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Doaa Mohamed Ragab Mossaad,

Ph.D. Chemical and Biochemical Engineering, University of Western Ontario, Canada.

Assistant Lecturer, Faculty of Pharmacy, Alexandria University, Egypt.

EXPERIENCE OVERVIEW

• Worked with industry for long-term research projects (two years) to apply lab research into industrial scale applications.

• Experience in the fabrication of polymer coated core-shell iron oxide as semiconductor/magnetic nanoparticles.

• Participated in an industrial collaboration in the synthesis of magnetic nanoparticles and their potential application as an anode in lithium batteries.

• Experienced in synthesis optimization, technologies and characterization tests of Metal Organic Frameworks (MOFs), iron oxide magnetic nanoparticles and zeolitic imidazole frameworks (ZIFs).

• Performed carbon dioxide adsorption tests in laboratory scale fixed bed.

• Conducted COMSOL modeling for fixed bed adsorption column.

• Co-supervised undergraduate and graduate students (PhD and Master's)

• Published 8 papers in high impact factor refereed journals and 2 under review.

• Developed, executed, and modified fluidized beds in laboratory scale.

EDUCATION

Ph.D. **University of Western Ontario** **April, 2014**

Department of Chemical & Biochemical Engineering

Advisor: Sohrab Rohani, Ph.D.

Committee: Lauren Brien, Ph.D.

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Thesis: Drug Delivery to the Respiratory Tract Using Dry Powder Inhalers: Fabrication of polymer coated magnetic nano-clusters as a vehicle for the drug delivery of hormones and anticancer drugs.

M.SC **Master of Science**

(Pharmaceutical Sciences) **November, 2005**

Faculty of Pharmacy, Alexandria University

Advisor: Magda Samaha, Ph.D.

Thesis: Development and Characterization of inhaled formulations for systemic drug delivery: Fabrication of bovine serum albumin hollow microparticles as a drug carrier.

Joint Channel Program: between the University of Western Ontario and Alexandria University.

B,Sc. **Bachelor of Science**

Pharmaceutical Sciences **September, 2000**

Specialized tutor: pharmaceutics, industrial pharmacy and anotechnology.

HONORS & AWARDS

Scientific Joint Channel Scholarship **May 2008-May 2010**
Egyptian Cultural & Educational Burreau , Montreal, Canada
Project title: "Application of polymer coated magnetic nanoparticles as a vehicle for controlled drug delivery."

Research Bridges Sarnia: Sarnia, ON **May 2012**
1st place Nanomaterials and Energy.

Project title: "Facile method for fabrication of ferrite encapsulated TiO2 nanotubes".

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OGS scholarship **September 2012-September 2013**

University of Western Ontario, London, ON.

Project title: "Novel microwave-assisted method for the synthesis of amine functionalized metal organic frameworks and their potential biomedical applications".

OGS scholarship **September 2013-April 2014**

University of Western Ontario, London, ON.

Project title: Novel folic acid functionalized ß-cyclodextrin-PPG-NH_2 magnetic nanoparticles for site targeted treatment of lung cancer".

NSERC-PolyAnalytik Inc. engage partnership

November 2014

University of Western Ontario, London, ON.

Project title: "Fabrication of fatty acid-block-glycol chitosan and potential energy and biomedical applications".

RESEARCH EXPERIENCE

Post-doctoral fellow [May 2014-May 2015]

University of Western Ontario

Chemical & Biochemical Engineering

Advisors: Dr. Jesse Zhu, PhD.

Dr. Hassan Gomaa, Ph.D.

Industrial partner: PolyAnalytik Inc.

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Research topics:

- Investigating the solar and photo-catalytic degradation of progesterone (hormone micropollutant) using Fe_3O_4-surface modified Polyvinylidene fluoride (PVDF) membrane.
- Novel ZIF 8- PTFE mixed matrix membrane for separation of endocrine disrupting hormones from waste water.
- Cu nanoparticles doped titanium oxide nanotubes for solar and UV photo-catalysis.

