

## ***Resume of Mohammad Alnaief***



- **Personal Information:**

Name: Mohammad Hussein Ali Alnaief  
Nationality: Jordanian  
Date of birth: March 16, 1981  
Mailing address: School of Applied Medical Sciences  
German Jordanian University  
P.O.Box 35247 Amman 11180 Jordan  
Mobile Phone: +962-797 456 333  
E-Mail: [Mohammad.alnaief@giu.edu.jo](mailto:Mohammad.alnaief@giu.edu.jo)  
[Mohammad.alnaief@gmail.com](mailto:Mohammad.alnaief@gmail.com)  
Web: <http://www.gju.edu.jo>  
[https://www.researchgate.net/profile/Mohammad\\_Alnaief](https://www.researchgate.net/profile/Mohammad_Alnaief)  
<https://scholar.google.com/citations?user=NrELY8AAAAJ>

- **Research interest:**

- ❖ Supercritical fluid technologies and their applications in production of nanostructured materials for life science application.
- ❖ Drug delivery and targeting systems.
- ❖ Biogas production as a renewable energy source for remote areas.
- ❖ Industrial wastewater treatment using advance oxidation techniques.

- **Professional Experience :**

March 2019 – present Associate professor of chemical engineering at the Pharmaceutical and Chemical Engineering Department, German-Jordanian University. Amman, Jordan

September 2011 – march 2019 Assistant professor of chemical engineering at the Pharmaceutical and Chemical Engineering Department, German-Jordanian University. Amman, Jordan.

September 2011 – September 2015      Head of the Pharmaceutical and Chemical Engineering Department, German-Jordanian University. Amman, Jordan.

July 2016 – August 2016  
September 2015 – October 2015      Guest Professor at Hamburg University of Technology  
“extraction of valuable product from agricultural side streams for sustainable biogas production”

June 2013 – September 2013      Guest Professor at Hamburg University of Technology  
“Production of nanoporous biodegradable materials based on polysaccharides using the supercritical fluid technology for life science applications”

• **Education:**

May 2008 – August 2011      **PhD**  
**Development of production processes of nanoporous materials for Advance Drug Delivery System**

Hamburg University of Technology, Institute of Thermal Separation Processes, Eissendorferstr. 38, D-21073, Hamburg Germany

Feb. 2007-April 2008      **Post graduate research**  
**Functionalization and preparation of silica aerogels for advanced drug carriers systems**  
Friedrich - Alexander - University Erlangen – Nuremberg, Chair of Separation Science and Technology Science, Egerlandstr. 3 D-91058 Erlangen, Germany.

Sep. 2004 – Aug. 2006      **Master Study**  
Master of Science in Chemical and Bio-Engineering  
Friedrich-Alexander University, Erlangen-Nürnberg.  
Master thesis: “**Particle Substrate Adhesion in Humid Ambience**”

Sep. 1999 – June 2004      **Undergraduate Study**  
Bachelor of Science in Chemical Engineering.  
Jordan University of Science and Technology, Irbid, Jordan.  
With an average of 85.2% (excellent), the rank was the first among 72 students.

• **Academic research/funded projects:**

January 2017 - present      **Ultra-low density nanoporous materials for innovative drug delivery routes 97,000 \$**

- Production of microparticles from intelligent nanoporous materials with high porosity and ultralow density for respiratory drug delivery in the form of dry inhalable powder.
- Significant improvement of the particle flowability and lung delivery in comparison to state of the art formulations.

- Analysis of the possibility to use organic aerogels and cryogels as drug delivery systems for the pulmonary administration route.

January 2015 – November 2018

**Using supercritical fluid technology to prepare pulmonary drug delivery systems for treatment of lung cancer 90,000 \$**

Funded project from the Scientific Research Support Fund in collaboration with Jordan University of science and Technology

- To design drug carrier composed from chitosan and alginate with proper size and aerodynamic properties for pulmonary drug delivery using supercritical fluid technology.
- Different selected lung cancer drugs will be loaded on the prepared carrier and fully characterized.

January 2015 – March 2018

**Biogas Production in Local Communities in Jordan 670,000 Euro**

Funded project from the European Union, budget line BGUE-B2014-21.035100

- To develop a hybrid solar-biogas plant design (industrial scale) for agricultural and food waste in local communities.

January 2014- November 2017

**TEMPUS project (development of new master study program) 1,468,222 Euro**

**Excellence in Nanoscience Education for the MENA Region (XNEM)**

October 2004 – Aug. 2006

**Research Assistant**

Institute of Particle Technology, Friedrich-Alexander University Erlangen-Nürnberg, Germany.

- Developing the “toner jumping method” for the investigation of the adhesion forces between toner particles, and different substrates.
- Investigation of adhesion forces between different polymer particles and different substrates, applying Atomic Force Microscope.
- FEM simulation of particle deformation and its influence on the adhesion forces.

