

## 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](mailto:rania.hamed@zuj.edu.jo)*

*Website: <http://www.zuj.edu.jo/portal/rania-hamed/>*



#### 1. Personal Data

Date of Birth: Mar 10<sup>th</sup>, 1970

Nationality: Jordanian

#### 2. Education

- Ph.D. (Pharmacy) 2011, The University of Iowa, Iowa City, Iowa, USA
- M.Sc. (Clinical Chemistry) 2004, the 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, The University of Iowa, Iowa City, Iowa, USA*

#### 4. Employment

##### Academic Positions

- Associate Professor, Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan, July 15<sup>th</sup>, 2017 – present.
- Assistant Professor, Pharmacy, Al-Zaytoonah University of Jordan, Amman, Jordan, Sep 2<sup>nd</sup>, 2011 – July 15<sup>th</sup>, 2017.



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

### Administrative Positions

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

### 5. Research Interests

- Development of controlled–release solid dosage forms based on hydrophilic and hydrophobic polymeric matrix systems.
- 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 their *in vivo* performance.
- Nanoemulsion–based gel formulations as carrier systems for topical drug delivery.
- Mechanical characterization of matrix–forming polymers.

### 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 14<sup>th</sup> 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

- Division of Pharmaceutics and Translational Therapeutics Travel Award, The University of Iowa-2007, 2008 and 2010.
- Women in Science and Engineering Travel Award, The University of Iowa-2009.
- Executive Council of Graduate and Professional Student (ECGPS) Scholarly Presentation Award, The University of Iowa-2009.
- Graduate Student Senate Travel Fund Award, The University of Iowa-2008.
- American Association of Pharmaceutical Scientists (AAPS)-Travel Award 200



## 8. Fellowships and Scholarships

- The Office of Research and Sponsored Programs at The University of Toledo, Visiting Faculty Researcher Program, Aug 1<sup>st</sup> – 31<sup>st</sup> 2017 (\$5,000).
- Daniel Turnberg Travel Fellowships, Visiting Research Fellow, School of Pharmacy, the University of Manchester, Aug 1<sup>st</sup> – Sep 10<sup>th</sup> 2016 (€3,500).
- Mobility grant funded by EU-JordanNet II European, Visiting Research Fellow, School of Pharmacy, Queen's University Belfast, Aug 9<sup>th</sup> – Sep 20<sup>th</sup> 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. Yasmeeen Al-Adhami (Feb 2018–present)

Thesis: Ibuprofen nanoemulsion-based in situ gel for mucosal adhesion in periodontitis



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

2. Haitham Emaran (Feb 2018–present)  
Thesis: Development of dual–release pellets of celecoxib
3. Hala Qawwas (Oct 2017–present)  
Thesis: Controlled–release formulations of carvedilol-loaded oleogels.
4. Sabrine AlNadi (Mar 2017–Jan 2018)  
Thesis: Dissolution behavior of the poorly–soluble weak acid drug valsartan upon entry in the small intestine.
5. Ahmad Farhan (Mar 2017–present)  
Thesis: Nanoemulsion–based oleogel formulation of lidocaine for transdermal delivery
6. Ala'a Abu Rezaq (Oct 2015–Jan 2017)  
Thesis: Development and optimization of hydrogel, oleogels and bigels as topical drug delivery systems for periodontitis.
7. 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.
8. Marwa Basel (Oct 2014–Sep 2015)  
Thesis: Development and optimization of diclofenac diethylamine nanoemulsion–based gel formulation.
9. 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.
10. 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 Funds in Jordan, 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.



