

## **Jen-Yi Huang**

Department of Food Science

Purdue University

745 Agriculture Mall Drive

West Lafayette, IN 47907

### **Education**

B.S. Bio-Industrial Mechatronics Engineering, 2005, National Taiwan University

M.S. Food Science and Technology, 2007, National Taiwan University

Ph.D. Chemical Engineering and Biotechnology, 2013, University of Cambridge

### **Academic Appointments**

2016 – Present Assistant Professor, Department of Food Science, Purdue University

2019 – Present Assistant Professor (Courtesy), Environmental and Ecological  
Engineering, Purdue University

2018 – Present Faculty Affiliate, Natural Resources and Environmental Science,  
Purdue University

2013 – 2015 Research Fellow, Food Science and Technology Program, National  
University of Singapore

### **Honors and Awards**

2019 Finalist of Young Food Engineer Award provided by Elsevier's  
Journal of Food Engineering, 13th International Congress on  
Engineering and Food

### **Membership in Professional Societies**

Society of Food Engineering

Institute of Food Technologist

### **Publications**

#### ***Papers in Peer-review Journals (\*denotes corresponding author)***

1. Tsai, J.-H., **Huang, J.-Y.\***, Wilson, D.I. 2021. Life cycle assessment of cleaning-in-place operations in egg yolk powder production. *Journal of Cleaner Production*, 278, 123936.
2. Rashid, F., Bao, Y., Ahmed, Z., **Huang, J.-Y.\*** 2020. Effect of high voltage atmospheric cold plasma on extraction of fenugreek galactomannan and its physicochemical properties. *Food Research International*, 138, 109776.
3. Chen, P., Zhu, G., Kim, H.-J., Brown, P., **Huang, J.-Y.\*** 2020. Comparative life cycle assessment of aquaponics and hydroponics in the Midwestern United States. *Journal of*

- Cleaner Production*, 275, 122888.
4. Bao, Y., Reddivari, L., **Huang, J.-Y.\*** 2020. Enhancement of phenolic compounds extraction from grape pomace by high voltage atmospheric cold plasma. *LWT - Food Science and Technology*, 133, 109970.
  5. Bao, Y., Reddivari, L., **Huang, J.-Y.\*** 2020. Novel cold plasma-assisted extraction for phenolic compounds from tomato pomace. *Innovative Food Science and Emerging Technologies*, 65, 102445.
  6. Zhang, B.Y., Xu, S., Villalobos-Santeli, J.A., **Huang, J.-Y.\*** 2020. Fouling characterization of camel milk with comparison to bovine milk. *Journal of Food Engineering*, 285, 110085.
  7. Chapa, J., Farkas, B., Bailey, R.L., **Huang, J.-Y.\*** 2020. Evaluation of environmental performance of dietary patterns in the United States considering food nutrition and satiety. *Science of the Total Environment*, 722, 137672.
  8. He, B.-L., Zheng, Q.\*, Guo, L.-Q., **Huang, J.-Y.**, Yun, F., Huang, S.-S., Lin, J.-F.\* 2020. Structural characterization and immune-enhancing activity of a novel high-molecular-weight polysaccharide from *Cordyceps militaris*. *International Journal of Biological Macromolecules*, 145, 11-20.
  9. Lu, J., Corvalan, C.M., **Huang, J.-Y.\*** 2020. Deformation and removal of viscous thin film by submerged jet impingement. *AIChE Journal*, 66, e16745.
  10. Zhang, B.Y., Tong, Y., Singh, S., Cai, H., **Huang, J.-Y.\*** 2019. Assessment of carbon footprint of nano-packaging considering potential food waste reduction due to shelf life extension. *Resources, Conservation & Recycling*, 149, 322-331.
  11. Salazar, M.B., Cai, H., Bailey, R., **Huang, J.-Y.\*** 2019. Defining nutritionally and environmentally healthy dietary choices of omega-3 fatty acids. *Journal of Cleaner Production*, 228, 1025-1033.
  12. Rashid, F., Ahmed, Z.\*, Hussain, S., **Huang, J.-Y.**, Ahmad, A. 2019. *Linum usitatissimum* L. seeds: Flax gum extraction, physicochemical and functional characterization. *Carbohydrate Polymers*, 215, 29-38.
  13. Chapa, J., Salazar, M.B., Kipp, S., Cai, H., **Huang, J.-Y.\*** 2019. A comparative life cycle assessment of fresh imported and frozen domestic organic blueberries consumed in Indiana. *Journal of Cleaner Production*, 217, 716-723.
  14. Lu, J., Corvalan, C.M., Chew, Y.M.J., **Huang, J.-Y.\*** 2019. Coalescence of small bubbles with surfactants. *Chemical Engineering Science*, 196, 493-500.
  15. Zhang, B.Y., Lu, J., **Huang, J.-Y.\*** 2019. Effect of sugar on the fouling behavior of whey protein. *Food and Bioproducts Processing*, 113, 2-9.
  16. Ketnawa, S., Suwal, S., **Huang, J.-Y.\***, Liceaga, A.M.\* 2019. Selective separation and characterisation of dual ACE and DPP-IV inhibitory peptides from rainbow trout (*Oncorhynchus mykiss*) protein hydrolysates. *International Journal of Food Science &*

