests and invitations to express politeness and hospitality. As for the Arab students who are UK citizens, the results indicated that they have a tendency to use more indirect strategies in different situations. However, this indirectness was perceived as lack of hospitality in invitations, and lack of pragmatic clarity in requests by the first group. The results of the data analysis show that there is no one formula of how politeness can be perceived by different cultures, and that the differences stem out from different socio-cultural norms. The findings also provide worthwhile insights into theoretical issues concerning Arabic communicative acts, as well as the relation between the universal pragmatic features, and culture-specific theoretical differences. © 2019 ACADEMY PUBLICATION.

Al-Ghabeesh, S.H., Al-Momani, M., Bashayreh, I., Alshraifeen, A., Saifan, A.

Nurses' perspective towards caring for Jordanian men with sexual health problems

(2019) Journal of Men's Health, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084236310&doi=10.22374%2fJOMH.V15I2.146&partnerID=40&md5=9f59d2703270a2bcc9e6dace2c26641c)

[85084236310&doi=10.22374%2fJOMH.V15I2.146&partnerID=40&md5=9f59d2703270a2bcc9e6dace2c26641c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084236310&doi=10.22374%2fJOMH.V15I2.146&partnerID=40&md5=9f59d2703270a2bcc9e6dace2c26641c)

AFFILIATIONS: Faculty of Nursing, Head of the Clinical Nursing Department, Al-Zaytoonah University of Jordan, Airport Street, Amman, Jordan;

Princess Aisha Bint Al-Hussein College of Nursing and Health Sciences, Al-Hussein Bin Talal University, Ma'an, Jordan;

Fatima College, Madinnat Zayed/Abu Dhabi, United Arab Emirates;

Faculty of Nursing, Hashemite University, Zarqa, Abdallah Ghosheh, Az-Zarqa, Jordan

ABSTRACT: Purpose This study examined nurses' role in their practice, nursing education and the impact of culture in Jordan on helping men suffering from sexual problems. Design and Methods A cross-sectional study design was used: 265 nurses completed and returned the questionnaire, a 57.4% response rate. Findings Overall, sexual health problems appeared hidden and unresolved. This may be a result of culture and society issues, including masculinity, men's health beliefs, religious issues and men's lack of trust in nurses and their keeping things confidential. Practice Implications Creating a comprehensive strategy for sexual health care is necessary. This will require education, increased awareness and development of appropriate gender sensitive health services to suit the culture of Jordan. © 2019 Al-Ghabeesh et al.

Almajali, M.H., Alshawabkeh, F.A.A.

The legal status of electronic administrative decision through signature of the competent authority for issuing it (analytic study)

(2019) International Journal of Innovation, Creativity and Change, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85080856162&partnerID=40&md5=6f3550d545f19d167732823fd6f72723

AFFILIATIONS: Department of law, College of law, Al zaytoonah University of Jordan, Jordan;
Al Ain University, College of Law, United Arab Emirates

ABSTRACT: Administrative decision is a final legal action that emerges based on the sole will of the administration and aims at achieving legal effects for achieving the public interest. The legal status of the electronic administrative decision is a substrate for forcing the legal effects resulting from the administrative decision. Jurists of law have been divided into two parties about the procedure by which the legal status of the electronic administrative decision is achieved, the first party confirms that the legal status is related to the act of announcing the electronic administrative decision while the second party sees that the status of the electronic administrative decision is based on electronic signature by the authorised person. Through research, both legal opinions and evidence were offered to prove the validity of the legal status of the electronic administrative decision with the overwhelming perspective represented by the opinion regarding the electronic signature of the decision. © 2019 Primrose Hall Publishing Group.

Abdalla, A.M., Al-Sanhani, A.H., Tamimi, A.A.

Face recognition from a partial face view by partitioning and rotating facial images
(2019) Compusoft, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078364233&doi=10.6084%2fijact.v8i12.1039&partnerID=40&md5=4e639fb5107a6b87cabe349fef24fe16)

85078364233&doi=10.6084%2fijact.v8i12.1039&partnerID=40&md5=4e639fb5107a6b87cabe349fef24fe16

AFFILIATIONS: Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: This paper presents a novel technique for Face Recognition from a Partial Face View (FRPV), which consists of three phases. The first phase uses an existing algorithm to detect faces in input images. The second phase includes splitting the input images undetected by the first phase into two, four, six, or eight parts. Then, every part is rotated by a new split and rotate face detection (SRFD) algorithm until it detects a face in one of these partial images. The third phase uses the Eigenfaces method with train and test databases to perform recognition. This phase compares the selected test image with images in the train database until it recognizes the person and updates the train database. The FRPV system was implemented using a head-pose image database where every person has multiple images with several poses having different Pitch and Yaw Angles ranging from -90° to +90°. The results showed that the FRPV system outperformed previous methods. Its accuracy rate was equal to 96% for faces that had different poses. In addition, the SRFD method achieved a detection success rate of 67%, which is better than other similar methods. © 2019, National Institute of Science Communication and Information Resources (NISCAIR).

Muhairat, M., Abdallah, M., Althunibat, A.

Cloud computing in higher educational institutions
(2019) Compusoft, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078327433&doi=10.6084%2fijact.v8i12.964&partnerID=40&md5=f840fd3f92ab578cb184c804cccb8097)

85078327433&doi=10.6084%2fijact.v8i12.964&partnerID=40&md5=f840fd3f92ab578cb184c804cccb8097

AFFILIATIONS: Department of Software Engineering, Al-Zaytoonah University, Jordan

ABSTRACT: The dynamic education environment has compelled educational institutions to discover alternatives to optimize their data technology platform's costs and operational effectiveness. Cloud computing has developed as an important technology that could add more value by offering software and infrastructure alternatives for the university's whole IT needs on the web. In this article, the effect of cloud computing on academic organizations will be discussed and the main variables that make cloud computing excellent in educational institutions. The significance of using private cloud computing in education is demonstrated in a case study conducted at Al-Zaytoonah University (Jordan). The case study results indicate that cloud computing can save the cost and resources of university systems. It also shows that cloud resources offer learners and employees easy access and make cooperation more effective and efficient. © 2019, National Institute of Science Communication and Information Resources (NISCAIR).

Kasasbeh, H.A., Alzoub, M.

The impact of deficit financing on economic stability: The case of Jordan [Utjecaj financiranja deficita na ekonomsku stabilnost: Slučaj Jordana]

(2019) Ekonomski Pregled, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078268037&doi=10.32910%2fep.70.5.2&partnerID=40&md5=f1125373d06014b348d06229db1f8919)

85078268037&doi=10.32910%2fep.70.5.2&partnerID=40&md5=f1125373d06014b348d06229db1f8919

AFFILIATIONS: AlZaytoonah Univesity of Jordan, Jordan

ABSTRACT: This study examines the effect of deficit financing on economic stability in Jordan during the period 2005-2017, using quarterly data by employing the Vector Error Correction Model (VECM) after seasonally adjusting the variables. This paper is unique as it is the first of its kind that tackles the issue of stability in Jordan. It provides empirical evidence that external borrowing

(EBDT) and domestic bank financing (BANK) negatively affect economic stability in Jordan. The bank effect is due to crowding out the private sector. External borrowing negative impact is driven by the current high level of outstanding public debt, 98 percent of GDP. Public debt is mainly channeled to finance current expenditures at the expense of capital expenditures, which has a minimal impact on growth. Interest rate (REPO) effect is in line with the finance theory as higher rates lead to lower growth. Nonbank financing (NonBank), although not statistically significant, exhibits the right sign as it has a positive effect. Future research may extend this work by including other macroeconomic variables such as current account deficit, money supply and direct foreign investment. © 2019, Hrvatsko Drustvo Ekonomista. All rights reserved.

Subbotina, V., Al-Qawabeha, U.F., Belozarov, V., Sobol', O., Subbotin, A., Tabaza, T.A., Al-Qawabah, S.M.

Determination of influence of electrolyte composition and impurities on the content of α -Al₂O₃ phase in mao-coatings on aluminum

(2019) Eastern-European Journal of Enterprise Technologies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85078010400&doi=10.15587%2f1729-4061.2019.185674&partnerID=40&md5=abbe4f981985acfe9e47994895ca75c8>

AFFILIATIONS: Department of Materials Science, National Technical University 'Kharkiv Polytechnic Institute', Kyrpychova str. 2, Kharkiv, 61002, Ukraine;

Department of Mechanical Engineering, Al-Zaytoonah University, Queen Alia Airport str. 594, Amman, 11733, Jordan

Jarrar, Y., Jarrar, Q., Abu-Shalhoob, M., Abed, A., Sha'ban, E.

Relative expression of mouse udp-glucuronosyl transferase 2b1 gene in the livers, kidneys, and hearts: The influence of nonsteroidal anti-inflammatory drug treatment

(2019) Current Drug Metabolism, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077475264&doi=10.2174%2f1389200220666191115103310&partnerID=40&md5=f4002b676adb9210718f526a204ff13a>

AFFILIATIONS: Department of Pharmaceutical Science, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Applied Pharmaceutical Sciences, Faculty of Pharmacy, Al-Isra University, Amman, Jordan;

ACDIMA Centre for Bioequivalence and Pharmaceutical Studies, Amman, Jordan

ABSTRACT: Background: Mouse Udp-glucuronosyl Transferase (UGT) 2b1 is equivalent to the human UGT2B7 enzyme, which is a phase II drug-metabolising enzyme and plays a major role in the metabolism of xenobiotic and endogenous compounds. This study aimed to find the relative expression of the mouse ugt2b1 gene in the liver, kidney, and heart organs and the influence of Nonsteroidal Anti-inflammatory Drug (NSAID) administration. Methods: Thirty-five Blab/c mice were divided into 5 groups and treated with different commonly-used NSAIDs; diclofenac, ibuprofen, meloxicam, and mefenamic acid for 14 days. The livers, kidneys, and hearts were isolated, while the expression of ugt2b1 gene was analysed with a quantitative real-time polymerase chain reaction technique. Results: It was found that the ugt2b1 gene is highly expressed in the liver, and then in the heart and the kidneys. NSAIDs significantly upregulated (ANOVA, $p < 0.05$) the expression of ugt2b1 in the heart, while they downregulated its expression (ANOVA, $p < 0.05$) in the liver and kidneys. The level of NSAIDs' effect on ugt2b1 gene expression was strongly correlated (Spearman's Rho correlation, $p < 0.05$) with NSAID's lipophilicity in the liver and its elimination half-life in the heart. Conclusion: This study concluded that the mouse ugt2b1 gene was mainly expressed in the liver, as 14-day administration of different NSAIDs caused alterations in the expression of this gene, which may influence the metabolism of xenobiotic and endogenous compounds. © 2019 Bentham Science Publishers.

Alhawamdeh, H.A., Talafha, H.M., Jarrah, M.

Stylistic narrative of "otherness": A study of power relations in John Steinbeck's "The Murder" and Gabriel García Márquez's "A very old man with enormous wings"

(2019) Dirasat: Human and Social Sciences, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85077358973&partnerID=40&md5=6b9462ce1ec09b224bf2f1c0d7dcfd74>

AFFILIATIONS: University of Jordan, Jordan;

Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: This study investigates the stylistic features marking powerlessness/"otherness" in fiction. To this end, this study stresses two fictional characters: Jelkain John Steinbeck's "The Murder" (1934) and the old man in Gabriel García Márquez's "A Very Old Man with Enormous Wings" (1955). Most clauses associated with these characters exhibit a fixed set of verbs that make such characters influenced by, rather than influencing, the story's events. Also, in other clauses they are passive participants, affected by other actors. These characters are juxtaposed with superior characters, like Jim, Elisenda, and Pelayo, whose power is foregrounded by other types of verbs. ©

2019 DAR Publishers/University of Jordan. All Rights Reserved.

Subbotina, V.V., Al-Qawabeha, U.F., Sobol', O.V., Belozarov, V.V., Schneider, V.V., Tabaza, T.A., Al-Qawabah, S.M.

Increase of the α -Al₂O₃ phase content in MAO-coating by optimizing the composition of oxidated aluminum alloy

(2019) Functional Materials, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076945195&doi=10.15407%2ffm26.04.752&partnerID=40&md5=942290d922cd9df0d1dc1d1f65791a5f)

[85076945195&doi=10.15407%2ffm26.04.752&partnerID=40&md5=942290d922cd9df0d1dc1d1f65791a5f](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076945195&doi=10.15407%2ffm26.04.752&partnerID=40&md5=942290d922cd9df0d1dc1d1f65791a5f)

AFFILIATIONS: National Technical University 'Kharkiv Polytechnic Institute', 2 Kyrpychov Str., Kharkiv, 61002, Ukraine;

Al-Zaytoonah University, 594 Queen Alia Airport Str., Amman, 11733, Jordan

ABSTRACT: By the method of microarc oxidation of technically pure aluminum and aluminum doped with copper, vanadium and zinc (in an alkali silicate electrolyte at a current density of ~ 20 A/dm²), the resulting coating is about 100 μ m thick. The nonmonotonic dependence of the phase composition and hardness on the doping level of aluminum (Al + Cu, Al + Zn, and Al + V systems) is revealed. It was established that the degree of influence of alloying elements on the transformation process of γ -Al₂O₃ \rightarrow α -Al₂O₃ is determined by their crystal-chemical characteristics (charge, ionic radius). Therefore, the mechanism of formation of the phase composition should be associated with the stabilization and destabilization of the γ -Al₂O₃ phase. The results indicate that Cu²⁺ cations contribute to destabilization of the γ -Al₂O₃ phase, while Zn²⁺ and V⁵⁺ cations stabilize the γ -Al₂O₃ phase (with a Zn and V content of more than 3 wt.%). A model is proposed for explaining the results obtained, which is based on the formation of the γ -Al₂O₃ phase in the initial period of time and the appearance of the α -Al₂O₃ phase in subsequent periods (as a result of an increase in the power of microdischarges). It is shown that the highest hardness of coatings on aluminum alloys (about 16 GPa) is achieved with a copper content in the range of 3-4 wt.%. © 2019 - STC "Institute for Single Crystals".

Alamayreh, M.I., Jaber, J.O.

