

CURRICULUM VITAE

Dr. Ala Abdul Kareem Ahmad Alhusban

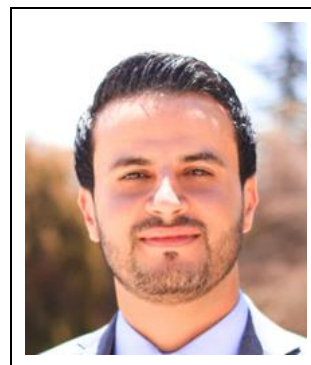
*Faculty of Pharmacy / Department of Pharmacy,
Al-Zaytoonah University of Jordan, Amman, Jordan*

Phone: +962 6 4291511 ext.: 310

Fax: +962 6 4291432

E-mail: Ala.alhusban@zuj.edu.jo

Homepage: <https://www.zuj.edu.jo/faculty-of-pharmacy-1/>



1. Personal Data

Date of Birth: 13th of November, 1980

Nationality: Jordanian

2. Education

- **Ph.D.** (Pharmacy/ Pharmaceutical Analysis), 2016, University of Tasmania, Hobart, Tasmania, Australia
- **M.Sc.** (Pharmaceutical Chemistry/ Pharmaceutical Analysis), 2006, Jordan University of Science and Technology, Irbid, Jordan
- **B.Sc.** (Pharmacy), 2003, Jordan University of Science and Technology, Irbid, Jordan

3. Ph.D. and M.Sc. Dissertations

- *"Bioprocess Monitoring Using Sequential Injection Capillary Electrophoresis"*, **Ph.D.**, University of Tasmania, Hobart, Tasmania, Australia.
- *"An Investigation of Selected Heavy Metals in Different Drugs and Herbal Pharmaceutical Dosage Forms from Jordan Market"*, **M.Sc.**, Jordan University of Science and Technology, Irbid, Jordan



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

4. Employment

Academic Positions

- Associate Professor of Pharmaceutical Analysis, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan November 17, 2020 – now
- Assistant Professor of Pharmaceutical Analysis, Department of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan May 20, 2016 – November 17, 2020.

Administrative Positions

- Vice Dean of Faculty of Pharmacy, Al-Zaytoonah University of Jordan October 1, 2020 – now.

5. Research Interests

- Pharmaceutical Analysis applying Separation Techniques through the Development and Validation of Liquid Chromatographic Methods.
- Pharmaceutical Analysis applying Online Monitoring through the Development and Validation of Capillary Electrophoretic Methods.
- Trace Elements Analysis in Pharmaceutical Products employing Inductively Coupled Plasma Optical Emission Spectroscopy.

6. Membership in Scientific Societies and Associations

- Jordan Pharmacists Association

7. Honors and Awards

- Honored for the leadership of ACPE Committee responsible of receiving the Faculty of Pharmacy of the ACPE ISP certification of accreditation from the accreditation council of pharmacy education, 2020.
- Honored for participation in receiving the Faculty of Pharmacy the first Quality Assurance Certificate from Accreditation and Quality Assurance Commission for Higher Education Institutions in Jordan, 2017.

8. Fellowships and Scholarships

- PhD Scholarship from Al-Zaytoonah University of Jordan (2012 – 2015)



9. Teaching Experience

- *Graduate Courses*
 - Advanced Pharmaceutical Analysis
 - Advanced Pharmaceutical Analysis Laboratory
- *Undergraduate Courses*
 1. Pharmaceutical Instrumental Analysis
 2. Pharmaceutical Instrumental Analysis Laboratory
 3. Phytochemistry
 4. Medicinal Plants
 5. Pharmacology Laboratory
 6. Pharmacy Practice II

10. Supervision of Graduate Research

1. Amal Yousef Bargash, Characterization of Medical Platforms to Reduce the Bacterial Adhesion Associated with Dental Implants, 2018-2019.
2. Sukaina Mohammad Bustanji, Chromatographic and/or Electrophoretic methods development and validation for correlating tamoxifen resistant MCF-7 cell line changes with biomarkers (lactate, pyruvate, glucose and glutamine) level, 2019-2020.
3. Rama Mohammad Abuarqoub, Tamoxifen resistance in MCF-7: tracking the changes in PI3K/AKT/PTEN signaling pathway and their role in glucose and glutamine metabolism during resistance development, 2019-2020.

