

## MOHAMAD G. ABIAD

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### PROFESSIONAL EXPERIENCE

American University of Beirut – Lebanon Faculty of Agricultural and Food Sciences Department of Nutrition and Food Sciences <b>Professor of Food Processing with Tenure</b>	09/2022 – present
<b>Coordinator – Food Science &amp; Technology Program</b>	09/2019 – present
Ministry of Environment – Lebanon <b>Senior Advisor to the Minister</b>	09/2021 – present
American University of Beirut – Lebanon Faculty of Agricultural and Food Sciences Laboratories for the Environment, Agriculture, and Food (LEAF) <b>Director</b>	03/2020 – present
American University of Beirut – Lebanon Faculty of Agricultural and Food Sciences Department of Nutrition and Food Sciences <b>Associate Professor of Food Processing with Tenure</b>	09/2016 – 09/2022
<b>Coordinator – Food Science &amp; Technology Program</b>	09/2019 – present
Michigan State University – East Lansing, MI, USA College of Agriculture and Natural Resources School of Packaging <b>Adjunct Faculty</b>	09/2012 – present
Michigan State University – East Lansing, MI, USA College of Agriculture and Natural Resources School of Packaging <b>Visiting Scholar</b>	08/2011 – 01/2012
Purdue University – West Lafayette, IN, USA College of Engineering Department of Agriculture and Biological Engineering <b>Visiting Scholar</b>	07/2010 – 08/2010
American University of Beirut – Lebanon Faculty of Agricultural and Food Sciences Department of Nutrition and Food Sciences <b>Assistant Professor of Food Processing</b>	09/2009 – 08/2016

### EDUCATION

INSTITUTION (LOCATION)	DEGREE	COMPLETION DATE	FIELD OF STUDY
Purdue University – West Lafayette, IN, USA College of Engineering Department of Agriculture and Biological Engineering	PhD	06/2009	Agricultural and Biological Engineering (Food Process Engineering)
Purdue University – West Lafayette, IN, USA College of Engineering Department of Agriculture and Biological Engineering	MSE	08/2004	Agricultural and Biological Engineering (Food Process Engineering)
Lebanese American University – Beirut, Lebanon School of Business	MBA	09/2002	Business Administration

INSTITUTION (LOCATION)	DEGREE	COMPLETION DATE	FIELD OF STUDY
American University of Beirut – Beirut, Lebanon Faculty of Engineering and Architecture	BE	07/1998	Civil and Environmental Engineering

### MINISTERIAL COMMITTEES – PUBLIC SERVICE

- Member of the National Committee for the Central Public Health Laboratory, Ministry of Public Health, June 2022  
The Minister of Public Health established a committee to develop guidelines and a policy framework for the central public health laboratories
- Member of the Inter-Ministerial (Ministry of Interior & Municipalities and Ministry of Environment) Working Group delegated by the Ministry of Environment, October 2021
- Chair of the Scientific Committee Assessing Grains at Beirut Seaport following the August 4, 2020, Explosion. September 2021 – present
- Member of the National Committee on Food Safety, Ministry of Public Health; June 2021
- The National Committee for Pesticide Residues in Tea, Rice, Dried and Frozen Fruits, Lebanese Ministry of Agriculture; Since 2019

### PROFESSIONAL TRAINING AND CERTIFICATIONS

- Certified Environmental Sampler (CES) – Certified 2021; Lifetime Certification 2022
- Certified Six Sigma Champion – International Six Sigma Institute –2018 Authorization # 98222318441607
- Food Safety Preventive Controls Alliance (FSPCA) Preventive Controls for Human Food – PCQI certified 2018
- Lifetime Certified Packaging Professional (CPPL). Certified 2010; Recertified 2015; Lifetime Certification 2020
- Certification from Better Process Control School (FDA) – Canned Foods, Principles of Thermal Process Control, Acidification and Container Closure Evaluation. 2005
- Retail Food Safety Manager Certificate from the National Registry of Food Safety Professionals
- Training and Certification in the Development and Implementation of Hazard Analysis Critical Control Point (HACCP) programs for the food industry. 2005

### PROFESSIONAL SOCIETIES AND AFFILIATIONS

- West Asia Regional Food Waste Working Group – UNEP – Lebanon Delegate 2021-2022
- Global Food Regulatory Science Society – GFORSS – (Professional Member 2021)
- American Society of Agricultural and Biological Engineers (ASABE) – (Professional Member since 2018)
- Society of Food Engineering (SoFE) – (Professional Member since 2018)
- American Association of University Professors (AAUP) – (Member since 2017)
- AUB Faculty United – Chartered Chapter of the American Association of University Professors – (Member since 2015) – *Vice President 2017 – 2018*
- Food Safety Alliance for Packaging – Technical Committee of the Institute of Packaging Professionals – (Professional member since 2010)
- Institute of Packaging Professionals (IoPP) – (Elite Professional Member since 2010)
- International Society of Food Engineering (ISFE) – (Professional Member since 2009)
- American Association of Pharmaceutical Scientists (Professional Member since 2009)
- Institute of Food Technologists (IFT) – (Professional member since 2001)
- Order of Engineers and Architects, Beirut, Lebanon – (Professional Member since 1998)

### HONORS AND AWARDS

1. Selected as 1 of 4 finalists chosen out of 20 startup ideas to join the incubation phase and receive additional support under the Green Applied Research & Innovations Support Program, an EU-funded Green Impact MED Project (GIMED) under the ENI CBC Med Programme, Berytech. Sofra produces natural and biodegradable single-use plates and bowls based on citrus and garlic processing wastes to replace single-use plastics in cutlery and packaging

applications. The products are 100% natural, have remarkable strength, are waterproof, and can be customized into any shape or design. (<https://berytch.org/gimed-program-four-green-solutions-move-to-incubation>). August 2021

- Recipient of the Italian Bilateral Military Mission in Lebanon (MIBIL) Shield of Honor from the Brigadier General Marcello Orsi, Commander of MIBIL Mission in Lebanon. June 2021
- Scholarship from the International Center for Advanced Mediterranean Agronomic Studies – (CIHEAM) – Zaragoza, Spain, to participate in the advanced course on Food Sustainability Assessment: A Methodological Approach. February 2021
- Travel and training award (\$5,000) from the Chinese Academy of Sciences, the Centre of Excellence for Biotechnology, and the World Academy of Sciences for the advancement of science in developing countries to attend the “2013 Food Biotechnology Training Course for Developing Countries”. November 2013
- Elected ‘Best Professor’ by the Food Science and Management Class of 2011. July 2011
- First Place in Soybean Product Innovation Competition, Indiana, USA. (Monetary Award: \$17,500). May 2009
- Second Place in Corn Product Innovation Competition, Indiana, USA. (Monetary Award: \$1,500). May 2009

## PATENTS

(\* Undergraduate Student; † Graduate Student; ‡ Research Assistant)

- Line Koleilat<sup>†</sup>, Diala El Debs<sup>\*</sup>, Farah Houmani<sup>†</sup> and **Mohamad Abiad**. (May 17, 2016). *Food Package*. U.S. Patent No. D756,216.
- Line Koleilat<sup>†</sup>, Diala El Debs<sup>\*</sup>, Farah Houmani<sup>†</sup> and **Mohamad Abiad**. (2014). *Innovative spill-proof hamburger package intended for one-handed use*. Ministry of Economy and Trade, Republic of Lebanon, Directorate General for Economy and Trade, Intellectual Property Protection Office, Certificate of registration number 10712.
- Mohamad Abiad** and Jacob Smoker. (2009). *Cork-like material made from soybean and corn-based byproducts*. U.S. Provisional Patent/Application Serial No.: 61/210,797.
- Mohamad Abiad**, Osvaldo Campanella and Teresa Carvajal. (2009). *Disposable Cassette for Characterizing Thermal Transitions by Dynamic Mechanical Analysis*. U.S. Provisional Patent/Application Serial No.: 61/158,912

## RESEARCH INTERESTS

Food waste: sources, assessment, economics, mitigation, recycling (processing and reuse)

Climate change, energy, and the agro-food industry

Food packaging

Rheology of foods and biomaterials

## PUBLICATIONS

(\* Undergraduate Student; † Graduate Student; ‡ Research Assistant)

### Published Articles in Refereed Journals

- M.G. Abiad**, C. Ajjour<sup>†</sup>, Z. Kassaify, C.F. Iskandar, R. Hamzaha<sup>‡</sup>, and H.F. Hassan. *Preliminary physiological, phenotypic, and probiotic characterization of Lactobacillus strains isolated from Anbaris-traditional Lebanese fermented dairy product*. International Journal of Food Properties (2022). 25(1) 1266-1278. [doi.org/10.1080/10942912.2022.2077363](https://doi.org/10.1080/10942912.2022.2077363)
- Tabbara, M. <sup>†</sup>, Monzer, S. <sup>‡</sup>, Zein Eddine, R. <sup>‡</sup>, **Abiad, M.**, & Saoud, I. (2022). *Bioprocessing post-consumer food waste for use as a fish feed ingredient*. Aquaculture Research (2022). 53(6), 2383-2391. [doi.org/10.1111/are.15756](https://doi.org/10.1111/are.15756)
- H.F. Hassan, P. Tabarani<sup>†</sup>, and **M.G. Abiad**. *Microbiological, chemical, and sensory characteristics of Arishi cheese*. Journal of Food Processing and Preservation (2022). 46(3). [doi.org/10.1111/jfpp.16383](https://doi.org/10.1111/jfpp.16383)
- H.F. Hassan, J. Elaridi, J. Abi Kharm, **M.G. Abiad**, and M. Bassil. *Persistent Organic Pollutants in Human Milk: Exposure Levels and Determinants among Lactating mothers in Lebanon*. Journal of Food Protection (2022). 85(3), 384-389. [doi:10.4315/JFP-21-325](https://doi.org/10.4315/JFP-21-325)
- Myra Zeineddine<sup>†</sup>, Samer Kharroubi, Ali Chalak, Hussein Hassan, and **Mohamad G. Abiad**. *Post-Consumer Food Waste Generation while Dining Out: A Close-up View*. PLoS ONE (2021). 16(6): e0251947. [doi.org/10.1371/journal.pone.0251947](https://doi.org/10.1371/journal.pone.0251947)
- Ali Chalak, Hussein F. Hassan, Pamela Aoun<sup>†</sup>, and **Mohamad G. Abiad**. *Drivers and Determinants of Food Waste Generation in Restaurants Serving Mediterranean Mezze-Type Cuisine*. Sustainability (2021). 13(11), 6358. [doi.org/10.3390/su13116358](https://doi.org/10.3390/su13116358)
- C. Sukhn, **M.G. Abiad**, M. Haidar, and F. Merhebi. *Radiation Levels following the Beirut Seaport Explosion*:  
Updated June 2022

- Environmental Survey and Public Dose Exposure. Radiation and Environmental Biophysics*, (2021). 60(2), 383-387. doi:10.1007/s00411-021-00901-1
8. A. Kathuria, **M.G. Abiad**, and R. Auras. *PLLA-ZIF-8 Metal-Organic Framework Composites for Potential Use in Food Applications: Production, characterization, and migration studies*. Packaging Technology and Science, (2021) doi:10.1002/pts.2569
  9. Rajeh, C. ‡, Saoud, I.P., Kharroubi, S., Naalbandian, S., and **Abiad, M.G.** *Food loss and food waste recovery as animal feed: A systematic review*. J Material Cycles and Waste Management (2020). 23(1), 1-17. doi.org/10.1007/s10163-020-01102-6
  10. L. Al-Ghoul‡, **M.G. Abiad**, A. Jammoul, J. Matta, and N. El Darra. *Zinc, aluminum, tin, and Bisphenol A in canned tuna fish commercialized in Lebanon and its human health risk assessment*. Heliyon (2020). 6(9): e04995. doi.org/10.1016/j.heliyon.2020.e04995.
  11. M.E. Mahmoud‡, Z. Moussa‡, T. Prakasam, L. Li, **M.G. Abiad**, D. Patra, and M. Hmadeh. *Lanthanides-based metal-organic frameworks for luminescence sensing of toxic metal ions*. Journal of Solid State Chemistry, (2020). 281: 121031. doi.org/10.1016/j.jssc.2019.121031
  12. A. Chalak, **M.G. Abiad**, M. Diab‡, and L. Nasreddine. *The Determinants of Household Food Waste Generation and its Associated Caloric and Nutrient Losses: The Case of Lebanon*. PLOS ONE. (2019). 14(12). e0225789. doi.org/10.1371/journal.pone.0225789
  13. A. Chalak, M. Diab‡, I. Kassem, and **M.G. Abiad**. *Qualitative and quantitative cues in consumers' valuation of food safety: Evidence from Lebanon*. Journal of Food Safety. (2019). 39(3): e12632. doi:10.1111/jfs.12632
  14. N. Nasser‡, J. Babikian‡, M.G. Hatem‡, I.P. Saoud, and **M.G. Abiad**. *Evaluation of post-consumer food waste as partial replacement of commercial feed in marbled rabbitfish, *Siganus rivulatus* aquaculture*. International Journal of Environmental Science and Technology. (2019). 16(8): 4059-4068 doi:10.1007/s13762-018-2051-x
  15. L. Karam, R. Roustom‡, **M.G. Abiad**, T. El-Obeid, and I.N. Savvaidis. *Combined effects of thymol, carvacrol, and packaging on the shelf life of marinated chicken*. International Journal of Food Microbiology. (2019) 291: 42-47 doi:10.1016/j.ijfoodmicro.2018.11.008
  16. A. Chalak, C. Abou-Daher‡, and **M.G. Abiad**. *Generation of Food Waste in the Hospitality and Food Retail and Wholesale Sectors: Lessons from Developed Economies*. Food Security. (2018) 10(5): 1279-1290. doi:10.1007/s12571-018-0841-0
  17. L. Mattar, **M.G. Abiad**, A. Chalak, M. Diab‡, and H. Hassan. *Attitudes and Practices Shaping Household Food Waste Generation: Lessons from Lebanon*. Journal of Cleaner Production. (2018) 198: 1219-1223. doi:10.1016/j.jclepro.2018.07.085
  18. N. Nasser‡, **M.G. Abiad**, J. Babikian‡, S. Monzer‡, and I.P. Saoud. *Using Restaurant Food Waste as Feed for Nile Tilapia Production*. Aquaculture Research. (2018) 49 (9): 3142-3150. doi.org/10.1111/are.13777.
  19. I.P. Saoud, N. Nasser‡, and **M. Abiad**. *Converting trash to fish improves aquaculture sustainability and reduces pollution*. Aqua Practical. (2018) 3 (1): 8-10.
  20. **M.G. Abiad** and L. Meho. *An Overview on Food Loss and Food Waste research in the Arab World*. A Glance at the World / Waste Management. (2018) 76: I-III. doi:10.1016/j.wasman.2017.04.040
  21. H. A. Isma'eel, M. M. Almedawar, J. Breidy‡, M. Nasrallah, N. Nakhoul‡, Y. Mouneimne, L. Nasreddine, N. Khoueiry-Zgheib, **M. Abiad**, and Hani Tamim. *Worsening of the Cardiovascular Profile in a Developing Country: The Greater Beirut Area Cardiovascular Cohort*. Global Heart (2018) 13 (4): 275-283. doi:10.1016/j.gheart.2018.03.001
  22. A. Kathuria, S. Al-Ghamdi‡, **M.G. Abiad**, and Rafael Auras. *Multifunctional Ordered Bio-based Mesoporous Framework from Edible Compounds*. Journal of Biobased Materials and Bioenergy. (2018) 12 (5): 449-454 doi:10.1166/jbmb.2018.1792
  23. **M.G. Abiad** and L. Meho. *Food Loss and Food Waste Research in the Arab World: A Systematic Review*. Food Security. (2018) 10 (2): 311-322. doi:10.1007/s12571-018-0782-7
  24. R. Jalkh‡, H. El Rassy, G. Chehab, and **M.G. Abiad**. *Assessment of the Physico-chemical Properties of Waste Cooking Oil and Spent Coffee Grounds Oil Extract for Renewable Applications*. Waste and Biomass Valorization. (2018) 9 (11): 2125-2132. doi:10.1007/s12649-017-9984-z
  25. Y. Mouneimne, M.P. Nasrallah, N. Khoueiry-Zgheib, L. Nasreddine, N. Nakhoul‡, H. Ismail, **M. Abiad**, L. Koleilat‡, and H. Tamim. *Bisphenol A urinary level, its correlates and association with cardiometabolic risks in Lebanese urban adults*. Environmental Monitoring and Assessment. (2017) 189 (10): 517. doi:10.1007/s10661-017-6216-8
  26. M.P. Nasrallah, N.F. Nakhoul‡, L. Nasreddine, Y. Mouneimne, **M.G. Abiad**, H. Ismaeel, and H. Tamim. *Prevalence of Diabetes in Greater Beirut Area; Worsening Over Time*. Endocrine Practice. (2017) 23 (9): 1091–1100 doi.org/10.4158/EP171876.OR