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

- ***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 (28,000 JD)/Principle Investigator.
- ***Scientific Research Funds in 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***  
Mussle-Inspired Mucoadhesive nanoparticles as a Novel Gastro-retentive Dosage Forms, Funded 2015 (69,530 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. Technical consultant, Jordan Food and Drug Administration (JFDA), Amman, Jordan; 2012–2013
  2. Member, Abstracts and Posters Selection Committee, the 14<sup>th</sup> Jordan Pharmaceutical Conference, Jordan, Pharmaceutical Association, Amman, Jordan; 2014
  3. Member, Abstracts and Posters Selection Committee, the 14<sup>th</sup> Jordan Pharmaceutical Conference, Jordan, Pharmaceutical Association, Amman,



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

Jordan; 2012

- **University**

1. Member of Foreign Relationships Office, Al-Zaytoonah University of Jordan, Amman, Jordan; 2017–2018 and 2018-2019.
2. Member of Counseling Center and Community Services, Al-Zaytoonah University of Jordan, Amman, Jordan; 2017–2018
3. Member of Faculty Council; 2017–2018 and 2018-2019.
4. Member of Curriculum and Learning Resources Committee; 2017-2018 and 2018-2019
5. Member of Post-graduate Studies Committee; 2017–2018 and 2018-2019.
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 2017), Amman, Oct 2017.
2. Al-Zaytoonah University of Jordan and University of Toledo Conference (ZTIPC 2015), Amman, Oct 2015.
3. Al-Zaytoonah University of Jordan and University of Toledo Conference (ZTIPC 2012), Amman, Oct 2012.
4. Jordan Pharmaceutical Association, Amman, Jordan Conference; 2012
5. Jordan Pharmaceutical Association, Amman, Jordan Conference; 2014

##### *Participation in Scientific meetings*

1. **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 15 Annual European Pharma Congress. Frankfurt, Germany, May 2018.
2. **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.
3. 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 Conference (ZTIPC 2017), Amman, Oct 2017.



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

4. **R. Hamed**, A. Aburezeq. Development and optimization of oleogels and bigels as topical drug delivery systems for periodontitis. 6<sup>th</sup> FIP Pharmaceutical Sciences World Congress, Stockholm, Sweden, May 2017.
5. **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. 6<sup>th</sup> FIP Pharmaceutical Sciences World Congress, Stockholm, Sweden, May 2017.
6. 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.
7. **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.
8. **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.
9. 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, December 2015.
10. 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, October 2015.
11. **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, October 2015.
12. **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, 2014.
13. **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, 2014.



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

14. **R. Hamed**, Comparative rheological studies of diclofenac diethylamine conventional gel, emulgel, and nanoemulsion-based gel. Al-Zaytoonah University of Jordan, Amman, 2014.
15. **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, 2010.
16. **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*, 2010.
17. **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, 2009.
18. **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*, 2009.
19. **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*, Monterey, CA, 2009.
20. **R. Hamed**, J. Fiegel. Evaluating the role of mucus physicochemical properties on bioaerosol formation in the lungs. *Pharmaceutics Graduate Student Research Meeting*, Purdue University, IN, 2009.
21. **R. Hamed**, J. Fiegel. Development of a more physiologically-relevant mucus mimetic of the upper respiratory tract. *American Institute of Chemical Engineers (AIChE)*, Nashville, TN, 2009.
22. **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*, 2008.
23. **R. Hamed**, J. Fiegel. Bioaerosol formation from lung surfaces: Evaluating the role of mucus physicochemical properties. *American Association of Pharmaceutical Scientists (AAPS)*, Atlanta, GA, 2008.





QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

24. **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, MI, 2008.
25. **R. Hamed**, J. Fiegel. Physiologically-relevant cough machine to study bioaerosol formation in the lungs. *American Association of Pharmaceutical Scientists (AAPS)*, San Diego, CA, 2007.

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

1. Organizing a lecture for pharmacoconomics students (Title: Registration in Jordan), Dr. Manal Zyoud, Pharmacist from Jordan Food and Drug Administration (JFDA), Al-Zaytoonah University of Jordan, Amman Mar 21<sup>st</sup>, 2018.
2. Organizing the Pharmaceutical Exhibition Day, Al-Zytoonah University of Jordan and University of Toledo Conference (ZTIPC 2017), Amman, Oct 2017.
3. Organizing a Career Day at Al-Zaytoonah University of Jordan, Amman, May 17<sup>th</sup>, 2017.
4. Organizing a lecture for pharmacoconomics students (Title: Planning after graduation), Dr. Khalid Khraisat, Business Development Manager from MonoJo, Al-Zaytoonah University of Jordan, Amman, Mar 8<sup>th</sup>, 2017.

