

CURRICULUM VITAE

Rania “Ahmad Azzam” Mousa Hamed

Pharmacy/Pharmacy

Al-Zaytoonah University of Jordan, Amman, Jordan

Phone: +962-6-4291511 (ext. 299)

Fax: +962-6-4291432

E-mail: rania.hamed@zuj.edu.jo



1. Personal Data

Date of Birth: Mar 10th, 1970

Nationality: Jordanian

2. Education

- Ph.D. (Pharmacy) 2011, University of Iowa, Iowa City, Iowa, USA
- M.Sc. (Clinical Chemistry) 2004, University of Scranton, Scranton, Pennsylvania, USA
- B.Sc. (Pharmacy) 1993, Jordan University of Science and Technology, Irbid, Jordan

3. Ph.D. Dissertation

Development of a physiologically relevant in vitro model system to study exhaled bioaerosols, University of Iowa, Iowa City, Iowa, USA

4. Employment

Academic Positions

- Professor, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan, Oct 7th, 2021 – Present.
- Post-doctoral Fellow, College of Pharmacy, Texas A & M University, College Station-TX, USA, Sep 1st, 2019 – May 30th, 2020.
- Associate Professor, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan, July 5th, 2017 – Oct 7th, 2021.
- Assistant Professor, Faculty of Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan, Sep 2nd, 2011 – July 5th, 2017.

Administrative Positions

- Chairman of Department, Pharmacy, University, Al-Zaytoonah University of Jordan, Amman, Jordan, Oct 2013 – Oct 2017.



5. Research Interests

- 3D printing of pharmaceuticals
- Chemometric analysis as a quality control tool for pharmaceutical formulations
- Novel topical and oral controlled-release drug delivery systems
- Determining the key parameters of the dissolution media that predict the *in vivo* performance of poorly-soluble drugs.
- Bioaerosol formation and surface characterization of respiratory surfaces

6. Membership in Scientific Societies and Associations

- American Association for the Advancement of Science (AAAS), USA, 2019 – Present
- American Association of Pharmaceutical Scientists (AAPS), USA, 2011 – Present
- Jordan Pharmacists Association (JPA), Amman, Jordan, 1993 – Present
- Women in Science and Engineering
- Phi Lambda Upsilon (Honory Chemical Society)
- Who's Who Among Students in American Universities and Colleges
- Technical consultant, Jordan Food and Drug Administration (JFDA), Amman, Jordan; 2012-2013
- Member, Abstracts and Posters Selection Committee, the 14th Jordan Pharmaceutical Conference, Jordan Pharmacists Association, Amman, Jordan; 2012 and 2014
- Chair of American Association of Pharmaceutical Scientists (AAPS) Student Chapter 2009-2010
- Vice-chair of American Association of Pharmaceutical Scientists (AAPS) Student Chapter 2006-2009

7. Honors and Awards

- Best poster award, The 3rd Edition of Global Conference on Pharmaceutics and Drug Delivery Systems. Paris, France, June 2019.
- Division of Pharmaceutics and Translational Therapeutics Travel Award, University of Iowa-2010, 2008 & 2007.
- Women in Science and Engineering Travel Award, University of Iowa-2009.
- Executive Council of Graduate and Professional Student (ECGPS) Scholarly Presentation Award, University of Iowa-2009.
- Graduate Student Senate Travel Fund Award, University of Iowa-2008.
- American Association of Pharmaceutical Scientists (AAPS)-Travel Award 2007.

8. Fellowships and Scholarships

- Fulbright U.S. Post-doctoral Fellowship at Irma Lerma Rangel College of Pharmacy, Texas A & M University, Sep 1st, 2019 – May 30th, 2020.



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

- The Office of Research and Sponsored Programs at The University of Toledo, Visiting Faculty Researcher Program, Aug 1st – 31st 2017 (\$5,000).
- Daniel Turnberg Travel Fellowships, Visiting Research Fellow, School of Pharmacy, the University of Manchester, Aug 1st – Sep 10th 2016 (€3,500).
- Mobility grant funded by EU-JordanNet II European, Visiting Research Fellow, School of Pharmacy, Queen's University Belfast, Aug 9th – Sep 20th 2015 (€2,600).
- Division of Pharmaceutics and Translational Therapeutics Dissertation Fellowship, The University of Iowa – 2010.
- Graduate College Summer Fellowship, The University of Iowa – 2010.
- Executive Council of Graduate and Professional Student (ECGPS) Research Grant, The University of Iowa – 2010.
- Division of Pharmaceutics John L. Lach Memorial Scholarship, The University of Iowa – 2007.