11. Grants

- Interaction of Gold Nanorods-Gel Composite with Human Skin Hair Follicles: The Colloidal Stability and Preferential Targeting, 2017, Deanship of Scientific Research, Al-Zaytoonah University of Jordan, Jordan, "23,000" JD.
- Correlation between Metabolic, Genetic and Epigenetic Changes in Tamoxifen Resistant Breast Cancer Cell Line MCF-7 Employing Electrophoretic Techniques, 2018, Deanship of Scientific Research, Al-Zaytoonah University of Jordan, Jordan, "70,100" JD.
- On-line Monitoring of Lactic Acid in Tamoxifen Induced Resistance Breast Cancer Cell Line MCF-7, 2020, Deanship of Scientific Research, Al-Zaytoonah University of Jordan, Jordan, "17,130" JD.



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

- Design, Optimization and Characterization of candesartan Polymeric Microneedle Arrays Prepared by a 3D Fused Deposition Micromoulding Technique, 2020, Scientific Research Support Fund, Jordan, "40,400" JD.

12. Patents

- Not Applicable

13. Membership of Committees

- **National and International**
 - *Australian Centre for Research on Separation Science: member (2012 - 2016), Hobart, Tasmania, Australia.*
 - *Pharmaceutical Quality Control Committee at the Jordan Food and Drug Administration (JFDA): member and technical consultant (2017 - 2018), Amman, Jordan.*
 - *Pharmaceutical Laboratories Affairs Committee at JFDA: member and technical consultant (2017 - now), Amman, Jordan.*
 - *Clinical Trials Committee at JFDA: member and scientific consultant (2018 - 2021), Amman, Jordan.*
 - *Originator Registration Committee at JFDA: member and scientific consultant (2020 - 2021), Amman, Jordan.*
 - *COVID-19 Investigational Committee at JFDA: member and scientific consultant (2020 - 2021), Amman, Jordan.*
 - *Reference Laboratories Accreditation Committees at JFDA: member and technical consultant (2017 - now), Amman, Jordan.*
 - *Member of on-site evaluation team for the Accreditation Council for Pharmacy Education (ACPE) (2020), Chicago, USA.*
 - *Member of Examination Committee at JPA (2021 - 2022), Amman, Jordan.*



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

- **Examination Committee of the following postgraduate students:**
 - *Isolation, characterization, synthesis and proposing mechanisms of generating degradation products and related impurities in Lenalidomide raw material, Qusai Sameer Aqel, University of Jordan, 2018.*
 - *Tamoxifen Resistance in Breast Cancer Tracking the Changes in Lactate Dehydrogenase Expression, Lara Imad Al-Lakkis, Al-Zaytoonah University of Jordan, 2018.*
 - *Characterization of Medical Platforms to Reduce the Bacterial Adhesion Associated with Dental Implants, Amal Yousef Bargash, Al-Zaytoonah University of Jordan, 2019.*
 - *Antioxidant Activity and Protective Effect of Fluoroquinolones Derivatives in Carbon Tetrachloride Induced Liver Injury in Rats, Manal Abdel Rauf Suleiman, Al-Zaytoonah University of Jordan, 2020.*
- **University**
 - *The ACPE Steering Committee, a Faculty committee (Chair).*
 - *The ACPE Certification Committee, a Faculty committee (Chair).*
 - *The Committee for the Detection of the Remaining Equipment in the Warehouses of the Supplies Department, a University committee (Chair).*
 - *The Committee for Faculty of Pharmacy Strategic Plan 2020/2023 Preparation, a Faculty committee (member).*



