

CURRICULUM VITAE

Rania “Ahmad Azzam” Mousa Hamed

Pharmacy/Pharmacy

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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

- 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 15th, 2017 – now.
- 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



- Selective laser sintering 3D printing of pharmaceuticals
- Chemometric analysis as a quality 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.
- Aerosol formation and surface characterization of respiratory surfaces

6. Membership in Scientific Societies and Associations

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

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 scholarship at Texas A & M University, Irma Lerma Rangel College of Pharmacy, Sep 1st, 2019 – May 30th, 2020.
- 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).



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- 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. Amani Abu Kwaik (Aug 2019-present)
Thesis: Preparation and characterization of ibuprofen and metronidazole in situ microgel for the treatment of periodontitis. (Co-advised with Dr. Rana Obeidat).
2. Bayan Seder (Nov 2018-Aug 2019)
Thesis: Development and characterization of different formulations of controlled-release lipid-based delivery systems of carvedilol.
3. 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.
4. Yasmeen Al-Adhami: (Feb 2018-Jan 2019)
Thesis: Ibuprofen nanoemulsion-based in situ gel for periodontitis
5. Haitham Emaran: (Feb 2018-May 2019)
Thesis: Development of dual release pellets of celecoxib
6. Hala Qawwas (Oct 2017-Aug 2018)
Thesis: Controlled-release formulations of carvedilol-loaded oleogels.
7. Sabrine AlNadi (Mar 2017-Jan 2018)



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

8. Ahmad Farhan (Mar 2017-present)

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

9. Ala'a Abu Rezq (Oct 2015-Jan 2017)

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

10. 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.

11. Marwa Basel (Oct 2014-Sep 2015)

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

12. 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.

13. Areej Awadallah (Mar 2014-Dec 2014)

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***



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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. Technical consultant, Jordan Food and Drug Administration (JFDA), Amman, Jordan; 2012-2013
2. Member, Abstracts and Posters Selection Committee, the 14th Jordan Pharmaceutical Conference, Jordan, Pharmaceutical Association, Amman, Jordan; 2012

- **University**

1. Member of Foreign Relationships Office, Al-Zaytoonah University of Jordan, Amman, Jordan; 2017-2019
2. Member of Counseling Center and Community Services, Al-Zaytoonah University of Jordan, Amman, Jordan; 2017-2019
3. Member of Faculty Council; 2013-2019
4. Member of Curriculum and Learning Resources Committee; 2013-2018
5. Member of Post-Graduate Studies Committee; 2013-2019
6. Member, Quality Assurance Committee, Al-Zaytoonah University of Jordan; 2015-2016.

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 Pharmaceutical Association, Amman, Jordan Conference; 2012
3. Jordan Pharmaceutical Association, Amman, Jordan Conference; 2014

Participation in Scientific meetings and proceedings

1. **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.
2. 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.
 3. **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.
 4. 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.
 5. **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].
 6. 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.
 7. 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.
 8. 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.
 9. **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.
 10. **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.
 11. 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.
 12. **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.
 13. **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.
 14. 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.



15. **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.
16. **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.
17. 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.
18. 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.
19. **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.
20. **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.
21. **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.
22. **R. Hamed.** Comparative rheological studies of diclofenac diethylamine conventional gel, emulgel, and nanoemulsion-based gel. *Al-Zaytoonah University of Jordan*, Amman, Jordan, 2014.
23. **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.
24. **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.
25. **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.
26. **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.



