



## **Majdi Ali Al-Mahasneh, Ph.D.**

### **Professor**

Department of Chemical Engineering  
Bioprocess and Food Engineering  
Jordan University of Science and Technology  
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<b>Professor in Chemical Engineering/ Bioprocess and Food Engineering</b>	<b>9-2012</b>
<b>Associate professor in Bioprocess and Food Engineering</b>	<b>7-2007</b>
<b>Assistant Professor in Bioprocess and Food Engineering</b>	<b>2-2003</b>
<b>Full Time Lecturer in Bioprocess and Food Engineering</b>	<b>2-2002</b>

### **EDUCATION**

Iowa State University, Ames, IA, USA  
**Ph.D. in Biosystems Engineering / Bioprocess and Food Engineering.** **2001**  
**Declared Minor: Food Science and Technology**

**Dissertation:** "Using Radio frequency spectral measurements for determination of corn mechanical damage"

**Honors: Dissertation passed "with Distinction"**

Iowa State University, Ames, IA, USA

**M.Sc. in Biosystems Engineering / Bioprocess and Food Engineering** **1998**

Thesis: "Comparison of the yield monitor and electronic scale for continuous yield measurement"

Iowa State University, Ames, IA, USA

**B.Sc. Biosystems Engineering / Power and Machinery**

**1995**

Jordan University of Science and Technology, Irbid, Jordan.

## **AREA OF SPECIALIZATION**

### **Bioprocess and Food Engineering:**

- Drying technology and energy utilization in food industry.
- Nano Applications of Food industry.
- Applications of Artificial Neural networks and Neural Fuzzy sets in modeling and classification of Food and Biological Systems
- Non-Newtonian Fluid Mechanics and Food Rheology.
- Applications of fluid Mechanics, thermodynamics, and heat transfer in Food and Biological systems.
- Design of food processing plants and equipment.

### **Bio-Instrumentation, Food quality and safety:**

- Food waste treatment and utilization, composting, biogas production, and food wastes characterization.
- Physical and Engineering properties of biomaterials, HACCP and GMP for food plants.
- Development of instrumentation and sensors for food and Safety and Quality

## **AWARDS**

- |   |             |
|---|-------------|
| • Research Excellence Award, Graduate college,<br>Iowa State University, USA                        | <b>2001</b> |
| • Teaching Excellence Award, Graduate college,<br>Iowa State University, USA                        | <b>1998</b> |
| • Outstanding Master's Student, Biosystems<br>Engineering department, Iowa State University,<br>USA | <b>1998</b> |

## **TEACHING EXPERIENCE**

**Iowa State University, USA**

Teaching Assistant

**1997-1999**

**Jordan University of Science and Technology, Irbid, Jordan**

Assistant Professor	<b>2002-2007</b>
Associate professor	<b>2007-2012</b>
Full Professor	<b>2012- now</b>

**King Saud University, Riyadh, Saudi Arabia**

Associate professor	<b>2012-Now</b>
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**Undergraduate courses (2002-2013):**

1. Fluid Mechanics
2. Thermodynamics
3. Heat Transfer
4. Engineering Mechanics (Statics and Dynamics)
5. Engineering Statics
6. Quality Control
7. Engineering Ethics
8. Unit Operations
9. Food Process Engineering
10. Statistics for Engineers
11. Biochemical Engineering
12. Fermentation Engineering
13. Food Processing Systems
14. Food Packaging and Sanitation
15. Harvesting Machinery
16. Biological Solid Wastes Treatment
17. Environmental Control of Plant and animal structures

**Master's Students Supervised (2010)**

Isra Kilani. Thesis title: Effect of Jam Processing on the physiochemical, phenolic compounds, antioxidants and

anthocyanins of different fruit Jams during storage.