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

- *The Committee for Scientific Research, a Faculty committee (member).*
- *The Committee for Curriculum and Educational Resources, a Faculty committee (member).*
- *The Committee for Curricular Equivalence and Academic Advisement, and Training, and Alumni Follow-up, a Faculty committee (member).*
- *The Committee of Quality Assurance (member).*
- *Member of "Al-Zaytoonah University of Jordan Council" as Representative of the Faculty of Pharmacy.*
- *Member of the "Faculty of Pharmacy Council".*

14. Professional and Scientific Meetings

Scientific Meetings Organized

- Head of the Scientific Committee of the *Al-Zaytoonah University of Jordan International Pharmaceutical Conference (ZIPC 2022)*, Amman, Jordan, 17th to 18th of October, 2022.
- Member of the Scientific Committee of the *Al-Zaytoonah University of Jordan & The University of Toledo International Pharmaceutical Conference (ZTIPC 2019)*, Amman, Jordan, 7th to 8th of November, 2019.
- Member of the Organizing Committee of the *Al-Zaytoonah University of Jordan & The University of Toledo International Pharmaceutical Conference (ZTIPC 2017)*, Amman, Jordan, 29th to 30th of November, 2017.
- Member of the Organizing Committee of the *5th Australia New Zealand Nano/Microfluidics symposium (ANZNMF)*, Hobart, Australia, 14th to 16th of April, 2014.

Participation in Scientific meetings

- *20th Research and Development Topics Conference*, Deakin University, Geelong, Australia, 11th to 14th of December 2012.
- *UTAS Postgraduate Conference*, University of Tasmania, Hobart, Australia, 4th to 7th of September 2012.



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

- *Tasmanian Health Science HDR Student Conference*, University of Tasmania, Hobart, Australia, 5th to 6th of September 2013.
- *40th International Symposium on High-Performance Liquid-Phase Separations and Related Techniques*, Hobart, Australia, 18th to 21st of November 2013.
- *5th Australia New Zealand Nano/Microfluidics symposium (ANZNMF)*, Hobart, Australia, 14th to 16th of April, 2014.
- *The 3rd International Conference Implementation of Microreactor in Biotechnology (IMTB)*, Opatija, Croatia 10th to 13th of May 2015.
- *International Interdisciplinary Meeting on Bio-analysis*, Brno, Czech Republic, 21st to 23rd of September 2015.
- *4th Scientific day of the College of Pharmacy at Zarqa University (Pharmaceutical practice, Good Practice and Better Health)*, 10th of March, 2016.
- *ASU-Pharmacy 4th Conference "Recent Trends in Postgraduate Research" and the 3rd Conference of the Association of Faculties of Pharmacy at Jordanian Universities*, 15th to 16th of April 2017.
- *JUST International Pharmacy Conference, Faculty of Pharmacy at Jordan University of Science and Technology "Challenges vs Opportunities", The 2nd International Conference on Ethics in Jordan: Clinical Trials and the 4th conference for Faculties of Pharmacy in Jordan*, 2nd to 4th of August, 2017.
- *the Al-Zaytoonah University of Jordan & The University of Toledo International Pharmaceutical Conference (ZTIPC 2017)*, Amman, Jordan, 29th to 30th of November, 2017.
- *MENA Biosimilars Training*, Jordan, 22nd to 23rd of September, 2018.
- *Al-Zaytoonah University of Jordan & The University of Toledo International Pharmaceutical Conference (ZTIPC 2019)*, Amman, Jordan, 7th to 8th of November, 2019.
- *Al-Zaytoonah University of Jordan International Pharmaceutical Conference (ZIPC 2022)*, Amman, Jordan, 17th to 18th of October, 2022.