27. T. Abou Omar<sup>‡</sup>, C. Sukhn, S.A. Fares, **M.G. Abiad**, R.R. Habib, and H.R. Dhaini. *Bisphenol A Exposure Assessment from Olive Oil Consumption*. Environmental Monitoring and Assessment. (2017) 189 (7): 341. doi:10.1007/s10661-017-6048-6
28. G.K. Abebe, A. Chalak, and **M.G. Abiad**. *The effect of governance mechanisms on food safety in the supply chain: Evidence from Lebanese dairy sector*. Journal of the Science of Food and Agriculture. (2017) 97 (9): 2908–2918. doi:10.1002/jsfa.812
29. M.I. Tsiraki, L. Karam, **M.G. Abiad**; H.M. Yehia, and I. Savvaidis. *Use of Natural Antimicrobials to Improve the Quality Characteristics of Fresh "Phyllo" - A Dough-based Wheat Product - Shelf Life Assessment*. Food Microbiology. (2017) 62: 153-159 doi:10.1016/j.fm.2016.10.001
30. S. Al-Ghamdi<sup>‡</sup>, A. Kathuria, **M. Abiad**, and R. Auras. *Synthesis of Nanoporous Carbohydrate Metal-Organic Framework and Encapsulation of Acetaldehyde*. Journal of Crystal Growth. (2016) 451: 72-78. doi:10.1016/j.jcrysgro.2016.07.004
31. Z. Moussa<sup>‡</sup>, M. Hmadeh, **M.G. Abiad**, O.H. Dib<sup>‡</sup>, and D. Patra. *Encapsulation of curcumin in cyclodextrin-metal organic frameworks: Dissociation of loaded CD-MOFs enhances the stability of curcumin*. Food Chemistry. (2016) 212: 485-494. doi:10.1016/j.foodchem.2016.06.013
32. M. Chebl<sup>‡</sup>, **M.G. Abiad**, Z. Moussa<sup>‡</sup>, and D. Patra. *Two Modes of Associations of Curcumin with Pre- and Nano-Aggregated Chitosan Oligosaccharide Lactate: Ionic Strength and Hydrophobic Bile Salt Modulate Partition of Drug and Self-Assembly Process*. The Journal of Physical Chemistry C. (2016) 120 (20): 11210-11224. doi:10.1021/acs.jpcc.6b01486
33. Ali Chalak, **Mohamad Abiad**, and Kelvin Balcombe. *Joint Use of Attribute Importance Rankings and Non-attendance Data in Choice Experiments*. European Review of Agricultural Economics. (2016) 43 (5): 737-760. doi:10.1093/erae/jbw004
34. Ali Chalak, Chaza Abou Daher<sup>‡</sup>, Jad Chaaban, and **Mohamad G. Abiad**. *The Global Economic and Regulatory Determinants of Household Food Waste Generation: A Cross-Country Analysis*. Waste Management (2016) 48: 418-422. doi:10.1016/j.wasman.2015.11.040
35. Ajay Kathuria, Saleh Al-Ghamdi<sup>‡</sup>, **Mohamad G. Abiad**, and Rafael Auras. *The Influence of Cu<sub>3</sub>(BTC)<sub>2</sub> Metal-Organic Framework on the Permeability and Perm-selectivity of PLLA-MOF Mixed Matrix Membranes*. Journal of Applied Polymer Science. (2015) 132 (46): 42764. doi:10.1002/app.42764
36. Elsy El Khoury<sup>‡</sup>, **Mohamad Abiad**, Zeina G. Kassaify, Digambara Patra. *Green synthesis of curcumin conjugated nanosilver for the applications in nucleic acid sensing and anti-bacterial activity*. Colloids and Surfaces B: Biointerfaces. (2015) 127: 274-280. doi:10.1016/j.colsurfb.2015.01.050
37. R. Ayasso<sup>‡</sup>, H. Ghattas, **M.G. Abiad**, and O. Obeid. *Meal Pattern of Male Rats Maintained on Amino Acid Supplemented Diets: The Effect of Tryptophan, Lysine, Arginine, Proline, and Threonine*. Nutrients. (2014) 6 (7): 2509-2522. doi:10.3390/nu6072509
38. H. Fawaz<sup>‡</sup>, **M.G. Abiad**, N. Ghaddar, and K. Ghali. *Solar Assisted Localized Ventilation System for Poultry Brooding*. Energy and Buildings. (2014) 71: 142-154. doi:10.1016/j.enbuild.2013.12.021
39. O. El Mogharbel<sup>‡</sup>, K. Ghali, N. Ghaddar, and **M.G. Abiad**. *Simulation of a localized heating system for broiler brooding to improve energy performance*. International Journal of Energy Research. (2014) 38 (1): 125-138 doi:10.1002/er.3023
40. **M.G. Abiad**, O.H. Campanella, and M.T. Carvajal. *Effect of spray drying conditions on the physicochemical properties and enthalpy relaxation of α-lactose*. International Journal of Food Properties. (2014) 17 (6): 1303-1316 doi:10.1080/10942912.2012.710287
41. A. Kathuria<sup>‡</sup>, **M.G. Abiad**, and R. Auras. *Toughening of poly(L-lactic acid) with Cu<sub>3</sub>BTC<sub>2</sub> metal-organic framework crystals*. Polymer. (2013) 54 (26): 6979-6986. doi:10.1016/j.polymer.2013.11.005
42. Ali Chalak, Scott Reid, Martin Silcock, and **Mohamad Abiad**. *Customer perspectives of water safety and service failure risks*. Journal of American Water Works Association (JAWWA). (2013) 105 (8): E449-E459. doi:10.5942/jawwa.2013.105.0092
43. A. Kathuria<sup>‡</sup>, **M.G. Abiad**, and R. Auras. *Deterioration of metal-organic framework crystal structure during fabrication of poly(L-lactic acid) mixed-matrix membranes*. Polymer International. (2013) 62 (8): 1144-1151. doi:10.1002/pi.4478
44. **M.G. Abiad** and Ali Chalak. *Unraveling mean and variance heterogeneity influences of information provision on safer food purchasing decisions: A heteroscedastic mixed Logit approach*. Food Economics. (2012) 9 (3): 135-144. doi:10.1080/2164828X.2013.781942
45. A. Chalak and **M.G. Abiad**. *How effective is information provision in shaping food safety related purchasing decisions? Evidence from a choice experiment in Lebanon*. Food Quality and Preference. (2012) 26 (1): 81-92. doi:10.1016/j.foodqual.2012.04.00

46. A. Chalak, J. Hecht, S. Reid, and **M.G. Abiad**. Willingness-to-pay for greenhouse gas reductions: A Bayesian investigation of distributional patterns. *Environmental Science & Policy*. (2012) 19-20: 147-157. doi:10.1016/j.envsci.2012.02.003
47. P.H.S. Santos<sup>‡</sup>, **M.G. Abiad**, M.A. Carignano, and O.H. Campanella. Viscoelastic properties of di-benzylidene sorbitol (DBS) physical gels at high frequencies. *Rheologica Acta*. (2012) 51 (1): 3-11. doi:10.1007/s00397-011-0591-9
48. **M.G. Abiad**, D.C. Gonzalez, B. Mert, O.H. Campanella, and M.T. Carvajal. A novel method to measure the glass and melting transitions of pharmaceutical powders. *International Journal of Pharmaceutics*. (2010) 396 (1-2): 23-29. doi:10.1016/j.ijpharm.2010.06.001
49. **M.G. Abiad**, O.H. Campanella, and M.T. Carvajal. Assessment of thermal transitions by dynamic mechanical analysis (DMA) using a novel disposable powder holder. *Pharmaceutics*. (2010) 2 (2): 78-90. doi:10.3390/pharmaceutics2020078
50. S. Basu<sup>‡</sup>, M. Diwan, **M.G. Abiad**, Y. Zheng, O.H. Campanella, and A. Varma. Transport characteristics of dehydrogenated ammonia borane and sodium borohydride spent fuels. *International J. of Hydrogen Energy*. (2010) 35 (5): 2063-2072. doi:10.1016/j.ijhydene.2009.12.159
51. **M.G. Abiad**, M.T. Carvajal, and O.H. Campanella. A review on methods and theories to describe the glass transition phenomenon: Applications in food and pharmaceutical products. *Food Engineering Reviews*. (2009) 1 (2): 105-132. doi:10.1007/s12393-009-9009-1
52. Gandolph, J., **M.G. El-Abiad**, L.J. Mauer, and M. Perchonok. Equivalent system mass (ESM) estimates for commercially available, small-scale food processing equipment. *SAE Transactions Journal of Aerospace*. (2004) 1:1189-1206.

#### Book Chapters, Reports, and Policy Notes

53. **Mohamad G. Abiad** and Hussein Hassan. Food Loss and Waste, Case Study of Lebanon in Arab Food Security Vulnerabilities and Pathways. (2021). Published by the Food and Agriculture Organization of the United Nations and the United Nations Economic And Social Commission For Western Asia
54. **Mohamad G. Abiad** and Hussein Hassan. (2021). The State of Food Waste in West Asia. United Nations Environment Programme. <https://www.unep.org/resources/report/state-food-waste-west-asia>
55. Isaac P. Kashoma, Erick V.G. Komba, **Mohamad G. Abiad**, and Issmat I. Kassem. (2018). Food Safety Regulations and Enforcement in Tanzania in *Reference Module in Food Science*. Elsevier: New York City, New York, United States. doi.org/10.1016/B978-0-08-100596-5.22480-3 ISBN 9780081005965
56. **M.G. Abiad**, D. Drame, R. Rolle, L. Koleilat, S. Baasiri, R. Jalkh, and S. Hemadeh. (2018). Climate-Smart Food Preservation and Processing Technologies Applied by Women in Rural Environments in the Near East and North Africa. FAO Report. Rome, Italy.
57. Chamieh, Naji, **Mohamad Ghassan Abiad**, Fadi Doumani, and Karine Abdelnour-Thome, (March 2016). "Economic Instruments to Create Incentives for Recycling in Lebanon." Prepared for the Lebanon Ministry of Environment through the European Union Support to Reforms – Environmental Governance (StREG) Project. GFA Consulting Group GmbH / Umweltbundesamt / Mott Mac Donald. Beirut, Lebanon
58. **Abiad, M.**, Habchi<sup>‡</sup>, R., Bashour, I., and Chalak, A. (2011). Recycling Farm Biomass for Biogas Production: A Feasibility Study in Rural Lebanon Climate Change and Environment in the Arab World - Research and Policy Memo no. 7. Beirut, Lebanon: Issam Fares Institute for Public Policy and International Affairs, American University of Beirut.