Graduate Student Researcher

[September 2010-April 2014]

University of Western Ontario

Chemical & Biochemical Engineering

Advisor: Sohrab Rohani, Ph.D.

Visitor Graduate student

[May 2008-August 2010]

University of Western Ontario

Chemical & Biochemical Engineering

Advisor: Sohrab Rohani, Ph.D.

Graduate Researcher

[Sepetember 2005-April 2008]

University of Alexandria

Faculty of Pharmacy

Department of Industrial Pharmacy

Advisor: Magda Samaha, Ph.D.

TEACHING EXPERIENCE

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University level-Undergraduate courses

Instructor Industrial Pharmacy **September 2000-September 2005**

Department of Industrial Pharmacy- Pharmaceutics

Alexandria University, Egypt

- Teaching lab sessions to upper-division Industrial Pharmacy students; was solely responsible for lab exercise and demonstrations.
- Developing lab demonstrations for first and second year Pharmaceutics students; including formulating different liquid and semi-solid dosage forms.
- Developing lab exercise for third year Pharmaceutics student for quantifying the drug content in different dosage forms based on UV and HPLC spectroscopy.

Assistant Lecturer Industrial Pharmacy **November 2005-April 2008**

Alexandria University, Egypt

- Teaching "Advanced Drug Delivery Routes" for Diploma students.
- Leading scientific research articles discussions with graduate students.
- Help in designing course material of Industrial Pharmacy.
- Giving lectures for Tableting and Capsule Manufacturing (Faculty of Pharmacy, Alexandria University).

Teaching Assistant

- ***Mass Transfer Operations*** **[January 2011-April 2011]**
  (CBE 3324B)
  Chemical & Biochemical Engineering
  University of Western Ontario

- ***Chemical Process Calculations*** **[September 2011-December 2011]**
  (*CBE 2220A)*
  Chemical & Biochemical Engineering
  University of Western Ontario

- ***Mass Transfer Operations*** **[January 2012 - April 2012]**

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CBE 3324B
Chemical & Biochemical Engineering
University of Western Ontario

- ***Mass Transfer Operations*** **[September 2012 - December 2012]**
  CBE 2214A
  Chemical & Biochemical Engineering
  University of Western Ontario

- ***Particulate Operations*** **[January 2014-April 2014]**
  (CBE 3325B)
  Chemical & Biochemical Engineering
  University of Western Ontario

University level-graduate courses

Teaching Assistant

- ***Transport processes*** **[January 2013-April 2013]**
  (CBE 9160B)
  Chemical & Biochemical Engineering
  University of Western Ontario

- ***Pharmaceutical Manufacturing*** **[September 2013-January 2014]**
  (CBE 4404A)
  Chemical & Biochemical Engineering
  University of Western Ontario

Teaching Interests

- Nanomaterials, Advanced biomaterial engineering, Particles fluidization and Pharmaceutical operations.

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PUBLICATIONS

Peer-reviewed Research

1. Anindita Sarkar, **Doaa Ragab,** and Sohrab Rohani, Polymorphism of Progesterone: "A New Approach for the Formation of Form II and the Relative Stabilities of Form I and Form II". Crystal Growth Des., 2014, 14 (9), pp 4574–4582.
2. **Doaa Ragab** and Sohrab Rohani, "Cubic magnetically guided magnetic nanoaggregates for inhalable drug delivery: In vitro aerosol deposition study". AAPS PharmSciTech, 14(3), 2013, 977-993.

3. **Doaa Ragab**, Sohrab Rohani, Styliani Consta, "Controlled release of 5-fluorouracil and progesterone from magnetic nanoaggregates". International Journal of Nanomedicine, 7, 2012, 1-23.
4. **Doaa Ragab**, Sohrab Rohani, Magda W. Samaha, Ferial M. El-Khawas , Hoda A. El-Maradny, "Crystallization of progesterone for pulmonary drug delivery". Journal of Pharmaceutical Sciences 99 (3), 2009, pp. 1123 - 1137.