9. Teaching Experience

• *Graduate Courses*

- Advanced Pharmaceutical Technology/Graduate level (2 credit hours)
- Biostatistics and Applications/Graduate level (3 credit hours)

• *Undergraduate Courses*

- Pharmaceutics I: Physical Pharmacy (3 credit hours)
- Pharmaceutics II: Routes of administration and pharmaceutical dosage forms (2 credit hours)
- Pharmacoeconomics (2 credit hours)
- Physical Pharmacy Laboratory (1 credit hour)
- Pharmaceutical Calculations (1 credit hour)
- Practical Industrial Pharmacy Laboratory II (1 credit hour)
- Pharmaceutics Laboratory (1 credit hour)
- Pharmaceutical Technology Laboratory (1 credit hour)

10. Supervision of Graduate Research

1. Ali Al-Shammari (Aug 2021-present)

Thesis: Development of magnetic gel containing iron-oxide nanoparticles loaded with cisplatin. (Co-advised with Dr. Rana Abu-Huwajj).

2. Ebtihal Abu Hamdeh (Aug 2021-present)

Thesis: Investigation of the *in vitro* release profile of carvedilol and evaluation of the chemical and physical stabilities of a new oral carvedilol microemulsion-loaded oleogel. (Co-advised with Dr. Kamal Sweidan).

3. Maimoneh Abed (May 2021-present)

Thesis: Green development of transdermal patches using eco-friendly coated iron-oxide nanoparticles loaded doxorubicin. (Co-advised with Dr. Rana Abu-Huwajj).

4. Walaa' AbuAta (Feb 2021-present)



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

Thesis: Development and optimization of ciprofloxacin HCl nanoemulsion-loaded two bigels: A comparative study

5. Braa' Jehad (Feb 2021-present)

Thesis: Dissolved microneedles combined with nanoemulsion for dermal delivery of anti-wrinkle agent

6. Kamar Magamseh (Feb 2021-present)

Thesis: Preparation and characterization of green hydrogels using orange peels

7. Rolla Al Shalabi (Nov 2020-present)

Thesis: Preparation of eco-friendly coated magnetic iron oxide nanoparticles using Spinacia oleracea leaves and studying their anticancer activity (Co-advised with Rana Abu-Huwajj)

8. Amani Abu Kwaik (Aug 2019-March 2021)

Thesis: Preparation and characterization of ibuprofen and metronidazole in situ microgel for the treatment of periodontitis. (Co-advised with Dr. Rana Obeidat).

9. Bayan Seder (Nov 2018-Aug 2019)

Thesis: Development and characterization of different formulations of controlled-release lipid-based delivery systems of carvedilol.

10. Duaa' Omar (Nov 2018-Aug 2019)

Thesis: Co-delivery of riboflavin immediate-release granules and topiramate extended-release pellets: Toward reducing the frequency of migraine attack.

11. Yasmeen Al-Adhami: (Feb 2018-Jan 2019)

Thesis: Ibuprofen nanoemulsion-based in situ gel for periodontitis

12. Haitham Emran: (Feb 2018-May 2019)

Thesis: Development of dual release pellets of celecoxib

13. Hala Qawwas (Oct 2017-Aug 2018)

Thesis: Controlled-release formulations of carvedilol-loaded oleogels.

14. Sabrine AlNadi (Mar 2017-Jan 2018)

Thesis: Dissolution behavior of the poorly soluble weak acid drug valsartan upon entry in the small intestine.

15. Ahmad Farhan (Mar 2017-present)

Thesis: Nanoemulsion-based oleogel formulation of lidocaine for transdermal delivery

16. Ala'a Abu Rezaq (Oct 2015-Jan 2017)

Thesis: Development and optimization of hydrogel, oleogels and bigels as topical drug delivery systems for periodontitis.