#### Conference Proceedings

59. M.N. Fakhreddine, G. Chehab, Z. Al Bassiouni-Al Masri, and **M.G. Abiad**. *Novel Method for Assessing Moisture Damage in Asphalt Mixtures*. International Conference on Civil Infrastructure and Construction (CIC 2020). Doha, Qatar. February 2020
60. Rita Jalkh<sup>‡</sup>; **Mohamad G. Abiad** and Ghassan Chehab. *Rejuvenators for Asphalt Binders Using Oil Extracted from Spent Coffee Grounds*. Geo-Chicago 2016: Sustainability, Energy, and the Geoenvironment. Chicago, Illinois USA. August 2016
61. Deeb, George<sup>‡</sup>; Hasan, Anwarul; **Abiad, Mohamad G.**; Alhadrami, Hani A.; and Mustafy, Tanvir, *Experimental studies and computer modeling of viscoelastic properties of heart valve leaflets: Implication in heart valve tissue engineering*. 2015 International Conference on Advances in Biomedical Engineering (ICABME), pp.226-229, September 2015. doi:10.1109/ICABME.2015.7323293
62. Dima Z. Al Hassanieh<sup>‡</sup>, Hussein A. Kassem<sup>‡</sup>, Ghassan R. Chehab, and **Mohamad G. Abiad**. *Use of Fine Aggregates Recycled from Cementitious Constituents of Construction Demolition Waste in Hot-Mix Asphalt*. Proceedings of the Transportation Research Board 94<sup>th</sup> Annual Meeting. Washington, D.C., USA. January 2015



63. N. Ghaddar, K. Ghali, and **M. Abiad**. *Feasibility Study of Localized Heating and Cooling Systems Totally Powered by Solar Energy*. Proceedings of the 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit 10th Annual International Energy Conversion Engineering Conference. Atlanta, USA. September 2012. doi.org/10.2514/6.2012-3806
64. Chalak, Ali and **Abiad, Mohamad**. "Food choice & safety certification: A mixed logit investigation of the systematic, distributional & differential influences of information provision," 2012 AAEE/EAAE Food Environment Symposium 123984, Agricultural and Applied Economics Association. Boston, MA, USA. May 2012
65. Saoud I. Patrick, **Mohammad Abiad**, and Ali Chalak. *Integrating aquaculture with dairy farm waste recycling and irrigation to reduce consumptive freshwater use, alleviate rural poverty and improve food security*. Symposium publication in Water and Energy in Sustainable Food Security, Beirut, Lebanon. December 2011
66. Gandolph, J., **M.G. El-Abiad**, M. Perchonok, and L.J. Mauer. *Equivalent System Mass (ESM) estimates for commercially available, small-scale food processing equipment*. Proceedings of the SAE International Meeting, Colorado Springs, CO. July 2004

## INTERNATIONAL AND NATIONAL CONFERENCE PRESENTATIONS/WEBINARS AND MEDIA APPEARANCES

(\* Undergraduate Student; † Graduate Student; ‡ Research Assistant)

1. L. Jomaa, M Diab-El-Harake, A Chalak, **M Abiad**, Unravelling the Relationship Between Food Security, Financial Management and Household Food Waste: The Case of Lebanon During the COVID-19 Pandemic. American Society for Nutrition, Nutrition 2022. June 2022
2. **MG Abiad**, Food: Produce, Pack, and Export. The LEE Experience Webinar Series on Agriculture in Lebanon: Connecting to a Resilient Future. May 2021
3. **MG Abiad**, Taking your Product Steps Further. Webinar Series: Agro-Food Industry-Academia Partnership, QOOT Cluster, Berytech. April 2021
4. **MG Abiad**, SDG 12.3 and the Food Waste Index. Webinar series: The state of food waste in West Asia, United Nations Environment Programme (UNEP). September 2020
5. **MG Abiad**, Food waste in the hospitality and retail sector: Reality, Challenges, and Solutions. Webinar series: The state of food waste in West Asia, United Nations Environment Programme (UNEP). July 2020
6. L. Mattar, **MG Abiad**, A. Chalak, M. Diab and H. Hassan, Attitudes and Behaviors Shaping Household Food Waste Generation: Lessons From Lebanon, Annual Meeting of the Institute of Food Technologists, New Orleans, LA, USA, June 2-5, 2019.
7. **Mohamad Abiad**. *Climate-Smart Agriculture Post-Production Stage*. Regional Workshop on Climate-Smart Agriculture, Food and Agriculture Organization of the United Nations (FAO), Khartoum, Sudan, October 2018
8. I. P. Saoud, **Mohamad Abiad** & Nivin Nasser. *Replacing Soy Bean Meal with Restaurant Food Waste in Tilapia Feeds Improves Production*. Aquaculture 2018, Montpellier, France, August 2018
9. I. P. Saoud, **Mohamad Abiad** & Nivin Nasser. *Supplementing Commercial Feed with Restaurant Plate-Food Waste in Tilapia Aquaculture*. Aquaculture 2018, Montpellier, France, August 2018
10. **Mohamad Abiad**. *Food Processing Operations as a Significant Source of Waste Generation, a Major User of Energy and a Contributor to Greenhouse Gas Emissions*. Regional Workshop on Climate-Smart, Innovative Food Preservation and Processing Technologies Applied by Women in Rural Environments in the Near East and North African Region, American University of Beirut & Food and Agriculture Organization of the United Nations (FAO), Beirut, Lebanon, June 2018
11. A. Chalak, L. Nasreddine, M. Diab & **M.G. Abiad**. *Implications of Household Food Waste Generation on Nutrient Loss in Beirut, Lebanon*. The LAU 3<sup>rd</sup> Nutrition and Food Science Research Conference. Beirut, Lebanon. April 2018
12. **Mohamad G. Abiad**, Tsolaire Sourenian, Zeinab Hmede and Issmat Kassem. *Antimicrobial resistance profile of foodborne Cronobacter sakazakii and Salmonella in Lebanon*. 4th International Congress on Pathogens at the Human-Animal Interface (ICOPHAI). Doha, Qatar. November 2017
13. Rita Jalkh<sup>‡</sup>, **Mohamad Abiad**, and Ghassan Chehab. *From your coffee cup to the road, you use A novel asphalt rejuvenator from spent coffee grounds*. 4<sup>th</sup> Kamal A. Shair Central Research Science Laboratory (KAS CRSL) Research Conference. Beirut, Lebanon. May 2015
14. Rita Jalkh<sup>‡</sup>, **Mohamad Abiad**, and Ghassan Chehab. *Rejuvenators for Asphalt Binders from Spent Coffee Grounds and Waste Cooking Oil*. 21<sup>st</sup> LAAS International Science Conference (LAAS'15) – Horizon 2020: Advances in Sciences and technology. Beirut, Lebanon. April 2015

15. Rita Jalkh<sup>‡</sup>, Ghassan Chehab, and **Mohamad Abiad**. *Oil extracts from spent coffee grounds to modify the physical properties of recycled asphalt binder*. 3<sup>rd</sup> MESAT (Middle East Society of Asphalt Technologists) Conference 2015 theme *Performance-Based Specifications and Design for Sustainable Asphalt Pavements in the Middle East*. Dubai, United Arab Emirates. April 2015
16. Nancy F. Nakhoul, Hani Tamim, Youssef Mounime, Lara Nasreddine, **Mohamad G. Abiad**, Nathalie Khoueiry-Zgheib, Hussain Ismaeel, and Mona P. Nasrallah. *Is the Prevalence of Diabetes Increasing in Lebanon?* The Endocrine Society's 97<sup>th</sup> Annual Meeting & Expo (ENDO 2015), San Diego, California, USA. March 2015
17. Dima Z. Al Hassanieh<sup>‡</sup>, Hussein A. Kassem<sup>‡</sup>, Ghassan R. Chehab and **Mohamad G. Abiad**. *Use of Fine Aggregates Recycled from Cementitious Constituents of Construction Demolition Waste in Hot-Mix Asphalt*. Transportation Research Board 94<sup>th</sup> Annual Meeting. Washington, D.C., USA. January 2015
18. **Mohamad Abiad**, Omar Dib<sup>‡</sup>, Ajay Kathuria<sup>‡</sup>, Saleh Al-Ghamdi<sup>‡</sup>, Houssam El-Rassy, and Rafael Auras. *Structural properties of cyclodextrin-based metal-organic framework crystals in various organic solvents*. MOF 2014: 4<sup>th</sup> International Conference on Metal-Organic Frameworks & Open Framework Compounds. Kobe, Japan. September 2014
19. Ali Chalak and **Mohamad Abiad**. *The interplay of qualitative and quantitative messages in shaping consumers' preferences for food safety under various certifying regimes: The case of Lebanon*. EuroSense 2014: A Sense of Life - 6<sup>th</sup> European Conference on Sensory and Consumer Research. Copenhagen, Denmark. September 2014
20. Zeina G. Kassaify, Reem Hamzeh<sup>‡</sup>, Houda Harastani, Celine Ajjour<sup>‡</sup>, Maya Farah<sup>‡</sup>, and **Mohamad Abiad**. *Molecular typing and probiotic attributes of Lactobacillus casei isolated from fermented goat cheese (Anbaris)*. International Association for Food Protection (IAFP) Annual Meeting 2014. Indianapolis, IN, USA. August 2014
21. **Mohamad Abiad**, Nathalie J. Malek<sup>‡</sup>, Houda H. Harastani, Reem Hamzeh<sup>‡</sup> and Zeina Kassaify. *Emergence of Heat-Resistant Salmonella and Escherichia coli Isolated From Food Products*. International Association for Food Protection (IAFP) Annual Meeting 2014. Indianapolis, IN, USA. August 2014
22. Farah Houmani<sup>‡</sup>, Line Koleilat<sup>‡</sup>, Diala El Debs<sup>\*</sup> and **Mohamad Abiad**. *New burger package*. 8<sup>th</sup> Annual International Biodiversity Day at the American University of Beirut (IBDAA), Beirut, Lebanon. April 2014 (**Winner of 2<sup>nd</sup> prize in product development category**)
23. Rola Malaeb<sup>\*</sup>, Lama Mdeihli<sup>\*</sup>, Ali Al Berjawi<sup>\*</sup> and **Mohamad Abiad**. *Disposable hookah head*. 8<sup>th</sup> Annual International Biodiversity Day at the American University of Beirut (IBDAA), Beirut, Lebanon. April 2014
24. Moustafa Abiad<sup>\*</sup>, Loujein Mouammer<sup>\*</sup>, Mona Talih<sup>\*</sup> and **Mohamad Abiad**. *Instant coffee smart package*. 8<sup>th</sup> Annual International Biodiversity Day at the American University of Beirut (IBDAA), Beirut, Lebanon. April 2014
25. Dima Al Hassanieh<sup>‡</sup>, Hussein Kassem<sup>‡</sup>, Ghassan Chehab, and **Mohamad G. Abiad**. *Investigation of hot-mix asphalt (HMA) containing fine recycled aggregates from construction demolition waste*. The First AUB Symposium on Materials Science and Energy. Beirut, Lebanon. April 2014.
26. Darine Salam, **Mohamad G. Abiad**, Nesreene Ghaddar, Kamel Ghali, and Ghassan Chehab. *An energy-efficient poultry house for broiler production: A showcase*. Regional Conference on Renewable Energy and Sustainable Development in Rural Areas of the ESCWA Region. Rabat, Morocco. November 2013
27. Reem Hamzeh<sup>‡</sup>, Zeina Kassaify, and **Mohamad G. Abiad**. *Molecular typing and probiotic attributes of lactic acid bacteria strains isolated from Labneh Anbaris*. The 8<sup>th</sup> Dubai International Food Safety Conference, Dubai, UAE. November 2013
28. Nadera Hamdar<sup>‡</sup>, Zeina Kassaify, and **Mohamad G. Abiad**. *Food safety knowledge and practices at the home of Lebanese consumers and its association with the level of risk*. The 8<sup>th</sup> Dubai International Food Safety Conference, Dubai, UAE. November 2013
29. Maya El-Mokdad<sup>‡</sup>, Zeina Kassaify, and **Mohamad G. Abiad**. *Implementation and viability of traceability systems in small and medium dairy processing plants in Lebanon*. The 8<sup>th</sup> Dubai International Food Safety Conference, Dubai, UAE. November 2013
30. Zeina Kassaify, Reem Hamzeh<sup>‡</sup>, and **Mohamad G. Abiad**. *Extending the shelf life and eliminating Salmonella spp. and Escherichia coli in tahini-based dressing*. International Association for Food Protection Annual Meeting. Charlotte, NC. July 2013
31. **Mohamad Abiad** and Kamel Aboughali. *Solar energy-operated brooder to improve the food security of small-holder poultry farmers in rural Lebanon*. Fourth Annual International Masri Institute Workshop on Energy and Natural Resources, American University of Beirut, Beirut, Lebanon. May 2013
32. Suzanna AL-Bacha<sup>\*</sup>, Line Koleilat<sup>\*</sup>, Mireille Najjar<sup>\*</sup>, Reem Sayyed Ahmad<sup>\*</sup> and **Mohamad Abiad**. *Conserving marine biodiversity through an innovative recycling solution for waste cooking oil*. 7<sup>th</sup> Annual International Biodiversity Day at the American University of Beirut (IBDAA), Beirut, Lebanon. April 2013
33. I. P. Saoud, **M. Abiad**, N. Farajalla, M. Haidar, and A. Baalbaki. *Improving water use efficiency by integrating*



aquaculture, agriculture, and green energy production. Energy, Water, and Sustainability, Beirut, Lebanon. December 2012.

34. **Mohamad Abiad** and Ali Chalak. *Shaping Food Safety Related Purchasing Decisions: Evidence from a Choice Experiment in Lebanon*. Institute of Food Technologists (IFT) annual meeting scientific program, Las Vegas, NV. June 2012
35. A. Chalak and **M. Abiad**. *Food choice & safety certification: a mixed logit investigation of the systematic, distributional & differential influences of information provision*. Agricultural and Applied Economics Association (AAEA/EAAE) Food Environment Symposium on "Food Environment: The Effects of Context on Food Choice," Tufts University, Boston, MA. May 2012
36. R. Ayaso<sup>‡</sup>, H. Ghattas, **M. Abiad**, and O. Obeid. *Meal patterns of rats maintained on tryptophan and lysine supplemented diet*. 19th European Congress on Obesity (ECO2012), Lyon, France. May 2012
37. Imad P. Saoud, **Mohammad Abiad**, Ali Chalak, Nadim Farajalla and Zeina Kassaify (2011). Integrating aquaculture with dairy farm waste and irrigation to reduce consumptive freshwater use, alleviate rural poverty and improve food security. Water and Energy in Sustainable Food Security, Beirut, Lebanon. December 2011
38. Karim Batlouni\*, Imad Kastoun\* and **Mohamad Abiad**. *Aerial reforestation containers from recycled agricultural and food wastes*. Fifth Annual International Biodiversity Day at the American University of Beirut (IBDAA), Beirut, Lebanon. May 2011
39. **Abiad, M.G.**, Carvajal, M.T., and Campanella, O.H. *Monitoring Thermal Properties of Pharmaceutical Powders*. Dane O. Kildsig Center for Pharmaceutical Processing Research (CPPR) Annual Meeting, West Lafayette, IN, USA. October 2010
40. **Abiad, M.G.**, Carvajal, M.T., and Campanella, O.H. *The Effect of Spray Drying Conditions on Enthalpy Relaxation of  $\alpha$ -Lactose*. Dane O. Kildsig Center for Pharmaceutical Processing Research (CPPR) Annual Meeting, Storrs, CT, USA. October 2009
41. **Abiad, M.G.**, Carvajal, M.T., and Campanella, O.H. *A Novel Disposable Powder Holder to Characterize Thermal Transitions by Dynamic Mechanical Analysis (DMA)*. American Association of Pharmaceutical Scientists (AAPS) Annual Meeting, Los Angeles, CA. November 2009
42. **Abiad, M.G.**, Mosharraf, L., Campanella, O.H., and Hamaker, B.R. *Glass Transition and Moisture Effects on Gluten-starch Dough Systems*. Institute of Food Technologists annual meeting, Anaheim, CA, USA. July 2009
43. **Abiad, M.G.**, Mosharraf, L., Campanella, O.H. and Hamaker, B.R. *Rheological Characterization and Comparison between Zein-Starch and Gluten-starch Dough Systems*. Conference of Food Engineering, Ohio State University, Columbus, OH. April 2009
44. **Abiad, M.G.**, Mosharraf, L., Campanella, O.H. and Hamaker, B.R. *Effect of Temperature and Water Content on the Rheological Properties of Gluten-starch Dough Systems*. Conference of Food Engineering, Ohio State University, Columbus, OH. April 2009
45. **Abiad, M.G.**, Carvajal, M.T., and Campanella, O.H. *A Novel Method to Measure Melting and Glass Transition Temperatures of Pharmaceutical Powders*. Dane O. Kildsig Center for Pharmaceutical Processing Research (CPPR) Annual Meeting. West Lafayette, IN, USA. October 2008
46. **M.G. Abiad**, M.T. Carvajal, and O.H. Campanella. *Interplay between the Change in Surface Energy of the Crystalline and Amorphous Material*. Whistler Center for Carbohydrate Research (WCCR) Annual Meeting, West Lafayette, IN, USA. June 2007
47. Gandolph, J., **M.G. El-Abiad**, M. Perchonok, and L.J. Mauer. *Equivalent System Mass (ESM) estimates for commercially available, small-scale food processing equipment*. SAE International Meeting, Colorado Springs, CO, USA. July 2004
48. **Mohamad G. Abiad** and Osvaldo Campanella. 2004. *Improvement in Spray Drying Manufacturing through Control of Droplet Size*. Whistler Center for Carbohydrate Research (WCCR) Annual Meeting, West Lafayette, IN, USA. June 2004
49. **Mohamad El-Abiad**. *NASA Project: Food Processing in Space*. (A presentation describing the challenging of processing food in space with emphasis on various potential crops.) Advanced Life Support - NASA Specialized Center of Research and Training (ALS-NSCORT) Technical Exchange Workshop, West Lafayette, IN, USA. July 2003
50. Lisa J. Mauer, Ilan Weiss, **Mohamad El-Abiad**, and Deidra Carr. *Food Processing and Packaging*. Advanced Life Support - NASA Specialized Center of Research and Training (ALS-NSCORT) Technical Exchange Workshop, West Lafayette, IN, USA. June 2003