- **Computer skills:**

Plate forms	Windows
Programming Languages	C, C++
Software Tools	MS Office
Mathematical Packages	MATLAB, Polymath
Technical Simulators	ASPEN+, DesignII, GPS-X for waste water treatment labVIEW, ABAQUS, Patran

- **Languages:**

Arabic	Mother language
English	Excellent
German	Excellent

- **Awards:**

- ❖ DFG Summer Fellowship, Hamburg University of Technology, July 2016
- ❖ DFG Summer Fellowship, Hamburg University of Technology, September 2015
- ❖ GJU award of excellence for distinguished researcher 2012/2013, November 2013
- ❖ DFG Summer Fellowship, Hamburg University of Technology, June 2013
- ❖ Return of expert award “Centre for international Migration and Development” (CIM) 2012
- ❖ PhD scholarship from German-Jordan University 2007 – 2011 (Jordan-Germany)
- ❖ Degussa stiftung scholarship for master thesis Feb 2006 – Aug 2006.
- ❖ Bayern scholarship for master study 2005-2006.
- ❖ Dean’s honor list, College of Engineering, Jordan University of Science and Technology, 1999-2004.
- ❖ B.Sc. Scholarship, Ministry of Higher Education and Scientific Research, 1999-2004.
- ❖ Students Deanship award for performance, 1999-2004.
- ❖ Prime ministry award for excellent academic performance, 2000, 2004.

- **Publications:**

- ❖ **Published articles:**

1. **Alnaief M**, Smirnova I. Effect of surface functionalization of silica aerogel on their adsorptive and release properties. *Journal of Non-Crystalline Solids*. 2010;356(33–34):1644–9
2. **Alnaief M**, Smirnova I. In situ production of spherical aerogel microparticles. *The Journal of Supercritical Fluids*. 2011; 55(3):1118–23.
3. **Alnaief M**, Alzaitoun M, García-González C, Smirnova I. Preparation of biodegradable nanoporous microspherical aerogel based on alginate. *Carbohydrate Polymers*. 2011; 84(3):1011–8.
4. García-González C, **Alnaief M**, Smirnova I. Polysaccharide-based aerogels—Promising biodegradable carriers for drug delivery systems. *Carbohydrate Polymers*. 2011; 86(4):1425–38.
5. Hentzschel C, **Alnaief M**, Smirnova I, Sakmann A, Leopold C. Enhancement of griseofulvin release from liquisolid compacts. *European Journal of Pharmaceutics and Biopharmaceutics*. 2012;80(1):130–5
6. Hentzschel C, **Alnaief M**, Smirnova I, Sakmann A, Leopold C. Tableting properties of silica aerogel and other silicates. *Drug development and industrial pharmacy*. 2012;38(4):462–7
7. García-González C, Uy J, **Alnaief M**, Smirnova I. Preparation of tailor-made starch-based aerogel microspheres by the emulsion-gelation method. *Carbohydrate polymers*. 2012;88(4):1378–86.

