

Fayez Hamam, Ph.D.

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Place and Date of Birth: Amman Oct 1963
 Nationality: Jordanian/Permanent Resident of Canada
 Marital Status: Married
 Number of Children: Two
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Education

- 2007 Ph.D. Biology/Biochemistry and Biotechnology**/Memorial University/Canada
 Thesis: Biology and Biotechnology of Modified Oils
 Supervised by Dr. **F. Shahidi** GPA: 4.0/4.0
- 2003 M.Sc. Biochemistry**/Memorial University/ Canada
 Thesis: Lipase-catalyzed acidolysis of algal oils with a medium-chain fatty acid (capric acid)
 Supervised by Dr. **F. Shahidi** GPA: 4.0/4.0
- 1990 M.Sc. Biology (Immunology/Vaccine Development)** / Yarmouk University/ Jordan
 Supervised by Dr. F. Alyamn GPA: 79.5%
- 1987 B. Sc. Public Health and Allied Health Sciences**/Yarmouk University/Jordan
 GPA: 79.6%

Awards and Fellowships

- 2007 NSERC Postdoctoral Fellowship**
 The Natural Science and Engineering Research Council of Canada.
- 2007 JSPS/NSERC Postdoctoral Fellowship**
 The joint NSERC and Japanese Society for Promotion of Science (JSPS) / Canada.
- 2005 AOCS Travel Award**
 20th Annual Meeting of Canadian Section of American Oil Chemists' Society, Saskatoon, Canada.
- 2005 AFMnet Travel Award**
 Advanced Food & Materials (AFMnet) / 1st Annual Scientific Conference, Toronto, Canada.

2005 MUN-GSU Excellence in Research

Nominated for GSU of Memorial University Award for Excellence in Research, St. John's, NL – Canada.

2003 Fellow of SGS at MUN

Fellow of School of Graduate Studies, Memorial University, St. John's, NL – Canada.

Qualifications

2009-present Assistant Professor/Department of Biotechnology and Genetic Engineering/Philadelphia University/Jordan

2007-2009 Postdoctoral Fellow, Food Science and Technology/Process Engineering and Applied Science, Dalhousie University, Halifax, NS – Canada (Full time).

2003-2007 Teaching & Research Assistant, Biology Department, Memorial University, St. John's, NL – Canada (Part time).

2001-2003 Teaching & Research Assistant, Biochemistry Department, Memorial University, St. John's, NL – Canada (Part time).

1993-2001 Teacher of Biology and Geology, Department of Science and Math, Dhahran Ahliyya Schools, Dhahran (Full time).

1992-1993 Teacher of Biology and Geology, Department of Science and Math, University Schools/Jordan (Full time).

1987-1990 Teaching & Research Assistant, Biology Department, Yarmouk University, Irbid, Jordan (Part time).

Technical Skills:

- **Biotechnology techniques:**
- Tissue culture techniques, biochemical techniques, immunological techniques as well as animal studies,
- **Protein analysis and vaccine development:**
- Characterization, isolation and purification of novel proteins (antigens) for vaccine development.
- Immobilization of enzymes: development of efficient and low cost methods.
- **Analytical chemistry and instrumental analysis:**
- Gas and liquid chromatographs GC, LC-MS and chemical instrumentation, including HPLC and TLC-FID.
- **Novel bioreactors:**

- Skilled in designing and building novel bioreactors of different designs.
- **Optimization of methods** using response surface methodology (RSM).

Publications and Presentations

Refereed Journal Publications

- 1) **Hamam, F.**, and Budge, S.M., Structured and Specialty Lipids in Continuous Packed Column Reactors: Comparison of Production using One and Two Enzyme Beds, *J. Am. Oil Chem. Soc* (2009) (accepted).
- 2) **Hamam, F.**, and F. Shahidi, Incorporation of selected long-chain fatty acids into trilinolein and trilinolinin, *Food Chem.* 106: 33-39 (2008).
- 3) **Hamam, F.**, and F. Shahidi, Acidolysis of tristearin with selected long chain fatty acids *J. Agric. Food Chem.* 55: 1955-1960 (2007).
- 4) **Hamam, F.**, and F. Shahidi, Enzymatic incorporation of selected long-chain fatty acids into triolein, *J. Am. Oil Chem. Soc.* 84: 533-541(2007).
- 5) **Hamam, F.**, and F. Shahidi, Synthesis of structured lipids containing medium-chain and omega-3 fatty acids, *J. Agric. Food Chem.* 54: 4390-4396 (2006).
- 6) **Hamam, F.**, and F. Shahidi, Acidolysis reactions lead to esterification of endogenous tocopherols and compromised oxidative stability of modified oils, *J. Agric. Food Chem.* 54: 7319-7323 (2006).
- 7) Fereidoon Shahidi and **Fayez Hamam**, Structured lipids containing medium-chain and omega-3 fatty acids, *INFORM* 17: 178-181(2006).
- 8) **Hamam, F.**, J. Daun, and F. Shahidi, Lipase-catalyzed acidolysis of high-laurate canola oil with eicosapentaenoic acid, *J. Am. Oil Chem. Soc.* 82: 875-879 (2005).
- 9) **Hamam, F.**, and F. Shahidi, Structured lipids from high-laurate canola oil and long-chain omega-3 fatty acids, *J. Am. Oil Chem. Soc.* 82: 731-736 (2005).
- 10) **Hamam, F.**, and F. Shahidi, Enzymatic incorporation of capric acid into a single cell oil rich in docosahexaenoic acid (DHA) and docosapentaenoic acid (DPA), *Food Chem.* 91: 583-591(2005).
- 11) **Hamam, F.**, and F. Shahidi, Synthesis of structured lipids via acidolysis of docosahexaenoic acid single cell oil (DHASCO) with capric acid, *J. Agric. Food Chem.* 52: 2900-2906 (2004).
- 12) **Hamam, F.**, and F. Shahidi, Enzymatic acidolysis of arachidonic acid single cell oil (ARASCO) with capric acid, *J. Am. Oil Chem. Soc.* 81: 887-892 (2004).
- 13) **Hamam, F.**, and F. Shahidi, Lipase acidolysis of algal oils with a medium-chain fatty acids, capric acid: optimization using response surface methodology, *J. Food Lipids*, 11: 147-163 (2004).
- 14) **Hamam, F.**, and F. Shahidi, Optimization of production and stability of structured lipids from algal oils and capric acid, *Biofactors* 22: 315-317 (2004).