15. Participation in or organization of curricular and/or extra-curricular activities

- COVID-19 Vaccination center coordination, 2021, at Al-Zaytoonah University of Jordan.
- University's 9th Career Day and Career Day for Pharmacy students on 5th of May, 2017 with the participation of 15 pharmaceutical companies and pharmacies.
- University's 10th Career Day on 24th of April, 2018, in Al-Zaytoonah University of Jordan campus.
- Career Day for 5th year students in March, 2018, in Al-Zaytoonah University of Jordan campus.
- Pharmacy Training Day on April, 2019, in Al-Zaytoonah University of Jordan campus.
- Several Alumni and medical days and public lectures and presentations held in Al-Zaytoonah University of Jordan campus.

16. Publications

- Papers in refereed journals
1. **Alhusban, A.A.**, Hammad, A.M., Alzaghari, L.F., Shallan, A.I. and Shnewer, K., "*Rapid and sensitive HPLC-MS/MS method for quantification of dopamine, GABA, serotonin, glutamine and glutamate in rat brain regions after exposure to tobacco cigarettes*" (2022). Biomedical Chromatography, p.e5513. DOI: 10.1002/bmc.5513
 2. **Alhusban, A.A.**, Hamadneh, L.A., Shallan, A.I. and 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 & Related Technologies, pp.1-10. DOI: 10.1080/10826076.2022.2098760
 3. **Alhusban, A.A.**, Hammad, A.M. and Alzaghari, L.F., "*Simple HPLC method for simultaneous quantification of nicotine and cotinine levels in rat plasma after exposure to two different tobacco products*" (2022). Acta Chromatographica. DOI: 10.1556/1326.2022.01054
 4. **Alhusban, A.A.**, Hamadneh, L.A., Albustanji, S. and 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*, 43(3), pp.446-455. DOI: 10.1002/elps.202100217

5. Hamadneh, L., Abuarqoub, R., **Alhusban, A.A.**, and 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*, 10(1), pp.1-7. DOI: 10.1038/s41598-020-78833-x
6. Hamadneh, L., Bahader, M., Abuarqoub, R., AlWahsh, M., **Alhusban, A. A.** and 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*, 28(6), pp.1358-1366. DOI: 10.1007/s12282-021-01277-2
7. Massadeh, A.M. and **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*, 75(7), pp.3563-3573. DOI: 10.1007/s11696-021-01592-0
8. Hamadneh, L., Al-Lakkis, L., **Alhusban, A.A.**, Tarawneh, S., Abu-Irmaileh, B., Albustanji, S. and Al-Bawab, A.Q., "*Changes in Lactate Production, Lactate Dehydrogenase Genes Expression and DNA Methylation in Response to Tamoxifen Resistance Development in MCF-7 Cell Line*". *Genes*, 12(5), p.777 (2021). DOI: 10.3390/genes12050777
9. **Alhusban, A.A.**, Albustanji, S., Hamadneh, L.A. and 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*". *Molecules*, 26(16), p.4824 (2021). DOI: 10.3390/molecules26164824
10. **Alhusban, A. A.**, Ata, S., "*Simple HPLC method for rapid quantification of nicotine content in e-cigarettes liquids*". *Acta Chromatographica*, 33(3), pp.302-307. (2020): DOI: 10.1556/1326.2020.00832
11. **Alhusban, A. A.**, Ola A. Tarawneh, Sanabel O. Dawabsheh, Ahmad A. Alhusban, and Feras W. Abumhareb. "*Liquid chromatography–tandem mass spectrometry for rapid and selective simultaneous determination of fluoroquinolones level in human aqueous humor*". *Journal of*



pharmacological and toxicological methods 97 (2019): 36-43. DOI: 10.1016/j.vascn.2019.03.001

