Rania Hamed

Faculty of Pharmacy
Al-Zaytoonah University of Jordan
Amman-Jordan
Office Phone: 962-6-4291511, extension (309). Cell Phone: 962-79-7739590. Email: hamedr2@yahoo.com

EDUCATION

2005-2011: Ph.D. Pharmacy (Pharmaceutics)
The University of Iowa-Division of Pharmaceutics and Translational Therapeutics
Overall GPA: 3.71/4.00
Dissertation: Development of a physiologically relevant *in vitro* model system to study exhaled bioaerosols

2004-2005: Graduate student
The University of Louisiana-Division of Pharmaceutics
Overall GPA: 3.89/4.00

2002-2004: M.A. Clinical Chemistry
The University of Scranton-Chemistry Department
Overall GPA: 3.88/4.00
Dissertation: Permeation enhancers of Indomethacin using Franz diffusion cell technique

1988-1993: B.S. Pharmacy
Jordan University of Science & Technology
Overall GPA: 3.44/4.00

PROFFESSIONAL EXPERIENCE

2013-Present: **Head of the Pharmacy Division,** Al-Zaytoonah Private University of Jordan-Faculty of Pharmacy, Amman-Jordan

2011-Present: **Assistant Professor,** Al-Zaytoonah Private University of Jordan-Faculty of Pharmacy, Amman-Jordan

1999-2002: **Director of the Quality Control Department**, Jordan Veterinary and Agricultural Medicinal Industries (JOVET), Amman-Jordan

1996-1999: **Director of the Research and Development**, Jordan Veterinary and Agricultural Medicinal Industries (JOVET), Amman-Jordan

1993-1996: **Senior Scientist**, RAM Pharmaceutical Industries, Amman-Jordan

RESEARCH EXPERIENCE

Aug-Sep 2015: **Visiting Research Fellow**, School of Pharmacy, Queen's University Belfast

Research: Development and optimization of oleogels for controlled drug delivery

2011-Present: **Assistant Professor,** Faculty of Pharmacy**,** Al-Zaytoonah University of Jordan

Current research:

- 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 the *in vivo* performance.
- Nanoemulsion-based gel formulation as a carrier system for topical drug delivery.
- Mechanical characterization of matrix-forming polymers.

2006-2011: **Graduate Research Assistant**, Advisor: Dr. Jennifer Fiegel
Division of Pharmaceutics and Translational Therapeutics, The University of Iowa

Research: Develop a more physiologically relevant *in-vitro* model mimetic of tracheal mucus to study the surface rheology of tracheal mucus and elucidate the mechanism of bioaerosol formation

- Matched the chemical composition, component concentrations, and physicochemical properties (i.e. surface tension and bulk rheology) of the *in-vitro* model mimetic to native tracheal mucus
- Probed the surface rheology of surfactants adsorbed at the air-mucus interface
- Elucidated key parameters that control the size distribution of bioaerosols generated from tracheal mucus tract by utilizing an enhanced simulated cough machine

2003-2004: **Graduate Research Assistant**, Advisor: Dr. John Deak
Chemistry Department, The University of Scranton

Research: Permeation enhancers for indomethacin using Franz diffusion cell technique

- Determined conditions for *in-vitro* permeation test using Franz diffusion cell technique
- Evaluated silicones as new permeation enhancers
- Differentiated indomethacin permeability through skin obtained from different species

2003: **Aventis Scholarship Recipient**
Process Development Department, Aventis Pasteur, Swiftwater, PA

- Determined polysaccharide content using specific assays for phosphorus and sialic acid
- Determined protein content using Lowry's method
- Size exclusion and hydrophobic interaction chromatography techniques to further characterize polysaccharide/protein conjugate vaccine candidates

PUBLICATIONS

1. R. Hamed, A. Awadallah, S. Sunoqrot, O. Tarawneh, S. Nazzal, T. AlBaraghthi, J. Al Sayyad, A. Abbas. pH-dependent solubility and dissolution behavior of carvedilol-case example of a weakly basic BCS class II drug. AAPS PharmSciTech. 2015 Jul 23.
2. R. Hamed, M. Basil, T. AlBaraghthi, S. Sunoqrot, and O. Tarawneh. Nanoemulsion-based gel formulation of diclofenac diethylamine: design, optimization, rheological behavior and in vitro diffusion studies. Pharm Dev Technol. 2015 Sep 15:1-10.
3. R. Hamed, J. Fiegel. Synthetic Tracheal Mucus with Native Rheological and Surface Tension Properties. *J. Biomed. Mater. Res. A.* 2014 Jun; 102(6):1788-98.
4. 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]

PUBLISHED ABSTRACTS AND PROCEEDINS

1. 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.

2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.