## Media Appearances

1. Interview on Al-Jadeed TV. حبوب أهراءات المرفاً تتحول الى وقود للتدفئة. Discussing the fate of the damaged grains at the Beirut Seaport following the August 4, 2021 explosion. Jan 21, 2022. <https://www.aljadeed.tv/arabic/episode/rep6-21-01-20222a>
2. Interview on LBCI. أهراءات القمح في المرفاً الى متى؟ Discussing the fate of the damaged grains at the Beirut Seaport following the August 4, 2021 explosion. Jan 21, 2022. <https://www.lbcgroup.tv/news/d/news-reports/627547/lebanon-news-lbci-637783889073822215/ar>
3. Interview on Al-Jazeera. Treatment and recycling of the grains at the Beirut Port following the August 4, 2020 Explosion. Dec 15, 2021. <https://www.facebook.com/AJA.Lebanon/videos/293105496111874/مرفاً بيروت قبيل الانفجار وتحوي/>
4. Interview on LBCI. حبوب المرفاً... الى أين؟ Discussing the fate of the damaged grains at the Beirut Seaport following the August 4, 2021 explosion. Nov. 25, 2021. [https://youtu.be/2E\\_Sw4gmjQE](https://youtu.be/2E_Sw4gmjQE)
5. Professors at Work Podcast, Episode 47. Discussing how AUB Labs help keep Lebanese safe as they eat.. Nov. 14, 2021. <https://professors-at-work.captivate.fm/episode/how-aub-labs-help-keep-lebanese-safe-as-they-eat>
6. Lil Tawdeeh (للتوضيح) on LBCI. Discussing the fate of the damaged grains at the Beirut Seaport following the August 4, 2021 explosion. Nov. 4, 2021. <https://www.lbcgroup.tv/watch/59755/damaged-grain-silos-at-the-port-what-decision-was/en>
7. The Researcher, Episode 13 on LBCI. Discussing the importance of food waste mitigation and innovative ways of recycling. Oct. 14, 2021. <https://youtu.be/2FhB6VfKGB4>
8. Article on the safety of wheat milling and storage in light of the growing concerns of hygiene and food safety associated with the problem of Municipal Solid Waste featured in Al-Diyar Newspaper, Beirut, Lebanon. October 28, 2015  
(Arabic title: "هل أصبح الرغيف اللبناني مغمساً بالنفايات؟")
9. Article on procedures for non-transfer of pollution to restaurants and supermarkets in light of the growing concerns of hygiene and food safety associated with the problem of Municipal Solid Waste featured in As-Safir Newspaper, Beirut, Lebanon. July 30, 2015  
(Arabic title: "إجراءات لعدم نقل التلوث إلى المطاعم والسوبرماركت")
10. Interview on Radio France Internationale (RFI) (96.2 FM) discussing the recent food-related scandals and food safety issues in Lebanon. Paris, France. January 8, 2015
11. Article on food safety and Lebanese standards in response to the recent food scares and outbreaks entitled "Food nonconforming to inexistent standards" featured in Al-Akhbar Newspaper, Beirut, Lebanon. December 15, 2014  
(Arabic title: "غذاء غير مطابق لمواصفات غير موجودة")
12. Interview on MTV-Lebanon regarding the recent food scares/outbreaks and the establishment of a unit in Lebanon to monitor food safety similar to the US-FDA. Beirut, Lebanon. November 15, 2014
13. Article entitled "Hot Chicks" on the development of energy-efficient chicken coops for the future featured in the MainGate Magazine. Beirut, Lebanon. Fall 2014 Vol. XIII. No.1
14. Interview on the Lebanese National Radio (Radio Lebanon 98.5 FM) about the rising public concern about plastic food packaging and the safety of Bisphenol A (BPA). Beirut, Lebanon. April 11, 2014
15. Interview on Voice of Lebanon Radio Station (100.5 FM) regarding the safety of plastic packaging and Bisphenol A. Ashrafieh, Lebanon. April 10, 2014
16. Article on the safety of Bisphenol A used in food packaging entitled "Bisphenol A: A Material under Investigation" featured in As-Safir Newspaper, Beirut, Lebanon. April 8, 2014  
(Arabic title: "البيسفينول أ: مادة قيد الدراسة")
17. Article on the arising concerns of Bis-phenol A and its presence in food packaging entitled "A Material at our Disposal Associated with Cancer, Prostate and Sexual Diseases" featured in Lebanon Debate.com. April 8, 2014  
(Arabic title: "مادة في متناول أيدينا تسبب السرطان والبروستات والأمراض الجنسية")
18. Interview on Al-Ettejah Iraqi TV station about processed foods and eco-terrorism. May 9, 20

## GRANTS

1. PRIMA (Total Consortium: €1,962,500 – AUB: €110,000) 01/03/2021 – 28/02/2025  
Horizon 2020 – the Framework Programme for Research and Innovation  
Research and Innovation Actions (RIA) – Innovation Actions (IA)  
Valorizing the health benefits of the Traditional Mediterranean food products  
Functionalize Tomato Products – (FunTompP)  
**Role: Co-Principal Investigator** (PI: Mecit Oztop, Middle East Technical University (METU), Turkey)  
Status: Ongoing

2. Arc en Ciel (\$21,230) 21/05/2021 – 30/07/2022  
Retrofitting of public buildings through green technologies and processes (RE-FIT)  
Assessing Lead Levels in Human and Environmental Samples in Battery Recycling Facilities and the Surroundings  
**Role: Principal Investigator**  
Status: Ongoing
3. AUB University Research Board (\$12,000) 01/07/2020 – 30/06/2021  
Unraveling the Relationship between Household Food Waste, Food Security, and Financial Management: The Case of Lebanon  
**Role: Principal Investigator**  
Status: Ongoing
4. AUB WEFRAH Grant (\$65,000) 01/04/2019 – 30/06/2021  
Improving Water and Energy Use and Recycling Food Waste for Better Production of Healthy Food  
**Role: Co-Principal Investigator** (PI: Imad P. Saoud)  
Status: Ongoing
5. Partenariat Hubert Curien (PHC) Franco-Libanais CEDRE (€39,158) 01/01/2019 – 31/12/2020  
Nano-Encapsulation d'Antimicrobiens Biosources pour une Desinfection a Effet Remanent des Surfaces a Contact Alimentaire  
**Role: Co-Investigator** (PI: Chihib Nour Eddine (France) & Loyal Karam (Lebanon))  
Status: On-hold
6. Lebanese National Council for Scientific Research (CNRS-L) (\$19,628) 02/01/2018 – 31/12/2020  
Novel Corrosion Inhibitor for Viscoelastic Fluid in Oilfield Acidizing Application  
**Role: Co-Principal Investigator** (PI: Ali R. Tehrani)  
Status: Completed
7. Center for Teaching and Learning - AUB University Research Board (\$7,600) 01/07/2018 – 30/06/2019  
Developing a Global Design Team Approach for Interdisciplinary Learning at the Faculty of Agricultural and Food Sciences  
**Role: Co-Principal Investigator** (PI: Ammar Olabi & Maya Nabhani)  
Status: Completed
8. The Food and Agriculture Organization of the United Nations (FAO) (\$57,288) 01/01/2018 – 30/11/2018  
Support to Knowledge Development and the Preparation of a Book Chapter on Climate Smart, Innovative Food Preservation and Processing Technologies Applied by Women in Rural Environments in the Near East and North African Region  
**Role: Principal Investigator**  
Status: Completed
9. AUB University Research Board (\$10,000) 01/07/2017 – 30/06/2018  
Assessing Post-Consumer Food Waste for Potential Use in Feeds  
**Role: Principal Investigator**  
Status: Completed
10. Collaborative Research Stimulus – AUB (\$34,400) 01/04/2017 – 31/03/2019  
Evaluation of Sustainable Concrete Produced with Industrial Hemp and Recycled Aggregates Using Multi-scale Testing and Life Cycle Analysis  
**Role: Co-Principal Investigator** (PI: Bilal Hamad)  
Status: Completed
11. Lebanese National Council for Scientific Research (CNRS-L) (\$17,250) 01/11/2016 – 31/10/2018  
Extended Producer Responsibility (EPR) as a Waste Management System for the Lebanese Agro-Food Industry: Effectiveness, Challenges, and Opportunities  
**Role: Principal Investigator**  
Status: Completed
12. AUB University Research Board (\$30,000) 01/07/2014 – 30/06/2017  
Household Food Waste Generation in Urban Lebanon: Behavioral Patterns, Economic Costs, and Policy Options  
**Role: Principal Investigator**  
Status: Completed
13. Faculty of Agricultural and Food Sciences Research Seed Funding (\$5,000) 15/12/2015 – 30/06/2016  
Combined Effects of Antimicrobials on the Background Flora, *Salmonella enterica*, and *Listeria monocytogenes* in fresh marinated chicken  
**Role: Co-Principal Investigator** (PI: Ioannis Savvaidis)  
Status: Completed
14. Medical Practice Plan, AUB Medical Center (\$28,000) 01/02/2014 – 31/01/2016  
The Association of BPA levels with estrogen receptors promoter methylation

- Role: Co-Investigator** (PI: Nathalie Zgheib)  
Status: Completed
15. European Union under the Seventh Framework Programme (FP7) 01/01/2014 – 31/12/2015  
Total Award: €798,000; AUB's share: €37,698 (\$51,554)  
MOSAIC – Cooperation with Mediterranean partners to build opportunities around ICT and societal and industrial challenges of Horizon 2020  
**Role: Co-Investigator** (PI: Fadi Zaraket)  
Status: Completed
  16. Faculty of Agricultural and Food Sciences Research Seed Funding (\$5,000) 01/12/2014 – 31/08/2015  
Identification, characterization, and control of foodborne pathogens found in Lebanese sesame seed-based products  
**Role: Co-Principal Investigator** (PI: Ewen Todd)  
Status: Completed
  17. AUB University Research Board (\$19,600) 01/07/2013 – 30/06/2015  
The effect of solvent polarity and different activation methods on the surface area of cyclodextrin metal-organic frameworks  
**Role: Principal Investigator**  
Status: Completed
  18. AUB University Research Board (\$14,800) 01/07/2013 – 30/06/2015  
Incorporating tire waste and waste cooking oil in asphalt binders  
**Role: Co-Investigator** (PI: Ghassan Chehab)  
Status: Completed
  19. Medical Practice Plan (MPP) and University Research Board (URB) (\$22,000) 01/07/2014 – 30/06/2015  
The association of Bisphenol A with serum prolactin levels  
**Role: Co-Investigator** (PI: Mona Nasrallah)  
Status: Completed
  20. Munib Shahid Memorial Fund (\$10,000) 01/02/2014 – 01/31/2015  
The prevalence of vascular risk factors and their association with urinary Bisphenol A  
**Role: Co-Investigator** (PI: Mona Nasrallah)  
Status: Completed
  21. The United Nations Economic & Social Commission for Western Asia (\$129,200) 01/12/2013 – 31/12/2014  
Energy efficient poultry house as a showcase of various renewable energy applications at AREC-AUB  
**Role: Co-Principal Investigator** (Co-PI: Darine Salam)  
Status: Completed
  22. Munib & Angela Masri Institute of Energy and Natural Resources (\$16,800) 01/10/2012 – 30/09/2014  
A solar energy operated brooder to improve the food security of small-holder poultry farmers in rural Lebanon.  
**Role: Principal Investigator**  
Status: Completed
  23. AUB University Research Board (\$10,000) 01/07/2013 – 30/06/2014  
The inhibitory effects of encapsulated curcumin in liposomes on Salmonella spp., E. coli, Listeria Monocytogenes and Staphylococcus Aureus  
**Role: Co-Investigator** (PI: Zeina Kassaify)  
Status: Completed
  24. American University of Beirut Medical Center (\$40,000) 01/07/2013 – 30/06/2014  
BPA levels and their association with the health status among the Lebanese population  
**Role: Co-Investigator** (PI: Hani Tamim)  
Status: Completed
  25. AUB University Research Board (\$10,000) 01/07/2012 – 30/06/2013  
The release kinetics of volatile organic compounds stored in metal organic frameworks (MOF's) made from edible ingredients  
**Role: Principal Investigator**  
Status: Completed
  26. Lebanese National Council for Scientific Research (LNCSR) (\$8,300) 01/10/2011 – 31/10/2012  
Consumers' demand for mitigating foodborne risks and the role of awareness campaigns in adding value to microbiological safety in food markets of Lebanon  
**Role: Co-Principal Investigator** (PI: Ali Chalak)  
Status: Completed
  27. AUB University Research Board (\$9,500) 01/07/2011 – 30/06/2012  
The impact of various Escherichia coli strains on methane gas production from farm and kitchen waste