### **Senior Graduation Projects Supervised (2002-2012)**

1. Design of automatic filling machine
2. Multi-purpose food processing unit
3. Design of a mixer
4. Dairy processing plant
5. Casketed heat exchanger design for milk pasteurization process
6. Applying solar energy to sesame roasting
7. Powder milk production
8. Peppermint oil extraction using steam distillation
9. Milk processing and dairy production.
10. Grain drying and Sesame dryer design
11. Evaluation of drinking water treated by RO for Ca content and its impact on calcium deficit.
12. HACCP on top fruit juice factory in Irbid.
13. Sugar syrup extraction from carob fruits.
14. Oil separation and rheological properties of Tahini
15. Energy -Exergy analysis of convective drying process of major food processing waste in Jordan : tomato pomace.
16. Design of poultry house HVAC system.

## **WORK EXPERIENCE**

### **1. PROFESSIONAL EXPERIENCE**

- **Chairman of Biosystems Engineering department at Jordan University of Science and Technology (2005-2008).**
- **Food And Agriculture Organization (FAO) consultant and National Expert. (2009)**
- Committee member of Accreditation Board of Engineering and Technology (**ABET**) in Engineering faculty at Jordan University of Science and Technology .
- Committee member for accreditation of Agricultural Engineering program by Saudi National Commission for Academic Accreditation & Assessment (**NCAAA**) at King Saud University.
- Department representative in College of Engineering council at Jordan University of Science and Technology for 6 years.
- Engineering faculty promotion committees at Jordan University of Science and Technology.
- Scientific research committee member at the department of chemical Engineering at Jordan University of Science and Technology (2011-2012).
- Scientific research committee member at the department of biosystems

Engineering at Jordan University of Science and Technology (2005-2008).

- Scientific research committee member at the department of Agricultural Engineering at King Saud University (2013).
- **Phi Kappa Phi** American academic honor society.
- **Alpha Epsilon** American academic honor society.
- Member of Institute of Food Technologists (**IFT**).
- Member of American Society of Agricultural Engineers (**ASAE**).
- Member of Jordan Engineer's Association, Mechanical Engineering Branch (**JEA**).
- Graduate Student's Senator at Iowa State University (**1999-2000**).

## **2. CONSULTATIONS AND FUNDED PROJECTS**

**Projects funded by Industry: A total fund of 68,500 JD (100,000 US\$) was obtained to develop local food and process industries.**

**2002 -  
Present**

### **1. Food And Agriculture Organization (FAO) consultant and National Expert. (2009).**

**Consultant and National Expert.** Representative of Jordan Agro-industries during the period 2006-2009. A report discussing agro-food industry sector priorities and policies was discussed in a regional FAO expert's workshop that was held in **Cairo, Egypt December 5-8 -2009**, with participants from **MENA countries** (Jordan, Syria, Lebanon, Egypt, Algeria and Morocco). **FAO (3200JD).**

### **2. Injaz Corn Chips plant, Jarash, Jordan (2005):**

Design and Development of scale up and automation for corn chips plant. Funded by **Higher counsel for Science and Technology ( 9,000 JD).**

### **3. Jawharat Alnassim for Potato chips production, Irbid, Jordan (2006)**

Design of a ready to use half fried potato fingers plant. Funded by **Higher counsel for Science and Technology (8,500 JD).**

### **4. Mesmar Dairy processing plant, Ramtha, Jordan (2003):**

Design and Development of a scale up for white cheese processing plant including a steam generator, salting tank, two double-jacketed stainless steel tanks. Funded by **Higher counsel for Science and Technology (14,000 JD).**

**5. Alsammah Dates processing Plant, Al-Mefreq, Jordan (2004).**

Developing dates canning line improving the thermal processing conditions to avoid dates syrup deterioration and plant scale up. Funded by **Higher counsel for Science and Technology (8,000 JD).**

**6. Alradaydeh Dairy Processing plant, Irbid, Jordan. (2006).**

Design and Development of a scale up for dairy and cheese processing plant including a pasteurizer, semi-automatic packaging machine, and milk skimmer. Funded by **Higher counsel for Science and Technology (9,000 JD).**