- 15) Shahidi, F., **F. Hamam**, and A. Khan, Importance of non-triacylglycerols to flavor quality of edible oils, in *Chemistry, Flavor and Texture of Lipid-Containing Foods*, edited by H. Weenen and F. Shahidi, ACS Symposium Series No. 920, Washington DC, 2005, pp. 3-16 (2004).

Posters and Presentations

1. Shahidi, F., **F. Hamam**, and Zhong, Y. (2007). 12th International Rapeseed Conference/Wuhan/China "High-Laurate Canola Oil in Production of Structured Lipids" (poster presentation/International)..
2. **Hamam, F.**, and Shahidi, F. (2006). American Chemical Society Meeting and Exposition/Atlanta/GA/USA "Synthesis of structured lipids containing medium-chain and omega-3 fatty acids" (oral presentation/International).
3. **Hamam, F.**, and Shahidi, F. (2005). 20th Annual Meeting of Canadian Section of American Oil Chemists' Society/Saskatoon/Canada "Synthesis of structured lipids containing medium-chain and omega-3 fatty acids" (oral presentation/National).
4. **Hamam, F.**, and Shahidi, F. (2005). Advanced Foods and Materials (AFM Net 2005), First Annual Scientific Conference/Toronto/Canada "Preparation of structured lipids containing medium-chain and omega-3 fatty acids" (oral presentation/National).
5. **Hamam, F.**, and Shahidi, F. (2005). Aldrich Interdisciplinary Lecture and Conference for Graduate Students/ Memorial University/St. John's/Canada (oral presentation/Institutional).
6. **Hamam, F.**, and Shahidi, F. (2004). 19th Annual Meeting of the Canadian Section of AOCS/ Halifax/Nova Scotia/Canada "Lipase-assisted acidolysis of high-laurate canola oil with eicosapentaenoic acid" (oral presentation/National).
7. **Hamam, F.**, and Shahidi, F. (2004). Institute for Food Scientists and Technologists (IFT)/ IFT Annual Meeting/Las Vegas/NV/USA "Structured lipids from single cell oils" (poster/International).
8. **Hamam, F.**, and Shahidi, F. (2004). Aldrich Interdisciplinary Lecture and Conference for Graduate Students/ Memorial University/St. John's/Canada (oral presentation/Institutional).
9. **Hamam, F.**, and Shahidi, F. (2003). International Conference on Food Factors/Japan/Poster entitled "Production and stability of structured lipids from algal oils and capric acid" (poster/ International).
10. **Hamam, F.**, and Shahidi, F. (2001). International Conference and Exhibition on Nutraceutical and Functional Foods/Las Vegas/USA. Poster entitled "Structured lipids from highly unsaturated single cell oils and capric acid" (poster/ International).

Teaching Experience:

Graduate, undergraduate and high School levels:

- Research Methods, Introduction to Biochemistry, Animal Physiology, Molecular Biology, Human Genetics, Metabolism, Food Chemistry, Introduction to Biology 1&2, Marine Biology, Fish Biology (Practical portion)
- Food Science and Technology, including food safety, food processing, food chemistry, lipid and food analysis.

- Educational Courses/Dhahran Ahliyya Schools (1994-1999)
 - Standards & Benchmarks in Education
 - Cooperative Learning, Unit Planning
 - Constructive Approach in Science
 - Learning Outcomes
 - Cooperative discipline, Writing Process, Motivation & Reinforcement, and research skills and Classroom Management, Lesson Planning, and Exams.

Computer Skills:

- Microsoft Office for daily use, including word, power point, excel.
- Excellent skills in the use of statistical software, such as Design Expert and SAS Data analysis
- Chem. Draw software.

Professional Activities:

- Member of the American Oil Chemists' Society
- The Canadian Section of American Oil Chemists' Society

Research interests:

❖ **Future interests**

- Designing and validating new *in vivo* animal studies to be used for potential therapeutics.
- Developing high throughput research project using molecular techniques and animal model.
- Collaboration with an excellence research team.
- Planning and writing study protocols using efficient and low cost methods.
- Nutritional assessment of specialty lipids on blood biochemistry using animal models
- Study of novel fat cell secretory products and their role as a contributing factor in the balanced system of energy at a molecular level
- Bio-fuel: Production of biodiesel other important products from animal fat and marine oils waste.

❖ **Present interests**

- Designing and building novel bioreactors consisting of one or more enzyme columns.
- Large scale (Kg level) production of specialty lipids using novel bioreactors.

- Development of a simple and low cost method for immobilization of enzymes (lipases).

❖ **Past interests**

- Biology and biotechnology of modified oil.
- Preparation, isolation, purification, and characterization of novel proteins (antigens).
- Vaccine development.
- Optimization of reaction conditions using response surface methodology (RSM).
- Nutraceutical and functional foods.
- Lipid oxidation and its prevention.
- Enzymatic modification of lipids and phospholipids.
- Natural antioxidants and compromised oxidative stability of the resultant specialty lipids.

References:

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