### **16. Publications**

1. **R. Hamed**. *Physiological parameters of the gastrointestinal fluid impact the dissolution behavior of the BCS class IIa drug valsartan*. Pharm Dev Technol. Accepted Oct 2018.
2. **R. Hamed**, A. Kamal. *Concentration profiles of carvedilol: A comparison between in vitro transfer model and dissolution testing*. J Pharm Innov. Accepted July 2018.
3. A. Zaid Alkilania, **R. Hamed**, S. Al-Marabeha, A. Kamal, R. Abu-Huwaij, I. Hamad. *Nanoemulsion-based film formulation for transdermal delivery of carvedilol*. J Drug Deliv Sci Technol, 46, 2018, 122-128.
4. **R. Hamed**, S. Alnadi. *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.



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

5. **R. Hamed**, A. AbuRezeq, O. Tarawneh. *Development of Hydrogels, Oleogels and Bigels as Local Drug Delivery Systems for Periodontitis*. Drug Dev Ind Pharm, 44(9), 2018, 1488-1497.
6. O. Al Hanbali, **R. Hamed**, M. Arafat 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.
7. S. Sunoqrot, A. Alsadi, O. Tarawneh, **R. Hamed**. *Polymer type and molecular weight dictate the encapsulation efficiency and release of Quercetin from polymeric micelles*. Colloid Polym Sci., 295(10), 2017, 2051-2059.
8. S. Sunoqrot, L. Hasan, A. Alsadi, **R. Hamed**, O. Tarawneh. *Interactions of mussel-inspired polymeric nanoparticles with gastric mucin: Implications for gastro-retentive drug delivery*. Colloids Surf B Biointerfaces 156, 2017, 1–8.
9. **R. Hamed**, R. Aljanabi, S. Sunoqrot, A. Abbas. *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.
10. **R. Hamed**, A. Al-Samydai, T. Al Baraghthi, O. Tarawneh, S. Sunoqrot. *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.
11. S. Sunoqrot, **R. Hamed**, Abdel-Halim H, O. Tarawneh. *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.
12. **R. Hamed**, T. Al Baraghthi, S. Sunoqrot. *Correlation between the viscoelastic properties of the gel layer of swollen HPMC matrix tablets and their in vitro drug release*. Pharm Dev Technol, 21, 2016, 1-11.
13. **R. Hamed**, T. Al Baraghthi, A. Zaid Alkilani, R. Abu-Huwaij. *Correlation between Rheological Properties and In Vitro Drug Release from Penetration Enhancers-Loaded Carbopol® Gels*. J Pharm Innov, 11(4), 2016, 339-351.
14. **R. Hamed**, A. Awadallah, S. Sunoqrot, O. Tarawneh, S. Nazzal, T. AlBaraghthi, J. Al Sayyad, A. Abbas. *pH-dependent solubility and dissolution*



QF11/0110 - 3.0E

Curriculum Vitae Form - Procedures of Faculty Transfer and Promotion

*behavior of carvedilol-case example of a weakly basic BCS class II drug. AAPS PharmSciTech, 17(2), 2016, 418-426.*

15. **R. Hamed**, M. Basil, T. AlBaragthi, S. Sunoqrot, and O. Tarawneh. *Nanoemulsion-based gel formulation of diclofenac diethylamine: design, optimization, rheological behavior and in vitro diffusion studies. Pharm Dev Technol, 21(8), 2016, 980-989.*
16. **R. Hamed**, J. Fiegel. *Synthetic Tracheal Mucus with Native Rheological and Surface Tension Properties. J. Biomed. Mater. Res. A, 102(6), 2014, 1788-1798.*
17. T. Brenza, **R. Hamed**, and J. Fiegel. *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]*