Solar pyrolysis of oil shale samples under different operating conditions

(2019) Oil Shale, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075525738&doi=10.3176%2ffoil.2019.4.05&partnerID=40&md5=15d13e6624b413345d7488987fc63e1c)

[85075525738&doi=10.3176%2ffoil.2019.4.05&partnerID=40&md5=15d13e6624b413345d7488987fc63e1c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075525738&doi=10.3176%2ffoil.2019.4.05&partnerID=40&md5=15d13e6624b413345d7488987fc63e1c)

AFFILIATIONS: Alternative Energy Technology Department, Alzaytoonah University of Jordan, P.O.Box 130, Amman, 11733, Jordan;

Mechanical Engineering Department, Al-Balqa' Applied University, Amman, Jordan

ABSTRACT: The main objective of this experimental work is to study oil shale pyrolysis by direct heating of solar energy, using a simple concentrated solar system, and a thermogravimetric analyzer (TGA). The tested sample was obtained from a local oil shale deposit, Ellujjun, in Jordan. The TGA test results confirmed that the involved reactions depended on final reactor temperature: the higher the temperature, the greater the weight loss in the sample. A series of experiments using a new design of fixed bed retort powered by solar energy were carried out to study the influence of various operating parameters such as environment inside the reactor and final temperature on the pyrolysis process. The magnitude of the total yield was mainly dependent on temperature and the medium inside the retort. The highest oil yield was witnessed when air was used as gas in the retort, while in subsequent experiments using kerosene the oil yield was much lower. However, this was almost nil in case of using water in the retort. This is the first research of its kind in the Middle East and North Africa (MENA) region, utilizing a solar parabolic dish reflector to heat up the reactor and is deemed to open the way in the future for more detailed research in the field of solar oil shale retorting and/or gasification. © 2019 Estonian Academy Publishers.

Zraiqat, A., Paikray, S.K., Dutta, H.

A certain class of deferred weighted statistical B-summability involving (p, q)-integers and analogous approximation theorems

(2019) Filomat, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075458606&doi=10.2298%2ffil1905425Z&partnerID=40&md5=c5a2fae01569483f551155047cf68036)

[85075458606&doi=10.2298%2ffil1905425Z&partnerID=40&md5=c5a2fae01569483f551155047cf68036](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075458606&doi=10.2298%2ffil1905425Z&partnerID=40&md5=c5a2fae01569483f551155047cf68036)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Mathematics, Veer Surendra Sai University of Technology, Burla, Odisha 768018, India;

Department of Mathematics, Gauhati University, Guwahati, Assam 781014, India

ABSTRACT: The preliminary idea of statistical weighted B-summability was introduced by Kadak et al. [27]. Subsequently, deferred weighted statistical B-summability has recently been studied by Pradhan et al. [38]. In this paper, we study statistical versions of deferred weighted B-summability as well as deferred weighted B-convergence with respect to the difference sequence of order r (≥ 0) involving (p, q)-integers and accordingly established an inclusion between them. Moreover, based upon

our proposed methods, we prove an approximation theorem (Korovkin-type) for functions of two variables defined on a Banach space $CB(D)$ and demonstrated that, our theorem effectively improves and generalizes most (if not all) of the existing results depending on the choice of (p, q) -integers. Finally, with the help of the modulus of continuity we estimate the rate of convergence for our proposed methods. Also, an illustrative example is provided here by generalized (p, q) -analogue of Bernstein operators of two variables to demonstrate that our theorem is stronger than its traditional and statistical versions. © 2019, University of Nis. All rights reserved.

Tarawneh, O., Al-Assi, A.R., Hamed, R., Sunoqrot, S., Hasan, L., Al-Sheikh, I., Al-Qirim, R., Alhusban, A.A., Naser, W.

Development and characterization of k-carrageenan platforms as periodontal intra-pocket films (2019) Tropical Journal of Pharmaceutical Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075258956&doi=10.4314%2ftjpr.v18i9.1&partnerID=40&md5=36a631adbe8bec86b22cf37a3e1a0be9)

[85075258956&doi=10.4314%2ftjpr.v18i9.1&partnerID=40&md5=36a631adbe8bec86b22cf37a3e1a0be9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075258956&doi=10.4314%2ftjpr.v18i9.1&partnerID=40&md5=36a631adbe8bec86b22cf37a3e1a0be9)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Purpose: To prepare emulsion-based Intrapocket polymeric films for the treatment of periodontitis. Method: Films were fabricated by dehydration of an emulsion containing k-carrageenan (KC) in aqueous phase and Compritol® 888 ATO (Compritol®) or Dimodan® UJ (DU®) or different ratios of both. The resulting films were characterized by mechanical texture analyser to determine Young's modulus and tensile strength. Glass transition temperature (T_g) of the films was evaluated by dynamic mechanical and thermal analyser while surface morphology was evaluated using scanning electron microscope. In-vitro drug release was conducted in pre-warmed phosphate buffer. Bacterial adherence was assessed after 24 h. Results: Young's modulus was highest for KC films to which no lipid was added (5.33 ± 0.38 GPa) and decreased following lipid incorporation. T_g was highest in KC films (106.25 ± 4.53 °C) but decreased upon addition of lipids. The surface of KC was smooth but roughness increased with increasing Compritol® load. Drug release from KC films was complete (99.80 ± 8.43 %) after 2 h; however, upon adding lipid, the release was extended 8 h and was affected by lipid type and ratio. Microbiologic assay demonstrated noticeable reduction in viable count compared to control and was affected by lipid type and ratio. The film formulated from a combination of DU® and Compritol® in a ratio of 80:20 was strong, flexible and reduced microbial adherence. Moreover, it showed a smooth surface and extended release for over 8 h. Conclusion: Intra-pocket films were prepared by drying emulsion-based films. Resulted films were strong, flexible, prolonged drug release over 8 h and could lower bacterial growth. The prepared film may offer efficient treatment in periodontitis patients. © 2019 The authors.

Abu Sharour, L.

Oncology nurses' knowledge about lymphedema assessment, prevention, and management among women with breast cancer

(2019) Breast Disease, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075148126&doi=10.3233%2fBD-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075148126&doi=10.3233%2fBD-190381&partnerID=40&md5=29c9685e1ae298aa60e4dc6762a56fea)

[190381&partnerID=40&md5=29c9685e1ae298aa60e4dc6762a56fea](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85075148126&doi=10.3233%2fBD-190381&partnerID=40&md5=29c9685e1ae298aa60e4dc6762a56fea)

AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: BACKGROUND: Breast cancer-related lymphedema (BCRL) is one of the most common complications among women with breast cancer. OBJECTIVE: This study was conducted to evaluate the oncology nurses' knowledge about lymphedema assessment, prevention, and management among women with breast cancer, and identify the relationships between oncology nurses' academic qualification, years of experience, and level of knowledge. METHODS: A cross-sectional descriptive design was used. A sample of 150 participants from three institutions completed the study surveys. RESULTS: 60% ($N = 90$) of the participants did not pass the knowledge test. 70% ($N = 105$) of the participants showed lack of knowledge regarding BCRL assessment and examination. The results showed that the participants had knowledge deficit regarding BCRL anatomy, pathophysiology, assessment and examination, risk factors, prevention interventions and precautions, patient education and consultation, and follow-up appointment. Importantly, 96% ($N = 144$) of the participants reported that they did not receive any continue education regarding BCRL. The results showed that was no significant relationship between years of experience, and level of knowledge ($r = 0.25$; $n = 150$; $p < 0.51$). A significant relationship was found between the nurses' knowledge according to their academic qualifications ($2 = 6.21$; $p < 0.0001$). CONCLUSIONS: The results indicated that there is a need for a structured educational program to improve oncology nurses knowledge regarding BCRL. © 2019 IOS Press and the authors. All rights reserved.

Abu Khalaf, R., Alhusban, A.A., Al-Shalabi, E., Al-Sheikh, I., Sabbah, D.A.

Isolation and structure elucidation of bioactive polyphenols

(2019) Studies in Natural Products Chemistry, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074777624&doi=10.1016%2fb978-0-12-817901-7.00010-1&partnerID=40&md5=68d3294062ef3962fdcbc71da49ad578>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Recent development in analytical methods provides significant information necessary for bioactive natural products isolation and structure elucidation. Chromatographic separation, mass and NMR spectroscopic identification tools represent a highly dynamic field with massive recent advances. Bioactive polyphenols are attractive phytochemical group with wide range of diverse effects as well as various biological activities. In this review, the use of recent analytical methods for chemical characterization, isolation and structure elucidation are discussed, organized by analytical techniques and phytochemical class, including simple polyphenolic acids, flavonoids, tannins, xanthenes, lignans, coumarins and other related compounds published between 2012 and 2017. A table is structured to summarize all techniques used in publications devoted for bioactive polyphenols separation, isolation and structure elucidation. The recent separation and isolation techniques including column chromatography, HPLC, GC, and TLC are discussed. Additionally, the advances in spectroscopic techniques such as 1D and 2D NMR, UV, MS, LC-MS, GC-MS are reviewed. Moreover, the role LC-MS plays throughout the discovery of new phenolic compounds, where applications range from simple characterization to full structure identification is deliberated. © 2019 Elsevier B.V.

Shehab, M., Daoud, M.S., AlMimi, H.M., Abualigah, L.M., Khader, A.T.

Hybridising cuckoo search algorithm for extracting the ODF maxima in spherical harmonic representation

(2019) International Journal of Bio-Inspired Computation, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074723950&doi=10.1504%2fijbic.2019.103606&partnerID=40&md5=cf77fd76cf0726e7346464217380fb8e)

[85074723950&doi=10.1504%2fijbic.2019.103606&partnerID=40&md5=cf77fd76cf0726e7346464217380fb8e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074723950&doi=10.1504%2fijbic.2019.103606&partnerID=40&md5=cf77fd76cf0726e7346464217380fb8e)

AFFILIATIONS: Computer Science Department, Aqaba University of Technology, Aqaba, 77110, Jordan; Faculty of Engineering, Al Ain University of Science and Technology, Abu Dhabi, United Arab Emirates; Faculty of Science and Information Technology, Al Zaytoonah University of Jordan, Amman, Jordan; Faculty of Computer Sciences and Informatics, Amman Arab University, Amman, Jordan; School of Computer Science, Universiti Sains Malaysia, Penang, Malaysia

ABSTRACT: The diffusion-weighted magnetic resonance imaging (DW-MRI) is a promising method for non-invasive investigation of anatomical connectivity in the human brain. Q-ball imaging (QBI) is a diffusion MRI reconstruction technique which has been proven very successful in resolving multiple intravoxel fibre orientations in MRI (i.e., fibre crossing) based on the standard computation of the orientation distribution function (ODF), which is a 3-dimension spherical function founded to detect the dominant fibre orientations in the underlying volume of a pixel (voxel). However, ODF still has a limitation in determining fibre directions which may be corrupted by neighbour directions. In this paper, we proposed a new method to solve the ODF problem by adapting the hybridisation of the cuckoo search algorithm (i.e., global search) and bat algorithm (i.e., local search), namely, CSBA. The performance of the method is demonstrated by experiments in both synthetic and real data. Copyright © 2019 Inderscience Enterprises Ltd.

Hazim, N., Bazlamit, S.M., Salem, Z.A., Alghazawi, O., Odeh, I.

Determinations of critical gap and follow-up time at roundabouts in Jordan [Wyznaczenie bezpiecznych odległości pomiędzy pojazdami i czasów dojazdu na rondach w Jordanii]

(2019) Roads and Bridges - Drogi i Mosty, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074157379&doi=10.7409%2frabd.019.015&partnerID=40&md5=215958235216643934d8618769f0cda2)

[85074157379&doi=10.7409%2frabd.019.015&partnerID=40&md5=215958235216643934d8618769f0cda2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85074157379&doi=10.7409%2frabd.019.015&partnerID=40&md5=215958235216643934d8618769f0cda2)

AFFILIATIONS: Al-Ahliyya Amman University, Department of Civil Engineering, Amman, 19328, Jordan; Al-Zaytoonah University of Jordan, Department of Civil and Infrastructure Engineering, Amman, Jordan; Al-Zaytoonah University of Jordan, Department of Civil and Infrastructure Engineering, P.O. Box: 130, Amman, 11733, Jordan;

Al-Zaytoonah University of Jordan, Department of Basic Sciences, Amman, Jordan

ABSTRACT: Critical gap and follow-up times are two important fundamental traffic parameters used in the design and operational analysis of roundabouts and un-signalized intersections. Moreover, they are used to assess capacity and level of service at minor roads. In Jordan, roundabouts are used extensively, and therefore, there is a need to conduct studies on follow-up and critical gap time. The driver behaviour in Jordan can be described as aggressive in terms of their choice of follow-up headway at roundabouts. In this study, the roundabouts were located in mountainous terrain which allowed the collection of critical gap observations for approach slopes ranging from 6% up to 8%. The critical gap and follow-up times were recorded and analyzed. This research also identified other factors affecting critical gap, lag and follow-up times such as geometry of roundabout, slope of the approach, culture and behaviour of drivers. This research also proposes a significant relationship between approach slope at roundabouts and the observed gap. This relationship may be incorporated in the estimation of capacity and level of service determination at roundabouts. The results of this

study should assist highway and traffic designers in the design and the performance evaluation of roundabouts. © 2019, Instytut Badawczy Drog i Mostow. All rights reserved.

Masoud, M., Jaradat, Y., Manasrah, A., Jannoud, I.

Sensors of smart devices in the internet of everything (IOE) era: Big opportunities and massive doubts

(2019) Journal of Sensors, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073892903&doi=10.1155%2f2019%2f6514520&partnerID=40&md5=934e4093a0cd5519a080cf3b778252c2)

[85073892903&doi=10.1155%2f2019%2f6514520&partnerID=40&md5=934e4093a0cd5519a080cf3b778252c2](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073892903&doi=10.1155%2f2019%2f6514520&partnerID=40&md5=934e4093a0cd5519a080cf3b778252c2)

AFFILIATIONS: Electrical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: Smart device industry allows developers and designers to embed different sensors, processors, and memories in small-size electronic devices. Sensors are added to enhance the usability of these devices and improve the quality of experience through data collection and analysis. However, with the era of big data and machine learning, sensors' data may be processed by different techniques to infer various hidden information. The extracted information may be beneficial to device users, developers, and designers to enhance the management, operation, and development of these devices. However, the extracted information may be used to compromise the security and the privacy of humans in the era of Internet of Everything (IoE). In this work, we attempt to review the process of inferring meaningful data from smart devices' sensors, especially, smartphones. In addition, different useful machine learning applications based on smartphones' sensors data are shown. Moreover, different side channel attacks utilizing the same sensors and the same machine learning algorithms are overviewed. © 2019 Mohammad Masoud et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Alkilani, A.Z., Alkalbani, R., Jaber, D., Hamed, R., Hamad, I., Abumansour, H., Assab, M.A.