17. Reem AlJanabi (Mar 2015-Mar 2016)

Thesis: The effect of pH and ionic strength of the dissolution media on the rate of Quetiapine Fumarate release from polymeric matrix tablets.

18. Marwa Basel (Oct 2014-Sep 2015)

Thesis: Development and optimization of diclofenac diethylamine nanoemulsion-based gel formulation.

19. Ali Al-Samydai (Oct 2014-May 2015)

Thesis: The effect of polymer type, ratio, and viscosity grade on the *in vitro* release of quetiapine fumarate, a BCS class II drug, from a controlled release matrix tablets.

20. Areej Awadallah (Mar 2014-Dec 2014)



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

Thesis: Determining the key parameters of the physiologically relevant dissolution media that control the rate of dissolution of BCS class II drugs along the GI tract to better predict the *in vivo* performance.

11. Grants

- **Scientific Research Support Funds (SRSF) at Ministry of Higher Education and Scientific Research, Amman, Jordan**
Nanoemulsion– and Gold Nanoparticles–Loaded Diclofenac Diethylamine in Bigels: Development, Rheological Characterization, and *In vitro* and *Ex vivo* Release Studies, Funded 2018 (14,079 JD)/ Principle Investigator.
- **Abdul Hamid Shoman Fund to support scientific research, Amman, Jordan**
Gold Nanorods Loaded into Gels: Colloidal Stability, Rheological Properties, Photothermal Properties and Penetration extent into Excised Human Skin, Funded 2017 (15,000 JD)/Co-investigator.
- **Deanship of Scientific Research, Al-Zaytoonah University of Jordan**
Surface Properties of Nanoformulation Design for Transdermal Delivery Systems, Funded 2017 (35,500 JD)/Principle Investigator.
- **Deanship of Scientific Research, Al-Zaytoonah University of Jordan**
Project: Interaction of Gold Nanorods-Gel Composite with Human Skin Hair Follicles: The Colloidal Stability and Preferential Targeting, Funded 2017 (23,000 JD)/Coinvestigator.
- **Scientific Research Support Funds (SRSF) at Ministry of Higher Education and Scientific Research, Amman, Jordan**
The efficiency of using oleogels and bigels in treating periodontitis in an *in vitro* host-parasite interaction model, Funded 2017 (74,000 JD)/Co-Investigator.
- **Deanship of Scientific Research, Al-Zaytoonah University of Jordan**
Nanoemulsion-based gel formulation for topical drug delivery systems, Funded 2013 (97,170 JD)/Principle Investigator.
- **Executive Council of Graduate and Professional Student (ECGPS) Research Grant, The University of Iowa**
Investigating the effect of salts on the surface viscoelastic properties of the upper respiratory tract: Towards developing simple aerosols to halt airborne disease transmission, Funded 2010

12. Patents

N/A

13. Membership of Committees

- **National and International**
 1. Member, Abstracts and Posters Selection Committee, Jordan Pharmaceutical Conference, Jordan Pharmacists Association, Amman, Jordan; 1993-Present
 2. Member, Volunteer Poster Abstract Screener, American Association of Pharmaceutical Scientists (PharmSci 360 AAPS), USA; 2011-present



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

3. Technical consultant, Jordan Food and Drug Administration (JFDA), Amman, Jordan; 2012-2013

- **University**

1. Member in the Accreditation Council for Pharmacy Education (ACPE) committee at Al-Zaytoonah University of Jordan; Amman, Jordan; 2018
2. Member of Foreign Relationships Office, Al-Zaytoonah University of Jordan, Amman, Jordan; 2017-2019
3. Member of Counseling Center and Community Services, Al-Zaytoonah University of Jordan, Amman, Jordan; 2017-2019
4. Member of Faculty Council; 2013-2019
5. Member of Curriculum and Learning Resources Committee; 2013-2018
6. Member of Post-Graduate Studies Committee; 2013-2019
7. Member, Quality Assurance Committee, Al-Zaytoonah University of Jordan; 2015-2016.
8. Member, Conference Organizing Committee, Al-Zaytoonah University of Jordan, Amman, Jordan, 2012-2019

