

### *Dr. Alrazem's CV*

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#### UNIVERSITY EDUCATION

September 1999-April 2003

**Ph.D.** (Biochemistry), Department of Biology, University of Western Ontario, London, Ontario, Canada.

**Dissertation:** "Production of hydrogen peroxide during wound-induced suberization in potatoes".

**Supervisor:** Dr. Mark A. Bernards.

September 1995-February 1998

**M.Sc.** (Biology), Department of Biology, University of Saskatchewan, Saskatoon, Canada.

**Dissertation:** "Physiological and structural comparisons between floral-nectary and vegetative stomata of *Arabidopsis* and *Pisum*".

**Supervisor:** Dr. Arthur R. Davis.

September 1989-November 1993

**B.Sc.** (Biology), Department of Biology, Hebron University, West Bank, Palestine.

#### PROFESSIONAL AND RESEARCH EXPERIENCE

January 2009-Present

**Assistant Professor**, Biotechnology Training and research Unit, Palestine Polytechnic University. Projects: 1. Engineering of core molecular biology and industrial enzymes. 2. Production of environmental friendly enzymes.

September 01, 2006 - December 2008

**Assistant Professor**, Department of Plant Science, University of Manitoba. Projects: 1. Engineering of starch biosynthesis in wheat for biofuel production, 2. Functional genomics of environmental stress physiology of plants (Drought Stress).

May 01, 2003 - August 31, 2006

**Post-doctoral/Research Associate**, Department of Plant Science, University of Manitoba. Project title: Isolation and characterization of receptor proteins and cloning their genes.

#### RESEARCH GRANTS, HONOURS, AND AWARDS

2013-2016

Quality Improvement Fund (QIF) (\$250,000). This fund supports a project entitled: Increasing student employability and entrepreneurial skills through a modified problem-based learning model derived from the real life needs of the labor market. Role: (Director)

- 2013-2016 Shared with Dr. Yaqoub Ashhab. Funds from the Ministry of Agriculture (\$78,000). This funds supports a project entitled: Production of antibodies for disease diagnosis. Role: (director)
- 2013-2014 Shared with Dr. Yaqoub Ashhab. Funds from ( صندوق دعم ) (الجامعات الفلسطينية-عمان) (\$21,000). This fund supports a project entitled: Towards the Development of the First Palestinian Biotechnology Platform for Producing Diagnostics Antibodies for Plant and Animal viruses” Role: (director)
- 2010-2011 IIRG grant-Palestine Polytechnic University (JD6,000). This is supporting a project entitled: Towards the establishment of an automated protein purification system at Palestine Polytechnic University.
- 2009-2010 IIRG grant-Palestine Polytechnic University (JD5,000). This is supporting a project entitled: Cloning and expression of a bacteriophage T4DNA ligase for research and training purposes at Palestine Polytechnic University.
- 2008 Canada Foundation of Innovation (\$380,000). This is an infrastructure grant to support the purchase of equipment aimed at establishing functional genomics research unit.
- 2006-2011 Husky Energy grant (\$179,000 per year for 5 years). This grant funds a research to modify starch biosynthesis in winter wheat to develop a cereal feedstock for biofuel production.
- 2007-2012 NSERC-Discovery grant (\$29,660 per year for 5 years). This grant funds research to look at genes involved in cereal abiotic stress tolerance.
- 2007-2010 Agriculture and Agri-Food Canada ARDI grant (\$33,000 per year for 3 years) to look at functional genomics of biotic stress induced genes in agriculturally important crops.
- 2007 NSERC-Research Tools and Instruments grant (\$34,000) to purchase particle delivery system for gene transfer.
- 2003 Robert and Ruth Lumsden Graduate Award. Granted by the College of Science for academic excellence, University of Western Ontario.
- 2003 Nominated for Graduate Teaching Award, Dean, Faculty of Graduate Studies, University of Western Ontario.
- 2002 Recipient of the 2002 JD Detwiler Award in Biological Sciences for demonstrated excellence in Plant Biology, University of Western Ontario.
- 2002 A free membership to join ASPB for the outstanding work in the field of plant biology, ASPB News, 29 (4): 11.
- 2002 George H. Duff Student Travel Award, CSPP Annual Meeting in Calgary, June 08, 2002.

1999-2003 Special University Scholarship, University of Western Ontario.

### **OTHER EXPERIENCE**

Antibody production I have raised antibodies against several proteins for research purposes and cloned many important genes.

Transgenic approaches I have generated stable transgenic mutants in *Arabidopsis* and barley.

Analytical techniques Excellent training on HPLC, GC-MS, most column chromatography techniques, and the basics of NMR.