Knowledge, attitude, practice and satisfaction of patients using analgesic patches in Jordan

(2019) Tropical Journal of Pharmaceutical Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073874877&doi=10.4314%2ftjpr.v18i8.26&partnerID=40&md5=235752165bb350a65e2f1f34847db126)

[85073874877&doi=10.4314%2ftjpr.v18i8.26&partnerID=40&md5=235752165bb350a65e2f1f34847db126](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073874877&doi=10.4314%2ftjpr.v18i8.26&partnerID=40&md5=235752165bb350a65e2f1f34847db126)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Zarqa University, PO Box 132222, Zarqa, 13132, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, PO Box 130, Amman, 11733, Jordan;

Department of Pharmacy, American University of Madaba, Jordan, PO Box 2882, Amman, 11821, Jordan

ABSTRACT: Purpose: To investigate the knowledge, attitude, practice (KAP) and satisfaction of Jordanian patients using analgesic patches. Methods: This cross-sectional descriptive study was conducted in four urban centers in Jordan (Amman (capital), Irbid (northern Jordan), Zarqa (central Jordan), and Karak (southern of Jordan)) using a validated closed and open-ended questionnaire. The questionnaire was delivered by hand to a target sample of 250 patients. Results: A total of 178 patients were recruited with a response rate of 71.2 %. Only 40 % of patients had previously been prescribed or recommended to take analgesic patches by a physician or pharmacist. The overall proportion of patients who were aware of the correct use of patch was only of 31 %. Conclusion: The use of patches in Jordan is limited due to lack of patients' knowledge about the proper use of patches. Further studies should be carried out to evaluate healthcare providers' perceptions and knowledge towards the use of patches. © Pharmacotherapy Group, Faculty of Pharmacy, University of Benin, Benin City, 300001 Nigeria.

Jarrar, Y., Mosleh, R., Hawash, M., Jarrar, Q.

Knowledge and attitudes of pharmacy students towards pharmacogenomics among universities in Jordan and west bank of Palestine

(2019) Pharmacogenomics and Personalized Medicine, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073759896&doi=10.2147%2fPGPM.S222705&partnerID=40&md5=409383170fb0337750642e0e2c0dbbeb)

[85073759896&doi=10.2147%2fPGPM.S222705&partnerID=40&md5=409383170fb0337750642e0e2c0dbbeb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073759896&doi=10.2147%2fPGPM.S222705&partnerID=40&md5=409383170fb0337750642e0e2c0dbbeb)

AFFILIATIONS: Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacy, Faculty of Medicine and Health Sciences, An-Najah National University, Nablus, 00970, Palestine;

Department of Pharmaceutical Science, Al-Isra'a University, Amman, Jordan

ABSTRACT: Background: Testing by pharmacogenomics (PGx) aims to reduce the side-effects of medicines and to optimize therapy. Aim: To ascertain the knowledge and attitudes towards PGx among pharmacy students in Jordan and West Bank of Palestine (WBP). Methods: This cross-sectional study focused on pharmacy students from five universities in Jordan and WBP. Students were asked to answer an online

survey comprising 30-closed ended questions measuring the knowledge and attitudes towards PGx. Results: The total number of respondents to the questionnaire was 466. Most (96.1%) respondents knew that genetic variations can affect the drug response. Most students stated that the total number of lectures mentioning PGx was fewer than three. Most (>80%) respondents answered that they knew that human genetics can affect the response, inter-individual variation, and ethnic variations in the drug response. However, their knowledge about US Food and Drug Administration recommendations regarding PGx testing of commonly used drugs was weak. Also, 60.3% of respondents stated that the information they received about PGx was insufficient. Most (>92.7%) students wished to know more about PGx and believed that PGx is helpful in choosing the appropriate drug. Conclusion: Pharmacy students had fair knowledge and good attitudes towards PGx. These factors could aid application of PGx in clinical practice in Jordan and WBP. © 2019 Jarrar et al.

Abusalem, Z., Odeh, I., Al-Hazim, N., Bazlamit, S.M., Al-Saket, A.

Analysis of air pollutants' concentration in terms of traffic conditions and road gradient in an urban area

(2019) Jordan Journal of Civil Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073392551&partnerID=40&md5=0eb3f0b1ce8bcf0becdc7ea020b0be94)

[85073392551&partnerID=40&md5=0eb3f0b1ce8bcf0becdc7ea020b0be94](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073392551&partnerID=40&md5=0eb3f0b1ce8bcf0becdc7ea020b0be94)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Amman, Jordan;

Al Ahliyya Amman University, Amman, Jordan;

Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This study focuses on the impact of traffic variables; vehicular speed, traffic volume and road gradient, that have a significant impact on vehicle emissions and the corresponding quantity of air pollutants. These factors are normally addressed when devising general and detailed urban plans. Such factors are normally used to assess the adverse effects resulting from motor vehicles dominating roads and highways, including environmental hazards, such as air and noise pollution. Moreover, they identify environmental impacts of road and traffic planning. The study focuses on environmental issues that can be considered and modeled in order to be included in all generalized plans. In this study, concentrations of CO, NO, TVOCs and SO were monitored periodically at various sampling sites. The study revealed that the concentration of air pollutants showed a high correlation with traffic flow and prevailing road gradients. The concentrations of SO₂, NO₂, CO and TVOCs were highly correlated to key traffic flow parameters, such as road gradient, vehicular speed and traffic volume. © 2019 JUST. All Rights Reserved.

Al-Ajlouni, M.I., Nawafleh, S., Alsari, H.

The moderating effect of electronic-HRM on training and employee performance relationship: A moderated model

(2019) International Journal of Management Practice, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073263360&doi=10.1504%2fIJMP.2019.102572&partnerID=40&md5=6022bbe720d2b7ff3e1dcb428d74c40d)

[85073263360&doi=10.1504%2fIJMP.2019.102572&partnerID=40&md5=6022bbe720d2b7ff3e1dcb428d74c40d](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85073263360&doi=10.1504%2fIJMP.2019.102572&partnerID=40&md5=6022bbe720d2b7ff3e1dcb428d74c40d)

AFFILIATIONS: Department of Business Administration, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Public Administration, Yarmouk University, Irbid, Jordan;

hstats Consulting, Jordan

ABSTRACT: The current study addressed the effect of electronic-human resource management (e-HRM) as a moderating variable on training practices and employee-level performance relationship, as guided by the contingency theory and social exchange theory in the context of a developing country. Through the application of a self-administrated questionnaire, data were collected from respondents (n = 592) operating in the private sector of Jordan. Notably, structural equation modelling (SEM) with smart partial least square (PLS) was applied; the results confirmed the hypothesised model, as training practices and e-HRM use significantly affect employee performance. Further, e-HRM was seen to significantly moderate the relationship. In addition, discussion for the implications, direction and suggestions for the future body of literature were introduced. Copyright © 2019 Inderscience Enterprises Ltd.

Hourani, H., Dawood, R., Sadaqa, L., Abdallah, M., Tamimi, A.

A proposed cloud computing quality model: S3MQUAL (Service measurement metrics model)

(2019) ICIC Express Letters, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072965919&doi=10.24507%2fificel.13.11.1005&partnerID=40&md5=1df181ef26f34d97fb1001ec008251b4)

[85072965919&doi=10.24507%2fificel.13.11.1005&partnerID=40&md5=1df181ef26f34d97fb1001ec008251b4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072965919&doi=10.24507%2fificel.13.11.1005&partnerID=40&md5=1df181ef26f34d97fb1001ec008251b4)

AFFILIATIONS: Faculty of Science and IT, AL-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Cloud computing helps organizations to move fast and adopts different services that accelerate building and hosting their services and reach more customers and third parties quickly. Cloud computing is gaining a considerable attention nowadays due to its accelerated adopting,

deployment models and the variety of services it provides to customers. The quality model for cloud computing is becoming a critical area that needs to be secured to preserve the expected Quality of Service (QoS). The characteristics of the chosen quality model indicate the likelihood of a cloud computing service performing as expected and promised in the agreed Service Level Agreement (SLA) between the services providers and customers. This paper highlights the cloud computing famous quality models and introduces a quality model called S3MQual (Service Measurement Metrics Model) quality model that can add a great value to the customers and meet or exceed customer's expectation. Customers start giving more and more attention on the quality of services of cloud computing as it affects their business growth and continuity. ICIC International © 2019.

Hourani, H., Abdallah, M., Tamimi, A.

7E: A proposed change management model integrated with software development lifecycle

(2019) ICIC Express Letters, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85072957491&doi=10.24507%2ficial.13.10.941&partnerID=40&md5=1b2de0aa07a31b5d08ed202f8b50d524

AFFILIATIONS: Faculty of Science, IT AL-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: There are many vital issues that the software implementation faces during all projects phases journey and throughout the Software Development Lifecycle (SDLC). Many software change implementations fail due to lack of engagement of the stakeholders, employees and management resistance, poor leadership, organization environment, cultural issues and others. The importance of this study is to propose a new Change Management (CM) model and framework that are integrated with the SDLC. The new CM framework supports the different aspects of the change and introduces a new process that helps integrate organization, technology, and stakeholders, which will result in increasing employees' acceptance of the change (Software) and to have a smooth deployment and successful change implementation. ICIC International © 2019.

Maria, E.A., Maria, K.A., Alia, M.A.

Smart agents in the business information system

(2019) ICIC Express Letters, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0->

85072953930&doi=10.24507%2ficial.13.10.921&partnerID=40&md5=c30524888cbf0f476bbe47ccaf0cfca2

AFFILIATIONS: Department of Computer Information Systems, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: Agent-based modeling stresses on a system's dynamic entities. Active objects, known as agents, must be recognized with agent-based modeling and their actions defined. Agents may be business-process, business-functional-unit, employees, tools, products, or business partners; anything is appropriate to the system. Connections are being established between them, environmental business parameters are set, and simulations are running. The entire dynamics of the system arise from the interactions or behaviors of many entities. In our paper, we simulate an agent-based Business Information System (BIS) and study the efficiency of the BIS system using smart software agents. The proposed agent possesses rational knowledge and reactive capabilities and interacts, including other agents, with the external business environment. We investigate whether smart software agents in certain circumstances can improve the performance of the Business Information System (BIS). The main contribution of this work is to simulate and evaluate business information system's performance using smart software agents. Furthermore, there may be a systematic view of the intelligent agents, assuming that a decision is a process involving evaluation, cognitive-signal generation, and cognition-response. Sales and Operations Planning (SOP) is chosen to demonstrate the impact of using smart software agent. NetLogo is used to design, implement and test the proposed agent on the SOP system as a multi-agent simulation and programming language. ICIC International © 2019.

Hmood, K.F., Dişli, G.

Sustainable development of urban conserved heritage: An analytical study of Kursunlu mosque in Ulus, Ankara

(2019) International Journal of Sustainable Development and Planning, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072675619&doi=10.2495%2fSDP-V14-N3-273->

288&partnerID=40&md5=c9f028b2b3695f7c19fbd6f63e374aa4

AFFILIATIONS: Al-Zaytoonah University of Jordan, Department of Architecture, Amman, Jordan; Necmettin Erbakan University, Faculty of Engineering and Architecture, Department of Architecture, Konya, Turkey

ABSTRACT: Sustainable design movement in Turkey and across the world mostly focuses on new buildings, with little attention on existing built heritage. Nonetheless, historical building heritage constitutes a majority of the built environment in Turkey. According to the statistics of Turkish Ministry of Culture and Tourism, there were 106.359 registered immovable cultural heritage in all

around Turkey at the end of the year 2017. It is thus important to investigate sustainable development potentials and make suggestions for conserved built heritage. The aim of this research stems from the importance of finding a clear visualization for urban design for cities in the present and future by means of sustainable development, which satisfies the needs of the present and protects the rights of the future. Hence, this manuscript first examines the sustainability potentials of a case study in the 16th century Kursunlu Mosque with its neighbourhood, located in the historic Ulus district in Ankara, Turkey. This research investigates the importance of studying the term 'urban conservation' within the context of historic Ulus area. Although the mosque is nearly walking distance to historic touristic destinations of Ankara such as the Castle, Ahi Elvan and Ahi Serafettin Mosques, Cengel Khan (Museum), Cukur Khan, Safran Khan and Hamamonu area, it does not attract much of the visitors, because of its lack of integrity with the nearby built environment and its restoration necessity. Research methods include literature and archival survey, in-situ observations, and interview with the local community. The analysis reveals urban conservation potentials of the area and sustainable development suggestions for the mosque with its neighbourhood. The major conclusion of the research is that sustainable development suggestions as well as conservation measures of the case study mosque and urban conservation analysis may provide the user and visitor increase and contribute to the revitalization of the building and the neighbourhood area in the long term. © 2019 WIT Press

Al-Zoubi, H., Al-Sabbagh, M., Stamatakis, S.

On surfaces of finite Chen i I I-type

(2019) Bulletin of the Belgian Mathematical Society - Simon Stevin, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072256036&doi=10.36045%2fbbms%2f1561687560&partnerID=40&md5=aeceed7ea3684553cb50748eb2c193d1)

[85072256036&doi=10.36045%2fbbms%2f1561687560&partnerID=40&md5=aeceed7ea3684553cb50748eb2c193d1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072256036&doi=10.36045%2fbbms%2f1561687560&partnerID=40&md5=aeceed7ea3684553cb50748eb2c193d1)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Basic Sciences and Humanities, Imam Abdulrahman Bin Faisal University, Saudi Arabia;

Department of Mathematics, Aristotle University of Thessaloniki, Greece

ABSTRACT: In this paper, we study quadric surfaces in the 3-dimensional Euclidean space which are of finite I I I-type, that is, they are of finite type, in the sense of B.-Y. Chen, corresponding to the third fundamental form. We show that helicoids and spheres are the only quadric surfaces of finite I I I-type. © 2019 Belgian Mathematical Society. All rights reserved.

Al-Sheikh, I., Yamin, J.A.A.

