

## Mahmoud Yousef Alkawareek, PhD

Assistant Professor  
Department of Pharmaceutics and Pharmaceutical Technology  
Faculty of Pharmacy  
University of Jordan  
Amman 11942, Jordan  
Tel: +962 (0)6 5355000 (Ext. 23342)  
Mobile: +962 (0)7 90454590  
Email: [m.alkawareek@ju.edu.jo](mailto:m.alkawareek@ju.edu.jo)

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### Education

- October, 2010 – October, 2013: PhD in Pharmacy; School of Pharmacy; Queen's University Belfast, Belfast, UK
  - **Thesis Title:** Antimicrobial Applications of Atmospheric Pressure Non-Thermal Plasma
  - **Academic Advisors:** Prof Sean Gorman, Dr Brendan Gilmore and Prof William (Bill) Graham
  - **Academic Examiners:** Prof Paul Stoodley and Prof Christopher Scott
- September, 2004 – June, 2009: BSc in Pharmacy; Faculty of Pharmacy, University of Jordan, Amman, Jordan
  - **GPA:** 4.00/4.00

### Professional Experience

- March, 2014 – Present: Assistant Professor; Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, University of Jordan, Amman, Jordan.
- October, 2013 – March, 2014: Lecturer; Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, University of Jordan, Amman, Jordan.
- October, 2010 – October, 2013: PhD Research Student; School of Pharmacy; Queen's University Belfast, Belfast, UK
- September, 2009 – September, 2010: Teaching Assistant; Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, University of Jordan, Amman, Jordan.
- June, 2009 – September, 2009: Community Pharmacist; Orange Pharmacy, Amman, Jordan.

## **Research Interests and Related Skills**

- Plasma medicine: antimicrobial applications of atmospheric pressure non-thermal plasma
- Microbial biofilms: formation, physiology and eradication
- Nanotechnology: pharmaceutical and medical applications
- Microbiological assessment: MIC, MBC and MBEC evaluation, biochemical viability assays and kinetics of bacterial inactivation
- Microscopy: light, fluorescence, confocal and electron microscopy
- Spectroscopy: UV/Vis, fluorescence and optical emission spectroscopy
- Molecular biology: bacterial transformation, kinetics of DNA damage and kinetics of enzyme catalytic activity
- Evaluation of oxidative damage of living cells and their protection by chemical/enzymatic antioxidants
- Drug delivery: floating, sustained release, targeted and triggered drug delivery systems
- Spray congealing and spray drying
- Analysis of pharmaceutical products: HPLC, FT-IR, MS, DSC, dissolution testing, titration and elemental analysis

## **Honors and Awards**

- *SfAM* President's Fund to attend the 4th International Conference on Plasma Medicine, Society for Applied Microbiology (*SfAM*), May, 2012.
- Scholarship for PhD study funded by the University of Jordan, September, 2010.
- First-in-Class Student Award; University of Jordan; June, 2009.
- Al-Hikma Pharmaceuticals Prize for the Scientific Excellence in Pharmacy; June, 2009.
- Abdelraheem Jerdaneh Prize for the Scientific Excellence in Pharmacy; June, 2009.

## **Workshops and Training Courses**

- Plasma Medicine: a minicourse; July 12-13, 2012; Edinburgh International Conference Center; Edinburgh, UK.
- QUB Postgraduate Training Programme; 2010-2013; Queen's University Belfast, Belfast, UK. Including the following courses:
  - Academic and speed reading

- Developing writing skills
- Writing for publication: drafting and submitting articles
- The basics of graphic design: ideas for posters, presentations, theses and web pages
- Laboratory demonstrating
- Academic plagiarism
- Turnitin: originality checking system
- RefWorks: a reference management system
- SPSS: an introduction
- Communication skills in a work setting
- Presentation skills
- Introduction to project management
- Working in a team
- Building working relationships
- Networking skills
- Develop your potential: building on doctoral skills

## **Publications**

### **Research articles:**

1. Alkawareek, M.Y., Alshraiedeh, N.H., Higginbotham, S., Flynn, P.B., Algwari, Q.T., Gorman, S.P., Graham, W.G., Gilmore, B.F., Plasmid DNA damage following exposure to atmospheric pressure nonthermal plasma: kinetics and influence of oxygen admixture. *Plasma Medicine* **2014**, *4*, 211-219.
2. Lavery, G.; Alkawareek, M. Y.; Gilmore, B. F., The *in vitro* Susceptibility of Biofilm Forming Medical Device Related Pathogens to Conventional Antibiotics. *Dataset Papers in Science* **2014**, *2014*, 250694.
3. Alkawareek, M. Y.; Gorman, S. P.; Graham, W. G.; Gilmore, B. F., Eradication of Marine Biofilms by Atmospheric Pressure Non-Thermal Plasma: a Potential Approach to Control Biofouling? *International Biodeterioration & Biodegradation* **2014**, *86*, 14-18.
4. Alkawareek, M. Y.; Gorman, S. P.; Graham, W. G.; Gilmore, B. F., Potential Cellular Targets and Antibacterial Efficacy of Atmospheric Pressure Non-Thermal Plasma. *International journal of antimicrobial agents* **2014**, *43* (2), 154-160.
5. Alshraiedeh, N. H.; Alkawareek, M. Y.; Gorman, S. P.; Graham, W. G.; Gilmore, B. F.,