- Role: Principal Investigator**  
Status: Completed
28. AUB University Research Board (\$9,500) 01/07/2011 – 30/06/2012  
The implementation and viability of traceability systems in small and medium dairy processing plants  
**Role: Co-Principal Investigator** (PI: Zeina Kassaify)  
Status: Completed
29. AUB University Research Board (\$10,000) 01/07/2011 – 30/06/2012  
The effect of environmental and health labels at capturing market share: The case "zero nitrate" labels in the Lebanese market for bottled water in Lebanon.  
**Role: Co-Investigator** (PI: Ali Chalak)  
Status: Completed
30. AUB University Research Board (\$6,400) 01/10/2010 – 30/09/2011  
Food safety among food vendors in poor Lebanese neighborhoods: A step towards a healthy marketplace.  
**Role: Co-Investigator** (PI: Zeina Kassaify)  
Status: Project Completed
31. AUB University Research Board (\$6,500) 01/10/2010 – 30/09/2011  
The effect of different milling conditions on the thermal properties of crystalline powders  
**Role: Principal Investigator**  
Status: Completed
32. AUB University Research Board (\$7,300) 01/10/2010 – 30/09/2011  
Consumer inertia and the role of awareness campaigns in valorizing safety and hygiene in food markets of developing countries; the case of Lebanon  
**Role: Co-Investigator** (PI: Ali Chalak)  
Status: Completed
33. Issam Fares Institute for Public Policy & International Affairs (\$7,300) 01/02/2010 – 30/09/2010  
Feasibility of recycling farm biomass for biogas production and its implications on rural livelihoods and greenhouse gas emissions  
**Role: Principal Investigator**  
Status: Completed
34. AUB University Research Board (\$4,122) 01/02/2010 – 30/09/2010  
The effects of spray drying conditions on aging and enthalpy relaxation of  $\alpha$ -lactose  
**Role: Principal Investigator**  
Status: Completed

## TEACHING, ADVISING, AND MENTORING

### Courses taught at AUB

- **NFSC 252 – Food Processing** (3 credits, Undergraduate – average class size: 10 students): This course is targeted at Agribusiness students. It covers the basics of food processing technologies from farm to fork.
- **NFSC 272 – Introduction to Food Service and Industries** (2 credits, Undergraduate – average class size: 18 students): The objectives of this course are to provide a fundamental understanding of the various methods of food processing and preservation; familiarize the students with the agro-food industry and available career opportunities and provide them with the adequate knowledge required for their summer internships. During this course, students visit local food processors, including dairy, meat, poultry, cereals, nuts, snacks, sweets, fresh juice, carbonated beverages, bottled water, flour mill as well as catering.
- **NFSC 280 – Summer Training in Food Establishments** (1 credit, Undergraduate – average class size: 18 students): During this course, students are placed for eight full weeks at a recognized agro-food company in Lebanon or abroad, in a capacity that ensures that they apply their knowledge and acquire professional experience in the field of food science and management.
- **NFSC 287 – Food Processing** (2 credits, Undergraduate – average class size: 80 students): This course covers the basics of different technologies of food processing from postharvest to consumption. The course details the technology of Cereals, Dairy products, Meat and Fish, Fruits and Vegetables, Fats and Oils, and Fermentation.
- **NFSC 291 – Elements of Food Engineering** (3 credits, Undergraduate – average class size: 30 students): This course is designed to help students acquire knowledge related to applied food manufacturing and processing technology, emphasizing the food processing calculations of various unit operations. The basic principles include but are not limited to units and dimensions, mass balance, energy balance, thermodynamics, fluid flow, and heat transfer.
- **NFSC 296 – Seminar Presentation in Food Sciences and Nutrition** (1 credit, Undergraduate – average class size: 24 students): This course focuses on developing research and communication skills and strengthening the

critical thinking skills of senior students while looking at current and controversial issues in nutrition and food science. The course provides the student with hands-on experience in giving a seminar: the student will conduct research and deliver a presentation on current topics in food sciences and nutrition.

- **NFSC 299 – Special Topics in Nutrition and Food Science** (2 credits, Undergraduate – average class size: 60 students): This course allows students to apply the knowledge and skills acquired throughout their undergraduate courses. Through this course, students develop an understanding of how to conduct a research project beginning with the conception of research ideas and concluding with depicting written results and discussing them, along with proper citations and research procedures.
- **NFSC 371 – Food Engineering** (3 credits, Graduate – average class size: 15 students): This course covers the principles of food engineering, including mass and energy balances, thermodynamics, fluid flow, and heat and mass transfer. It also covers the application of these principles to several areas of food processing and unit operations. Students will be able to understand the food processing literature and communicate effectively with food technologists and engineers.
- **NFSC 377 – Food Packaging** (3 credits, Graduate – average class size: 15 students): This course provides the students with the basic knowledge of food packaging materials, machinery, and technologies. It provides an overview of the elements of packaging science, and engineering applied to the preservation, distribution, and marketing of various food products. This course also explains the different procedures and food safety requirements for developing, evaluating, and testing packaging in general and food packaging in specific in compliance with international standards.
- **NFSC 395 – Graduate Seminar in Nutrition and Food Science** (1 credit, Graduate – average class size: 12 students): This course focuses on developing and strengthening the communication skills of graduate students while looking at current and controversial issues in nutrition and food science. The course provides the student with hands-on experience in delivering a seminar lecture by presenting their thesis work or research proposals, which focus on current topics in nutrition and food science.

#### Courses co-taught at School of Packaging, Michigan State University

- **PKG 992 – Packaging Seminar** (1 credit, Graduate – class size: 15 doctoral students): This course involves students in presentations of detailed studies on specialized aspects of packaging. The course also provides the students with a wide view of the packaging industry through invited speakers with different backgrounds in packaging applications.

#### Courses taught at the Beirut Arab University

- **FAAS 614 – Food Packaging** (3 credits, Graduate – class size: 7 students): This course provides the students with the basic knowledge of the various materials used in food packaging applications. It provides an overview of the elements of packaging science and engineering applied to the preservation, distribution, and marketing of different food products. This course also explains the different procedures and food safety requirements for developing, evaluating, and testing food packages according to international standards. Furthermore, it allows the students to apply their knowledge to select the proper material for packaging a given food product and analyze its effect on shelf life and quality.

#### MSc Thesis Advisor

1. Farah Farhat (**Co-Advisor**) – Kishk Production: From Traditional Processing to Industrialization; (Beirut Arab University); **Completed June 2022**
2. Rayanne Beayno – Recycling Citrus and Garlic Processing Wastes for Potential Packaging Applications; **Completed July 2021**
3. Lara Al-Ghoul (**Co-Advisor**) – Migration of Zinc, Aluminum, Tin and Bis-Phenol A into Canned Tuna Fish: An Assessment of the Lebanese Retail Market; (Beirut Arab University); **Completed June 2020**
4. Pamela Aoun – Food Waste Generation Drivers Among Consumers at Restaurants: The Case of Lebanon; **Completed April 2020**
5. Caroline Rajeh – Recovering Food Losses & Wastes as Feed for Farm Animals: A Systematic Review; **Completed December 2019**
6. Nivin Nasser – Converting post-consumer food waste into fish feed; **Completed May 2019** [Recipient of the Abdul Hadi Debs Endowment Award for Academic Excellence<sup>1</sup>]
7. Marie George Hatem – The effect of pressure and temperature on the rheological properties of wheat and potato starch; **Completed May 2018**
8. Line Koleilat – The effect of di-potassium phosphate and sodium chloride on the pasting properties of cereal flours; **Completed January 2017**
9. Rita Jalkh – Waste cooking oil and oil extracts from spent coffee grounds to modify the physical properties of recycled asphalt binder; **Completed May 2016**



10. Ghina Hammoud – investigating the inhibitory effects of free and encapsulated curcumin on foodborne pathogens; **Completed May 2015**
11. Maya El-Mokdad (**Co-Advisor**) – Implementing a traceability system in small to medium dairy plant in Lebanon with isolation and characterization of *Staphylococcus Aureus*; **Completed May 2014**
12. Nadine Najjarine – Effect of silica on the properties of polyvinyl alcohol Nano-composite membranes; **Completed May 2014**
13. Nathalie Malek – Antimicrobial activity of *Origanum Ehrenbergii* extracts on resistant bacterial strains; **Completed May 2014**
14. Omar Dib – The effect of solvent polarity on the properties of activated cyclodextrin-based metal-organic frameworks (CDMOFs); **Completed December 2013** [Recipient of the Abdul Hadi Debs Endowment Award for Academic Excellence<sup>1</sup>]
15. Patricia Tabarani – Modifying the traditional processing of Arishi cheese: effect on sensory, microbiological, and chemical properties; **Completed February 2013** [Recipient of the Abdul Hadi Debs Endowment Award for Academic Excellence<sup>1</sup>]
16. Nadine Nehme – Consumer acceptability of different packaging solutions to extend the shelf-life of Baklava; **Completed April 2012**

#### PhD Thesis Advisor

1. Batoul Zaiter – Attitudes of faculty members at the American University of Beirut (AUB) toward teaching face-to-face vs. online vs. blended courses; (Benedictine University, Lisle, IL); **Completed April 2020**

#### MSc Thesis Committee Member

1. Mohamad N. Fakhreddine – Novel Method for Assessing Moisture Damage in Asphalt Mixtures; **Completed June 2021**
2. Marya Harb – Microbiological Acceptability of Skinless Chicken Breasts and Analysis of Antimicrobial Resistance in *Escherichia Coli* Associated with Lebanese Poultry; **Completed May 2018**
3. Rayane Mrad – Performance of cementitious mortar containing biochar; **Completed May 2018**
4. Tarek Abou Omar – Bisphenol A Exposure Assessment from Olive Oil Consumption; **Completed December 2016**
5. Jalal Karaziwan – Multi scale evaluation of the effect of filler from CDW on bituminous mixtures; **Completed May 2016**
6. Nada Ghanem – Feasibility of vermicomposting: A case study Warhanieh, Lebanon; **Completed May 2015**
7. Saleh Alghamdi – Synthesis of Nano-porous Carbohydrate Metal-Organic Framework and Encapsulation of Selected Organic Compounds; (School of Packaging, Michigan State University, East Lansing, MI); **Completed December 2014**
8. Dima Al-Hasanieh – The use of fine recycled concrete aggregates in asphalt mixes; (Department of Civil and Environmental Engineering, American University of Beirut, Beirut, Lebanon); **Completed July 2014**
9. Pardie Karamanoukian – Impact of food safety certifications and certifying bodies on purchasing decisions of Lebanese consumers; **Completed May 2014**
10. Hajar Fawaz – Localized heating and ventilation system for poultry brooding with an integrated solar-assisted heat pump; (Department of Mechanical Engineering, American University of Beirut, Beirut, Lebanon); **Completed August 2013**
11. Hayat Hatab – Food and health in rural Lebanon: Options to improve dietary diversity, food security, livelihoods, and ecosystem management; **Completed October 2012**
12. Celine Ajjour – Characterization of lactic acid bacteria in Anbaris (goat fermented milk) and preliminary probiotic selection; **Completed June 2012**
13. Omar Mogharbel – Energy performance of solar-assisted localized heating system for broiler brooding; (Department of Mechanical Engineering, American University of Beirut, Beirut, Lebanon); **Completed June 2012**
14. Raghad Ayaso – The effect of various essential proteins on meal patterns of rats; **Completed January 2012**

#### PhD Thesis Committee Member

1. Hussein Kassem – Design and evaluation of short-term performance of warm asphalt mix (Department of Civil and Environmental Engineering, American University of Beirut, Beirut, Lebanon); **Completed May 2017**

<sup>1</sup> Abdul Hadi Debs Endowment Award for Academic Excellence an award given to a graduating student, at the graduate level, with an outstanding academic record who has demonstrated research capabilities through a paper, project or thesis deemed worthy of publication

- Ajay Kathuria – Functional properties and stability of PLLA-metal-organic framework based mixed matrix membranes; (School of Packaging, Michigan State University, East Lansing, MI); **Completed August 2013**