Modeling and optimization of jojoba oil extraction yield using Response Surface Methodology

(2019) Journal of Pharmacy and Pharmacognosy Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071940567&partnerID=40&md5=af50746ecc257a129a158eb0beb901d9)

[85071940567&partnerID=40&md5=af50746ecc257a129a158eb0beb901d9](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071940567&partnerID=40&md5=af50746ecc257a129a158eb0beb901d9)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Mechanical Engineering Department, School of Engineering, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Context: Jordan is looking for a cheap and locally affordable source for its cosmetics, fuel and medical applications. Jojoba offers one solution to such problems. It is considered as a good medicinal plant that can be used for several applications. Aims: To evaluate the effect of parameters as mixing speed, temperature, feedstock grain size, mixture ratio and mixing time on the jojoba yield. Methods: The mathematical model combining the effect of all the above variables was then used to find the optimum combination for maximum yield. Response Surface Methodology (RSM) technique was used for modeling and optimization. Based on the Pareto chart of parameters effect, the seed size was the most significant followed with temperature effect. Results: It was found that the optimum values obtained for best yield were seed size of about 0.48 mm, the temperature of about 65°C and mixing time of 2.8 hours maximum yield of about 56% wt can be obtained. Conclusions: A mathematical model was successfully built and tested for the Jojoba oil yield under different conditions. The optimum parameters that produced the highest yield were also found. © 2019 Journal of Pharmacy & Pharmacognosy Research.

Basheti, I.A., Salhi, Y.B., Basheti, M.M., Hamadi, S.A., Al-Qerem, W.

Role of the pharmacist in improving inhaler technique and asthma management in rural areas in Jordan

(2019) Clinical Pharmacology: Advances and Applications, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071686360&doi=10.2147%2fCPAA.S213271&partnerID=40&md5=66deecd68b46be651524e0f866e69e35)

[85071686360&doi=10.2147%2fCPAA.S213271&partnerID=40&md5=66deecd68b46be651524e0f866e69e35](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071686360&doi=10.2147%2fCPAA.S213271&partnerID=40&md5=66deecd68b46be651524e0f866e69e35)

AFFILIATIONS: Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan;

Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan;

Department of Pharmacology & Biomedical Sciences, Faculty of Pharmacy and Medical Sciences, Petra University, Amman, Jordan;

Department of Pharmacy, Al-Zaytoonah University of Jordan, College of Pharmacy, Amman, Jordan
ABSTRACT: Introduction: Pharmacists can have a valuable role in educating patients on correct inhaler technique leading to improved asthma management. Rural areas can benefit from the role of the pharmacist considering the barriers found in attending primary health-care facilities. Objectives: This study aimed to assess the impact of inhaler technique education delivered by pharmacists on patients' inhaler technique, Asthma Control Test (ACT) score, forced expiratory volume in the first 1 second (FEV1%), and reliever use (puffs/day). Methods: A pre-post interventional study was conducted over 6 months from February 2017 to July 2017 in rural areas in Jordan. Asthma patients visiting respiratory clinics and using metered dose inhaler (MDI) or turbuhaler (TH) controlled medication were randomly recruited. Inhaler technique was assessed via published checklists. The ACT, FEV1%, and reliever use (puffs/day) were assessed. Patients were educated on inhaler technique via demonstration with return demonstration education. All assessments were repeated 3 months post education. Results: A total of 103 (TH, n=44; MDI, n=59) patients were recruited (mean age=46.5 ±13.5), 74% females. Patients reported an overuse of their reliever (5.1±4.2 puffs/day). Only 2 patients (1.9%) had well-controlled asthma, while the rest had either moderately (19.4%) or poorly (78.6%) controlled asthma. Patients using the MDI achieved 3.03±4.30 ACT score improvement (p<0.001), which is a clinically significant improvement in control. Patients using the TH achieved a statistically significant improvement of 2.07±4.72 (p=0.031). FEV1 % improved significantly for MDI users (p=0.005) but not for TH users (p=0.097). Reliever use decreased significantly for MDI and TH users. Conclusion: Asthmatic patients living in rural areas in Jordan reported poor inhaler technique, ACT scores, and FEV1 % scores and high use of reliever medications. Pharmacist-led educational intervention resulted in improved inhaler technique scores, ACT scores, and FEV1 % scores and lowered reliever use over time. © 2019 Bsheti et al.

Oudat, M.S., Alsmadi, A.A., Alrawashdeh, N.M.

Foreign direct investment and economic growth in Jordan: An empirical research using the bounds test for cointegration

(2019) Revista Finanzas y Politica Economica, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071454398&doi=10.14718%2frevfinanzpolitecon.2019.11.1.4&partnerID=40&md5=5c67fd8ecb78b5ccda77687e659a87c5)

[85071454398&doi=10.14718%2frevfinanzpolitecon.2019.11.1.4&partnerID=40&md5=5c67fd8ecb78b5ccda77687e659a87c5](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071454398&doi=10.14718%2frevfinanzpolitecon.2019.11.1.4&partnerID=40&md5=5c67fd8ecb78b5ccda77687e659a87c5)

AFFILIATIONS: Applied Science University, Bahrain;

Al-Zaytoonah University of Jordan, Jordan;

Applied Science Private University (ASU), Amman, Jordan

ABSTRACT: This paper investigates both long-run and short-run elasticities between gross domestic product and foreign direct investment (FDI) in Jordan. Annual data have been used in order to explore the relationship between foreign direct investments (FDI) with economic growth for the period 1992-2013. Data were collected for both variables (FDI and GDP) from the World Bank and World Development Indicators, and the Autoregressive Distributed Lag Model (ARDL) approach was used. The results show long-run and short-run elasticities in foreign direct investment (FDI) and GDP. The results indicate that Jordanian policy makers focus their efforts to attract more FDI to Jordanian economy. This is because more FDI is expected to lead to a decrease in economic obstacles in Jordan (e.g., increased level of investment, decreased unemployment rate). © 2019 Catholic University of Colombia. All rights reserved.

Hamdan, M., Shehadeh, M., Al Aboushi, A., Hamdan, A., Abdelhafez, E.

Photovoltaic cooling using phase change material

(2019) Jordan Journal of Mechanical and Industrial Engineering, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071255681&partnerID=40&md5=9d8c944c3379b3fae616177fb65a9af3)

[85071255681&partnerID=40&md5=9d8c944c3379b3fae616177fb65a9af3](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071255681&partnerID=40&md5=9d8c944c3379b3fae616177fb65a9af3)

AFFILIATIONS: Mechanical Engineering Department, The University of Jordan, Amman, 11942, Jordan;

Mechanical Engineering Department, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT: In this work an experimental work was conducted to improve the performance of photovoltaic panels (PV) by cooling them using phase change materials (PCM). A photovoltaic system made up of two identical PV panels were installed side by side, PCM was integrated on the back side of one of these photovoltaic panels, while the other one was kept as a standard one for comparison purposes. A micro converter with all necessary accessories to conduct the work were also used. The generated currents and voltages, temperatures of the ambient and the PV panels and the incident solar irradiance were recorded on hourly basis for twenty-eight days using a data acquisition system. The stored data was analyzed and it was found that the cooled PV panel using PCM had performed 2.6% better than the standard panel. © 2018 Jordan Journal of Mechanical and Industrial Engineering.

Al-Diabat, A.M., Ahmed, N.M., Hashim, M.R., Almessiere, M.A.

Growth of ZnS thin films using chemical spray pyrolysis technique

(2019) Materials Today: Proceedings, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071122564&doi=10.1016%2fj.matpr.2019.06.390&partnerID=40&md5=07738123fe753ada060d421742c1d907)

85071122564&doi=10.1016%2fj.matpr.2019.06.390&partnerID=40&md5=07738123fe753ada060d421742c1d907

AFFILIATIONS: Nano-Optoelectronics Research and Technology Laboratory, School of Physics, Universiti Sains Malaysia, Penang, 11800, Malaysia;

Department of Basic Sciences, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Physics, College of Science, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam, 31441, Saudi Arabia

ABSTRACT: It is well acknowledged that thin films of zinc sulfide (ZnS) can be successfully synthesised via spray pyrolysis of an aqueous solution of zinc acetate and thiourea onto a glass substrate at a temperature of 200°C. However, the effect of spray rate on the structural and optical properties of ZnS thin films has not been considered deeply. Therefore, this study synthesized ZnS thin films on glass substrates under different spray rate (1, 2, 3 and 4 mlmin⁻¹). The films were characterized using X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM), UV-Vis-NIR spectrometry, and photoluminescence (PL) spectroscopy. The X-ray diffraction of all the samples confirmed the characteristic cubic structure of ZnS thin films. On the other hand, the morphology and crystallinity seemed to be depended on the spray rate. It was found that the value of bandgap of ZnS films slightly increased when the spray rate was increased. Furthermore, the variations observed in the 3.35-3.80 eV range are most likely related to the Zn (S, O) formation within the solid solution. PL analysis specified the presence three peaks (2.38, 2.98 and 3.5 eV) at spray rate of 3 ml min⁻¹, which are attributable to Zn vacancies, S vacancies, interstitial sulfur and interstitial zinc. © 2019 Elsevier Ltd. All rights reserved.

Alasmari, F., Crotty Alexander, L.E., Hammad, A.M., Bojanowski, C.M., Moshensky, A., Sari, Y. Effects of Chronic Inhalation of Electronic Cigarette Vapor Containing Nicotine on Neurotransmitters in the Frontal Cortex and Striatum of C57BL/6 Mice

(2019) *Frontiers in Pharmacology*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070898331&doi=10.3389%2ffphar.2019.00885&partnerID=40&md5=5457523e57ab7c3306485e76e3ed5287)

85070898331&doi=10.3389%2ffphar.2019.00885&partnerID=40&md5=5457523e57ab7c3306485e76e3ed5287

AFFILIATIONS: Department of Pharmacology and Experimental Therapeutics, College of Pharmacy and Pharmaceutical Sciences, University of Toledo, Toledo, OH, United States;

Department of Pharmacology and Toxicology, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia;

Pulmonary and Critical Care Section, VA San Diego Healthcare System, San Diego, CA, United States;

Department of Medicine, Division of Pulmonary and Critical Care, University of California at San Diego (UCSD), San Diego, CA, United States;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Electronic (E)-cigarettes are the latest form of nicotine delivery device and are highly popular in the general population. It is currently unknown whether vaping E-cigarettes (E-CIGs) leads to nicotine addiction. Alterations in the levels of the neurotransmitters in the mesocorticolimbic areas have been reported to mediate the initiation and development of nicotine addiction. Therefore, to determine whether E-CIGs activate the same addiction pathways as conventional cigarettes, we investigated for the effects of daily inhalation of nicotine (24 mg/ml)-containing E-CIG vapor for 6 months on the concentrations of these neurotransmitters in the frontal cortex (FC) and striatum (STR) of male C57BL/6 mice as compared to control group that was exposed to air only. We reported here that 6-month E-CIG vapor containing nicotine inhalation decreased dopamine concentration only in the STR. There were no changes in serotonin concentrations in the FC or STR. Chronic E-CIG exposure also increased glutamate concentration in the STR alone, while glutamine concentrations were increased in both the FC and STR. We found that E-CIG exposure also decreased GABA concentration only in the FC. These data suggest that chronic E-CIG use alters homeostasis of several neurotransmitters in the mesocorticolimbic areas, which may result in the development of nicotine dependence in E-CIG users. © 2019 Frontiers Media S.A.. All rights reserved.

Trautwein, R., Abul-Futouh, H., Görls, H., Imhof, W., Almazahreh, L.R., Weigand, W.

Sulphur-sulphur, sulphur-selenium, selenium-selenium and selenium-carbon bond activation using Fe₃(CO)₁₂: An unexpected formation of an Fe₂(CO)₆ complex containing a μ_2, κ^3 -C,₀Se-ligand

(2019) *New Journal of Chemistry*, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070750838&doi=10.1039%2fc9nj02642h&partnerID=40&md5=54ca7a01bb1b610e751cd445d9ec778f)

85070750838&doi=10.1039%2fc9nj02642h&partnerID=40&md5=54ca7a01bb1b610e751cd445d9ec778f

AFFILIATIONS: Institut für Anorganische und Analytische Chemie, Friedrich-Schiller-Universität Jena, Humboldt Str. 8, Jena, 07743, Germany;

Department of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Institut für Integrierte Naturwissenschaften, Universität Koblenz-Landau, Universitätsstr. 1, Koblenz, D-56070, Germany;

ERCOSPLAN Ingenieurbüro Anlagentechnik GmbH, Arnstädter Straße 28, Erfurt, 99096, Germany

ABSTRACT: Three diiron hexacarbonyl complexes containing dithiolato (5), diselenolato (6), and

selenolato-thiolato ligands (7), respectively, have been prepared as [FeFe]-hydrogenase mimics. Treatment of Fe₃(CO)₁₂ with one equivalent of the corresponding 5-membered heterocycles 1, 3 and 4 in toluene at reflux afforded the corresponding complexes 5-7. The reaction of 5,5-bis(bromomethyl)-2,2-dimethyl-1,3-dioxane with in situ generated Na₂Se₂ results in the formation of 8,8-dimethyl-7,9-dioxa-2,3-diselenaspiro[4.5]decane (1) and traces of 7,7-dimethyl-6,8-dioxa-2-selenaspiro[3.4]nonane (2). Alternatively, 5,5-bis(bromomethyl)-2,2-dimethyl-1,3-dioxane reacts with in situ generated Na₂Se₂ yielding compound 2 in 26% yield. When Fe₃(CO)₁₂ reacts under reflux with the selenaspiro compound 2 in toluene, the unique diiron complex, [Fe₂(CO)₆{μ₂,κ₃-Se,C,O-SeCH₂C₇H₁₂O₂}] (8), is obtained as a result of an initial selenium-carbon bond activation. Compounds 5, 6, 7, and 8 were characterized by IR, ¹H, ¹³C{¹H}, and ⁷⁷Se{¹H} NMR spectroscopy, mass spectrometry, elemental analysis, and X-ray single-crystal structure analysis. The chiral complex 8 shows a coordination of the O atom at the dioxane ring to one Fe atom and the O-CH- carbanionic group to the other Fe atom. Furthermore, we investigated the redox properties and the catalytic behaviour of complexes 5-8 in the presence of AcOH as a source of protons. The reduction of complexes 5-7 is accompanied by a chemical process resulting in an overall two-electron transfer at their primary reduction wave. This observation is consistent with an ECE reduction (E = electrochemical process, C = chemical process), while each reduction event in the case of complex 8 involves simple transfer of one electron. Moreover, high level DFT calculations were performed on neutral 8 and its reduction products 8⁻ and 8²⁻. © 2019 The Royal Society of Chemistry and the Centre National de la Recherche Scientifique.

Al-Adwan, A., Abuorabialadwan, M.