*Technology*, 54, 1062-1073.

17. Suwal, S., Coronel-Aguilera, C.P., Auer, J., Applegate, B., Garner, A.L, **Huang, J.-Y.\*** 2019. Mechanism characterization of bacterial inactivation of atmospheric air plasma gas and activated water using bioluminescence technology. *Innovative Food Science & Emerging Technologies*, 53, 18-25.
18. Suwal, S., Li, J., Engelberth, A.S., **Huang, J.-Y.\*** 2018. Application of electro-membrane separation for recovery of acetic acid in lignocellulosic bioethanol production. *Food and Bioproducts Processing*, 109, 41-51.
19. Suwal, S., Ketnawa, S., Liceaga, A.M.\*, **Huang, J.-Y.\*** 2018. Electro-membrane fractionation of antioxidant peptides from protein hydrolysates of rainbow trout (*Oncorhynchus mykiss*) byproducts. *Innovative Food Science & Emerging Technologies*, 45, 122-131.
20. **Huang, J.-Y.**, Xu, F., Zhou, W.\* 2018. Effect of LED irradiation on the ripening and nutritional quality of postharvest banana fruit. *Journal of the Science of Food and Agriculture*, 98, 5486-5493.
21. **Huang, J.-Y.**, Limqueco, J., Chieng, Y.Y., Li, X.\*, Zhou, W.\* 2018. Performance evaluation of a novel food packaging material based on clay/polyvinyl alcohol nanocomposite. *Innovative Food Science & Emerging Technologies*, 43, 216-222.
22. **Huang, J.-Y.**, Li, X., Zhou, W.\* 2015. Safety assessment of nanocomposite for food packaging application. *Trends in Food Science & Technology*, 45, 187-199.
23. **Huang, J.-Y.**, Chieng, Y.Y., Li, X., Zhou, W.\* 2015. Experimental and mathematical assessment of migration from multilayer food packaging containing a novel clay/polymer nanocomposite. *Food and Bioprocess Technology*, 8, 382-393.
24. **Huang, J.-Y.**, Chew, J.Y.M., Wilson, D.I.\* 2013. Investigating the effect of starting mode on food fat gel layer formation on cold surfaces. *Journal of Food Engineering*, 119, 454-463.
25. **Huang, J.-Y.**, Chew, J.Y.M., Wilson, D.I.\* 2012. A spinning disc study of fouling of cold heat transfer surfaces by gel formation from model food fat solutions. *Journal of Food Engineering*, 109, 49-61.

#### ***Papers in Refereed Conference Proceedings***

1. Zhang, B.Y., **Huang, J.-Y.\*** 2018. Effects of sugars on whey protein fouling characteristics. In *Proceedings of Fouling and Cleaning in Food Processing 2018*, pp. 235-242.
2. Lu, J., Corvalan, C.M., **Huang, J.-Y.\*** 2018. Application of jet impingement for biofouling characterization. In *Proceedings of Fouling and Cleaning in Food Processing 2018*, pp. 389-396.
3. **Huang, J.-Y.**, Chew, J.Y.M., Wilson, D.I.\* 2013. The effect of start-up on fat (and wax)

fouling tests. In *Proceedings of 10th International Conference on Heat Exchanger Fouling and Cleaning – 2013*, pp. 142-149.