**7. Al-Beidoosy Tahini and Halva Processing Plant, Irbid, Jordan. (2005).**

Development of HACCP and GMP plan for tahini and halva plant. **Funded by JUMP program, Faculty for Factory Program. (3,500 JD).**

**8. Medmac Fertilizers and Pesticides plant. Irbid, Jordan (2006).** Improving the existing ventilation system and design of conveyor and automation for production for Agricultural powder pesticides processing section. **Funded by JUMP program, Faculty for Factory program. (3,500 JD).**

**9. Alte'awon corn chips plant. Jarash, Jordan. (2007).** Development of chips extrusion and packaging process by improving processing and packaging line. **Funded by NAFES program, Faculty for Factory program. (3,500 JD).**

**10. Jerash Plastic Bags Factory. Jerash, Jordan (2008).** Developing the quality standards and using recycled plastic resins in production of plastic bags for variety of applications including food packaging. **Funded by NAFES program, Faculty for Factory initiative. (3,500 JD).**

**11. Jordan Public Company for Bins and Supplies, Al-Ramtha, Jordan. (2007).** Characterization and utilization of grain bins dust. **Funded by Jordan University of Science and Technology. (3000 JD).**

**3. TRAINING COURSES AND WORKSHOPS.**

- Three practical Training courses on **Dairy processing, fruits and vegetables processing and Technology** at Jordan University of Science and Technology, Jordan

(2003-2007).

- **Pump Guide and Selection** training course. Held by cooperation with Engineer Omar Nemer form **Sadara Investment Company**, Amman, Jordan and in cooperation with King Abdullah Fund for Development at Jordan University of Science and Technology (2009).

#### **4. INDUSTRIAL EXPERIENCE.**

##### **1. Iowa State University, CASE-IH company, USDA, USA 1996-2001**

###### **Researcher:**

- Evaluation of Ag Leader grain yield monitor for CASE-IH combines company.
- Developed an energy and economic analysis of corn wet milling byproduct drying.
- Worked on designing a safe snow blower using Pro-Engineer software.

##### **2. Pella Corporation, Iowa, USA, 2001**

- **Internship** as an **Advanced Material Development Engineer**, in Pella Corporation, manufacturer of windows, doors, and frames for buildings. Developing high strength, light weight, heat insulating polymers, to substitute aluminum frames.

#### **RESEARCH AND PUBLICATIONS**

##### **1. REFEREED JOURNAL PAPERS.**

1. **Majdi A. Al-Mahasneh, T.S. Colvin (2000).** Verification of yield monitor performance for on-the-go measurement of yield with an in-board electronic scale. *Transaction of ASAE*. **43(4):801-807.**
2. **Majdi. A. Al-Mahasneh, Rababah T.M. (2007).** Effect of moisture content on physical properties of green wheat. *Journal of Food Engineering*. **79, 1467-1473.**
3. **Majdi A. Al-Mahasneh, Taha M. Rababah, W. Yang (2007).** Moisture Sorption Thermodynamics of Defatted Sesame Meal (DSM). *Journal of Food Engineering*. **81,735-740.**
4. **Majdi A. Al-Mahasneh, Taha M. Rababah, Mohammad A. Al-Shbool, W. Yang (2007).** Thin Layer Drying Kinetics of Sesame Hulls Under

Forced- Convection and Open Sun Drying. *Journal of Food Process Engineering*. **30**:324-337.