14. Professional and Scientific Meetings

Scientific Meetings Organized

1. Al-Zaytoonah University of Jordan and University of Toledo Conference (ZTIPC 2019, 2017, 2015, 2012), Amman-Jordan.
2. Jordan Pharmacists Association, Amman, Jordan Conference; 2012 and 2014

Participation in Scientific meetings and proceedings

1. Controlled Release Society 2021 Virtual Annual Meeting July 25 - 29, 2021.
2. **R. Hamed**, E. Mohammed, Z. Rahman, M. Khan. Chemometric assisted X-ray powder diffractometry method for crystalline Lopinavir quantification in 3D printlets manufactured by Selective Laser Sintering. *American Association of Pharmaceutical Scientists (AAPS) PharmSci 360*, New Orleans, Louisiana, USA, Nov 2020.
3. D. W. Abu-Hassan, M. Y. Alkawareek, **R. Hamed**, F. Banat, S. Al-Muhtaseb. Host-parasite Interaction Model Using Bead-Grown Biofilms. *Federation of American Societies for Experimental Biology*, Supplement: Experimental Biology 2020 Meeting Abstracts, 34 (S1), April 2020.
4. **R. Hamed**, Y. Al-Adhami, R. Abu-Huwaij. Microemulsion concentration influences the mechanical properties and drug release rate of ibuprofen in situ gels. *American Association of Pharmaceutical Scientists (AAPS) 2019 PharmSci 360*, San Antonio, Texas, USA, Nov 2019.
5. Y. Al-Adhami, **R. Hamed**. Ibuprofen nanoemulsion in situ gel for mucosal adhesion in periodontitis. *Al-Zaytoonah University of Jordan and University of Toledo (ZTIPC 2019)*, Amman, Jordan, Nov, 2019.
6. **R. Hamed**, A. Farhan, R. Abu-Huwaij, N. Mahmoud. Lidocaine microemulsion-laden organogels as lipid-based systems for topical delivery. *The 3rd Edition of*



- Global Conference on Pharmaceutics and Drug Delivery Systems*, Paris, France, June 2019 [Best Poster Award].
7. A. Zaid Alkilani, **R. Hamed**. Fabrication and characterization of transdermal patch loaded with ascorbic acid. *The 3rd Edition of Global Conference on Pharmaceutics and Drug Delivery Systems*, Paris, France, June 2019.
 8. S. Alnadi and **R. Hamed**. Valsartan transfer behavior from the stomach to the small intestine using an *in vitro* transfer model. *Fourth Postgraduate Conference-Applied Science Private University*, Amman, Jordan, Jan 2019.
 9. Hala Al-Qawass and **R. Hamed**. Lipid-based delivery systems of carvedilol-loaded oleogels. *Fourth Postgraduate Conference-Applied Science Private University*, Amman, Jordan, Jan 2019.
 10. **R. Hamed** and S. Alnadi. Transfer behavior of the weakly acidic BCS class II valsartan from the stomach to the small intestine during fasted and fed states. *The 15th Annual European Pharma Congress*, Frankfurt, Germany, May 2018.
 11. **R. Hamed**. Development of hydrogels, oleogels and bigels as local drug delivery systems for periodontitis. *The First International Conference of the Faculty of Pharmacy, Mutah University*, Dead Sea, Jordan, April 2018.
 12. S. Alnadi and **R. Hamed**. Transfer Behavior of Valsartan from the Stomach to the Small Intestine Case Example of a Weakly Acidic BCS Class II Drug. *Al-Zaytoonah University of Jordan and University of Toledo (ZTIPC 2017)*, Amman, Jordan, Nov, 2017.
 13. **R. Hamed**, A. Aburezeq. Development and optimization of oleogels and bigels as topical drug delivery systems for periodontitis. *6th FIP Pharmaceutical Sciences World Congress*, Stockholm, Sweden, May 2017.
 14. **R. Hamed**, R. AlJanabi, A. Abbas, S Sunoqrot. The effect of the physiological parameters of the gastrointestinal fluid on quetiapine fumarate release from matrix tablets prepared using two different polymeric blends. *6th FIP Pharmaceutical Sciences World Congress*, Stockholm, Sweden, May 2017.
 15. A. Abu Rezaq, **R. Hamed**, O. Tarawneh. Development and optimization of hydrogels, oleogels, and bigels as topical drug delivery systems for periodontitis. *ASU-Pharmacy Third Conference*, Amman, Jordan, Apr 2017.
 16. **R. Hamed**. A novel approach to determine the rheological properties of the gel layer of swollen hydrophilic matrix tablets. *8th International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems*, Madrid, Spain, March 2016.
 17. **R. Hamed**. Simulating the surface tension of the gastrointestinal fluid to enhance the dissolution of the weakly basic BCS class II drugs. *8th International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems*, Madrid, Spain, March 2016.
 18. R. AlJanabi & **R. Hamed**. The influence of the chemical properties of the dissolution medium on the rate of quetiapine fumarate release from HPMC and Compritol® HD5 ATO matrix tablets. *Applied Science University Second Symposium*, Amman, Jordan, Dec 2015.
 19. R. AlJanabi & **R. Hamed**. The effect of pH and ionic strength of the dissolution media on the rate of Quetiapine Fumarate release from polymeric matrix tablets.