Handling semantic repetition when translating Arabic short stories: The case of excerpt from the book of the dead

(2019) 3L: Language, Linguistics, Literature, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070718083&doi=10.17576%2f3L-2019-2502-04&partnerID=40&md5=350ede8324f54294d9bfa1bd49ea9ca1>

AFFILIATIONS: Translation and Interpreting Studies, Department Hamad Bin Khalifa University, Qatar; Al-Zaytoonah University, Jordan

ABSTRACT: The translation of literary texts into another language is undoubtedly a challenging task, especially when dealing with a combination of languages that are linguistically, stylistically and culturally different. The main purpose of this paper is to examine the translation of one of the devices of creative writing used in the construction of Arabic short stories, namely semantic repetition. The analysis is based on comparing the occurrences of semantic repetition in the Arabic short story " " Excerpt from The Book of The Dead with their translations in the target text. This literary work, by Ahmad Faqih, has been selected for analysis mainly because it contains a significant number of repetition instances that serve various pragmatic functions. The main concepts and aspects of Toury's theory of norms and other taxonomies of translation strategies will be used to identify translation shifts and strategies adopted by the translators. The analysis reveals that the translators resorted to four main strategies when translating semantic repetition into English: retention, compression, grammatical shift and deletion. The analysis also reveals that instances of semantic repetition are often omitted or modified in the English translation, and consequently their functions are sacrificed. This will certainly affect the representation of the original literary work and offer the target readers a slightly different version of the text. © 2019 Penerbit Universiti Kebangsaan Malaysia. All rights reserved.

Santos, A.R.N., Sheldrake, H.M., Ibrahim, A.I.M., Danta, C.C., Bonanni, D., Daga, M., Oliaro-Bosso, S., Boschi, D., Lolli, M.L., Pors, K.

Exploration of [2 + 2 + 2] cyclotrimerisation methodology to prepare tetrahydroisoquinoline-based compounds with potential aldo-keto reductase 1C3 target affinity

(2019) MedChemComm, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070714488&doi=10.1039%2fc9md00201d&partnerID=40&md5=2918b34e47581f6e4e51cbf2a6843996)

[85070714488&doi=10.1039%2fc9md00201d&partnerID=40&md5=2918b34e47581f6e4e51cbf2a6843996](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85070714488&doi=10.1039%2fc9md00201d&partnerID=40&md5=2918b34e47581f6e4e51cbf2a6843996)

AFFILIATIONS: Institute of Cancer Therapeutics, Faculty of Life Sciences, University of Bradford, West Yorkshire, BD7 1DP, United Kingdom;

Department of Science and Drug Technology, University of Torino, Via Pietro Giuria 9, Torino, 10125, Italy;

Department of Pharmacy, Al-Zaytoonah University of Jordan, Queen Alia Airport St 594, Amman, 11733, Jordan

ABSTRACT: Tetrahydroisoquinoline (THIQ) is a key structural component in many biologically active molecules including natural products and synthetic pharmaceuticals. Here, we report on the use of transition-metal mediated [2 + 2 + 2] cyclotrimerisation of alkynes to generate tricyclic THIQs with potential to selectively inhibit AKR1C3. © 2019 The Royal Society of Chemistry.

Al-Sraheen, D.A.-D.O.

The role of the audit committee in moderating the negative effect of non-audit services on earnings

management among industrial firms listed on the Amman Stock Exchange

(2019) Afro-Asian Journal of Finance and Accounting, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069762435&doi=10.1504%2FAAJFA.2019.100983&partnerID=40&md5=6e68467129da97be93fb6613fdd02ad1)

85069762435&doi=10.1504%2FAAJFA.2019.100983&partnerID=40&md5=6e68467129da97be93fb6613fdd02ad1

AFFILIATIONS: Department of Accounting, Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: This paper examines the effectiveness of the audit committee in limiting the adverse effects of the provision of non-audit services (NAS) on earnings management. In addition, the current study examines the effect of surplus free cash flow and NAS on earnings management. Earnings management occurs less frequently when the audit committee is effective. In this study, audit committee effectiveness refers to the overall effectiveness of the committee that was measured using a composite measurement of effectiveness. The sample comprised 336 industrial firms listed on the Amman Stock Exchange from 2014 to 2016. The results documented that the positive relationship between surpluses free cash flow and earnings management. This study contributes to the literature by providing evidence that investors realise that NAS harms the independence of the auditor by creating an economic bond between the auditor and client that could negatively affect audit quality and hence earnings credibility. As does all research, this study suffers from limitations, including the fact that this study sheds the light only on the industrial sector in Jordan, Thus, the need exists for more research to be conducted using other sectors in Jordan and other countries as well to determine the effects of other variables on earnings management from other perspectives. Copyright © 2019 Inderscience Enterprises Ltd.

Abudahab, S., Hakooz, N., Jarrar, Y., Shahhab, M.A., Saleh, A., Zihlif, M., Dajani, R.

Interethnic variations of UGT1A1 and UGT1A7 polymorphisms in the Jordanian population

(2019) Current Drug Metabolism, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069237359&doi=10.2174%2f1389200220666190528085151&partnerID=40&md5=dc4061b13b084ac2a53c16c9c86428a8)

85069237359&doi=10.2174%2f1389200220666190528085151&partnerID=40&md5=dc4061b13b084ac2a53c16c9c86428a8

AFFILIATIONS: Department of Biopharmaceutics and Clinical Pharmacy, School of Pharmacy, University of Jordan, Amman, Jordan;

Department of Pharmacy, College of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Pharmacology, School of Medicine, University of Jordan, Amman, Jordan;

Department of Biology and Biotechnology, Hashemite University, Zarqa, Jordan

ABSTRACT: Background: Glucuronidation is one of the most important phase II metabolic pathways. It is catalyzed by a family of UDP-glucuronosyltransferase enzymes (UGTs). UGT1A1 and UGT1A7 catalyze the glucuronidation of a diverse range of medications, environmental chemicals and endogenous compounds. Polymorphisms in the UGT1A gene could potentially be significant for the pharmacological, toxicological and physiological effects of the enzymes. Objective: The UGT1A gene is polymorphic among ethnic groups and the aim of this study was to investigate the different UGT1A1 and UGT1A7 polymorphisms in Circassians, Chechens and Jordanian-Arabs. Methods: A total of 168 healthy Jordanian-Arabs, 56 Circassians and 54 Chechens were included in this study. Genotyping of 20 different Single-nucleotide polymorphism (SNPs) was done by using polymerase chain reaction- DNA sequencing. Results: We found that Circassians and Chechens have significantly higher allele frequencies of UGT1A7*2, UGT1A7*3 and UGT1A7*4 than the Jordanian-Arab population, but all three populations have similar frequencies of UGT1A1*28. Therefore, Circassians and Chechens are expected to have significantly lower levels of the UGT1A7 enzyme with almost 90% of these populations having genes that encode low or intermediate enzyme activity. Conclusion: This inter-ethnic variation in the UGT1A alleles frequencies may affect drug response and susceptibility to cancers among different subethnic groups in Jordan. Our results can also provide useful information for the Jordanian population and for future genotyping of Circassian and Chechen populations in general. © 2019 Bentham Science Publishers.

Malak, M.Z., Moh'd AbuKamel, A.

Self-medication Practices among University Students in Jordan

(2019) Malaysian Journal of Medicine and Health Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069185996&partnerID=40&md5=656ecc76a352c84c6482c5a95bbd24d8)

85069185996&partnerID=40&md5=656ecc76a352c84c6482c5a95bbd24d8

AFFILIATIONS: Faculty of Nursing, Al-Zaytoonah University of Jordan, P.O. Box: 130, Amman, 11733, Jordan

ABSTRACT: Introduction: Self-medication has become an important issue among university students. There is a trend in prevalence of self-medication. This study was aimed to 1) assess the prevalence of self-medication, 2) identify the patterns and attitudes towards self-medication practices, and 3) examine socio-demographic characteristics factors correlate of self-medication among university students in Jordan. Methods: A descriptive-correlational design and a stratification random sampling method were used. A self-administered questionnaire was used, which consists of socio-demographic characteristics, information about the patterns of self-medication, and attitudes towards self-

medication practices. Results: The prevalence of self-medication was 98.4%. Painkillers (paracetamol and non-steroidal anti-inflammatory), antibiotics, and herbals were the most commonly used medicines. Pain (e.g., a headache, toothache, muscle, joint, and abdomen) was the most common symptoms of practicing self-medication. Previous experience, emergency situation, and minor diseases were the main reasons for self-medication use. Pharmacists, family, and physicians were the major sources of drug information for self-medication. Students had high positive attitudes towards self-medication and had awareness of adverse effects of medicines. There was a relationship between gender, health status, and self-medication. Conclusions: The results of the study could help to develop strategies and strong policies to promote the logical use of medicine among university students. The university should develop education and prevention measures and implement a self-medication program based on students' attitudes towards self-medication. Drug regulatory and health authorities should enforce restrict application of rules regarding selling and purchasing of self-medication, and design messages targeting to raise awareness regarding the hazards of self-medication. © 2019 UPM Press. All rights reserved.

Abd-Rabbo, M.M., Abdeen, L.F.

Puritanism in Edmund Spenser's Amoretti and epithalamion: Refashioning the Petrarchan sonnet (2019) *Pertanika Journal of Social Sciences and Humanities*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069180342&partnerID=40&md5=dc916905dc4964ea7dcdf45bb48e1340>

AFFILIATIONS: Dept. of English Language, Literature and Translation, Faculty of Arts, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

World Islamic Science and Education University, Amman, 11947, Jordan

ABSTRACT: This paper analyses Edmund Spenser's sonnet sequence Amoretti and its concluding sequel Epithalamion within the context of Puritanism. By highlighting the Puritanical concepts in Spenser's two poetic works, the two researchers demonstrate the aspects in which Spenser parts ways with the Petrarchan sonnet tradition. Spenser offers a pure, Christian love that ends in holy matrimony as an alternative to the unsanctified, unrequited love in Petrarchan sonnets. Moreover, this research identifies the segments of Spenser's poems wherein Platonism is exceedingly manifested. Through the textual examination of the two aforementioned works, it becomes evident that nuances of the Puritan faith come to light in Spenser's depiction of a holy, Christian courtship and marriage, in his portrayal of the lady as an embodiment of heavenly light in contrast to the inferiority of earthly existence and in his parallel presentation of the lover's suffering for his angelic lady as an allegorical reflection of the agony endured by the Puritan to gain Heavenly Grace. © Universiti Putra Malaysia Press

Jarrar, Y.

Perception of primary care physicians' toward pharmacogenetics in Jordan (2019) *Jordan Medical Journal*, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068848564&partnerID=40&md5=276cc369ceb8f3b9cf1b8dc110118d17>

AFFILIATIONS: School of Pharmacy, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: Objective: Pharmacogenetics plays a major role in personalizing pharmacotherapy. However, it is not widely practiced in the clinical healthcare centers in many countries, including Jordan. The present study aims at assessing pharmacogenetic knowledge among primary care internist physicians from different public and private Jordanian hospitals. Methods: A structural questionnaire, covering the basic background information and attitude toward pharmacogenetic practice, has been distributed among 300 primary care internist physicians in six hospitals in Amman, Zarqa and Karak cities and some private clinical centers in Amman between January to March 2017. Results: The response rate has been 63.3%. The majority of internist physicians have responded that pharmacogenetics is important in reducing the unwanted drugs side effects (64.21%) and enhancing the efficacy of the treatment (62.11%). The majority of the participants (61.05%) have responded that physicians should know about pharmacogenetics and 64.73% of the participants want to know more about it. Furthermore, the majority of the respondents (80%) believe that pharmacogenetics will be relevant to the clinical practice if it is applied in Jordan. In addition, 40.52% of the participants have answered that patients should be analyzed genetically before describing the drugs. Most of the internist physicians have responded that laboratory pharmacogenetic tests are not available (48.94%), in the currently working hospitals, and not covered by medical insurances (69.47%). Conclusion: It is concluded from the results of this study that most of the primary care internist physicians in Jordan know the clinical importance of pharmacogenetic testing but it is still not widely practiced. Further intensive studies are needed to find the possible ways of implementation of pharmacogenetic testing in Jordan. © 2019 DAR Publishers / The University of Jordan.

Abu-Huwaij, R., Hamed, R., Daoud, E., Alkilani, A.Z.

Development and in vitro characterization of nanoemulsion-based buccal patches of valsartan

(2019) Acta Poloniae Pharmaceutica - Drug Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068682104&doi=10.32383%2fappdr%2f99526&partnerID=40&md5=4c26fce7dcd6632a123719b64dd2fb51)

[85068682104&doi=10.32383%2fappdr%2f99526&partnerID=40&md5=4c26fce7dcd6632a123719b64dd2fb51](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068682104&doi=10.32383%2fappdr%2f99526&partnerID=40&md5=4c26fce7dcd6632a123719b64dd2fb51)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy and Medical Sciences, Al-Ahliyya Amman University, P.O. Box 19328, Amman, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Pharmacy, Faculty of Pharmacy, Zarqa University, P.O. Box 132222, Zarqa, 13132, Jordan

ABSTRACT: The aim of the study was to develop and characterize mucoadhesive buccal patches of valsartan (VAL) in nanoemulsion (NE) form and to evaluate the impact of nano-formulation in improving its solubility, mucoadhesive strength and in-vitro permeation in comparison to the traditional mucoadhesive VAL patches. A thermodynamic stable VAL-loaded NE was developed with a mean droplet size of 22.5 nm. It was composed of 40% w/w water, 10% w/w oleic acid: Labrasol[®] at a ratio of 2: 1 v/v, and 50% w/w polysorbate 20: Transcutol[®]-P at a ratio of 1: 3 v/v. Bi-layered patches were prepared using 3% w/v ethylene vinyl acetate in dichloromethane as the backing layer and 1.5% w/v Carbopol[®] 971P aqueous solution mixed with VAL-loaded NE as the mucoadhesive layer. Patches showed acceptable weight variation, thickness, folding endurance, mucoadhesive strength, and in-vitro permeation. NE-based patches were more effective in enhancing the penetration of VAL than traditional patches, without significant difference in the mucoadhesive strength. They showed a higher steady-state flux and permeability coefficient than the traditional patches with a flux enhancement ratio of 2.36. The study concluded that NE-based patch is a promising approach that can be tailored to optimize drug release profile in-vivo. © 2019 Polish Pharmaceutical Society. All rights reserved.

Ahmad AL-Allaf, O.N.