5. **Majdi A. Al-Mahasneh**, Nizar H. Samarah (2006). Effect of Mechanical Damage and Shriveling of Seed on Germination and Vigor of Two Wheat (*Triticum durum*) varieties. *Seed Research*. **34(2)**:191-195.
6. **Majdi A. Al-Mahasneh**, Hussein A. Ababneh, Taha M. Rababah. (2008). Some Engineering and Thermal properties of Black Cumin (*Nigella sativa L.*) Seed. *International Journal of Food Science and Technology*. **43**, 1047-1052.
7. **Majdi A. Al-Mahasneh**, T Rababah, H. Ababnah, M. Al-widyan, M. Al-Oudat, (2008). Grain Dust as Energy and Food source. *Natural Resources Research*. **17(1)**: 13-20.
8. **Majdi Al-Mahasneh**, Taha m. Rababah, Muhammad m. Al-u'datt , W. Yang (2010). Moisture sorption thermodynamics of fractionated sesame hulls (*sesamum indicum l.*). *Journal of Food Process Engineering*. **33(2010)**: 802-819.
9. **Majdi Al-Mahasneh**, H. Mousa, H. Jalamneh, I. Bani Hani, M. Zawahreh (2010). Evaluation of drinking water treated by reverse osmosis for calcium content and its impact on calcium deficit in Jordan. *Desalination and Water Treatment Journal*. **21 (2010)** 181–188
10. **Majdi A. Al-Mahasneh**, T. M. Rababah, M. M. Bani Amer, N. Al-Omari, M. K. Mahasneh (2013). Fuzzy and Conventional Modeling Of Open Sun Drying Kinetics For Roasted Green Wheat. *International Journal of Food Properties*. **16 (1)** , pp. 70-80.
11. **Al-Mahasneh, Majdi**; Rababah, Taha; Bani-Amer, Mashhor; AL-OMOUSH, Mohamad (2012). Modeling physical and rheological behavior of minimally-processed wild flowers honey. *Journal of food processing and preservation*. Article in Press
12. **Al-Mahasneh Majdi A.**, T .M. Rababah, A. S. Ma'abreh (2013). Evaluating the combined effect of temperature, shear rate and water content on wild-flower honey viscosity using adaptive neural fuzzy inference system and artificial neural networks. *Journal of Food Process Engineering*. Article in press.
13. Rababah T. M., **M. A. Al-Mahasneh**, K.I. Ereifej (2006). Effect of



Chickpea, Broad bean, or Isolated Soy Protein Additions on the Physiochemical and Sensory Properties of Biscuits. *Journal of food science*. **71(6): S438-S442.**

- 14.** Rababah T.M., K.I. Ereifej, **M. A. Al-Mahasneh**, and M. A. Al-Rababah (2006). Effect of plant extracts on physiological properties of chicken breast meat cooked using conventional oven and microwave. *Poultry Science*. **85:148-154**
- 15.** Ereifej K. I, **M. A. Al-Mahansneh** (2006). Effect of barley flour on quality of barely Bread. *International Journal of Food Properties*. **9: 39-49.**
- 16.** Rababah T.M., K.I. Ereifej, **M. A. Al-Mahasneh**, K. Ismaeal, Al-Gutha Haidar, and W. Yang (2008). Total phenolics, antioxidant activities, and anthocyanins of different grape seed cultivars grown in Jordan. *International Journal of Food Properties*. **11:472-479.**
- 17.** Taha M. Rababah, Khalil I. Ereifej, **Majdi A. Al-Mahasneh**, Mohammad N. Alhamad, Mohammad A. Alrababah, and Al-u'datt H. Muhammad (2008). The physiochemical composition of Acorns for two Mediterranean Quercus Soecies. *Jordan Journal of Agricultural Sciences*, **4(2):131-137.**
- 18.** Mohamad Al-Widyan, **Majdi Al-Mahasneh**, Hussein Ababneh (2008). Heat recovery opportunities from a grain dust composting pile. *The Journal of Solid Waste Technology and management*. **34 (3): 140-148.**
- 19.** Taha M. Rababah, **Majdi A. Al-Mahasneh**, Isra Kilani, Wade Yang, Mohammad N. Alhamad, Khalil Ereifeja and Muhammad Al-u'datt. (2011). Effect of jam processing and storage on total phenolics, antioxidant activity, and anthocyanins of different fruits. *J Sci Food Agric* **2011; 91: 1096–1102.**
- 20.** Taha M. Rababah, Sevil Yu'cel, Khalil I. Ereifej, Mohammad N. Alhamad, **Majdi A. Al-Mahasneh**, Wade Yang, Al-u'datt H. Muhammad, Khalid Ismaeal. (2011). Effect of Grape Seed Extracts on the Physicochemical and Sensory Properties of Corn Chips during Storage. *J Am Oil Chem Soc* (2011) **88:631–637.**
- 21.** Taha M. Rababah, Muhammad H. Al-u'datt, **Majdi A. Al-Mahasneh**, Hao Feng, Abdulaziz M. Alothman, Ali Almajwal, Wade Yang, Isra Kilani,