- Al-Zytoonah University of Jordan and University of Toledo (ZTIPC 2015), Amman, Jordan, Oct 2015.*
20. **R. Hamed**. Investigation of the rheological properties of the gel layer of swollen HPMC matrix tablets to better predict their *in vitro* release. *Al-Zaytoonah University of Jordan and University of Toledo (ZTIPC 2015), Amman, Jordan, Oct 2015.*
 21. **R. Hamed**. Comparative rheological studies of diclofenac diethylamine conventional gel, emulgel, and a nanoemulsion-based gel formulation. *American Association of Pharmaceutical Scientists (AAPS), San Diego, CA, USA, Nov 2014.*
 22. **R. Hamed**, Lina Hammad, Aiman Abbas. The effect of polymer type, ratio, and viscosity grade on the *in vitro* release of quetiapine fumarate, a BCS class II drug, from controlled release matrix tablets. *American Association of Pharmaceutical Scientists (AAPS), San Diego, CA, USA, Nov 2014.*
 23. **R. Hamed**. Comparative rheological studies of diclofenac diethylamine conventional gel, emulgel, and nanoemulsion-based gel. *Al-Zaytoonah University of Jordan, Amman, Jordan, 2014.*
 24. **R. Hamed**, J. Fiegel. Surface rheological properties of surfactants adsorbed at an air-mucus interface. *International Pharmaceutical Federation's PSWC and the American Association of Pharmaceutical Scientists (AAPS) Annual Meeting, New Orleans, LA, USA, Nov 2010.*
 25. **R. Hamed**, J. Fiegel. Investigating the interfacial rheological properties of surfactants adsorbed at an air-mucus interface of the upper respiratory tract (URT). *James F. Jakobsen Graduate Conference, University of Iowa, Iowa City, IA, USA, 2010.*
 26. **R. Hamed**, J. Fiegel. Development of a more physiologically-relevant mucus mimetic of the upper respiratory tract. *American Institute of Chemical Engineers (AIChE) Annual Meeting, Nashville, TN, USA, Nov 2009.*
 27. **R. Hamed**, J. Fiegel. Evaluating the role of mucus physicochemical properties on bioaerosol formation in the lungs. *James F. Jakobsen Graduate Conference, University of Iowa, Iowa City, IA, USA, 2009.*
 28. **R. Hamed** & J. Fiegel. Investigating the properties of lung mucus: Toward understanding the role of mucus physicochemical properties in bioaerosol formation. *The International Society for Aerosols in Medicine (ISAM), Monterey, CA, USA, May 2009.*
 29. **R. Hamed**, J. Fiegel. Evaluating the role of mucus physicochemical properties on bioaerosol formation in the lungs. *Pharmaceutics Graduate Student Research Meeting, Purdue University, Lafayette, IN, USA, June 2009.*
 30. **R. Hamed**, J. Fiegel. Determining key factors that control the formation of pathogenic bioaerosols within the upper respiratory system. *James F. Jakobsen Graduate Conference, University of Iowa, Iowa City, IA, USA, 2008.*
 31. **R. Hamed**, J. Fiegel. Bioaerosol formation from lung surfaces: Evaluating the role of mucus physicochemical properties. *American Association of Pharmaceutical Scientists (AAPS), Atlanta, GA, USA, Nov 2008.*
 32. **R. Hamed**, J. Fiegel. The role of mucus physicochemical properties in controlling bioaerosol formation within the upper respiratory tract.