## PROFESSIONAL DEVELOPMENT

- Training on Selected Sustainable Development Goals (SDGs) Indicators for the Arab Region.* The United Nations Economic & Social Commission for Western Asia (ESCWA) and the United Nations Environment Programme (UNEP) jointly conducted the training on selected SDGs. the SDGs include SDG 14.1.1 – 14.2.1, SDG 6.3.2, SDG 17.7.1 – 17.14.1, SDG 8.4.1/12.2.1 – 8.4.2/12.2.2, SDG 12.1.1 – 12.7.1, SDG 12.3.1(b) – 12.5.1, and SDG 12.6.1 – 12.c.1. May 25 – 27 and June 7 – 10, 2021.
- Food sustainability assessment: a methodological approach.* This course aimed to provide a comprehensive look at the different methodologies that, so far, have been developed arising from alternative perspectives and conceptual approaches. The course also explores the possibility of including and monitoring sets of feasible and measurable indicators for assessing the sustainability of food systems. Attention is provided to the complexity of food systems and resolving conflicts arising from trade-offs among indicators. February 15–24, 2021.
- Environmental Sampler.* A 53-hour E-course offered by the Nielsen Environmental Field School as a Professional Certification Program for all sectors of the environmental field, including environmental consultants, contractors, and laboratories; state, regional, and local environmental regulatory and non-regulatory agencies; and industry (petrochemical, utility, mining, waste disposal, manufacturing, and others). This program aims to ensure that environmental samples and data are generated by trained, skilled, and experienced environmental professionals. This program provides a means to recognize individuals with the education, experience, and expertise required to produce defensible environmental samples and data through a formal certification process. January 11–28, 2021.
- Innovative Technologies to Process Foods.* A webinar organized by the International Society of Food Engineering (ISFE) and delivered by Dr. Gustavo Barbosa-Cánovas from Washington State University covers non-thermal food processing methods as viable alternatives to conventional processing techniques. The webinar highlights issues related to the safety of the products, quality and cost, and environmental and sustainability concerns. April 2020.
- Sustainable Foods Summit.* Food ingredients, new technologies, and green packaging were focal themes of the eleventh European edition of the Sustainable Foods Summit. With plastic pollution, a major concern for food & beverage firms, and sustainable packaging solutions, the summit explored new horizons for ecolabels and sustainability in the food industry. Amsterdam, The Netherlands. June 2019.
- Food Loss Analysis Case Study Methodology.* Food loss is a complex issue, often with multiple and interrelated causes operating at different levels. This e-learning course designed and offered by the Food and Agriculture Organization of the United Nations (FAO) introduces the FAO Case study methodology for analyzing critical food loss points. This method focuses on revealing and analyzing the multidimensional causes of losses in selected food supply chains, identifying critical loss points, and recommending feasible food loss reduction solutions and strategies. April 2018
- Financing the Future of Food: Maximizing Finance for Development in Agricultural Value Chains.* A webinar organized by the World Bank. The webinar discusses the World Bank Group's Maximizing Finance for Development (MFD) approach, which leverages private sector resources in fiscally, environmentally, and socially sustainable ways, a powerful engine for transforming the global food system into an engine of sustainable and inclusive growth. It explores MFD in agriculture and discusses opportunities to scale-up investments and innovation. The webinar is delivered by a diverse panel of speakers from the development, government, and business worlds, including Agnes Kalibata, President, Alliance for a Green Revolution in Africa (AGRA); Jorge Esteve Recolons, Member of the Executive Committee, ECOM Agro-industrial; Hans Peter Lankes, Vice President, Economics and Private Sector Development, IFC; David Kamenetzky, Chief Strategy & External Affairs Officer, ABInBEV; Mamadou Sangafowa-Coulibaly, Minister of Agriculture and Rural Development, Côte d'Ivoire; and Zeinab Badawi, International Broadcaster and Chair, Royal African Society. April 2018
- Measuring and Fighting Food Waste.* Reduction of food waste is incorporated into the target 12.3 of the 2030 Agenda of the Sustainable Development Goals, which states that the globe should halve per capita food waste at the retails and consumer levels. This webinar aimed to present some examples of efforts and initiatives that are being implemented by countries to meet target 12.3, focusing on their implementation mechanisms, success factors, and main challenges concerning both measuring and combating food waste. The webinar was organized by the Sustainable Food Systems Programme of the 10YFP and delivered by a diverse panel of speakers, including Mr. James Lomax, Sustainable Food Systems Officer, UN Environment; Ms. Camelia Bucatanu, Technical Officer (Food Waste), FAO; Ms. Elise Golan, Director for Sustainable Development, US Department of Agriculture; Ms. Lucero Cobos-Becerra, International Consultant, Food Waste Project Colombia; Ms. Daniella Kretz, Policy Coordinator, Ministry of Agriculture, Nature and Food Quality, The Netherlands; and Ms. Kathleen Machado, General Coordinator for Food Security and Nutrition, Ministry of Social Development, Brazil. April 2018
- Food Losses and Food Waste: The Role of Packaging.* The webinar discusses the role packaging plays in food loss and waste, along with the measures that can be taken to prevent this from happening. The webinar was organized by the Institute of Packaging Professionals and delivered by Dr. Johannes Bergmaier, Vice President of

Sustainability & Food Safety, World Packaging Organization. Vienna, Austria. January 2017

10. *Methods to Study Properties of Foods and Biomaterials and Their Role on Processing and Quality.* The webinar will present the various experimental approaches, including standard and acoustic rheology and atomic force microscopy used to characterize the mechanical properties of biomaterials. Physicochemical methods, including Fourier Transform Infrared (FT-IR) and Circular Dichroism (CD) spectroscopy and Molecular Modeling (MD) applied to study the structure of foods and biomaterials and their relationship to the functionality of the main components forming them. Moreover, the webinar highlights novel modeling approaches, notably drying, developed to describe the processing of biomaterials by including the material composition and its structural complexity. The webinar was organized by the International Society of Food Engineering (ISFE) and delivered by Dr. Osvaldo Campanella, Professor of Food Engineering, Purdue University, West Lafayette, Indiana, USA. April 2016
11. *High-Pressure Rheology: Introduction and Applications.* The webinar highlights the advantages of using pressure rheometry illustrated in four case studies: 1. Performing real-time accelerated aging tests on biomass pyrolysis oils 2. Measuring the viscoelastic properties of surfactant-sugar-oil complex glasses 3. Quantifying "live oil" viscosity by saturating heavy crude oil with methane 4. Exploring the flow assurance of methane hydrates created in the pressure rheometer cell. The webinar was organized by TA Instruments and delivered by Matthew Liberatore, Associate Professor of Chemical Engineering, University of Toledo, Toledo, Ohio, USA. October 2015.
12. *2<sup>nd</sup> MED Solutions Conference: Solutions for Agri-food sustainability in the Mediterranean – Policies, technologies, and business models.* The conference provided a platform for debate and exchange of information for network partners, policymakers, scholars, and stakeholders who have an interest in agro-food sustainability in the Mediterranean region. Outputs of the conference include a position paper summarizing the challenges facing Mediterranean societies, an exchange of views on relevant regional indicators and targets for sustainable agriculture, and the adoption of possible solutions. University of Siena, Siena, Italy, March 2015
13. *NESSI (the Network Software and Services Initiative) Member's and International Day Workshop.* The purpose of this workshop was to set up a "Proposal development & consortium formation" Workshop in view of the H2020 calls closing in April 2015 to enhance collaboration between NESSI members, other ETP members, and organizations from the International Co-operation partner countries. The event aimed at an open dialogue to discuss and elaborate proposal ideas and start building proposals under the ICT topics identified. The event reinforced industrial cooperation and ICT research, development, and innovation through better networking between European ICT Technology Platforms and International Co-operation partner countries. Universidad Autònoma de Barcelona, Bellaterra, Barcelona, Spain. November 2014
14. *Food Fraud Overview MOOC (Massive Open Online Course).* This online course provided an insight into the emerging corporate need for Food Fraud Management. The course drew on a wide range of current experience and expertise, infusing many real-world applications and problem-solving exercises. The course instructor is Dr. John Spink, Michigan State University, East Lansing, MI, USA. November 2014
15. *The Secrets of Package Optimization.* The webinar explored various areas where packaging can further reduce costs. It also provided insights on improving package optimization, which can pay huge dividends in reducing warehouse storage, handling, and transportation costs. The webinar was organized by the Institute of Packaging Professionals and delivered by Terry Harris, Managing Partner, Chicago Consulting, and Jeff Haushalter, Partner, Chicago Consulting. August 2014
16. *The One-Handed World – Package for One-Handed Usage or Lose.* This webinar provided foresight on the new trend of one-handed use and shed light on innovation in package development. The webinar was organized by the Institute of Packaging Professionals and delivered by Kelley Styring, Principal, InsightFarm Inc. March 2014
17. *Food Biotechnology Training Course for Developing Countries.* This 6-day training course was organized by CAS-TWAS Centre of Excellence for Biotechnology and sponsored by CAS- Chinese Academy of Sciences and TWAS- the World Academy of Sciences, to advance science in developing countries. The course covered classical biotechnology and genomics for new and improved food products. It aimed to spread new knowledge and initiate new research and development activities in developing countries. It also provided the ground to exchange ideas with scientists from China and other developing countries. Beijing, China. November–December 2013
18. *Analyzing Polymer Molecular Weight Distribution and Blend Morphology Using Rheology.* This webinar was organized by TA Instruments (New Castle, DE) and delivered by Prof. Chris Macosko, the director of the Industrial Partnership for Research in Interfacial and Materials Engineering and Professor of Chemical Engineering and Materials Science at the University of Minnesota and a member of the National Academy of Engineering. November 2013
19. *Orthogonal Superposition Rheology.* This webinar was organized by TA Instruments (New Castle, DE) and delivered by Prof. Jan Vermant, professor and chair of Chemical Engineering at the KU Leuven, the University of Leuven in Belgium. September 2013
20. *Rheological Fingerprinting of Complex Fluids and Soft Solids using Large Amplitude Oscillatory Shear.* This webinar described a framework for quantifying and physically interpreting deviations from linearity that considers the 2D space of frequency and strain amplitude to generate a unique 'rheological fingerprint' of a viscoelastic material. This webinar was organized by TA Instruments (New Castle, DE) and delivered by Prof. Gareth H. McKinley, Professor

of Mechanical Engineering, Director of the Hatsopoulos Microfluidics laboratory, and Director of Program in Polymer Science & Technology, Massachusetts Institute of Technology. September 2013

21. *Interfacial Rheology*. This webinar covered the fundamental forces that drive interfacial dynamics and stability, what can be learned about product performance and therapeutic efficacy, and how to measure them accurately. The webinar was organized by TA Instruments (New Castle, DE) and delivered by Prof. Gerald Fuller, Stanford University. February 2013
22. *Sustainability: Step 1 = Better Design*. The webinar discussed best practices for maximizing space density, what packaging engineers need to know to extend their influence in the packaging process, and where and how to find meaningful cost savings-you may not be looking in all the right places. The webinar was organized by the Institute of Packaging Professionals and delivered by Kevin Howard, Senior Packaging Consultant, Packnomics LLC. September 2012
23. *Sustainability in Packaging: Can the momentum be sustained?* The webinar covered key aspects of developing and implementing a sustainability strategy, platforms, and tools for package and product design from a food manufacturer's point of view; the case of Kraft Foods. It discussed the different efforts to standardize metrics for sustainability through better understanding and cooperation among packagers worldwide. In addition, it provided an update on the current practices to improve packaging sustainability while highlighting the Sustainable Packaging Coalition. This webinar was organized by Kraft Foods, the Sustainable Packaging Coalition, and Packaging Digest. December 2011
24. *Four Key Questions for Designing Great Packages*. This webinar addressed the four key questions regarding designing a new ground-breaking package. It covered the competitive analysis, consumer research, voice of the customer, and bridging communication gaps. It addressed three critical stages that define a consumer's experience with a new package from purchase through use. In addition, the webinar covered the current hot trends in closure design from around the world. Organized by Weatherchem Corporation (Twinsburg, Ohio, USA) in collaboration with Packaging World (Schaumburg, Illinois, USA). December 2011
25. *Revolution in Motion: Rise of the Machine Automation Controller*. Webinar on the various Machine Automation Controllers applications in robotics, packaging, and material handling organized by Omron Industrial Automation in collaboration with Packaging World, Automation World, and Design World. Schaumburg, Illinois, USA. December 2011
26. *Thermal Analysis and Rheology of Thermosetting Polymers*. The course presented an overview of practical thermal analysis applications and the rheology of thermosetting resins. Thermal analysis techniques are differential scanning calorimetry, thermo-gravimetry, dynamic mechanical analysis, thermo-mechanical analysis, and oscillatory shear rheology. The course was organized by TA Instruments (Schaumburg, Illinois, USA) and Iowa State University (Ames, Iowa, USA). December 2011
27. *Sustainability and Packaging*. The forum was organized by the School of Packaging, Michigan State University. East Lansing, Michigan, USA. November 2011
28. *Critical Research Needs in Food and Packaging Industry*. The forum was organized by the School of Packaging and the Department of Food Science and Human Nutrition, Michigan State University. East Lansing, Michigan, USA. November 2011
29. *ENPI – CBC MED Technical Seminar and Partner Search Forum*. Organized by ENPI CBC Med, the Joint Managing Authority, and the Branch Office in Aqaba. Bristol Hotel, Beirut, Lebanon. June 2011
30. *Water and Waste Water Treatment*. EMCO organized the seminar in Biel, Beirut, Lebanon. June 2011
31. *Regional Conference of Food Security in the Middle East and North Africa*. The American University of Beirut, Beirut, Lebanon. June 2011
32. *ENPI – CBC MED Technical Seminar and Partner Search Forum*. Organized by ENPI CBC Med, the Joint Managing Authority, and the Liaison Office in Valencia. The conference aimed at reinforcing cooperation between the European Union and partner countries and regions along the shores of the Mediterranean Sea. ADEIT - Fundación Universidad Empresa de Valencia, Valencia, Spain. May 2011
33. *Save Food Congress*. Organized by Messe Düsseldorf in cooperation with the Food and Agriculture Organization of the United Nations. This international congress focused on the conflict between nutrition, packaging, and sustainability. The Congress brought together key stakeholders from the food and packaging industries, retail, politics, administration, research, and civil society in Düsseldorf to address global food supply, supply security, urbanization, food development, marketing, and logistics, recycling, and agricultural economy. Düsseldorf, Germany. May 2011
34. *Interpack* – The world's most important trade fair for the packaging sector and related processing industries. Messe Düsseldorf, Düsseldorf, Germany. May 2011
35. *Food Quality and Safety in the Lebanese Industry*. This workshop was organized by the Lebanese Ministry of Agriculture in collaboration with the Order of Engineers and Architects, Beirut, Lebanon. April 2011

36. *Symposium on Consumer Protection and Food Safety*. Organized by the Faculty of Agricultural and Food Sciences, the American University of Beirut, in collaboration with the Lebanese Ministry of Economics – Consumer Protection. Beirut, Lebanon. March 2011
37. *PACK EXPO International*, North America's largest packaging and processing show. McCormick Place, Chicago, IL, USA. October 2010
38. *Food Safety and Packaging: The Hazards, Recalls, and New Strategies*. This seminar was organized by the Institute of Packaging Professionals at PACK EXPO International, McCormick Place, Chicago, IL, USA. October 2010
39. *Required Packaging GMPs (Pre-Requisite Programs): One Voice from the CPG Companies*. This seminar was organized by the Institute of Packaging Professionals at PACK EXPO International, McCormick Place, Chicago, IL, USA. October 2010
40. *Food Packaging in Lebanon*. This seminar was organized by the Market Access and Compliance of Lebanese Export Project (UNIDO and LibanPack) at Moevenpick Hotel, Beirut, Lebanon. April 2010
41. Diversity Workshop, Purdue University, West Lafayette, IN, USA. March 2004
42. The Institute of Food Technologists Annual Meeting and Food Exposition, Las Vegas, NV, USA. July 2004
43. Diversity Workshop, Purdue University, West Lafayette, IN, USA. March 2003
44. The 20<sup>th</sup> Annual Aseptic Workshop, Food Science Department, Purdue University, West Lafayette, IN, USA. June 2003
45. The Institute of Food Technologists Annual Meeting and Food Exposition, Chicago, IL, USA. July 2003

## **CAPACITY BUILDING WORKSHOPS, GUEST LECTURER/INVITED SPEAKER, CONSULTANCIES, PUBLIC SERVICE AND SERVICES TO THE PROFESSION**