HONORS AND AWARDS

- Mobility grant funded by EU-JordanNet II European, Visiting Research Fellow, School of Pharmacy, Queen's University Belfast 2015.
- 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 and Translational Therapeutics Travel Award, The University of Iowa-2010, 2008 & 2007.
- 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.
- Division of Pharmaceutics John L. Lach Memorial Scholarship, The University of Iowa-2007.
- American Association of Pharmaceutical Scientists (AAPS)-Travel Award 2007.

GRANT WRITING EXPERIENCE

- Deanship of Scientific Research , Al-Zaytoonah University of Jordan
  Nanoemulsion-based gel formulation for topical drug delivery systems, Funded 2013 (82,170 JD).

- 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

- Pre-Doctoral Fellowship Program Grant, Parenteral Drug Association (PDA)
  Correlating mucus physicochemical properties to bioaerosol formation in the respiratory tract: Towards the development of new infectious disease control strategies, not funded

PROFESSIONAL MEMBERSHIPS

- 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

ATTENDED WORKSHOPS

Quality assurance workshop (External reviewers and site visit for the academic program). *Al-Zaytoonah University of Jordan*. Amman, 2-4/11/2013.

COLLABORATIONS

Dr. Aiman Abbas, Al-Hikma Pharmaceuticals; Amman-Jordan.
Dr. Sami Nazzal, University of Louisiana/Monroe

TEACHING

Semester	Course No.	Course Name (credit hours)
First 2011-2011	201221	Pharmaceutics I: physical pharmacy (3 credit hours)
	201291	Physical pharmacy laboratory (1 credit hour)
Second 2011-2012	201223	Pharmaceutics II: routes of administration and pharmaceutical dosage forms (2 credit hours)
	201225	Pharmaceutical calculations (1 credit hour)
Summer 2011-2012	201221	Pharmaceutics I: physical pharmacy (3 credit hours)
	201762	Advanced pharmaceutical technology/Graduate level (2 credit hours)
First 2012-2013	201221	Pharmaceutics I: physical pharmacy (3 credit hours)
	201225	Pharmaceutical calculations (1 credit hour)
	201548	Pharmacoeconomics
Second 2012-2013	201223	Pharmaceutics II: routes of administration and pharmaceutical dosage forms (2 credit hours)
	201548	Pharmacoeconomics
	201701	Biostatistics and applications/Graduate level (3 credit hours)

	201494	Practical industrial pharmacy laboratory II
Summer 2012-2013	201221	Pharmaceutics I: physical pharmacy (3 credit hours)
	201223	Pharmaceutics II: routes of administration and pharmaceutical dosage forms (2 credit hours)
	201329	Pharmaceutics laboratory (1 credit hour)
First 2013-2014	201762	Advanced pharmaceutical technology/Graduate level (2 credit hours)
	201223	Pharmaceutics II: routes of administration and pharmaceutical dosage forms (2 credit hours)
	201542	Pharmaceutical technology laboratory (1 credit hour)
Second 2013-2014	201221	Pharmaceutics I: physical pharmacy (3 credit hours)
	201222	Pharmaceutics II: routes of administration and pharmaceutical dosage forms (2 credit hours)
	201542	Advanced pharmaceutical technology/Graduate level (2 credit Hours)
Summer 2013-2014	201221	Pharmaceutics I: physical pharmacy (3 credit hours)
	201329	Pharmaceutics laboratory (1 credit hour)
First 2014-2015	201222	Pharmaceutics II: routes of administration and pharmaceutical dosage forms (2 credit hours) Pharmacy Practice Professional laboratory (1 credit hour)
Second 2014-2015	201222	Pharmaceutics II: routes of administration and pharmaceutical dosage forms (2 credit hours)

RESEARCH SUPERVISION – M.S STUDENTS

Reem AlJanabi (March 2015-Present)
Research area: The effect of pH and ionic strength of the dissolution media on the rate of Quetiapine Fumarate release from polymeric matrix tablets.

Marwa Basel (October 2014-September 2015)
Research area: Development and optimization of diclofenac diethylamine nanoemulsion-based gel formulation.

Ali Jasim (October 2014-May 2015)
Research area: 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.

Areej Awadalah (March, 2014-December, 2014)
Research area: 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.

Enaam Shahadeh (October, 2012-August, 2013)
Research area: Preparation and characterization of nanoemulsion

Tamadur Al-Bargouti (April, 2014-Present)
Research Area: 1) Development of controlled-release solid dosage forms based on hydrophilic and hydrophobic polymeric matrix systems, and 2) Nanoemulsion based gel formulation of Diclofenac Diethylamine. 3) Investigating the rheological properties of the gel layer of swollen HPMC matrix tablets to better predict their *in vitro* release.

DISSERTATION/THESIS COMMITTEE MEMBERSHIP

External Member on M.S Defense Committee

Tamara Athamneh (Pharmaceutics; Supervising Professor: Bassam Tashtoush)
Faculty of Pharmacy, Jordan University of Science and Technology
Thesis title: Preparation and evaluation of Levodopa-β-cyclodextrin patches for transdermal delivery, defense: June, 2014.