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

Pharmaceutics Graduate Student Research Meeting, University of Michigan, Ann Harbor, MI, USA, June 2008.

33. **R. Hamed**, J. Fiegel. Physiologically-relevant cough machine to study bioaerosol formation in the lungs. *American Association of Pharmaceutical Scientists (AAPS)*, San Diego, CA, USA, 2007.

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

- The experience of a Fulbrighter amid the Coronavirus pandemic: Rania Hamed (Jordan, 2019/20), published in Fulbrighter Digest, July 2020 (<https://fulbrighternetwork.com/news/300497>)
- Mentor in the Global Thinkers Forum Athena MENA Mentorship program, 31/05/2019-31/12/2019
- Evaluation of scientific posters in the ASU Pharmacy Fourth International Conference, Applied Science University (ASU), Amman, Jordan, 05/01/2019-06/01/2019
- Podium presentation in the 2nd Global Forum for Marketing of Halal Pharmaceuticals, Princess Sumaya University for Technology, Amman, Jordan, 05/12/2018
- Podium presentation in The First International Conference of the Faculty of Pharmacy Mutah University, Karak, Jordan 18/04/2018-19/04/2018

16. Publications

1. **Hamed, R.**, Seder, B., Bardaweel, S., Qawwas, H., 2021. *Lipid-based Formulations of Microemulsion-loaded Oleogels for the Oral Delivery of Carvedilol*. J. Dispers. Sci. Technol. DOI: [10.1080/01932691.2021.1964987](https://doi.org/10.1080/01932691.2021.1964987)
2. **Hamed, R.**, Mohamed, M. E, Sediri, K., Khan, A. M, Rahman, Z., 2021. *Development of stable amorphous solid dispersion and quantification of crystalline fraction of lopinavir by spectroscopic-chemometric methods*. Int. J. Pharm., 602, 120657.
3. Hammad, A, M., **Hamed, R.**, Al-Qerem, W, A., Bander, A, Hall, F. S., 2021. *Optimism Bias, Pessimism Bias, Magical Beliefs, and Conspiracy Theory Beliefs Related to COVID-19 among the Jordanian Population*. Am. J. Trop. M., 104 (5), 1661-1671.
4. **Hamed, R.**, Kamal, A., 2021. *Strength-Dependent and Strength-Independent Dissolution Patterns of Poorly-Soluble Drugs. Case Example: Valsartan*. Pharm. Chem. J. 54, 1227-1234.
5. Alkilani, A.Z, **Hamed, R.**, Hussein. G, Alnadi, S., 2021. *Nanoemulsion-based patch for the dermal delivery of ascorbic acid*. J. Dispers. Sci. Technol. DOI: [10.1080/01932691.2021.1880924](https://doi.org/10.1080/01932691.2021.1880924)
6. **Hamed, R.**, Mohamed, M. E, Rahman, Z, Khan, A. M., 2021. *3D-printing of lopinavir printlets by selective laser sintering and quantification of crystalline fraction by XRPD-chemometric models*. Int. J. Pharm., 592, 120059.