Improving the performance of particle swarm optimization for iris recognition system using independent component analysis

(2019) Proceedings of the 2015 International Conference on Artificial Intelligence, ICAI 2015 - WORLDCOMP 2015, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068316159&partnerID=40&md5=37133ad0872f7831cab9f969a6737753)

[85068316159&partnerID=40&md5=37133ad0872f7831cab9f969a6737753](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068316159&partnerID=40&md5=37133ad0872f7831cab9f969a6737753)

AFFILIATIONS: Faculty of Sciences and Information Technology, AL-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733), Jordan

ABSTRACT: Recently, iris recognition had been gained growing interest from researchers because of its high accuracy against other person identification techniques. This work presents an iris recognition system based on particle swarm optimization (PSO) and Independent Component Analysis (ICA) as feature extraction algorithm. Many experiments were conducted using different: swarm size (20, 40 and 80), PSO iterations (100 and 200) and ICA feature vector length (64, 128, 256 and 512). The results showed that: the best performance of the iris recognition system (high PSNR, high recognition rate and lower MSE) will be increased when increasing the ICA feature vector length to 512, increasing the swarm size to 80 and decreasing the number of iterations to 100. Best obtained value of recognition rate is 98%, best PSNR value is 38 and lower MSE value is 0.0011. The suggested iris recognition system has the ability to recognize un trained iris images but with lower performance. © 2019 ICAI 2015 - WORLDCOMP 2015. All rights reserved.

Srouji, A.F., Abed, S.R., Hamdallah, M.E.

Banks performance and customers' satisfaction in relation to corporate social responsibility:

Mediating customer trust and spiritual leadership: What counts!

(2019) International Journal of Business Innovation and Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068071704&doi=10.1504%2fIJBIR.2019.100327&partnerID=40&md5=9eb08f41d6ae108184eed274aa4afa25)

[85068071704&doi=10.1504%2fIJBIR.2019.100327&partnerID=40&md5=9eb08f41d6ae108184eed274aa4afa25](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068071704&doi=10.1504%2fIJBIR.2019.100327&partnerID=40&md5=9eb08f41d6ae108184eed274aa4afa25)

AFFILIATIONS: Accounting Department, American University of Madaba (AUM), Madaba, Jordan;

Accounting Department, Faculty of Economic and Administrative Science, Applied Science Private University, P.O. Box 166, Amman, 11931, Jordan;

Accounting Department, Business Faculty, Al-Zaytoonah University, Airport Road, Amman, Jordan

ABSTRACT: The drive of the work study is essentialised at first to investigate corporate social responsibility (CSR) awareness impacts on apparent customer satisfaction (CSatf) and banking performance (BPerf) in the Jordanian banking division. Meanwhile, the second focus of this work is to propose a mediating role of customer trust (CTrust) and spiritual leadership (SprLead) with a measurement of relationship effect between exogenous and endogenous variables. A hypothesised model test was performed through field survey, total of 417 customers input gathered in 24 banks. Results and presumptions reveal that customers in Jordanian banks ascertain that CSR is a dimensional paradigm that obliges as a direct component of CSatf and BPerf through a positive relationship. While, CTrust has a partial positive mediating effect on relationship between CSR - CSatf, and between CSR - Bperf, SprLead had a partial mediating effect between CSR - CSatf and did not influence the relationship between CSR - BPerf. Copyright © 2019 Inderscience Enterprises Ltd.

Najm, N.A.

Negative stereotypes of Arabs: The Western case

(2019) Indian Journal of Social Work, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067967891&doi=10.32444%2fIJSW.2018.80.1.87-114&partnerID=40&md5=23e6ba9e0353971d790834f25e73dd7e>

AFFILIATIONS: Department of Business Administration, Faculty of Business, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The article explains negative stereotypes of Arabs as conceptualised by the West. The findings suggest that negative stereotypes about Arabs are increasing, provoking further misunderstanding and distortion of the Arab image. Stereotypes reinforcing the majority-minority bias are rooted in the long history of conflicts and unfriendly relations with Arab nations. © 2019 Tata Institute of Social Sciences. All rights reserved.

Al-Zoubi, H., Dababneh, A., Al-Sabbagh, M.

Ruled surfaces of finite II-type

(2019) WSEAS Transactions on Mathematics, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067366788&partnerID=40&md5=e53a3422f73f9389240145066f18757c>

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, P.O.Box 130 Amman11733, Jordan;

Department of Basic Sciences and Humanities, Imam Abdulrahman bin Faisal University, Saudi Arabia

ABSTRACT: - In this paper, we consider surfaces in the 3-dimensional Euclidean space E^3 without parabolic points which are of finite II-type, that is, they are of finite type, in the sense of B.-Y. Chen, with respect to the second fundamental form. We study an important family of surfaces, namely, ruled surfaces in E^3 . We show that ruled surfaces of infinite II-type. © 2019 World Scientific and Engineering Academy and Society. All rights reserved.

Sabbah, D.A., Ibrahim, A.H., Talib, W.H., Alqaisi, K.M., Sweidan, K., Bardaweel, S.K., Sheikha, G.A., Zhong, H.A., Al-Shalabi, E., Khalaf, R.A., Mubarak, M.S.

Ligand-based drug design: Synthesis and biological evaluation of substituted benzoin derivatives as potential antitumor agents

(2019) Medicinal Chemistry, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067114876&doi=10.2174%2f1573406414666180912111846&partnerID=40&md5=87c7511e44827fceb89e6f8116f4d2cf>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Department of Clinical Pharmacy and Therapeutics, Applied Science Private University, Amman, Jordan;

Department of Allied Medical Sciences, Zarqa University College, Al-Balqa Applied University, P.O. Box 132222, Zarqa, 13132, Jordan;

Department of Chemistry, The University of Jordan, Amman, 11942, Jordan;

Department of Pharmaceutical Sciences, Faculty of Pharmacy, The University of Jordan, Amman, 11942, Jordan;

DSC 362, Department of Chemistry, The University of Nebraska at Omaha, 6001 Dodge Street, Omaha, NE 68182, United States

ABSTRACT: Background: Phosphoinositide 3-kinase α (PI3K α) has emerged as a promising target for anticancer drug design. Objectives: Target compounds were designed to investigate the effect of the p-OCH₃ motifs on ligand/PI3K α complex interaction and antiproliferative activity. Methods: Synthesis of the proposed compounds, biological examination tests against human colon adenocarcinoma (HCT-116), breast adenocarcinoma (MCF-7), and breast carcinoma (T47D) cell lines, along with Glide docking studies. Results: A series of 1,2-bis(4-methoxyphenyl)-2-oxoethyl benzoates was synthesized and characterized by means of FT-IR, ¹H and ¹³C NMR, and by elemental analysis. Biological investigation demonstrated that the newly synthesized compounds exhibit antiproliferative activity in human colon adenocarcinoma (HCT-116), breast adenocarcinoma (MCF-7), and breast carcinoma (T47D) cell lines possibly via inhibition of PI3K α and estrogen receptor α (ER α). Additionally, results revealed that these compounds exert selective inhibitory activity, induce apoptosis, and suppress VEGF production. Compound 3c exhibited promising antiproliferative activity in HCT-116 interrogating that hydrogen bond-acceptor mediates ligand/PI3K α complex formation on m- position. Compounds 3e and 3i displayed high inhibitory activity in MCF-7 and T47D implying a wide cleft discloses the o- attachment. Furthermore, compound 3g exerted selective inhibitory activity against T47D. Glide docking studies against PI3K α and ER α demonstrated that the series accommodate binding to PI3K α and/or ER α . Conclusion: The series exhibited a potential antitumor activity in human carcinoma cell lines encoding PI3K α and/or ER α . © 2019 Bentham Science Publishers.

Bashayreh, I.H., Al-Ghabeesh, S.H., Batiha, A.-M., Alrimawi, I., Al-Saireh, M., Al-Momani, M.M.,

Saifan, A.R.

Exploring factors among healthcare professionals that inhibit effective pain management in cancer patients

(2019) Central European Journal of Nursing and Midwifery, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066891565&doi=10.15452%2fCEJNM.2019.10.0003&partnerID=40&md5=202d083bc5af3cbf16f83690db432160)

85066891565&doi=10.15452%2fCEJNM.2019.10.0003&partnerID=40&md5=202d083bc5af3cbf16f83690db432160

AFFILIATIONS: Department of Nursing, Fatima College of Health Sciences, United Arab Emirates;

Department of Nursing, Faculty of Nursing, Al-Zaytoonah University of Jordan, Jordan;

Department of Nursing, Faculty of Nursing, Philadelphia University, Jordan;

Department of Nursing and Midwifery, Faculty of Nursing, Stratford University, United States;

Department of Nursing, Princess Aisha Bint Al-Hussein College of Nursing and Health Sciences, Al-Hussein Bin Talal University, Jordan;

Department of Nursing, Faculty of Nursing, Jordan Zarqa Private University, Jordan

ABSTRACT: Aim: The aim of this study was to investigate differences in the barriers to good cancer pain management between physicians, nurses, and pharmacists in Jordan. Design: A descriptive correlational design was used to answer the research questions of this study. Methods: A group of 473 participants completed the study questionnaires (Barriers Questionnaire - II and Nurses' Knowledge and Attitudes Survey). Results: Fears related to analgesic use, fears related to opioid side effects, communication, cultural beliefs, and lack of knowledge were the most clearly identified barriers to cancer pain management. Cancer pain management has not previously been an area of interest for the Jordanian health authorities. Conclusion: The information that emerged from this study helps to identify the current barriers and misconceptions among health professionals that prevent effective pain management for cancer patients. To maximize the role of health professionals in this area, health administrators need to provide them with more specialized training and empowerment. © 2019 Central European Journal of Nursing and Midwifery

Hamadneh, L., Hikmat, S., Al-Samad, L.A., Huwaitat, R., Sabbah, D., Hamadneh, I., Al-Dujaili, A.H. Synthesis, characterization and antimicrobial activity of novel symmetrical and unsymmetrical thiadiazole derivatives as potential carbonic anhydrase inhibitor in E. Coli

(2019) Journal of Global Pharma Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066852220&partnerID=40&md5=7416e3c4afd9cd928d3a8f134f9a4369)

85066852220&partnerID=40&md5=7416e3c4afd9cd928d3a8f134f9a4369

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Chemistry, Faculty of Science, University of Jordan, Amman, 11942, Jordan;

Hamdi Mango Center for Scientific Research, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Ten compounds of 2, 5-disubstituted-amido-1, 3, 4-thiadiazole, 3, 5-disubstituted-amido-1, 2, 4-thiadiazole and a Schiff base of 1, 3, 4-thiadiazole derivatives were synthesized. The structures were characterized by elemental analysis and different spectroscopic techniques and their biological activities were evaluated. All the synthesized compounds were screened for their antimicrobial activity against Staphylococcus aureus and Escheriochia coli, and antifungal activity against Candida albicans and a clinical isolate of Candida albicans. Most of the compounds have shown significant antibacterial and antifungal activity. When compared with the standard antimicrobial agents. The induced fit study of Schiff base derivative showed that the compound has potential inhibitory effect on bacterial β carbonic anhydrase with binding score of (-33.681 kJ/mol). © 2009-2019, JGPT.

Hamadneh, L., Hikmat, S., Al-Samad, L.A., Huwaitat, R., Sabbah, D., Hamadneh, I., Al-Dujaili, A.H. Synthesis, characterization and antimicrobial activity of novel symmetrical and unsymmetrical thiadiazole derivatives as potential β carbonic anhydrase inhibitor in e. Coli

(2019) Journal of Global Pharma Technology, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066845222&partnerID=40&md5=876f8be9fe3da13915f65f951db5d1c1)

85066845222&partnerID=40&md5=876f8be9fe3da13915f65f951db5d1c1

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;

Department of Chemistry, Faculty of Science, University of Jordan, Amman, 11942, Jordan;

Hamdi Mango Center for Scientific Research, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Ten compounds of 2, 5-disubstituted-amido-1, 3, 4-thiadiazole, 3, 5-disubstituted-amido-1, 2, 4-thiadiazole and a Schiff base of 1, 3, 4-thiadiazole derivatives were synthesized. The structures were characterized by elemental analysis and different spectroscopic techniques and their biological activities were evaluated. All the synthesized compounds were screened for their antimicrobial activity against Staphylococcus aureus and Escheriochia coli, and antifungal activity against Candida albicans and a clinical isolate of Candida albicans. Most of the compounds have shown significant antibacterial and antifungal activity. When compared with the standard antimicrobial agents. The induced fit study of Schiff base derivative showed that the compound has potential inhibitory effect on bacterial β carbonic anhydrase with binding score of (-33.681 kJ/mol). ©2009-2019, JGPT. All Rights Reserved.

Alrawashed, T.A., Almomani, A., Althunibat, A., Tamimi, A.

An automated approach to generate test cases from use case description model

(2019) CMES - Computer Modeling in Engineering and Sciences, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066440299&doi=10.32604%2fcmes.2019.04681&partnerID=40&md5=d71148bddc405e7c8f7379d0dd44b4a1)

[85066440299&doi=10.32604%2fcmes.2019.04681&partnerID=40&md5=d71148bddc405e7c8f7379d0dd44b4a1](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066440299&doi=10.32604%2fcmes.2019.04681&partnerID=40&md5=d71148bddc405e7c8f7379d0dd44b4a1)

AFFILIATIONS: Department of Software Engineering, Alzaytoonah University of Jordan, Airport Street, Amman, Jordan;

IT-department, Al-Huson University College, Al-Balqa Applied University, P. O. Box, Salt, Jordan

ABSTRACT: Test complexity and test adequacy are frequently raised by software developers and testing agents. However, there is little research works at this aspect on specification-based testing at the use case description level. Thus, this research proposes an automatic test cases generator approach to reduce the test complexity and to enhance the percentage of test coverage. First, to support the infrastructure for performing automatic, this proposed approach refines the use cases using use case describing template and save it in the text file. Then, the saved file is input to the Algorithm of Control Flow Diagram (ACFD) to convert use case details to a control flow diagram. After that, the Proposed Tool of Generating Test Paths (PTGTP) is used to generate test cases from the control flow diagram. Finally, the genetic algorithm associated with transition coverage is adapted to optimize and evaluate the adequacy of such test cases. A money withdrawal use case in the ATM system is used as an ongoing case study. Preliminary results show that the generated test cases achieve high coverage with an optimal test case. This automatic test case generation approach is effective and efficient. Therefore, it could promote to use other test case coverage criteria. Copyright © 2019 Tech Science Press

Nawaiseh, M.E., Bader, A., Nawaiseh, H.N.