4. **Huang, J.-Y.**, Chew, J.Y.M., Wilson, D.I.\* 2011. Kinetics of wax and fat crystallisation on cooled surfaces. In *Proceedings of 9th International Conference on Heat Exchanger Fouling and Cleaning – 2011*, pp. 97-104.
5. **Huang, J.-Y.**, Chew, J.Y.M., Wilson, D.I.\* 2011. Fouling studies of food fat. In *Proceedings of 11th International Congress on Engineering and Food*, pp. 1559-1560.
6. **Huang, J.-Y.**, Chew, J.Y.M., Wilson, D.I.\* 2010. Experimental studies of food fat fouling using a novel spinning disc apparatus. In *Proceedings of Fouling and Cleaning in Food Processing 2010*, pp. 56-63.

### **Invited Presentations**

1. Sustainability of nano-packaging use for food shelf life extension: Life Cycle Assessment perspective. *American Institute of Chemical Engineers Annual Meeting*. Orlando, FL, USA. November, 2019.
2. Environmental trade-offs of nano-packaging for food preservation. *Department of Food Science and Technology, The Ohio State University*. Columbus, OH, USA. October, 2019.
3. Environmental trade-offs of nano-packaging for food preservation. *26th CIRP Life Cycle Engineering Conference*. West Lafayette, IN, USA. May, 2019.
4. Life cycle environmental impacts of nano-packaging considering food waste reduction. *Green Food Tech 2018*. Quebec City, Canada. October, 2018.
5. Fouling behavior of sweetened protein solutions. **Keynote speaker** of *14th Conference of Food Engineering*. Minneapolis, MN, USA. September, 2018.
6. Physical approach for reducing environmental footprints of Clean-in-place process. *Institute of Food Technologists Annual Meeting*. Chicago, IL, USA. July, 2018.
7. Application of nanocomposites in active food packaging. *Department of Food Science and Human Nutrition, University of Illinois at Urbana-Champaign*. Urbana, IL, USA. December, 2017.
8. Scaling production: Converting your recipe to a formula. *Emerging Indiana Food Brands Forum Fall 2017*. West Lafayette, IN, USA. November, 2017.
9. Assessment of life cycle environmental impacts of nano-packaging for food waste reduction. *Environmental Community Mixer, Center for the Environment*. West Lafayette, IN, USA. September, 2017.
10. Fouling in food processing and the challenge in its sustainable cleaning. *Department of Bio-industrial Mechatronics Engineering, National Taiwan University*. Taipei, Taiwan. October, 2015.
11. Effect of nanoclay incorporation on the food preservation performance of polymer-based film. *5th Molecular Materials Meeting*. Singapore. August, 2015.

12. Experimental and mathematical evaluation of clay migration from nanoclay/polymer composite packaging into aqueous food simulants. *4th Molecular Materials Meeting*. Singapore. January, 2014.
13. Crystallisation and deposition behaviour of food fats on cold surfaces. *Department of Food Science, Tunghai University*. Taichung, Taiwan. January, 2012.
14. Experimental studies of food fat fouling on cold heat transfer surfaces using a novel spinning disc apparatus. *Department of Food Science, National Taiwan Ocean University*. Keelung, Taiwan. December, 2011.

### Conference Abstracts

1. Chen, P., Zhu, G., Kim, H.-J., Brown, P., **Huang, J.-Y.** 2020. Environmental performance of controlled-environment agriculture: A case study on aquaponics and hydroponics in Indiana. *12th International Conference on Life Cycle Assessment of Food 2020*. Virtual from Berlin, Germany. October, 2020.
2. Chung, M.M.S., Lu, J., **Huang, J.-Y.** 2019. Enhancing clean-in-place efficiency through microbubbles pre-rinsing. *13th International Congress on Engineering and Food*. Melbourne, Australia. September, 2019.
3. Zhang, B.Y., Xu, S., Villalobos-Santeli, J.A., **Huang, J.-Y.** 2019. Camel milk fouling and its comparison with bovine milk. *13th International Congress on Engineering and Food*. Melbourne, Australia. September, 2019.
4. Sahasrabudhe, S., Cheng, C., Salazar, M.B., **Huang, J.-Y.** 2019. Quality-based life cycle assessment of protein dietary sources. *13th International Congress on Engineering and Food*. Melbourne, Australia. September, 2019.
5. Bao, Y., Xu, Q., **Huang, J.-Y.** 2019. Enhancement of phenolic compounds extraction from tomato pomace by high voltage atmospheric cold plasma. *Institute of Food Technologists Annual Meeting*. New Orleans, LA, USA. June, 2019.
6. Lu, J., Corvalan, C.M., **Huang, J.-Y.** 2019. Inverse estimation of soft biofilm viscosity from submerged jet impingement. *Inverse Problems Symposium*. West Lafayette, IN, USA. May, 2019.
7. Chapa, J., Salazar, M.B., Kipp, S., Cai, H., **Huang, J.-Y.** 2019. Effects of seasonality and locality on the environmental footprint of blueberries. *26th CIRP Life Cycle Engineering Conference*. West Lafayette, IN, USA. May, 2019.
8. Lu, J., Corvalan, C.M., **Huang, J.-Y.** 2018. Modeling of coalescence of surfactant-laden microbubbles. *14th Conference of Food Engineering*. Minneapolis, MN USA. September, 2018.
9. Salazar, M.B., Cai, H., Bailey, R., **Huang, J.-Y.** 2018. Defining nutritionally and environmentally healthy dietary choices of omega-3 fatty acids. *11th International Conference on Life Cycle Assessment of Food 2018*. Bangkok, Thailand. October, 2018.