QFG11/0110 - 3.1E

Curriculum Vitae Form - Procedures of Appointment and Promotion Committee

7. Abu-Rumman, A, Abu-Huwaij, R, **Hamed, R.**, 2020. *Development and in vitro appraisal of Soluplus® and/or Carbopol® 971 buccoadhesive patches releasing atorvastatin*. J. Adhesion. DOI: 10.1080/00218464.2020.1864337
8. **Hamed, R.**, Mahmoud, N. N, Alnadi, S.H, Alkilani, A.Z, and Hussein, G., 2020. *Diclofenac diethylamine nanosystems-loaded bigels for topical delivery: development, rheological characterization, and release studies*. Drug Dev. Ind. Pharm., 46 (10), 1705-1715.
9. **Hamed, R.**, Schenck, D. M, Fiegel, J., 2020. *Surface rheological properties alter aerosol formation from mucus mimetic surfaces*. Soft Matter, 16, 7823-7834.
10. **Hamed, R.**, Alnadi, S, Awadallah, A., 2020. *The effect of enzymes and sodium lauryl sulfate on the surface tension of dissolution media: toward understanding the solubility and dissolution of carvedilol*. AAPS PharmSciTech., 21 (146), 1-11.
11. Mahmoud, N, **Hamed, R.**, Khalil, E.A., 2020. *Colloidal stability and rheological properties of gold nanoparticle-loaded polymeric hydrogels: impact of nanoparticle's shape, surface modification, and concentration*. Colloid Polym, Sci., 298, 989-999.
12. **Hamed, R.**, Kamal, A, Alkilani, A.Z., 2020. *Gelation and rheological characterization of Carbopol® in simulated gastrointestinal fluid of variable chemical properties*. Pak. J. Pharm. Sci., 33 (3), 923-928.
13. **Hamed, R.**, Alnadi, S. H., 2020. *Drug Release Pattern of Oral Dual-Release Pellets Through the Gastrointestinal Tract: Case Example of Diclofenac Sodium*. Dissolut. Technol., 27 (2), 22-30.
14. **Hamed, R.**, Omran, H., 2019. *Development of dual-release pellets of the non-steroidal anti-inflammatory drug celecoxib*. J. Drug Deliv. Sci. Technol., 55, 101419.
15. **Hamed, R.**, Al-Adhami, Y, Abu-Huwaij, R., 2019. *Concentration of a microemulsion influences the mechanical properties of ibuprofen in situ microgels*. Int. J. Pharm., 570, 118684.
16. Tarawneh, O, Al-Assi, A, **Hamed, R.**, Sunoqrot, S, Hasan, L, Al-Sheikh, I, Al-Qirim, R, Alhusban, A, Naser, W., 2019. *Development and characterization of kcarrageenan platforms as periodontal intra-pocket films*. Trop. J. Pharm. Res., 18 (9), 1791-1798.
17. Alkilani, A. Z, Alkalbani, R, Jaber, D, **Hamed, R.**, Hamad, I, Abumansour, H, Abu Assab, M., 2019. *Knowledge, attitude, practice and satisfaction of patients using analgesic patches in Jordan*. Trop. J. Pharm. Res., 18(8), 1745-1753.
18. **Hamed, R.**, Farhan, F, Abu-Huwaij, R, Mahmoud, N, Kamal, A., 2019. *Lidocaine microemulsion-laden organogels as lipid-based systems for topical delivery*. J. Pharm. Innov., 15, 521-534.
19. Abu-Huwaij, R, **Hamed, R.**, Daoud, E, Alkilani, A. Z., 2019. *Development and in vitro characterization of nanoemulsion-based buccal patches of valsartan*. Acta Pol. Pharm., 76(2), 325-333.
20. Mahmoud, N, Alhusban, A, Ali, J. I, Al-Bakri, A, **Hamed, R.**, Khalil, E., 2019. *Preferential accumulation of phospholipid-PEG and cholesterol- PEG*