12. **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*”. Biological trace element research 187(1) (2019): 307-315. DOI: 10.1007/s12011-018-1367-1
13. Nouf N. Mahmoud, **Alhusban, A. A.**, Jamila Isabilla Ali, Amal G. Al-Bakri, Rania Hamed, and Enam A. Khalil. “*Preferential Accumulation of Phospholipid-PEG and Cholesterol-PEG Decorated Gold Nanorods into Human Skin Layers and Their Photothermal-Based Antibacterial Activity*”. Scientific reports 9, no. 1 (2019): 5796. DOI: 10.1038/s41598-019-42047-7
14. Tarawneh, O. A., Madi, A. M., Hamed R., Qirem, Q., **Alhusban, A. A.**, Sunoqrot, S., Mahmoud, N., Ata, A., and Isheikh I, “*In-vitro Characterization and Evaluation of Commercialized Paracetamol Products in Jordan*”. Dissolution Technologies, studies 8 (2019): 9. DOI: 10.14227/DT260119P36
15. Tarawneh, O., Al-Assi A. R., Hamed R., Sunoqrot S., Lina Hasan, Al-Sheikh I., Al-Qirim R., **Alhusban, A. A.**, and Naser W. “*Development and characterization of k-carrageenan platforms as periodontal intra-pocket films*”. Tropical Journal of Pharmaceutical Research (2019), 18, no. 9. DOI: 10.4314/tjpr.v18i9.1
16. 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., Abdul Keyon A. S., **Alhusban, A. A.**, Hong Heng S., Wuethrich, A., Dawod, M., Quirino, J. P. “*Recent advances in enhancing the sensitivity of electrophoresis and electrochromatography in capillaries and microchips (2016–2018)*”. Electrophoresis (2019), 40(1), 17-39. DOI: 10.1002/elps.201400420
17. **Alhusban, A.A.**, Breadmore, M.C., Gueven, N. and Guijt, R.M. *Time-Resolved Pharmacological Studies using Automated, On-line Monitoring of Five Parallel Suspension Cultures*. Scientific Reports, 7(1), (2017) p.10337, DOI: 10.1038/s41598-017-10472-1
18. **Alhusban, A. A.**, Breadmore, M. C., Gueven, N., Guijt, R. M. *Capillary Electrophoresis for Automated On-line Monitoring of Suspension Cultures: Correlating Cell Density, Nutrients and Metabolites in Near-real-time*. Analytica Chimica Acta, ACA, 920, (2016) 94–101, DOI: 10.1016/j.aca.2016.03.034



19. Breadmore M. C., Tubaon R. M., Shallan A.I., Phung S.C., Abdul Keyon A.S., Gstoettenmayr D., Prapatpong P., **Alhusban A.A.**, Ranjbar L., See H.H., Dawod M., Quirino J.P. *Recent advances in enhancing the sensitivity of electrophoresis and electrochromatography in capillaries and microchips (2012-2014)*. *Electrophoresis*, 36(1), (2015) 36-61. DOI: 10.1002/elps.201400420
20. **Alhusban, A. A.**, Gaudry, A. J., Breadmore, M. C., Gueven, N., Guijt, R. M. *On-line Sequential Injection-Capillary Electrophoresis for Near-real-time Monitoring of Extracellular Lactate in Cell Culture Flasks*. *Journal of Chromatography A*, 1323, (2014) 157-162. DOI: 10.1016/j.chroma.2013.11.006
21. **Alhusban, A. A.**, Breadmore, M. C.; Guijt, R. M. *Capillary Electrophoresis for Monitoring Bioprocesses*. *Electrophoresis*, 34, (2013) 1465-1482. DOI: 10.1002/elps.201200646

- Books and Book Chapters

1. Reema Abu Khalaf, **Ala A. Alhusban**, Eveen Al-shalabi, Iyad Al-shekh and Dima Sabbah. "*Isolation and Structure Elucidation of Bioactive Polyphenols, Studies in Natural Products Chemistry*", *Bioactive Natural Products*, Elsevier, (2019). DOI: 10.1016/B978-0-12-817901-7.00010-1