8. García-González C, Camino-Rey M, **Alnaief M**, Zetzl C, Smirnova I. Supercritical drying of aerogels using CO<sub>2</sub>: Effect of extraction time on the end material textural properties. *The Journal of Supercritical Fluids*. 2012; 66:297–306.
9. **Alnaief M**, Antonyuk S, Hentschel C, Leopold C, Heinrich S, Smirnova I. A novel process for coating of silica aerogel microspheres for controlled drug release applications. *Microporous and Mesoporous Materials*. 2012;160:167–73.
10. Wörmeyer K, **Alnaief M**, Smirnova I. Amino functionalised silica-aerogels for CO<sub>2</sub>-adsorption at low partial pressure. *Adsorption*. 2012;18(3–4):163–71.
11. Obaidat RM, Tashtoush BM, Bayan MF, Al Bustami RT, **Alnaief M**. Drying using supercritical fluid technology as a potential method for preparation of chitosan aerogel microparticles. *AAPS PharmSciTech*. 2015;16(6):1235–44.
12. Al-Jammal N, Al-Hamamre Z, **Alnaief M**. Manufacturing of zeolite based catalyst from zeolite tuft for biodiesel production from waste sunflower oil. *Renewable Energy*. 2016;93:449–59.
13. Al-Addous M, **Alnaief M**, Class C, Nsair A, Kuchta K, Alkasrawi M. Technical Possibilities of Biogas Production from Olive and Date Waste in Jordan. *BioResources*. 2017;12(4):9383–95.
14. Jum'ah I, Abdelhay A, Al-Taani H, Telfah A, **Alnaief M**, Rosiwal S. Fabrication and application of boron doped diamond BDD electrode in olive mill wastewater treatment in Jordan. *Journal of Water Reuse and Desalination*. 2017;7(4):502–10.
15. **Alnaief M**, Obaidat R, Mashaqbeh H. Effect of processing parameters on preparation of carrageenan aerogel microparticles. *Carbohydrate polymers*. 2018;180:264–75.
16. Obaidat RM, **Alnaief M**, Mashaqbeh H. Investigation of Carrageenan Aerogel Microparticles as a Potential Drug Carrier. *AAPS PharmSciTech*. 2018;1–11.
17. Mohammad BT, Al-Shannag M, **Alnaief M**, Singh L, Singaas E, Alkasrawi M. Production of Multiple Biofuels from Whole Camelina Material: A Renewable Energy Crop. *BioResources*. 2018;13(3):4870–83.
18. Obaidat R, **Alnaief M**, Jaeger P. Significant solubility of carbon dioxide in Soluplus® facilitates impregnation of ibuprofen using supercritical fluid technology. *Pharmaceutical development and technology*. 2018;23(7):697–705.
19. **Alnaief M**, Obaidat R, Mashaqbeh H. Loading and evaluation of meloxicam and atorvastatin in carrageenan microspherical aerogels particles. *Journal of Applied Pharmaceutical Science*. 2019;9(01):083–088.
20. **Alnaief M**, Mohammad B, Aljarrah M. Preparation and Preliminary Characterization of Hybrid Alginate–Carrageenan Aerogel: Effect of Gelation Methods. *Jordan Journal of Physics*. 2019;12(1):79–86.
21. Mohammad Al-Addous; Motasem Saidan; Mathhar Bdour; **Mohammad Alnaief**. Evaluation of Biogas Production from the Co-Digestion of Municipal Food Waste and Wastewater Sludge at Refugee Camps Using an Automated Methane Potential Test System. *Energies*. 2018; 12(1): 32-42

❖ **Conferences (presentation)**

1. Smirnova; **M. Alnaief**; Mehling, T.; Arlt, W.; Günther, U.; Neubert, R. Poröse anorganische und organische Materialien als Träger für Arzneistoffe ProcessNet-Jahrestagung 2008, Karlsruhe, Deutschland (2008).
2. **M. Alnaief**; I. Smirnova, "Production of Biocompatible Aerogel Microparticles" (Vortrag) ProcessNet-Jahrestagung 2009, Mannheim, Deutschland (2009).
3. Hentschel C.M., Sakmann A., **Alnaief M.**, Smirnova I., Leopold C.S. „Tableting properties of silica aerogel and various silicates" DPhG Jahrestagung 2009, Jena, Deutschland (2009).
4. **M. Alnaief**, I. Smirnova. "Production of Spherical Aerogel Microparticles by Supercritical Extraction of Emulsion" 12th European Meeting on Supercritical Fluids, Graz (2010) **(Keynote Lecture)**.
5. **M. Alnaief**, I. Smirnova. "Production and Coating of Silica Aerogel Microspheres for Advance Drug Delivery" CHISA 2010 & ECCE 7, Prague (2010).

6. P. Gurikov, A. Kolnoochenko, A. Didenko, **M. Alnaief**, I. Smirnova, N. Menshutina. "Adsorption of drug from sc. CO<sub>2</sub> and their release from aerogel based formulations: modeling using cellular automata" CHISA 2010 & ECCE 7, Prague (2010).
7. **M. Alnaief**, I. Smirnova, S. Antonyuk, S. Heinrich. "A novel process for production of aerogel microspheres and their coating with polymeric materials in a spouted bed" (Talk) ProcessNet-Jahrestagung, Aachen, 2010.
8. S. Antonyuk, S. Heinrich, **M. Alnaief**, I. Smirnova. "Application of novel spouted bed process for the drying and coating of silica aerogels microspheres for advanced drug delivery" International Drying Symposium (IDS 2010) Magdeburg, Germany (2010).
9. C.A. García-González, **M. Alnaief**, L. Pérez-Cantú; M. Betz, S. Cumana, U. Kulozik, I. Smirnova  
"Natural polymer-based aerogels: Promising biodegradable nanostructured matrices for life sciences applications" (Talk). 8th European Congress of Chemical Engineering, Berlin, Germany (2011)
10. **M. Alnaief**, C.A. García-González, S. Cumana, K. Wörmeyer, I. Smirnova "Supercritical fluid technology for tailor-made aerogel particles" (Talk) 8th European Congress of Chemical Engineering, Berlin, Germany (2011)
11. C.A. García-González, **M. Alnaief**, I. Smirnova "TITLE: Polysaccharide-based aerogels: Promising biodegradable matrices for life sciences applications", 13th European Meeting on Supercritical Fluids, The Hague, The Netherlands (2011)

Date: September 7, 2019

Mohammad Alnaief