10. Chapa, J., Salazar, M.B., Kipp, S., Cai, H., **Huang, J.-Y.** 2018. Life cycle analysis of fresh imported and frozen domestic organic blueberries consumed in the United States. *11th International Conference on Life Cycle Assessment of Food 2018*. Bangkok, Thailand. October, 2018.
11. Suwal, S., Ketnawa, S., Liceaga, A.M., **Huang, J.-Y.** 2018. Innovative electro-membrane fractionation technology for fish by-product valorization. *Total Food 2017*. Norwich, UK. October, 2017.
12. Ketnawa, S., Suwal, S., **Huang, J.-Y.**, Liceaga, A.M. 2017. Selective fractionation and concentration of multi-bioactive peptides from fish frame protein hydrolysates by electro-dialysis with ultrafiltration membrane. *10th Conference of the International Society for Nutraceuticals and Functional Foods*. Gusan, South Korea. October, 2017.
13. Ketnawa, S., Suwal, S., **Huang, J.-Y.**, Liceaga, A.M. 2017. Selective fractionation and concentration of antioxidant and antihypertensive peptides from fish frame protein hydrolysates by electro-membrane fractionation. *47th West European Fish Technologists Association Conference*. Dublin, Ireland. October, 2017.
14. Suwal, S., Engelberth, A.S., **Huang, J.-Y.** 2017. Recovery of acetic acid - the most abundant fermentation inhibitor from corn stover hydrolysate using electro-dialysis with bipolar membrane. *39th Symposium on Biotechnology for Fuels and Chemicals*. San Francisco, CA, USA. May, 2017.
15. Suwal, S., Ketnawa, S., Liceaga, A.M., **Huang, J.-Y.** 2017. Electro-membrane process for the fractionation of bioactive peptides from rainbow trout by-products (*Oncorhynchus mykiss*) protein hydrolysate. *39th Symposium on Biotechnology for Fuels and Chemicals*. San Francisco, USA. May, 2017.
16. Lu, J., **Huang, J.-Y.** Application of jet impingement for biofouling characterization and its effective cleaning. *13th Conference of Food Engineering*. Columbus, OH USA. September, 2016.
17. Lu, J., **Huang, J.-Y.** 2016. Effect of external geometry of impinging jet nozzle on the cohesive removal of fouling layers. *18th World Congress of Food Science and Technology*. Dublin, Ireland. August, 2016.
18. **Huang, J.-Y.** 2016. Achieving food process sustainability by fouling mitigation and green cleaning. *NSF Food, Energy, and Water (FEW) Nexus Workshop*. Lincoln, NE, USA. February, 2016.
19. **Huang, J.-Y.**, Zhou, W. 2015. Effect of LED irradiation on the ripening and quality of climacteric fruits during postharvest storage. *12th International Congress on Engineering and Food*, Quebec City, Canada. June, 2015.
20. **Huang, J.-Y.**, Limqueco, J.S., Chieng, Y.Y., Li, X., Zhou, W. 2015. Evaluation of a novel food packaging material based on clay/polymer nanocomposite. *12th International Congress on Engineering and Food*. Quebec City, Canada. June, 2015.