- Conference Presentations

1. **Alhusban, A. A.**, Breadmore, M. C., Gueven, N., Guijt, R. M. *Online Organic Acids Characterization and monitoring from Bioprocess Using Sequential Injection Capillary Electrophoresis*. 20th Research and Development Topics Conference, Deakin University, Geelong, Australia, 11th to 14th of December 2012.
2. **Alhusban, A. A.**, Breadmore, M. C., Gueven, N., Guijt, R. M. *Sequential Injection Capillary Electrophoresis for Bioprocess Monitoring*. UTAS Postgraduate Conference, University of Tasmania, Hobart, Australia, 4th to 7th of September 2012.
3. **Alhusban, A. A.**, Breadmore, M. C., Gueven, N., Guijt, R. M. *On-line SI-CE for Near-real-time Monitoring of Extracellular Lactate in Cell Culture*. Tasmanian Health Science HDR Student Conference, University of Tasmania, Hobart, Australia, 5th and 6th of September 2013.



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

4. **Alhusban, A. A.**, Breadmore, M. C., Gueven, N., Guijt, R. M. *Online Monitoring of Cell Culture by Sequential Injection Capillary Electrophoresis*. 40th International Symposium on High-Performance Liquid-Phase Separations and Related Techniques, Hobart, Australia, 18th to 21st of November 2013.
5. **Alhusban, A. A.**, Breadmore, M. C., Gueven, N., Guijt, R. M. *On-line Monitoring of Cell Cultures*. The 3rd International Conference Implementation of Microreactor in Biotechnology (IMTB), Opatija, Croatia 10th to 13th of May 2015.
6. R.M. Guijt, **A. A. Alhusban**, A. Shallan, U. Kalsoom, M. Boyce, M.C. Breadmore, *Alternative Approaches for Sample Preparation in Capillary Electrophoresis*, CECE 2015 – International Interdisciplinary Meeting on Bio-analysis, Brno, Czech Republic, 21st to 23rd of September 2015.
7. Sanabel O. Dawabsheh, **A. A. Alhusban**, Ola A. Tarawneh, Ahmad A. Alhusban, Feras W. Abu-Mhareb, *Fluoroquinolones Bioavailability in Human Aqueous Humor*, The Al-Zaytoonah University of Jordan & The University of Toledo International Pharmaceutical Conference (ZTIPC 2017), Amman, Jordan, 29th to 30th of November, 2017.
8. Ola Tarawneh, **A. A. Alhusban**, Amal Barghash, *the Manufacture and Characterization of Microbicide Medical Platforms for Oral Infections*. Al-Zaytoonah University of Jordan & The University of Toledo International Pharmaceutical Conference (ZTIPC 2019), Amman, Jordan, 6th to 7th of November, 2019.
9. Sokiyna M. Albustanji, Lara I. Al-Lakkis, **A. A. Alhusban**, Lama A. Hamadneh, *Tamoxifen Induced Resistance in Breast Cancer: Correlating Metabolic and Molecular Biomarkers Changes in MCF-7 Cell Line*. Al-Zaytoonah University of Jordan & The University of Toledo International Pharmaceutical Conference (ZTIPC 2019), Amman, Jordan, 6th to 7th of November, 2019.
10. Samah Ata, Wassan Jarrar, **A. A. Alhusban** and Mohammad Altarawneh, *Pharmacy Students' and Pharmacists' Knowledge and Attitudes Concerning Lead Poisoning in Jordan*. The International Conference of Applied Chemistry and Biotechnology, ICACB-2022, May 10th – 12th, 2022 at Al-Balqa Applied University, Al-Salt, Jordan,



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

11. Sokiyna Albustanji, **A. A. Alhusban**, Samah A. Ata, Lama A. Hamadneh, and Ola A. Tarawneh, *Toxic metals transfer from heating coils to e-liquids: safety assessment of popular e-cigarettes in Jordan*. Al-Zaytoonah University of Jordan International Pharmaceutical Conference (ZIPC 2022), Amman, Jordan, 17th to 18th of October, 2022.