Mohammad N. Alhamad , Khalil Ereifej ,and Mohammad Abu-Darwish (2011). Effect of storage on the physicochemical properties, total phenolic, anthocyanin, and antioxidant capacity of strawberry jam. *Journal of Food, Agriculture & Environment* Vol.9 ( 2 ) : 1 0 1 - 1 0 5 . 2 0 1 1.

22. Taha m. Rababah, **Majdi a. Al-Mahasneh**,wade yang, rania esoh, mohammad n. Alhamad and muhammad al-u'datt, (2011). Optimizing the best concentration of additive flavors to corn chips by evaluating the physicochemical and sensory properties. *Journal of Food Processing and Preservation*. 36 (3), pp. 225-231
23. Taha M. Rababah, Khalil I. Ereifej, Mohammad N. Alhamad, Khaled M. Al-Qudah, Laith M. Rousan, **Majdi A. Al-Mahasneh**, Muhammad H. Al-u'datt & Wade Yang (2011). Effects of Green Tea and Grape Seed and TBHQ on Physicochemical Properties of Baladi Goat Meats. *International Journal of Food Properties*. 14 (6) , pp. 1208-1216
24. Rababah, T.M., Al-U'datt, M., Almajwal, A., Brewer, S., Feng, H., **Al-Mahasneh, M.**, Ereifej, K., Yang, W. (2012). Evaluation of nutraceutical, physiological and sensory properties of raisin jam. *Journal of food Science*. 77 (6) , pp. C609-C61.
25. Rababah, T.M. , Feng, H., Yang, W., **Al-Mahasneh, M.**, Ereifej, K., Al-U'Datt, M. (2012). Effect of grape seed extracts on physicochemical and sensory properties of goat meat cooked by conventional electric or microwave ovens. *Food Science and Technology Research*. 18 (3) , pp. 325-332.
26. Rababah, Taha M.; Brewer, Susan; Yang, Wade; **Al-Mahasneh, Majdi**; Al-U'datt, Muhammad; Rababa, Shafeah; Ereifej, Khalil (2012). Physicochemical properties of fortified corn chips with broad beans, chickpea, or isolated soy protein. *Journal of Food Quality*. 35 (3) , pp. 200-206.
27. Rababah, T.M., Al-U'Datt, M., **Al-Mahasneh, M.**, Yang, W., Feng, H., Ereifej, K., Kilani, I., Ishmais, M.A. (2012). Effect of Jam Processing and Storage on Phytochemicals and Physicochemical Properties of Cherry at Different Temperatures. *Journal of Food Processing and Preservation*. *Article in press*.
28. A. M. El-Waziry, F. AlKoaik, A. I. Khalil, 1H. Metwally and **Majdi A. Al-Mahasneh** (2013). Evaluation of Tomato and Cucumber Wastes as Alternative Feeds for Ruminants Using Gas Production Technique, In Vitro. *Asian Journal of Animal and Veterinary Advances*. *In*

press.