Biotechnology/molecular techniques Excellent training on most biochemical, microbiological, and molecular techniques such as, SDS-PAGE, Western, Northern, Southern blots, ELISA, protein purification, DNA sequencing, cloning techniques and bioinformatics, etc.

Microscopy/imaging techniques Excellent training on TEM, SEM, light microscopy and various imaging techniques.

### **OTHER ACTIVITIES**

2005-2008 Assistant Editor for the Journal of Food, Agriculture & Environment (JFAE).

2008 Winner (1<sup>st</sup> prize) of the American Society of Plant Biologists Get-A-Member Award Campaign.

2000-Present Service as Reviewer (e.g., for Plant Physiology and Biochemistry, Planta, FEBS Letters, and Phytochemistry) and grant proposals.

### **SELECTED PUBLISHED WORK IN REFEREED JOURNALS & CONFERENCES**

- Z. Khaizaran and Alrazem, F. (2014). Analysis of Selected Milk Traits in Palestinian Holstein-Friesian Cattle in Relative to Genetic Polymorphism. *Journal of Cell and Animal Biology*, 2014(April), Vol 8(5): 74-85. Academic Journals: <http://www.academicjournals.org/journal/JCAB>
- M. Ishnaiwer and Alrazem, F. (2013). Isolation and Characterization of Bacteriophages from Laban Jameed. *Food and Nutrition Sciences*, 2013 (Nov), 4, 56-66. Scientific Research: <http://www.scirp.org/Journal/Home.aspx?IssueID=3899>
- A. Al-Manasra and Alrazem, F. (2012). Cloning and expression of a new bacteriophage (SHPh) ligase isolated from sewage. *Journal of Genetic Engineering and Biotechnology*, 2012, 10:177-184. Elsevier: <http://www.sciencedirect.com/science/journal/1687157X/10>
- D. Abu-Issa and Alrazem, F. (2012). Cloning and Expression of Phytase (*PhyA*) Gene for supplementation of Poultry. The 3<sup>rd</sup> Conference on Biotechnology Research and Applications in Palestine..
- A. Al-Manasra and Alrazem, F. (2010). Cloning and expression of a bacteriophage DNA ligase for molecular cloning. The 2<sup>nd</sup> Conference on Biotechnology Research and Applications in Palestine. Abstract Book 38-39.
- F Alrazem, and Hill RD. (2009). Binding Assays for Abscisic Acid Receptors. *Methods in Molecular Biology* 495:1-11.
- F Alrazem (2008). An Overview of Hydrogen Peroxide Production and Cellular Determination in Plants. *Hebron University Research Journal* 3(2): 84-96.

- F Al-Razem, and Hill RD. (2007). Hydrogen peroxide affects abscisic acid binding to ABAP1 in barley aleurones. *Biochemistry and Cell Biology* 85: 628-637.
- F Alrazem, Baron K., and Hill RD. (2006). Turning on gibberellin and abscisic acid signaling. *Current Opinion in Plant Biology* 9: 454-459. (Invited review).
- F Alrazem, Luo M, Liu J-H, Abrams SR, and Hill RD. (2004). Purification and characterization of a barley aleurone abscisic acid-binding protein. *Journal of Biological Chemistry* 279: 9922-9929.
- MA Bernards, Summerhurst DK, and F Alrazem (2004). Oxidases, peroxidases and hydrogen peroxide: The suberin connection. *Phytochemistry Reviews* 3:113-126. (Invited Review).
- F Alrazem, and Bernards MA. (2003). Reactive oxygen species production in association with suberization: Evidence for an NADPH-dependent oxidase. *Journal of Experimental Botany* 54 (384): 935-941.
- F Alrazem, and Bernards MA. (2002). Hydrogen peroxide is required for the poly(phenolic) domain formation during wound-induced suberization. *Journal of Agricultural and Food Chemistry* 50(5): 1009-1015.
- F Alrazem, and Davis AR. (2002). Stomatal frequency, maturity and index on the developing bracts of four abscisic-acid mutants and the wild-type plants of *Arabidopsis thaliana*. *Environmental and Experimental Botany* 48(3): 247-256.
- Bernards MA, and F Alrazem. (2001). The poly(phenolic) domain of potato suberin: a non-lignin cell wall bio-polymer. *Phytochemistry* 57(7): 1115-1122.
- F Alrazem, and Davis AR. (1999). Anatomical and ultrastructural changes of the floral nectary of *Pisum sativum* L. during flower development. *Protoplasma* 206: 57-72.

#### **PATENTS** (\*equal contribution)

December 2004

\*Hill, RD., and \*Alrazem, FA. Patent: Proteins having abscisic acid binding site. US & Canada. USA Patent No. 60/634435.