- decorated gold nanorods into human skin layers and their photothermal-based antibacterial activity. *Sci. Rep.*, 9 (5796), 1-15.
21. **Hamed, R.**, 2019. *Physiological parameters of the gastrointestinal fluid impact the dissolution behavior of the BCS class IIa drug valsartan*. *Pharm. Dev. Technol.*, 23(10), 1168-1176.
 22. **Hamed, R.**, Kamal, A., 2019. *Concentration profiles of carvedilol: A comparison between in vitro transfer model and dissolution testing*. *J. Pharm. Innov.*, 14 (2), 123-131.
 23. Alkilani A.Z, **Hamed, R.**, Al-Marabeha, S, Kamal, A, Abu-Huwaij, R, Hamad, I., 2018. *Nanoemulsion-based film formulation for transdermal delivery of carvedilol*. *J. Drug Deliv. Sci. Technol.*, 46, 122-128.
 24. **Hamed, R.**, Alnadi, S., 2018. *Transfer behavior of the weakly acidic BCS class II drug valsartan from the stomach to the small intestine during fasted and fed states*. *AAPS PharmSciTech*, 19(5), 2213-2225.
 25. **Hamed, R.**, AbuRezeq, A, Tarawneh, O., 2018. *Development of hydrogels, oleogels and bigels as local drug delivery systems for periodontitis*. *Drug Dev. Ind. Pharm.*, 44(9), 1488-1497.
 26. Tarawneh, O, Madi, A, **Hamed, R** and *et al.*, 2018. *In-vitro characterization and evaluation of commercialized paracetamol products in Jordan*. *Dissolut. Technol.*, 26(1), 1-9.
 27. Al Hanbali, O, **Hamed, R.**, Arafat, M and *et al.*, 2018. *Formulation and evaluation of diclofenac controlled release matrix tablets made of HPMC and Poloxamer 188 polymer: An assessment on mechanism of drug release*. *Pak. J. Pharm. Sci*, 31 (1), 345-351.
 28. **Hamed, R.**, Al Baraghthi, T, Sunoqrot, S., 2018. *Correlation between the viscoelastic properties of the gel layer of swollen HPMC matrix tablets and their in vitro drug release*. *Pharm. Dev. Technol.*, 23(9), 838-848.
 29. Sunoqrot, S, Alsadi, A, Tarawneh, O, **Hamed, R.**, 2017. *Polymer type and molecular weight dictate the encapsulation efficiency and release of Quercetin from polymeric micelles*. *Colloid Polym. Sci*, 295(10), 2051-2059.
 30. Sunoqrot, S, Hasan, L, Alsadi, A, **Hamed, R.**, Tarawneh, O., 2017. *Interactions of mussel-inspired polymeric nanoparticles with gastric mucin: Implications for gastro-retentive drug delivery*. *Colloids Surf. B Biointerfaces*, 156, 1–8.
 31. **Hamed, R.**, Aljanabi, R, Sunoqrot, S, Abbas, A., 2017. *The effect of pH, buffer capacity, and ionic strength on quetiapine fumarate release from matrix tablets prepared using two different polymeric blends*. *Drug Dev. Ind. Pharm.*, 43(8), 1330-1342.
 32. **Hamed, R.**, Al-Samydai, A, Al Baraghthi, A, Tarawneh, O, Sunoqrot, S., 2017. *Influence of HPMC K100LV and Compritol® HD5 ATO on drug release and rheological behavior of HPMC K4M matrix tablets*. *J. Pharm. Innov.*, 12, 62-75.
 33. Sunoqrot, S, **Hamed, R.**, Abdel-Halim H, Tarawneh, O., 2017. *Synergistic interplay of medicinal chemistry and formulation strategies in nanotechnology—From drug discovery to nanocarrier design and development*. *Curr. Top. Med. Chem.*, 17(3), 1451-1468.



34. **Hamed, R.**, Al Baraghthi, T, Alkilani, A. Z, Abu-Huwaij, R., 2016. *Correlation between rheological properties and in vitro drug release from penetration enhancers-loaded Carbopol® gels*. J. Pharm. Innov., 11(4), 339-351.
35. **Hamed, R.**, Awadallah, A, Sunoqrot, S, Tarawneh, O, Nazzal, S, Al Baraghthi, T, Al Sayyad, J, Abbas, A., 2016. *pH-dependent solubility and dissolution behavior of carvedilol-case example of a weakly basic BCS class II drug*. AAPS PharmSciTech, 17(2), 418-426.
36. **Hamed, R.**, Basil, M, Al Baraghthi, T, Sunoqrot, S, and Tarawneh, O., 2016. *Nanoemulsion-based gel formulation of diclofenac diethylamine: design, optimization, rheological behavior and in vitro diffusion studies*. Pharm. Dev. Technol., 21(8), 980-989.
37. **Hamed, R.**, Fiegel, J., 2014. *Synthetic Tracheal Mucus with Native Rheological and Surface Tension Properties*. J. Biomed. Mater. Res. A, 102(6), 1788-1798.
38. Brenza, T, **Hamed, R.**, Fiegel, J., 2011. *Controlled transport for pulmonary drug delivery*. In: H. Smyth and A. Hickey (eds.) Controlled Release Science and Technology: Pulmonary Delivery. New York: Springer. [Book Chapter]