29. A. M. El-Waziry, F. AlKoaik, A. I. Khalil, 1H. Metwally and **Majdi A. Al-Mahasneh** (2013). Estimation of degradability kinetics, energy and organic matter digestibility of Date Palm (*Phoenix dactylifera* L.) Leaves Silage by *In Vitro* Gas Production Technique. *Asian Journal of Animal and Veterinary Advances*. In press.
30. Taha M. Rababah, Muhammad Al-u'datt, Khalil Ereifej, Ali Almajwal, **Majdi Al-Mahasneh**, Susan Brewer, Fawzi Alsheyab, Wade Yang (2013). Chemical, Functional and Sensory Properties of Carob Juice. *Journal of Food Quality*. 36 (4), 238-244.

## 2. CONFERENCE PAPERS.

1. Richard, T.L., C.J. Bern, K. Rosentrater, R. Flores, A. Trenkle and **M. Al-Mahasneh**. 1998. Development of value-added by-product alternatives for waste slurries from corn masa production. *Final report to the Recycling and Reuse Technology Transfer Center at The University of Northern Iowa. Cedar Falls, IA. USA*.
2. Tom Colvin, Dan Jayanes, Doug Karlen, Selcuk Arslan, **Majdi Al-Mahasneh**, Li Wangui, 1998. Yield Monitor in Precision farming. **Publications of the USDA-ARS-National Tilth Laboratory, Ames, IA, USA**.
3. **Al-Mahasneh, M. A.**, T.L. Richard, C.J. Bern and A.H. Trenkle. 2000. Energy and Cost Analysis of Corn Masa Byproduct Drying. *Paper No. 00612*. Presented at *the 2000 ASAE Annual International Meeting, Milwaukee, WI, July 2000, ASAE, St. Joseph, MI*.
4. **Majdi A. Al-Mahasneh**, S. J. Birrel, 2001. Measurement of corn Mechanical damage using dielectric properties. Paper presented at *the 2001 ASAE International Meeting in Sacramento, CA, July 29-August 1, 2001*.
5. **Majdi A. Al-Mahasneh**, Taha M. Rababah (2007). Determining the best concentration of additive flavors of chips products by evaluation the microbial, physicochemical, and sensory properties. *2nd International Congress on Food and Nutrition. 24-26 October 2007. Istanbul, Turkey*.

6. **Majdi A. Al-Mahasneh (2008).** Roasted green wheat sun drying analysis and kinetics. **3<sup>rd</sup> International conference on food and nutrition, Antalya, Turkey.**
7. **Majdi A. Al-Mahasneh (2009).** Food and Agriculture Food Organization (FAO). Agro-Food Industries National Experts Meeting. Presenting a report discussing Regional Near East and North Africa national policies and priorities with respect to Agro-food industries. **Cairo, Egypt, 6-8 December, 2009.**
8. **Majdi Ali Al-Mahsaneh, Taha Rababah (2011).** Effect of Storage Time and Temperature on Bread Quality Deterioration in Arabic Flat Bread 6th International CIGR Technical Symposium, **April 18-20, 2011 Nantes, France**
9. **Majdi Ali Al-Mahsaneh (2012).** Using artificial neural networks and neural fuzzy system in modeling honey viscosity. ***International food and agricultural congress, Antalya, Turkey 15 -19 February 2012.***

#### **4. REVIEWER FOR THE FOLLOWING JOURNALS**

- Powder Technology.
- Journal of Industrial Microbiology & Biotechnology.
- Journal of Food Process Engineering.
- New Zealand Journal of Crop and Horticultural Science.
- International Energy.
- International Journal of Food properties.
- Journal of Natural Product research.
- Food and Bioprocess Technology.
- Journal of Food Processing and Preservation.
- Journal of the Saudi Society of Agricultural Sciences

#### **LANGUAGES**

- Arabic – native language
- English – speaks fluently and read/write with high proficiency