5. **Doaa Ragab** and Sohrab Rohani, "Particles engineering strategies via crystallization for pulmonary drug delivery". Org. Process Res. Dev. 13(6), 2009, pp. 1215 - 1223.

6. M.W. Samaha, H.A. El-Maradny, **Doaa Ragab**, F.M. El-Khawas, "Development and characterization of inhaled formulations for systemic drug delivery". Drug Delivery Technology, 9(5), 2009, pp. 32-39.

7. M.W. Samaha, H.A. El-Maradny, **Doaa Ragab**, F.M. El-Khawas, "A comparative study of the effect of using different drying techniques for preparation of inhalable protein powders on their aerosolization performance". Drug Delivery Technology, 8(5), 2008, pp. 38-43.

8. M.W. Samaha, H.A. El-Maradny, **Doaa Ragab**, F.M. El-Khawas, "Biodegradable block copolymers as inhalable drug-delivery systems". Alexandrian Journal of Pharmaceutical Sciences, 20(2), 2006, pp. 123-128.

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Conference Proceedings

1. **Doaa Ragab**, Sohrab Rohani, Styliani Consta. "Controlled release of 5-fluorouracil from magnetic nanoaggregates". The 24 th Canadian Material Science Conference [CMSC], University of Western Ontario, London, Ontario, Canada, June 2012.

2. Ahmed El-Ruby, **Doaa Ragab**, Sohrab Rohani. "Facile method for fabrication of ferrite encapsulated TiO_2 nanotubes". The 24 th Canadian Material Science Conference [CMSC], University of Western Ontario, London, Ontario, Canada, June 2012.

3. **Doaa Ragab**, Sohrab Rohani, Ferial M. El-Khawas, Hoda A. El-Maradny, Magda W. Samaha. "Surface Modified Magnetic Nanoparticles For Targeted Drug Delivery ". The 2nd conference on " Innovation in Drug Delivery: From Pre-formulation to Development through Innovative Evaluation Process ", France, 3-6 October 2010.

PRESENTATIONS

Research Talks

1. **Doaa Ragab**, Sohrab Rohani. Magnetic nanoparticles for biomedical and energy applications. Sarnia Research Bridges. Sarnia-Lambton Research Park, Sarnia, Ontario, Canada May 2012.

2. **Doaa Ragab**, Sohrab Rohani. Magnetic nanoparticles for controlled drug delivery. CAMBER distinguished lecturer and research day. University of Western Onatrio, London, Ontario, Canada, June 2011.

3. **Doaa Ragab**, Sohrab Rohani. Engineering strategies for pulmonary formulations. "World Discoveries Research. University of Western Ontario, London, Ontario, Canada, Feb. 2010.

4. **Doaa Ragab**, Sohrab Rohani. Micro-crystallization for Pulmonary Drug Delivery. Particle Technology Research Centre Conference: New Horizons in Particles Research, London, Onatrio, Canada, July, 2009

Research Posters

1. **Doaa Ragab**, Sohrab Rohani, Styliani Consta. "Molecular dynamic simulation of site targeted anti-EGFR for treatment of cancer". "HPC in medical science", Montreal, Canada, June 2011.

2. Magda Samaha, Hoda El-Maradny, **Doaa Ragab**, Ferial El-Khawas. A comparative study of inhalable protein dry powders. Innovation in drug delivery from biomaterials to devices, Naples, Italy, September 2007.

ADDITIONAL TRAINING

Computer-related training

- Comsol Multiphysics
- GROMACS
- SigmaPlot
- OriginLab
- Microsoft Office
- Aspen Plus

Spectroscopic experience

- X-ray diffraction
- FESEM
- TEM
- AFM
- TGA
- FTIR
- Surface Enhanced Raman Scattering
- X-ray photoelectron spectroscopy (XPS)

Laboratory-related training

- WHMIS (Workplace Hazardous Materials Information System)
- Safe Campus: Preventing Harassment, Violence and Domestic Violence at Western
- Online AODA in Teaching (The Accessibility for Ontarians with Disabilities Act).
- Lab Safety-Hazardous Waste
- Worker health and safety awareness