27. **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.
28. **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.*
29. **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.*
30. **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.
31. **R. Hamed**, J. Fiegel. The role of mucus physicochemical properties in controlling bioaerosol formation within the upper respiratory tract. *Pharmaceutics Graduate Student Research Meeting, University of Michigan, Ann Harbor, MI, USA, June 2008.*
32. **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.
- Mentor in Athena MENA program.
- Join most of the extra-curriculum (social) activities with students.
- Member in the Accreditation Council for Pharmacy Education (ACPE) committee at Al-Zaytoonah University of Jordan

16. Publications

1. **Hamed, R.**, Mohamed, M. E, Rahman, Z, Khan, A. M. *3D-printing of lopinavir printlets by selective laser sintering and quantification of crystalline fraction by XRPD-chemometric models.* Int. J. Pharm., Nov. 2020.
2. **Hamed, R.**, Mahmoud, N.N, Alnadi, S.H, Alkilani, A.Z, and Hussein, G. *Diclofenac diethylamine nanosystems-loaded bigels for topical delivery: development, rheological characterization, and release studies.* Drug Dev. Ind. Pharm., 46 (10), 2020, 1705-1715.
3. **Hamed, R.**, Schenck, D. M, Fiegel, J. *Surface rheological properties alter aerosol formation from mucus mimetic surfaces.* Soft Matter, 16, 2020, 7823-7834.
4. **Hamed, R.**, Alnadi, S, 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.* AAPS PharmSciTech., 21 (146), 2020, 1-11.



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5. Mahmoud, 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*. Colloid Polym, Sci., 298, 2020, 989-999.
6. **Hamed, R**, Kamal, A, Alkilani, A.Z. *Gelation and rheological characterization of Carbopol® in simulated gastrointestinal fluid of variable chemical properties*. Pak. J. Pharm. Sci., 33 (3), 2020, 923-928.
7. **Hamed, R**, Alnadi, S. H. *Drug Release Pattern of Oral Dual-Release Pellets Through the Gastrointestinal Tract: Case Example of Diclofenac Sodium*. Dissolut. Technol., 27 (2), 2020, 22-30.
8. **Hamed, R**, Omran, H. *Development of dual-release pellets of the non-steroidal anti-inflammatory drug celecoxib*. J. Drug Deliv. Sci. Technol., 55, 2019, 101419.
9. **Hamed, R**, Al-Adhami, Y, Abu-Huwaij, R. *Concentration of a microemulsion influences the mechanical properties of ibuprofen in situ microgels*. Int. J. Pharm., 570, 2019, 118684.
10. Tarawneh, O, Al-Assi, A, **Hamed, R**, Sunoqrot, S, Hasan, L, Al-Sheikh, I, Al-Qirim, R, Alhusban, A, Naser, W. *Development and characterization of k-carrageenan platforms as periodontal intra-pocket films*. Trop. J. Pharm. Res., 18 (9), 2019, 1791-1798.
11. Alkilani, A.Z, Alkalbani, R, Jaber, D, **Hamed, R**, Hamad, I, Abumansour, H, Abu Assab, M. *Knowledge, attitude, practice and satisfaction of patients using analgesic patches in Jordan*. Trop. J. Pharm. Res., 18(8), 2019, 1745-1753.
12. **Hamed, R**, Farhan, F, Abu-Huwaij, R, Mahmoud, N, Kamal, A. *Lidocaine microemulsion-laden organogels as lipid-based systems for topical delivery*. J. Pharm. Innov., July 2019.
13. Abu-Huwaij, R, **Hamed, R**, Daoud, E, Alkilani, A. Z. *Development and in vitro characterization of nanoemulsion-based buccal patches of valsartan*. Acta Pol. Pharm., 76(2), 2019, 325-333.
14. Mahmoud, N, Alhusban, A, Ali, J. I, Al-Bakri, A, **Hamed, R**, Khalil, E. *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, 2019, 1-15.
15. **Hamed, R**. *Physiological parameters of the gastrointestinal fluid impact the dissolution behavior of the BCS class IIa drug valsartan*. Pharm. Dev. Technol., 23(10), 2019, 1168-1176.
16. **Hamed, R**, Kamal, A. *Concentration profiles of carvedilol: A comparison between in vitro transfer model and dissolution testing*. J. Pharm. Innov., 14 (2), 2019, 123-131.
17. Alkilani A.Z, **Hamed, R**, Al-Marabeha, S, Kamal, A, Abu-Huwaij, R, Hamad, I. *Nanoemulsion-based film formulation for transdermal delivery of carvedilol*. J. Drug Deliv. Sci. Technol., 46, 2018, 122-128.
18. **Hamed, R**, Alnadi, S. *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), 2018, 2213-2225.