- Atmospheric Pressure, Nonthermal Plasma Inactivation of MS2 Bacteriophage: Effect of Oxygen Concentration on Virucidal Activity. *Journal of applied microbiology* **2013**, *115* (6), 1420-1426.
6. Ryan, E. M.; Alkawareek, M. Y.; Donnelly, R. F.; Gilmore, B. F., Synergistic Phage-Antibiotic Combinations for The Control of *Escherichia coli* Biofilms *in vitro*. *FEMS immunology and medical microbiology* **2012**, *65* (2), 395-398.
  7. Bani-Jaber, A.; Hamdan, I.; Alkawareek, M. Y., The Synthesis and Characterization of Fatty Acid Salts of Chitosan as Novel Matrices for Prolonged Intragastric Drug Delivery. *Archives of pharmacal research* **2012**, *35* (7), 1159-1168.
  8. Alkawareek, M. Y.; Algwari, Q. T.; Lavery, G.; Gorman, S. P.; Graham, W. G.; O'Connell, D.; Gilmore, B. F., Eradication of *Pseudomonas aeruginosa* Biofilms by Atmospheric Pressure Non-Thermal Plasma. *PloS one* **2012**, *7* (8), e44289.
  9. Alkawareek, M. Y.; Algwari, Q. T.; Gorman, S. P.; Graham, W. G.; O'Connell, D.; Gilmore, B. F., Application of Atmospheric Pressure Nonthermal Plasma for the *in vitro* Eradication of Bacterial Biofilms. *FEMS immunology and medical microbiology* **2012**, *65* (2), 381-384.
  10. Bani-Jaber, A. K.; Alkawareek, M. Y.; Al-Gousous, J. J.; Abu Helwa, A. Y., Floating and Sustained-Release Characteristics of Effervescent Tablets Prepared with a Mixed Matrix of Eudragit L-100-55 and Eudragit E PO. *Chemical & pharmaceutical bulletin* **2011**, *59* (2), 155-160.

### Conference Contributions:

1. EUROBIOFILMS 2013, Third European Congress on Microbial Biofilms – Basic and Clinical Aspects; Sep 9-12, 2013; Ghent, Belgium; Alkawareek M.Y., Gorman S.P. , Graham W.G., Gilmore B.F.; Anti-biofilm Activity of Atmospheric Pressure Cold Plasmas: Efficacy and Mechanism. (Oral presentation)
2. EUROBIOFILMS 2013, Third European Congress on Microbial Biofilms – Basic and Clinical Aspects; Sep 9-12, 2013; Ghent, Belgium; Alkawareek M.Y., Gorman S.P. , Graham W.G., Gilmore B.F.; Microscopic Examination of Biofilm Destruction by Atmospheric Pressure Plasma. (Poster presentation)
3. Plasma Sources in Plasma Medicine; Feb 21, 2013; Greifswald, Germany; Alkawareek M.Y., Gorman S.P. , Graham W.G., Gilmore B.F.; Elucidating the Mechanisms of Antimicrobial and Anti-biofilm Activities of Non Thermal Plasma. (Oral presentation)
4. IBBS ‘Antimicrobial Strategies for Biofilm Control’; Sep 10-11, 2012; Winchester, UK; Alkawareek M.Y., Gorman S.P. , Graham W.G., Gilmore B.F.; A Novel Atmospheric Pressure Non-thermal Plasma for the Efficient Eradication and Control of Biofilms. (Oral presentation)

5. The 4th International Conference on Plasma Medicine (ICPM-4); June 17-21, 2012; Orléans, France; Alkawareek M.Y., Gorman S.P. , Graham W.G., O'Connell D. , Gilmore B.F.; Effects of Atmospheric Pressure Plasma on Cellular Components: An Insight into Bacterial Destruction Mechanisms. (Poster presentation)
6. The 34th All Ireland Schools of Pharmacy Research Seminar; April 2-3, 2012; UCC, Cork, Ireland; Alkawareek M.Y., Gorman S.P. , Graham W.G., O'Connell D. , Gilmore B.F.; Antibacterial Activity of Atmospheric Pressure Non-Thermal Plasma. (Oral presentation)
7. 64th Annual Gaseous Electronics Conference (GEC); November 14-18, 2011; Salt Lake City, Utah, USA; Alkawareek M.Y., Gilmore B.F., Gorman S.P. , Algwari Q.T., Graham W.G., O'Connell D. ; Eradication of Bacterial Biofilms Using Atmospheric Pressure Non-Thermal Plasmas. (Oral presentation)
8. The 30th International Conference on Phenomena in Ionized Gases (ICPIG); August 28th – September 2nd, 2011; QUB, Belfast, NI, UK; Alkawareek M.Y., Gorman S.P. , Algwari Q.T., O'Connell D. , Gilmore B.F.; Kilohertz-Driven Atmospheric Pressure Plasma Jet for the Decontamination of Bacterial Biofilms. (Poster presentation)
9. EUROBIOFILMS 2011, Second European Congress on Microbial Biofilms - Basic and Clinical Aspects; July 6-8, 2011; Copenhagen, Denmark; Alkawareek M.Y., Gorman S.P. , Algwari Q.T., O'Connell D. , Gilmore B.F.; Bacterial Biofilms Eradication Using Atmospheric Pressure Plasma Jet. (Poster presentation)
10. The 33rd All Ireland Schools of Pharmacy Research Seminar; April 18-19, 2011; RCSI, Dublin, Ireland; Alkawareek M.Y., Gorman S.P. , Algwari Q.T., O'Connell D. , Gilmore B.F.; Atmospheric Pressure Plasma for the Elimination of Bacterial Biofilms. (Poster presentation)

### **Professional Memberships**

- Jordan Pharmaceutical Association
- Society for Applied Microbiology
- International Society of Plasma Medicine
- American Association of Pharmaceutical Scientists

### **Professional Licenses and Skills**

- Registered Pharmacist: licensed by the Ministry of Health, Jordan. (2009)
- Fluency in Arabic (native) and English languages.