### **Capacity Building Workshops**

1. A 1-day open forum entitled the Lebanese Agro-Food Industry and Universities: A LOVE-HATE Relationship. Valuing the relationship between Industry and Academic institutions as a critical component of national efficient innovation schemes and a key to economic growth, in Lebanon, such alliances face pronounced barriers calling for a distinguished approach to promoting such collaborations. This forum highlighted the importance of bridging the Lebanese industry professionals, in general, and the agro-food industry experts with local research, academic institutions, and universities. The open forum discussed through various viewpoints and experiences the challenges and opportunities to build successful links between the parties of interest. These links can contribute to establishing new avenues and innovative ideas for products with potential market opportunities at a lower R&D cost. The American University of Beirut, Beirut, Lebanon. April 2019
2. 2-day workshop on climate-smart food preservation and processing technologies in collaboration with FAO. The workshop was attended by more than 100 representatives from FAO Rome, FAO Regional Office, and FAO Lebanon, in addition to representatives from the Ministries of Agriculture and Economy and Trade, local and regional NGOs, and cooperatives from Jordan, Egypt, Sultanate Oman, Qatar, Sudan, Iraq, Tunisia, and Morocco. Representatives from local industries and universities were also among the audience. Beirut, Lebanon. June 2018
3. 1-day capacity-building workshop on packaging in promoting traditional/local food products. The workshop involved 12 women from different cooperatives in Southern Lebanon. It was hosted by Tyre Municipality and sponsored by the Italian Embassy. Tyre, Lebanon. March 2018
4. 1-day capacity-building workshop on the role of packaging as a marketing tool. The workshop involved 24 women from different cooperatives across Lebanon. It was hosted by the Rural Delights cooperative and sponsored by the UNDP and the Royal Norwegian Embassy. Gemmayzeh, Beirut, Lebanon. December 2017
5. 1-day workshop and local training focusing on some packaging problems with examples from the Lebanese industry along with proposed solutions to improve cost efficiency without jeopardizing the quality and safety of the product. The workshop also included a tour of the Packaging Lab at the Department of Nutrition and Food Sciences and a demonstration of some package testing. The workshop was held in collaboration with Euro-Lebanese Centre for Industrial Modernization (ELCIM) and the Lebanon Industry Value Chain Development Project, DAI, funded by United States Agency for International Development (USAID). AUB, Beirut, Lebanon. February 2016
6. 2-day workshop and local training on a new methodological tool to assess the economic, environmental, community, and social impact of new and existing projects under the proposed EDILE label (Economic Development through Inclusive and Local Empowerment). The workshop was organized by the Chamber of Commerce, Industry and Agriculture of Beirut and Mount Lebanon (CCIA-BML), EDILE's EU partners lesMed, a cooperative from Barcelona, Spain, and ClassM, a business solution company from Marseille, France. The training workshop was held in Beirut, Lebanon. September 2015

7. 3-day workshop and capacity building on food processing, including wheat processing, dairy processing, and fruits and vegetables preservation methods. The workshop was organized in collaboration with Aghthia Group PJSC. Al Ain, UAE. May 2015
8. 3-day workshop and capacity building on food processing, including wheat processing, dairy processing, and fruits and vegetables preservation methods. The workshop was organized in collaboration with Aghthia Group PJSC. Abu Dhabi, UAE. April 2015
9. 6-day Organic Fresh Produce Packaging workshop in Ajloun Governorate, Jordan, at Al Kifah Cooperative Society. The workshop was funded United States Agency for International Development (USAID) and ACDI/VOCA, the Farmer-to-Farmer program. Amman, Jordan. May 2013
10. Co-instructed with Dr. Ghassan Chehab (Civil and Environmental Engineering Department, Faculty of Architecture and Engineering, AUB) a special workshop for Dar Al-Handasah, Shair, and partners, on construction materials. The workshop was designed to train engineers on various construction materials and their properties, including the rheological properties of asphalt/bitumen binder and the various methods used to measure them. Ten engineers and management personnel from the Geotechnical and Heavy Civil Engineering Department attended the workshop. Beirut, Lebanon. April 2013
11. 4-day seminar series on Food Packaging in collaboration with the United States Agency for International Development (USAID) and ACDI/VOCA, Farmer-to-Farmer program. The lectures covered the role of packaging in maintaining product quality and safety, shelf life modeling, barrier, migration and product-package interaction, packaging of fresh produce, post-harvest handling, and modified atmosphere packaging (map) as sustainability and recycling. The seminar series was well attended by 124 individuals representing local and international NGOs, Ministries, and packaging professionals. Beirut, Lebanon. March 2013
12. 3-day workshop and capacity building in implementing laboratory procedures to understand the effect of different ingredients and processing conditions and parameters on the quality of jams, jellies, marmalades, dairy production, bread making, blanched vegetables, and emulsion stabilization. Lebanese European Agro-Food VTE project, Kab Elias, Lebanon. July 2011
13. 3-week workshop on packaging fundamentals for the food and packaging industry professionals. The course covered the various packaging materials, properties, and applications. Liban Pack, Beirut, Lebanon. September 2010

#### Invited Speaker/Guest Lecturer

1. M.G. Abiad (2022). "Port of Beirut Waste – Towards a Circular Economy." Environmental Workshop, Economic and Social Council & Ministry of Environment. Beirut, Lebanon.
2. M.G. Abiad (2022). "Import Substitution in Lebanon – Trends, and Opportunities for the Agro-Food Processing Sector: The Role of Academia and Research Laboratories in Supporting Research and Development Activities." HORECA 2022. Beirut, Lebanon.
3. M.G. Abiad. (2022). "Regional Expert Consultation - Food Loss and Waste Reduction for Transforming Agrifood Systems in the Near East and North Africa" Towards a Regional Framework of Action." Cairo, Egypt
4. M.G. Abiad. (2022). "Food Losses, Food Waste Reduction, and Organic Waste Management in the Mediterranean Region." Union for the Mediterranean. Barcelona, Spain.
5. M.G. Abiad. (2019). "Innovative Blends to Meet the Sustainability Trends in the Beverage Industry." The 9<sup>th</sup> Arab Beverages Conference, Dubai, UAE
6. M.G. Abiad. (2019). "Sustainable Packaging: Trends, Challenges & Recommendations." Ease MED 2019 – Packaging Processing Printing & Paper Conference, Beirut, Lebanon
7. M.G. Abiad. (2019). "Trends in Sustainable Food Packaging." AGBU 236 – New Trends in Agricultural and Food Systems. The American University of Beirut, Beirut, Lebanon
8. M.G. Abiad. (2018). "Trends in Food Packaging." AGBU 236 – New Trends in Agricultural and Food Systems. The American University of Beirut, Beirut, Lebanon
9. M.G. Abiad. (2017). "Food Packaging & Sustainability." AGBU 236 – New Trends in Agricultural and Food Systems. The American University of Beirut, Beirut, Lebanon
10. M.G. Abiad (2017). "Taking Action on Food Waste: A Worthy Challenge for the Agro-Food Industry." Workshop on *Industry and Environment: Cost-saving and profitable solutions* organized by The USAID-funded Lebanon Industry Value Chain Development – LIVCD project in collaboration with the Association of Lebanese Industrialists (ALI), Beirut, Lebanon
11. M.G. Abiad (2017). "Reducing Food Waste: A Worthy Challenge for Food Producers." Seminar series organized by the Industrial Research Institute (IRI) and the Euro-Lebanese Centre for Industrial Modernization (ELCIM). HORECA 2017, Beirut, Lebanon



12. M.G. Abiad (2016). "Sustainable Packaging: A Solution to Many Problems." Seminar series organized by the Industrial Research Institute (IRI) and the Euro-Lebanese Centre for Industrial Modernization (ELCIM). HORECA 2016, Beirut, Lebanon
13. M.G. Abiad (2016). "Assessing the economic, environmental, community, and social impact of new and existing projects under the proposed EDILE label (Economic Development through Inclusive and Local Empowerment). EDILE Regional Seminar, Barcelona, Spain
14. M.G. Abiad. (2015). "Introduction to Packaging." NFSC 288 – Technology of Food Products. The American University of Beirut, Beirut, Lebanon
15. M.G. Abiad (2015). "Food Safety Tips while Grocery Shopping." Fingerprints Children Center, Beirut, Lebanon
16. M.G. Abiad (2015). "The Role of Universities in the Development of New Products." TAIEX Workshop on Research and New Product Development for the Agro-food Sector. Organized in cooperation with the Euro Lebanese Centre for Industrial Modernization (ELCIM). Beirut, Lebanon
17. M.G. Abiad (2015). "Food Safety while Grocery Shopping." Fingerprints Children Center, Beirut, Lebanon
18. M.G. Abiad (2015). "Food Safety and Toddlers." Fingerprints Children Center, Beirut, Lebanon
19. M.G. Abiad. (2014). "Introduction to Packaging." NFSC 288 – Technology of Food Products. The American University of Beirut, Beirut, Lebanon
20. M.G. Abiad. (2014). "Thermal Analysis." NFSC 391 – Laboratory Methods in Nutrition and Food Science. The American University of Beirut, Beirut, Lebanon
21. M.G. Abiad. (2014). "Packaging Functionality and Sustainability: Designing Better with Less." Arab Beverage Association Annual Meeting, Cairo, Egypt
22. M.G. Abiad. (2014). "Thermal Analysis." NFSC 391 – Laboratory Methods in Nutrition and Food Science. The American University of Beirut, Beirut, Lebanon
23. M.G. Abiad. (2013). "Introduction to Packaging." NFSC 288 – Technology of Food Products. The American University of Beirut, Beirut, Lebanon
24. M.G. Abiad. (2013). "How to Prepare a Poster Presentation." AGSC 295 – Graduate Seminar. The American University of Beirut, Beirut, Lebanon
25. M.G. Abiad. (2012). "Metal-Organic Frameworks and their Potential Applications in Food Packaging." Faculty of Agricultural and Food Sciences Brown-bag Seminar Series. The American University of Beirut, Beirut, Lebanon
26. M.G. Abiad. (2011). "An Overview of Lebanon and AUB." Brown-bag Seminar Series, School of Packaging, Michigan State University, East Lansing, Michigan, USA
27. M.G. Abiad. (2011). "Food Processing and Packaging." AGSC 201 – Orientation to Agriculture and Food Systems. The American University of Beirut, Beirut, Lebanon
28. M.G. Abiad. (2010). "Introduction to Thermal Analysis: Food and Pharmaceutical Applications." Faculty of Agricultural and Food Sciences Brown-bag Seminar Series. The American University of Beirut, Beirut, Lebanon
29. M.G. Abiad. (2010). "Facilities Planning and Design." NFSC 290 – Food Services Management. The American University of Beirut, Beirut, Lebanon
30. M.G. Abiad. (2010). "Introduction to Food Engineering." AGSC 201 – Orientation to Agriculture and Food Systems. The American University of Beirut, Beirut, Lebanon
31. M.G. Abiad. (2009). Co-chair - Rheology session at the Conference of Food Engineering, Columbus, Ohio, USA
32. M.G. Abiad. (2009). "Novel Methods to Measure Thermal and Rheological Properties of Food and Pharmaceutical Material." IPPH 696 – Seminar in Industrial and Physical Pharmacy. Purdue University, West Lafayette, Indiana, USA
33. M.G. Abiad. (2009). "Glass Transition and Powder Processing." Whistler Center for Carbohydrate Research, Purdue University, West Lafayette, Indiana, USA
34. M.G. Abiad. (2009). "Glass Transition, Rheology, and Food Processing." The American University of Beirut, Beirut, Lebanon
35. M.G. Abiad. (2008). "Introduction to Rheology." IPPH 562 – Pharmaceutical Manufacturing, Purdue University, West Lafayette, Indiana, USA
36. M.G. Abiad. (2008). "Introduction to Dynamic Mechanical Analysis." Department of Industrial and Physical Pharmacy, School of Pharmacy, Purdue University, West Lafayette, Indiana, USA
37. M.G. Abiad. (2004). "Arab Americans and Cultural Differences." Diversity Workshop, School of Agriculture, Purdue University, West Lafayette, Indiana, USA

38. M.G. Abiad. (2004). "Stereotypes: Arab Americans and Terrorism." Diversity Workshop, School of Agriculture, Purdue University, West Lafayette, Indiana, USA
39. M.G. Abiad. (2004). "Arab Americans and the Feel of Belonging." Diversity Workshop, School of Agriculture, Purdue University, West Lafayette, Indiana, USA
40. M.G. Abiad. (2003). "Package Integrity Testing." 20th Annual Aseptic Workshop, Food Science Department, Purdue University, West Lafayette, Indiana, USA
41. M.G. Abiad. (2003). "Arab Americans and the Feel of Belonging." Diversity Workshop, School of Agriculture, Purdue University, West Lafayette, Indiana, USA

### Consulting Services

- Sonaco – Al-Rabih  
Ghefrine, Byblos, Lebanon July 2021 - present  
*Product and process development*
- INDEVCO  
Zouk Mosbeh, Lebanon January 2018 - present  
*Packaging testing and quality monitoring*
- Touma Development s.a.r.l.  
Jal el Dib, Lebanon December 2016 - present  
*Advising and assisting in the development and formulation of new food products; advising and evaluating packaging material for selected products; assisting in the design and evaluation of various food processes including but not limited to machinery design and selection; shelf-life evaluation of various food products; provide scientific and sound solutions where applicable to extend the shelf-life of new and existing products*
- Nabat Organic  
Zouk Mosbeh, Lebanon August 2019 - present  
*Product development and shelf-life testing*
- Hallab 1881  
Tripoli, Lebanon August 2019 - present  
*Product development, shelf life testing, packaging testing and quality monitoring*
- Sonaco S.A.R.L. – (Al-Rabih)  
Ghefrine, Byblos, Lebanon August 2019  
*Product development and shelf life studies*
- Terna GEK  
Iraq, Baghdad July 2019  
*Rheological testing and analysis of emulsions*
- ALTCOM  
Iraq, Baghdad July 2019  
*Rheological testing and analysis of emulsions*
- AlNaboodah  
Iraq, Baghdad June 2019  
*Rheological testing and analysis of emulsions*
- Agrifresh  
Zahle, Lebanon February 2019 – December 2019  
*Shelf life testing, packaging testing and quality monitoring*
- Milco  
Ghaziyyeh, Lebanon Jan. 2019 – May 2019  
*Processing optimization and quality monitoring*
- Sanita  
Zouk Mosbeh, Lebanon Jan. 2019 – Sept. 2019  
*Product development and testing*
- Sanitary Paper Co. – (Mimosa)  
Zahleh-Qaa el Rim, Lebanon February 2016 – December 2020  
*Packaging testing and quality monitoring*
- Biolicious s.a.l.  
Achrafieh, Lebanon November 2016  
*Advising, testing, and evaluating packaging material for selected products*