19. **Hamed, R.**, AbuRezeq, A, Tarawneh, O. *Development of hydrogels, oleogels and bigels as local drug delivery systems for periodontitis.* Drug Dev. Ind. Pharm., 44(9),2018, 1488-1497.
20. Tarawneh, O, Madi, A, **Hamed, R** and *et al.* *In-vitro characterization and evaluation of commercialized paracetamol products in Jordan.* Dissolut. Technol., 26(1), 2018, 1-9.
21. Al Hanbali, O, **Hamed, R.**, Arafat, M and *et al.* *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), 2018, 345-351.
22. Sunoqrot, S, Alsadi, A, Tarawneh, O, **Hamed, R.** *Polymer type and molecular weight dictate the encapsulation efficiency and release of Quercetin from polymeric micelles.* Colloid Polym. Sci, 295(10), 2017, 2051-2059.
23. Sunoqrot, S, Hasan, L, Alsadi, A, **Hamed, R.**, Tarawneh, O. *Interactions of mussel-inspired polymeric nanoparticles with gastric mucin: Implications for gastro-retentive drug delivery.* Colloids Surf. B Biointerfaces, 156, 2017, 1–8.
24. **Hamed, R.** Aljanabi, R, Sunoqrot, S, Abbas, A. *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), 2017, 1330-1342.
25. **Hamed, R.** Al-Samydai, A, Al Baraghthi, A, Tarawneh, O, Sunoqrot, S. *Influence of HPMC K100LV and Compritol® HD5 ATO on drug release and rheological behavior of HPMC K4M matrix tablets.* J. Pharm. Innov., 12, 2017, 62-75.
26. Sunoqrot, S, **Hamed, R.**, Abdel-Halim H, Tarawneh, O. *Synergistic interplay of medicinal chemistry and formulation strategies in nanotechnology–From drug discovery to nanocarrier design and development.* Curr. Top. Med. Chem., 17(3), 2017, 1451-1468.
27. **Hamed, R.** Al Baraghthi, T, Sunoqrot, S. *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), 2018, 838-848.
28. **Hamed, R.** Al Baraghthi, T, Alkilani, A. Z, Abu-Huwaij, R. *Correlation between rheological properties and in vitro drug release from penetration enhancers-loaded Carbopol® gels.* J. Pharm. Innov., 11(4), 2016, 339-351.
29. **Hamed, R.** Awadallah, A, Sunoqrot, S, Tarawneh, O, Nazzal, S, Al Baraghthi, T, Al Sayyad, J, Abbas, A. *pH-dependent solubility and dissolution behavior of carvedilol-case example of a weakly basic BCS class II drug.* AAPS PharmSciTech, 17(2), 2016, 418-426.
30. **Hamed, R.** Basil, M, Al Baraghthi, T, Sunoqrot, S, and Tarawneh, O. *Nanoemulsion-based gel formulation of diclofenac diethylamine: design, optimization, rheological behavior and in vitro diffusion studies.* Pharm. Dev. Technol., 21(8), 2016, 980-989.
31. **Hamed, R.** Fiegel, J. *Synthetic Tracheal Mucus with Native Rheological and Surface Tension Properties.* J. Biomed. Mater. Res. A, 102(6), 2014, 1788-1798.



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32. Brenza, T, **Hamed, R**, Fiegel, J. *Controlled transport for pulmonary drug delivery*. In: H. Smyth and A. Hickey (eds.) *Controlled Release Science and Technology: Pulmonary Delivery*. New York: Springer. 2011. [Book Chapter]