Ownership structure and audit pricing: Conventional versus Islamic Banks in Jordan

(2019) Academy of Accounting and Financial Studies Journal, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066239896&partnerID=40&md5=432c0d1da63f624e540aa15ccca9aea7)

[85066239896&partnerID=40&md5=432c0d1da63f624e540aa15ccca9aea7](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066239896&partnerID=40&md5=432c0d1da63f624e540aa15ccca9aea7)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

Luminus Technical University College, Jordan

ABSTRACT: This paper empirically looks at the effect of ownership structure on audit fees in developing economies using all the national twelve banks in Jordan as a case ; the study uses published annual data ranging from 2008 to 2015. Those banks include (10) conventional and the (2) Islamic banks. The Jordan banking sector is dominated by a high institutional ownership concentration; this is followed by family and government ownership. We find a significantly positive (insignificantly negative) effect of both family and institutional (Government) ownership on audit fees regarding of conventional banks; which means, it is possible that owners ask the auditors to provide high quality service which in turn results on high audit fees. We further document that our results show insignificantly negative effect of controlled family and institutional ownership of Islamic banks on audit fees. Finally, we do not, however, find evidence of any effect of government ownership for both banking systems on audit fees. This shows that in Jordan, conventional banks truly pay higher audit fees when these are controlled by family or institutional shareholders and pay lower fees if dominated by government ownership, these results explain the mixed effects of the nature of family and institutional ownership on audit fees. Based on these results; we suggest that ownership variable constitutes a key determinant of audit fees. © 2019, Allied Academies.

Shabeeb, I., Al-Essa, L., Shtaiwi, M., Al-Shalabi, E., Younes, E., Okasha, R., Sini, M.A.

New hydrazide-hydrazone derivatives of quinoline 3-carboxylic acid hydrazide: Synthesis, theoretical modeling and antibacterial evaluation

(2019) Letters in Organic Chemistry, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066103874&doi=10.2174%2f1570178616666181227122326&partnerID=40&md5=3fa909353175b8530abfa809da8b5f5a)

[85066103874&doi=10.2174%2f1570178616666181227122326&partnerID=40&md5=3fa909353175b8530abfa809da8b5f5a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85066103874&doi=10.2174%2f1570178616666181227122326&partnerID=40&md5=3fa909353175b8530abfa809da8b5f5a)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Department of Chemistry, The Hashemite University, Zarqa, Jordan

ABSTRACT: A series of biologically active 3-quinoline carboxylic acid hydrazide-hydrazones has been synthesized from 3-quinoline carboxylic acid hydrazide and a variety of aldehydes, with moderate to good yields. The chemical structures of the new products were confirmed by elemental analysis, IR, and ¹H NMR, ¹³C NMR spectral data. The structural and Frontier Molecular Orbital (FMO) properties and the Density Functional Theory (DFT) calculations were conducted for the new compounds. The new hydrazide-hydrazones exhibited low to moderate antibacterial activity against Staphylococcus aureus and Esherichia coli in comparison with gentamycin. Among the tested compounds, compounds 9 and 13 were found to be the most active. Phthalimide derivative 2 of 3-quioline carboxylic acid hydrazide showed remarkable antibacterial activity. © 2019 Bentham Science Publishers.

Alwahsh, M., Othman, A., Hamadneh, L., Telfah, A., Lambert, J., Hikmat, S., Alassi, A., Mohamed, F.E.Z., Hergenröder, R., Al-Qirim, T., Dooley, S., Hammad, S.

Second exposure to acetaminophen overdose is associated with liver fibrosis in mice (2019) EXCLI Journal, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065994221&doi=10.17179%2fexcli2018-1920&partnerID=40&md5=2895eb05880c314dad27ae50c8c5a51>

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan;

Leibniz-Institut für Analytische Wissenschaften-ISAS-e.V, Bunsen-Kirchhoff-Straße 11, Dortmund, 44139, Germany;

Molecular Hepatology Section, Department of Medicine II, Medical Faculty Mannheim, Heidelberg University, Mannheim, 68167, Germany;

Department of Pathology, Faculty of Medicine, Minia University, Minia, 11432, Egypt;

Department of Forensic Medicine and Veterinary Toxicology, Faculty of Veterinary Medicine, South Valley University, Qena, 83523, Egypt

ABSTRACT: Repeated administration of hepatotoxicants is usually accompanied by liver fibrosis. However, the difference in response as a result of repeated exposures of acetaminophen (APAP) compared to a single dose is not well-studied. Therefore, in the current study, the liver response after a second dose of APAP was investigated. Adult fasted Balb/C mice were exposed to two toxic doses of 300 mg/kg APAP, which were administered 72 h apart from each other. Subsequently, blood and liver from the treated mice were collected 24 h and 72 h after both APAP administrations. Liver transaminase, i.e. alanine amino transferase (ALT) and aspartate amino transferase (AST) levels revealed that the fulminant liver damage was reduced after the second APAP administration compared to that observed at the same time point after the first treatment. These results correlated with the necrotic areas as indicated by histological analyses. Surprisingly, Picro Sirius Red (PSR) staining showed that the accumulation of extracellular matrix after the second dose coincides with the upregulation of some fibrogenic signatures, e.g., alpha smooth muscle actin. Non-targeted liver tissue metabolic profiling indicates that most alterations occur 24 h after the first dose of APAP. However, the levels of most metabolites recover to basal values over time. This organ adaptation process is also confirmed by the upregulation of antioxidative systems like e.g. superoxide dismutase and catalase. From the results, it can be concluded that there is a different response of the liver to APAP toxic doses, if the liver has already been exposed to APAP. A necroinflammatory process followed by a liver regeneration was observed after the first APAP exposure. However, fibrogenesis through the accumulation of extracellular matrix is observed after a second challenge. Therefore, further studies are required to mechanistically understand the so called "liver memory". © 2019, Leibniz Research Centre for Working Environment and Human Factors. All rights reserved.

Daoud, M.S., Ghadi, Y., Almimi, H.

Optimization of the application software in biomechanics and their contribution to the biological field

(2019) Journal of Engineering Science and Technology Review, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065671249&doi=10.25103%2fjestr.121.21&partnerID=40&md5=a5760db2d8f5faaa2bc6246b624602ba>

AFFILIATIONS: Faculty of Engineering, Al Ain University of Science and Technology, United Arab Emirates;

Faculty of Science and Information Technology, Al-Zaytoonah University, Jordan

ABSTRACT: Biomechanics refers to study of movement within dynamic biological systems. Advancement of computer software technologies such as JAVA language leads to combine stimuli and signals by biological systems and utilize them for research purposes. The main aim of this research is to analyse various biomechanical software and advancements that have been made in the field of mechanical software. Secondary research analysis has been utilized within this research paper. A Number of computational software such as OpenSim and ABAQUS have been proven to be very beneficial in this aspect. Advancement in biomechanical software has led to better research in cancer and cytoskeletal studies. Thus, Biomechanical software enables us to study kinetics of body without invasive procedures and does not cause any hindrance to ethical issues. © 2019 Eastern Macedonia and Thrace Institute of Technology.

Mahmoud, N.N., Sabbah, D.A., Abu-Dahab, R., Abuarqoub, D., Abdallah, M., Hasan Ibrahim, A., Khalil, E.A.

Cholesterol-coated gold nanorods as an efficient nano-carrier for chemotherapeutic delivery and potential treatment of breast cancer:: In vitro studies using the MCF-7 cell line

(2019) RSC Advances, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064972880&doi=10.1039%2fc9ra01041f&partnerID=40&md5=96b9da99533de3bf6d41f7eddd4775d1>

AFFILIATIONS: Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan;
School of Pharmacy, University of Jordan, Amman, 11942, Jordan;
Cell Therapy Center, University of Jordan, Amman, 11942, Jordan

ABSTRACT: Gold nanorods (GNRs) have a recognized role in treatment of cancers as efficient nanocarriers for chemotherapeutic drug delivery. In this study, GNRs modified with cholesterol-PEG were employed as a nanocarrier for a hydrophobic compound having a promising phosphatidylinositol 3-kinase (PI3K α) inhibitory activity. The acquired nanocomplex was characterized by optical and infrared (IR) absorption spectroscopies, in addition to hydrodynamic size and zeta potential. Glide docking and superposing of docked poses of the hydrophobic ligand and cholesterol moiety demonstrated that hydrophobic interactions drive the conjugation and attachment of the ligand to the cholesterol moiety of the nanocarrier. In vitro release study under a cellular environment indicates that the presence of cells has enhanced the release and the cellular uptake of the conjugated ligand. Furthermore, the anti-proliferative assay of the nanocomplex revealed potent cytotoxicity over a low concentration range of the nanocomplex against MCF-7 breast cancer cells compared to the free compound or the nanocarrier alone. Analysis of cellular death modality by flow cytometry showed that the nanocomplex has a rapid effect on cell death, as cells went toward the late apoptotic/necrotic stage rapidly and proportionally to the increase of the nanocomplex concentration. The overall results propose that cholesterol-decorated GNRs could be considered as a promising nanocarrier for hydrophobic drugs to achieve efficient delivery and potential therapy against breast cancer cells. © 2019 The Royal Society of Chemistry.

Jarrar, Y.B., Ghishan, M.

The nudix hydrolase 15 (NUDT15) gene variants among Jordanian Arab population
(2019) Asian Pacific Journal of Cancer Prevention, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063773315&doi=10.31557%2fAPJCP.2019.20.3.801&partnerID=40&md5=e68966ebf2b59809b62297495ec3573b)

[85063773315&doi=10.31557%2fAPJCP.2019.20.3.801&partnerID=40&md5=e68966ebf2b59809b62297495ec3573b](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063773315&doi=10.31557%2fAPJCP.2019.20.3.801&partnerID=40&md5=e68966ebf2b59809b62297495ec3573b)

AFFILIATIONS: College of Pharmacy, AlZaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Background: Nudix Hydrolase 15 gene (NUDT15) encodes nucleotide triphosphate diphosphatase which metabolizes the purine analog drugs, such as anticancer thiopurine and anti-gout allopurinol. Genetic variants on Nudix Hydrolase 15 gene (NUDT15) gene effects the drug's hydrolyses and hence increases the susceptibility to drug-induced toxicity. The NUDT15 gene has been genotyped in various ethnic groups, however, it has not been genotyped among the Middle Eastern Arab Jordanian population. Aim: The current study aimed to identify NUDT15 genetic variants among Jordanian Arab population. Method: The DNA samples were isolated from leukocytes of 85 unrelated Jordanian Arab volunteers. The coding regions of NUDT15 gene; Exon 1,2 and 3, in addition to some regions of intron 1,2 and 3'UTR, were amplified using polymerase chain reaction (PCR). the PCR products were then subjected to purification and sequenced using Applied Biosystems Model (ABI3730x1). Results: Six NUDT15 genetic variants were found among the volunteers. The results were as followed: A novel synonymous variant 36A > G on exon 1 (6%, 95%CI= 3- 9%), the intronic IVS1 +116C > T variant on intron 1 (0.6%, 95%CI= 0-2%), the non-synonymous variant on exon 3; 415C > T (0.6%, 95%CI= 0-2%), A novel non-synonymous variant on exon 3; 404C > A (0.6%, 95%CI= 0-2%), and two novel variants on 3'UTR ;502G > A (2%, 95%CI= 0.5-4%) and 588T > C (0.6%, 95%CI= 0-2%). NUDT15 36A > G was found to be the most common allele among Jordanians was. In silico softwares predicted that the novel NUDT15 404C > A was harmful and affected NUDT15 enzyme's stability and function. Furthermore, the frequency of NUDT15 IVS1 +116C > T, among Jordanians, showed to be significantly lower from what was reported in other ethnicities with a p value > 0.05 on the other hand, the frequency of 415C > T variant showed to be similar to Europeans in contrast to Asians and Indians that showed to be significantly lower (p value > 0.05). Conclusions: The frequency of NUDT15 genetic variants is low among the Jordanian volunteers and significantly lower than other ethnic groups. The findings of this study may increase our understanding of the inter-individual variation in the response to purine analog drugs. Further clinical studies are needed to investigate the influence of novel NUDT15 404C > A on drug metabolism and response. © 2019, NUDT15 Genetic Variants in Jordanians.

Alsmadi, A.A., Oudat, M.S.

The effect of foreign direct investment on financial development: Empirical evidence from Bahrain
[Utjecaj izravnih stranih investicija na financijski razvoj: Empirijski dokaz iz Bahreina]
(2019) Ekonomski Pregled, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063324491&doi=10.32910%2fep.70.1.2&partnerID=40&md5=efeb9ddf8d2c3d88d95e52cd4816343a)

[85063324491&doi=10.32910%2fep.70.1.2&partnerID=40&md5=efeb9ddf8d2c3d88d95e52cd4816343a](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063324491&doi=10.32910%2fep.70.1.2&partnerID=40&md5=efeb9ddf8d2c3d88d95e52cd4816343a)

AFFILIATIONS: Al-Zaytoonah University of Jordan, Jordan;

Applied Science University Bahrain, Bahrain

ABSTRACT: The aim of this paper is to analyze the relationship between foreign direct investments and financial development in Bahrain. The estimation of financial development effects was performed for the period 1978 to 2015, which covers the political conflicts that recently happened in Middle East area (Arab Spring). On the other hand, the paper sought to examine the causality relationship between

foreign direct investments and financial development. The study empirically investigates the short and long run equilibrium relationship between the variables by applied co-integration and Autoregressive Distributed Lags Approach (ARDL). The Granger causality test was employed to capture causality relationship. The obtained results show that there is a significant positive relationship between FDI and financial development in short and long run, while, a significant negative relationship between Arab Spring and financial development. However, the results also revealed bidirectional causality relationship between FDI and financial development. © 2019, Hrvatsko Drustvo Ekonomista. All rights reserved.

Sharour, L.A.