- Lebanese Ministry of Environment  
Support to Reforms – Environmental Governance (StREG) June 2015 – Nov. 2015  
*The project involved developing an analysis of tools to support solid waste management in Lebanon, including (1) fiscal instruments to support recycling and (2) solid waste management charges. Recycling-related activities include the collection of data, analysis of the amount of subsidy needed to enable the industry to grow, design of fiscal instruments for implementing such subsidies; development of the legal and institutional framework for implementing them; and drafting the laws, decrees, or guidelines needed to implement them.*
- Chamber of Commerce, Industry & Agriculture of Beirut & Mount Lebanon  
Economic Development through Inclusive and Local Empowerment (EDILE) July 2014 – Sept. 2015  
*The project involved developing a toolkit for investment evaluation based on good sustainability practices and conducting training and capacity-building workshops for the Agro-food industry in Lebanon and partner countries. The scope of work also involved the assessment of two pilot projects from Lebanon in the scope of EDILE. In addition to Lebanon, the EDILE team included partners from France, Tunisia, Italy, and Spain.*
- Sanitary Paper Co. – (Mimosa)  
Zahleh-Qaa el Rim, Lebanon June 2015  
*Packaging testing and quality monitoring*
- Sugar Beet Processing Co. S.A.L. (شركة تصنيع الشمندر السكري ش.م.ل.)  
Anjar, Lebanon January 2015  
*Provided an expert report on the interpretation of the laboratory testing results for granulated white sugar, which was presented to the Lebanese courts during the Ministry of Health vs. Sugar Beet Processing Co. case*
- Lebanese Ministry of Agriculture  
Beirut, Lebanon January 2015  
*Provide an expert report on the interpretation of the laboratory testing results for imported wheat samples regarding safety, quality, and suitability for human consumption before issuing approval for entry into the country*
- Radisson Blue Martinez Hotel  
Phoenicia Street, Ain El Mreysseh, Beirut, Lebanon January 2015  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Sugar Beet Processing Co. S.A.L. (شركة تصنيع الشمندر السكري ش.م.ل.)  
Anjar, Lebanon December 2014  
*Provided an expert report on the shelf-life of granulated white sugar, which was presented to the Lebanese courts during the Ministry of Health vs. Sugar Beet Processing Co. case*
- MGR Hatem  
Beir El Heit Zebdin, Jbeil, Lebanon December 2014  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Al Wafaa Modern Bakery  
Al Kafaat area, Hadi Nasrallah highway, Al Wafaa Bldg, Beirut, Lebanon December 2014  
*Quality and safety monitoring including microbiological analyses of various food samples*
- Assaad Food & Beverage S.A.L. – (PF Changs)  
Makdisi Street, Hamra, Beirut, Lebanon December 2014  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Main Street S.A.L.  
Badaro, Main Street, Beirut, Lebanon December 2014  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Roadster Diner  
Bsalim Road, Bsalim, Metn, Lebanon December 2014  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Ministry of Food – (Classic Burger)  
Sodeco, Petro Trad Street, Beirut, Lebanon December 2014  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Skateboard – (Found'd Group)  
Kaslik- Zouk Mosbeh-Zeidan Bldg., Lebanon December 2014  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Breakfast & Co. (Zaatar w Zeit)  
Kaslik- Zouk Mosbeh-Zeidan Bldg., Lebanon December 2014  
*Quality and safety monitoring, including microbiological analyses of various food samples*
- Sanitary Paper Co. – (Mimosa)  
Zahleh-Qaa el Rim, Lebanon December 2014

*Packaging testing and quality monitoring*

- Al Kazzi Trading S.A.L.  
Jisr el Bacha Industrial Area, Beirut, Lebanon  
*Packaging testing and quality monitoring* November 2014
- Roadster Diner  
Bsalim Road, Bsalim, Metn, Lebanon  
*Quality and safety monitoring, including microbiological analyses of various food samples* September 2014
- Assaad Food & Beverage S.A.L. – (PF Changs)  
Makdisi Street, Hamra, Beirut, Lebanon  
*Quality and safety monitoring, including microbiological analyses of various food samples* July 2014
- Roadster Diner  
Bsalim Road, Bsalim, Metn, Lebanon  
*Quality and safety monitoring, including microbiological analyses of various food samples* July 2014
- Societe Mouawad Edde S.A.R.L.  
Fouad Chehab Avenue, Borj Al Ghazal Bldg., Tabaris, Beirut, Lebanon  
*Rheological testing and analysis of emulsions* June 2014
- MM Sinno & Sons S.A.L.  
Sinno Bldg., Ne'mat Yafith Street, Hamra area, Beirut, Lebanon  
*Consulting on new product development: chemical analysis* October 2013
- ARACO Lebanese Asphalt S.A.L.  
Green Park Bldg., Kaskas area, Beirut, Lebanon  
*Rheological testing and analysis of asphalt binders and emulsions* October 2013
- Freiha Falafel  
Salam Street, Hayek bldg., Ashrafieh, Lebanon  
*Consulting on new product development: processing, packaging and shelf-life study* August 2012
- Sonaco S.A.R.L. – (Al-Rabih)  
Ghefrine, Byblos, Lebanon  
*Consulting on US Food and Drug Administration (FDA) compliance for low-acid and acidified canned food. Develop heat penetration profiles and required processing conditions for several products* February 2012
- Al-Rifai Roastery  
Corniche Al Mazraa, Beirut, Lebanon  
*Consulting on packaging solutions for roasted nuts and shelf-life evaluation* January 2012
- Quatrah Beverage Innovations and Development Competition  
Arab Beverage Association, Beirut, Lebanon  
*Developed guidelines rules and procedures for the Beverage Innovations and Development Competition for the nonalcoholic beverages industry in the other Arab countries (Quatrah Annual Competition) and served on the judging panel* September 2011
- Sonaco S.A.R.L. – (Al-Rabih)  
Ghefrine, Byblos, Lebanon  
*Consulting on US Food and Drug Administration (FDA) compliance for low-acid and acidified canned food. Develop heat penetration profiles and required processing conditions for several products* August 2011
- Lebanese European Agro-Food Vocational Training and Employment Project  
Kab-Elias, Beqaa, Lebanon  
*Capacity building in design and implementation of experimental procedures  
The main objectives were to design, develop and implement agro-food laboratory scale production procedures to facilitate the understanding of the various roles of key ingredients/parameters in food processing* July 2011
- The Lebanese Packaging Center – (Liban Pack)  
Beirut, Lebanon  
*Consulting on various projects regarding proper packaging material selection and package design* 2010-2011
- United Nations Industrial Development Organization (UNIDO) – MACLE Project  
Beirut, Lebanon  
*Consulting on the Market Access and Compliance for Lebanese Export (MACLE) project regarding packaging, package design and proper material selection for Lebanese products to be able to comply with international regulations and standards and to improve quality as to compete and have access to international markets* 2010-2011
- Quatrah Beverage Innovations and Development Competition  
Arab Beverage Association, Beirut, Lebanon  
*September 2010*

*Developed guidelines rules and procedures for the Beverage Innovations and Development Competition for the nonalcoholic beverages industry in the other Arab countries (Quatrah Annual Competition) and served on the judging panel*

- Al-Amira Nuts  
Kfarsaroun El-Koura, Lebanon September 2010  
*Facility inspection and planning and recommendations for expanding the existing factory and rebuilding as to comply with HACCP and GMP's implementation*
- FPP Jana  
Deir Koubel, Lebanon February 2010  
*Facility inspection and planning and recommendations for expanding the existing factory and rebuilding as to comply with HACCP and GMP's implementation as well as ISO 22000*
- Caritas  
Sin el-Fil, Lebanon January 2010  
*Evaluation of pilot plant set up for the production of fruit preserves and jam, including recommendations and design analysis, and plant layout*

#### **LIBNOR Committees – National Standards (Public Service)**

1. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Chocolate and Cocoa Powder and Butter (NL TC1032); *Since 2019*
2. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Sugar and Polysaccharides (NL TC1031); *Since 2019*
3. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Essential Oils (NL TC54); *Since 2016*
4. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Pulses and Grains (NL TC34 SC4zein); *Since 2016*
5. The National Committee for Monitoring and Controlling Wheat, Lebanese Ministry of Agriculture; *Since 2016*
6. The National Committee for Agricultural Manufacturing and Food Products, Lebanese Ministry of Agriculture; *Since 2010*
7. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Packaging (NL TC122); *Since 2010*
8. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Safety of Food Processing Machinery (NL TC 653); *Since 2009*
9. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Food additives (NL TC 1008); *Since 2009*
10. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Food Labeling (NL TC 1011); *Since 2009*
11. The Lebanese National Standards Institution (LIBNOR), Lebanese Ministry of Industry, Technical Committee on Paper, Board and Pulp, Glass and Metal Containers (NL TC 3010); *Since 2009*

#### **Services to the Profession**

Reviewer for the Institutional Review Board (IRB) at AUB

External Reviewer for Khalifa University of Science & Technology, Abu Dhabi, United Arab Emirates, Competitive Internal Research Award program

Reviewer for the following international journals:

- Food Engineering
- Food Security
- Food Packaging and Shelf Life
- Sustainability
- PLOS one
- Food and Bioproducts Processing
- Food Quality and Preference
- Waste and Biomass Valorization
- Journal of Environmental Planning and Management
- Journal of Cleaner Production
- Food Quality and Preference
- RSC Advances
- European Review of Agriculture Economics
- Journal of Solid Waste Technology
- Journal of Materials in Civil Engineering
- Advances in Civil engineering

- Materials Letters
- International Journal of Food Properties
- Food and Bioprocess Technology
- Foodborne Pathogens and Disease
- Food Biophysics

Judge for the following competition:

- Darwazah Student Innovation Contest 2014 (Darwazah Center for Innovation Management and Entrepreneurship, Olayan School of Business, American University of Beirut)
- The Educational Robotics Tournament 2014 organized by First® Lego League Challenge
- Quatrah Beverage Innovations and Development Competition 2011 – Arab Beverage Association
- The Educational Robotics Tournament 2011 organized by First® Lego League Challenge

## UNIVERSITY, FACULTY, AND DEPARTMENTAL SERVICES

### University Standing Committees

1. Unified University Admissions Committee – <i>Member</i>	2021 - <i>present</i> 2010 – 2015
2. University Sports Committee – <i>Member</i>	2014 – <i>present</i>
3. Social and Behavioral Sciences Institutional Review Board (SBS-IRB) – <i>Member</i>	2014 – <i>present</i>
4. K.A.S. Central Research Science Laboratory Steering Committee – <i>Member – FAFS Representative</i>	2011 – <i>present</i>
5. Interfaculty Financial Aid Committee – <i>FAFS Representative (member)</i>	2011 – <i>present</i>
6. University Senate – <i>Elected FAFS Representative</i>	2015 – 2021
7. Senate Committee for Faculty Affairs (SCFA)	2018 – 2021
8. University Senate Steering Committee (SSC) – <i>Elected FAFS Representative</i>	2015 – 2018
9. University Disciplinary Committee – <i>Elected FAFS Representative</i>	2015 – 2021
10. University Committee on Student Affairs – <i>Elected FAFS Representative</i>	2017 – 2021
11. University Student Faculty Committee (USFC) – <i>Elected FAFS Representative</i>	2017 – 2020 Spring 2014 – 2015
12. Writing Center Advisory Board – <i>Member</i>	2013 – 2019
13. Nature Conservation Center Executive Committee – <i>Elected Member</i>	2013 – 2017
14. Nature Conservation Center for Sustainable Futures – <i>Member</i>	2009 – 2017
15. IBDA (Student Innovation Initiative) Organizing Committee – <i>Member</i> – <i>Chair</i>	2015 – 2016 2011 – 2014
16. Board of Graduate Studies – <i>Elected FAFS Representative</i>	2013 – 2016
17. Senate Admissions Committee – <i>Member</i>	2012 – 2015
18. Teaching Excellence Award Committee – <i>FAFS Representative</i>	2012 – 2014
19. Career Service Task Force – <i>FAFS representative (member)</i>	2012 – 2013
20. University Scholarship Program (USP – USAID) Selection Committee – <i>Member</i>	2012 – 2013
21. University Scholarship Program (USP – USAID) Selection Committee – <i>Member</i>	2012 – 2013



**University Ad-Hoc Committees and Task Forces**

- |  |             |
|--|-------------|
| 1. Middle States Commission on Higher Education (MSCHE) Reaccreditation – Self-Study working group addressing Standard VII: Governance, Leadership, and Administration | 2017 – 2019 |
| 2. Task Force for the Review of Grading System   | 2016 – 2019 |
| 3. Task Force for Design and Implementation of Electronic Voting System for Faculty Affairs  | 2017 – 2019 |
| 4. Provost Consultation Committee  | 2017        |
| 5. Faculty of Agricultural and Food Sciences Dean Search Committee   | 2016 – 2017 |
| 6. Task Force on Campus Master Plan and Academic Strategic Plan  | 2016 – 2017 |
| 7. USFC Bylaws Committee – <i>Designated Advisor by the Senate</i>   | 2016        |

**Faculty Standing Committees**

- |   |                            |
|---|----------------------------|
| 1. Faculty Admissions Committee                                       | 2021 – <i>present</i>      |
| 2. Faculty Social Committee   | 2019 – 2021                |
| 3. Faculty Space Committee  | 2019 – 2021                |
| 4. Faculty Student Affairs Committee – Member                         | 2019 – 2021                |
| – <i>Chair</i>  | 2017 – 2019                |
| – <i>Elected Member</i>   | 2016 – 2019                |
| – <i>Chair</i>  | 2014 – 2016                |
| – <i>Elected Member</i>   | 2010 – 2013                |
| 5. Student Representative Committee – <i>Elected Advisor</i>          | 2011 – 2021                |
| 6. Faculty Graduate Studies Committee – <i>Elected Member</i>         | 2013 – 2016                |
| 7. Faculty Undergraduate Admissions Committee – <i>Elected Member</i> | 2010 – 2015                |
| 8. Faculty Library Committee – <i>Elected Member</i>                  | 2013 – 2015<br>2009 – 2011 |
| 9. Faculty Academic and Curriculum Committee – <i>Elected Member</i>  | 2009 – 2011                |

**Departmental Committees and Task Forces**

- |   |             |
|---|-------------|
| 1. Departmental Search Committee for Professorial Position in Food Microbiology                 | 2021 – 2022 |
| 2. Program Review Committee   | 2020 – 2022 |
| 3. Task Force for the Development of BSc in Food Science & Technology Seeking IFT Certification | 2015 – 2016 |
| 4. Departmental Search Committee for Professorial Position in Food Microbiology                 | 2015 – 2016 |
| 5. Task Force for the Development of MS Program in Food Safety                                  | 2014 – 2015 |
| 6. Task Force to review Food Science and Management Certification/Accreditation                 | 2013 – 2015 |