Implementing simulation in oncology emergencies education: A quasi-experimental design (2019) Technology and Health Care, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85063100208&doi=10.3233%2fTHC-181543&partnerID=40&md5=d8985c349c3f17ad92b743f528d1a7e4>

AFFILIATIONS: Faculty of Nursing, AL-Zaytoonah University of Jordan, P.O. Box 130, Amman, 11733, Jordan

ABSTRACT: BACKGROUND: High-fidelity simulation (HFS) as a teaching-learning method has increased, especially in medical programs. OBJECTIVE: This study was conducted to assess the effectiveness of using HFS on the satisfaction, self-confidence, self-efficacy, and knowledge of undergraduate students in oncology care. METHODS: A pre-test post-test quasi-experimental design was utilized. Random sampling technique was used to recruit the participants. The scenarios including septic shock and infusion reaction were implemented. The training program including lectures and the simulation was run in a high fidelity simulation lab. RESULTS: There was a significant difference ($t=-5.95$, $p=0.001$) between the experimental group ($M=13.95$, $SD=3.35$) and the control group ($M=6.25$, $SD=2.65$) regarding knowledge, confidence ($t=-22.75$, $p=0.001$) between the experimental group ($M=61.25$, $SD=12.10$) and the control group ($M=38.50$, $SD=6.20$), satisfaction level $t=-18.25$, $p=0.001$; experimental group- $M=42.25$, $SD=4.25$; and control group- $M=28.50$, $SD=3.15$), and there was a significant difference between the experimental group ($M=35.50$, $SD=3.25$) and control group ($M=24.25$, $SD=2.85$) regarding self-efficacy ($t=-13.25$, $p=0.001$). CONCLUSIONS: High-fidelity simulation in nursing increased student knowledge, self-confidence, satisfaction, and self-efficacy in managing septic shock and infusion reaction as common oncology emergencies. © 2019-IOS Press and the authors. All rights reserved.

Abu Sharour, L.

Lived experience of Jordanian colorectal cancer patients with recurrence: an interpretative phenomenological analysis

(2019) Psychology, Health and Medicine, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062452579&doi=10.1080%2f13548506.2019.1587481&partnerID=40&md5=29bea57f3c2d850b29e79e772fb497d4>

AFFILIATIONS: Faculty of nursing, AL-Zaytoonah University of Jordan, Amman, Jordan

ABSTRACT: Despite improvement in the cancer treatment modalities, recurrence is still common. This study was conducted to explore Jordanian colorectal cancer patients' experience during the recurrence phase. Phenomenology-Qualitative design with semi-structured individual interviews with open questions was used. Three main themes and several subthemes were emerged: (1) adequate information and support from professionals (helpful relationship with professionals and disease orientation), (2) disease and treatment impact (being shocked, uncertainty, losing autonomy, isolation, and discomfort), and (3) seeking complementary treatment (spiritual activities and complementary therapy). The results can be helpful in increasing our understanding of the CRC experience during recurrence phase. © 2019, © 2019 Informa UK Limited, trading as Taylor & Francis Group.

Yousef, T.

Cultural identity in Monica Ali's Brick Lane: A Bhabhian perspective

(2019) International Journal of Arabic-English Studies, .

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85060202819&doi=10.33806%2fijaes2000.19.1.4&partnerID=40&md5=d6da05e6fff2f9fc9adbb7f1c8312872>

AFFILIATIONS: Al-Zaytoonah University, Amman, Jordan

ABSTRACT: This paper explores the question of cultural identity in Monica Ali's Brick Lane (2003) through making specific reference to Homi Bhabha's views of hybridity, third space, mimicry and ambivalence. Though Ali's novel has been discussed in light of traditional postcolonialism, it has not been duly scrutinized through a dominantly Bhabhian perspective. Besides making use of Bhabha's theories, this article draws upon the works of some other theorists of cultural identity such as Stuart Hall and Edward Said to highlight its emphasis on a Bhabhian approach. Grounding its discussion in Bhabha's theory of cultural identity, it explores the way/s the major characters in Ali's novel struggle to realize their sense of cultural identity in their own different ways. Specific emphasis is laid on the novel's protagonist Nazneen and the development of her cultural

identity. © 2019 Librairie du Liban Publishers. All rights reserved.

Breadmore, M.C., Grochocki, W., Kalsoom, U., Alves, M.N., Phung, S.C., Rokh, M.T., Cabot, J.M., Ghiasvand, A., Li, F., Shallan, A.I., Keyon, A.S.A., Alhusban, A.A., See, H.H., Wuethrich, A., Dawod, M., Quirino, J.P.

Recent advances in enhancing the sensitivity of electrophoresis and electrochromatography in capillaries and microchips (2016-2018)

(2019) Electrophoresis, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059295397&doi=10.1002%2felps.201800384&partnerID=40&md5=3de85552954b4ea1cf6ad1ee941130d4)

[85059295397&doi=10.1002%2felps.201800384&partnerID=40&md5=3de85552954b4ea1cf6ad1ee941130d4](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059295397&doi=10.1002%2felps.201800384&partnerID=40&md5=3de85552954b4ea1cf6ad1ee941130d4)

AFFILIATIONS: Australian Centre for Research on Separation Science, Chemistry, School of Natural Science, University of Tasmania, Hobart, TAS, Australia;

Department of Biopharmaceutics and Pharmacodynamics, Medical University of Gdansk, Gdansk, Poland;

ARC Centre of Excellence for Electromaterials Science (ACES), School of Natural Sciences, College of Science and Technology, University of Tasmania, Hobart, Australia;

Trajan Scientific and Medical, Ringwood, VIC, Australia;

Department of Chemistry, Lorestan University, Khoramabad, Iran;

Future Industries Institute (FII), University of South Australia, Mawson Lakes, Australia;

Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, Egypt;

Department of Chemistry, Faculty of Science, Universiti Teknologi Malaysia, Johor Bahru, Johor, Malaysia;

Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan;

Centre for Sustainable Nanomaterials, Ibnu Sina Institute for Scientific and Industrial Research, Universiti Teknologi Malaysia, Johor Bahru, Johor, Malaysia;

Centre for Personalized Nanomedicine, Australian Institute for Bioengineering and Nanotechnology (AIBN), The University of Queensland, Brisbane, QLD, Australia;

Department of Chemistry, University of Michigan, Ann Arbor, MI, United States

ABSTRACT: One of the most cited limitations of capillary and microchip electrophoresis is the poor sensitivity. This review continues to update this series of biannual reviews, first published in

Electrophoresis in 2007, on developments in the field of online/in-line concentration methods in capillaries and microchips, covering the period July 2016-June 2018. It includes developments in the field of stacking, covering all methods from field-amplified sample stacking and large-volume sample stacking, through to isotachopheresis, dynamic pH junction, and sweeping. Attention is also given to online or in-line extraction methods that have been used for electrophoresis. © 2018 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim

Awad, K., Abdallah, M., Tamimi, A., Ngah, A., Tamimi, H.

A proposed forward clause slicing application

(2019) Indonesian Journal of Electrical Engineering and Computer Science, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059207726&doi=10.11591%2fijeecs.v13.i1.pp1-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059207726&doi=10.11591%2fijeecs.v13.i1.pp1-6&partnerID=40&md5=bd0751886f247c16e1a749aaf29cd23e)

[6&partnerID=40&md5=bd0751886f247c16e1a749aaf29cd23e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059207726&doi=10.11591%2fijeecs.v13.i1.pp1-6&partnerID=40&md5=bd0751886f247c16e1a749aaf29cd23e)

AFFILIATIONS: Department of Software Engineering, Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Amman, Jordan;

Faculty of Science and Information Technology, Al-Zaytoonah University of Jordan, Queen Alia airport road, Amman, Jordan;

School of Informatics and Applied Mathematics, Universiti Malaysia Terengganu, Malaysia;

EYEVIDO GmbH, Koblenz, Rhineland-Palatinate, Germany;

Department of Computer Science, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: The Clause slicing technique is static slicing techniques which also have forward and backward slicing methods. The Clause slice criteria are the clause and the clause number. In this paper, we have discussed the Clouser tool the forward clause slicing tool introduce some improvements to it. The Clouser mechanism divides the program code statement into clauses, depending on clause slicing rules, identifies the variables and built-in functions, then slices the clauses regarding the slice criterion that was entered by the user. Comparing to other static slicing techniques the clause slicing is more accurate and precise because it considers all the code in micro-level, where it focuses on every syntax in the code. The Clouser still needs to be enhanced to slice more code features. © 2019 Institute of Advanced Engineering and Science. All rights reserved.

Yaseen, S.G., ElRefae, G.A.

Islamic work ethics for Arab managers: The missing paradigm between espoused Islam and Islam-in-use (2019) International Journal of Economics and Business Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058401968&doi=10.1504%2fIJEER.2019.096583&partnerID=40&md5=6d3e8a74cd26a305180afef99246ae40)

[85058401968&doi=10.1504%2fIJEER.2019.096583&partnerID=40&md5=6d3e8a74cd26a305180afef99246ae40](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058401968&doi=10.1504%2fIJEER.2019.096583&partnerID=40&md5=6d3e8a74cd26a305180afef99246ae40)

AFFILIATIONS: Faculty of Business, Al-Zaytoonah University of Jordan, Amman, Jordan;

College of Business, Al Ain University of Science and Technology, Al Ain, United Arab Emirates
ABSTRACT: This research puts forth a new conceptualisation of espoused Islam and Islam-in-use, the discrepancy between the ideal and the real. Espoused Islam is what Arab managers believe in their stated value. Islam-in-use is their operationalised beliefs that they actually use. Although, there is ample evidence that Arab managers can and do switch mindsets between espoused Islam and Islam-in-use depending on which is cued in context, little is known about these contradicting orientations. The antecedents of these variations are deeply rooted in history, Arab culture ethos and Islam. The interpretive analysis of concepts has been used to understand the missing paradigm between espoused Islam and Islam-in-use, as well as to shed light on some contradicting orientations among them. An examination of this divergence involves rigorous research and further empirical operationalisation. Consequently, this conceptualisation is very valuable to western partners regarding how they should cultivate and express their own values and execute business in the Arab world. Copyright © 2019 Inderscience Enterprises Ltd.

Zraiqat, A.

Inclusion and equivalence relations between absolute nörlund and absolute weighted mean summability methods

(2019) Boletim da Sociedade Paranaense de Matematica, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85053661465&doi=10.5269%2fbpsm.v37i4.32064&partnerID=40&md5=c7c8d753bc7ea4e9b418ff41541325f0)

[85053661465&doi=10.5269%2fbpsm.v37i4.32064&partnerID=40&md5=c7c8d753bc7ea4e9b418ff41541325f0](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85053661465&doi=10.5269%2fbpsm.v37i4.32064&partnerID=40&md5=c7c8d753bc7ea4e9b418ff41541325f0)

AFFILIATIONS: Department of Mathematics, Al-Zaytoonah University of Jordan, Jordan

ABSTRACT: In this paper, a set of conditions under which the absolute Nörlund summability method include in the absolute weighted mean method have been established. Three non-trivial examples to show that this inclusion holds have been given, and other three examples to show that even if both (N, r) and (N, q) are regular, the inclusion fails to holds have been constructed. The paper give two non-trivial examples to show that the equivalence of these two methods May holds. Finally, we give two examples to show that inclusion May holds in only one way without the other. © Soc. Paran. de Mat.

Al Omoush, K.S., Alqirem, R.M., Alzboon, S.R.

The role of business intelligence tools in harvesting collective intelligence

(2019) Advances in Intelligent Systems and Computing, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85053255759&doi=10.1007%2f978-3-319-99993-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85053255759&doi=10.1007%2f978-3-319-99993-7_15&partnerID=40&md5=939b21ebbb0d1d1a5dfe99eac5958b9e)

[7_15&partnerID=40&md5=939b21ebbb0d1d1a5dfe99eac5958b9e](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85053255759&doi=10.1007%2f978-3-319-99993-7_15&partnerID=40&md5=939b21ebbb0d1d1a5dfe99eac5958b9e)

AFFILIATIONS: Al Zaytoonah University of Jordan, Amman, Jordan;

Argosy University, Los Angeles, United States

ABSTRACT: The present study aims to develop and empirically validate a framework for exploring the role of business intelligent tools in shaping the dimensions of collective intelligence. A questionnaire survey was developed to collect data from 9 firms across all industries with a sample of 89 respondents. Structural Equation Modeling, using smart PLS was conducted to analyze the data. The results indicated that business intelligent tools play a significant role in harvesting the dimensions of collective intelligence, including collective cognition, shared memory, knowledge sharing, and collective learning. © 2019, Springer Nature Switzerland AG.

Alhusban, A.A., Ata, S.A., Shraim, S.A.

The Safety Assessment of Toxic Metals in Commonly Used Pharmaceutical Herbal Products and Traditional Herbs for Infants in Jordanian Market

(2019) Biological Trace Element Research, .

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85046420173&doi=10.1007%2fs12011-018-1367-](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85046420173&doi=10.1007%2fs12011-018-1367-1&partnerID=40&md5=0f98cd9ac184764ff6ccd89136d54c5c)

[1&partnerID=40&md5=0f98cd9ac184764ff6ccd89136d54c5c](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85046420173&doi=10.1007%2fs12011-018-1367-1&partnerID=40&md5=0f98cd9ac184764ff6ccd89136d54c5c)

AFFILIATIONS: Department of Pharmacy, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, 130, Amman, 11733, Jordan

ABSTRACT: The objective of this study was to assess the levels of contamination by toxic metals (Pb, Al, Ni, Cd and As) that may be present in 25 infant pharmaceutical herbal products and 15 traditional herbs in Jordan. Both products and medicinal herbs are currently prescribed by paediatricians. They are available as over-the-counter medicines and are sold the in herbal market, ensuring easy accessibility for parents. Inductively coupled plasma-optical emission spectroscopy (ICP-OES), with limit of detections (LODs) of 0.10, 1.00, 0.20, 0.15 and 2.00 mg.kg⁻¹ for Pb, Al, Ni, Cd and As respectively, was employed to measure the levels of toxic metals in the samples. Pb, Al and Ni were detected in 88, 76 and 4% of the analysed samples of pharmaceutical herbal products and in 93, 87 and 13% of the analysed samples of traditional herbs, respectively. Neither Cd or As were detected in all analysed samples. The data obtained were subsequently compared by referral to the acceptable limits of toxic heavy metals according to World Health Organisation (WHO) standards. Largely, the results showed acceptable toxic metal levels in the finished pharmaceutical products and the traditional medicinal herbs for infants. One exception to this was Persian Thyme (Satureja thymbra) with Pb

content of 41.18 mg.kg⁻¹. Also, the daily intake of detected metals through pharmaceutical herbal products was found to be lower than the daily tolerable intake limit set by the regulatory bodies, except of 8% of products that exceeded the tolerable daily intake of Pb set by US FDA, as compared to traditional medicinal herbs, where the tolerable daily intake for Pb, Al and Ni were exceeded in 40, 60 and 8% of the analysed herbs, respectively. The results obtained revealed that the excessive use of medicinal plants as alternative medicine should be used with caution keeping in mind the safety factor in infants. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.