21. **Huang, J.-Y.**, Chieng, Y.Y., Li, X., Zhou, W. Experimental and numerical assessments of migration from a novel clay/polymer nanocomposite packaging. *17th World Congress of Food Science and Technology*. Montreal, Canada. August, 2014.
22. Wang, S., Chieng, Y.Y., Li X., **Huang, J.-Y.**, Zhou W. 2014. Novel core-shell structured palladium/carbon nanofibers as ethylene scavenger for active food packaging. *4th Molecular Materials Meeting*. Singapore. January 14, 2014.
23. Chieng, Y.Y., Wong, S.Y., Wang, S., Li, X., **Huang, J.-Y.**, Zhou W. 2014. Nanostructured metal oxide for active packaging application. *4th Molecular Materials Meeting*. Singapore. January, 2014.
24. **Huang, J.-Y.**, Chew, J.Y.M., Wilson, D.I. Investigating the effect of starting mode on food fat gel layer formation on cooled surfaces. *11th Conference of Food Engineering*. Leesburg, VA, USA. April, 2012
25. **Huang, J.-Y.**, Yeh, A.-I. Mechanistic breakage of cellulose during media milling and its modelling. *45th Annual Meeting of the Taiwan Agricultural Chemical Society*. Taipei, Taiwan. June, 2007.
26. **Huang, J.-Y.**, Yeh, A.-I. Operating parameters effects on nano/submicron grinding of *Ganoderma* in a stirred bead mill. *36th Annual Meeting of Taiwan Association for Food Science and Technology*. Taipei, Taiwan. November, 2006.

## **Mentoring**

### **Postdocs**

Jiakai Lu	Apr 2016 – Feb 2019
Shyam Suwal	May 2016 – June 2017

### **Graduate Students**

Monique Chung (Ph.D.)	Jan 2018 – Present
Yiwen Bao (Ph.D.)	Aug 2020 – Present
Yizhe Zhang (Ph.D.)	July 2016 – May 2020
Ahmad Al Eissa (M.S.)	May 2017 – May 2020
Yiwen Bao (M.S.)	Aug 2018 – May 2020
Belen Salazar (M.S.)	Jan 2018 – Mar 2020
James Chapa (M.S.)	Jan 2017 – May 2019
Cheng Lu (M.S.)	July 2016 – May 2020

## **Grants**

<b>Agency/Title</b>	USDA-NIFA, Food Manufacturing Technologies/“Innovative green clean-in-place technology with micro-bubbles”
<b>Duration</b>	3 years

<b>Total Amount</b>	\$892,000
<b>Role</b>	PI
<b>Agency/Title</b>	Laars Heating Systems/"Process efficiency improvement after installation of an instant water"
<b>Duration</b>	14 months
<b>Total Amount</b>	\$9,000
<b>Role</b>	PI
<b>Agency/Title</b>	Purdue Research Foundation, Purdue University/"Reducing the environmental footprint of the U.S. diet without compromising its nutritional adequacy and satiety"
<b>Duration</b>	8 weeks
<b>Total Amount</b>	\$8,000
<b>Role</b>	PI
<b>Agency/Title</b>	AgSEED, College of Agriculture, Purdue University/"Fractionation of bioactive peptides from rainbow trout by-products (Oncorhynchus mykiss) protein hydrolysate by an electro-membrane process"
<b>Duration</b>	1 year
<b>Total Amount</b>	\$46,310
<b>Role</b>	Co-PI
<b>Agency/Title</b>	Center for the Environment, Purdue University/"Assessment of life cycle environmental impacts of nano-packaging for food waste reduction"
<b>Duration</b>	6 months
<b>Total Amount</b>	\$19,866
<b>Role</b>	PI
<b>Agency/Title</b>	Purdue Research Foundation, Purdue University/International Travel Grant
<b>Duration</b>	3 Awards (2016, 2017 & 2019)
<b>Total Amount</b>	\$3,000
<b>Agency/Title</b>	Grow Plastics/"Electrodialytic removal of lactic acid from pickle juice"
<b>Duration</b>	5 months
<b>Total Amount</b>	\$994



**Role** Co-PI

### **Teaching**

<b>Course</b>	<b>Credit Hours</b>	<b>Year</b>
FS 161 Science of Food	3	2017 – 2019
FS 442 Food Processing II	2	2020
FS 447 Food Processing II Lab	1	2020
FS 591	3	2017, 2019

### **Scholarly Services**

1. Technical Committee, Fouling and Cleaning in Food Processing 2022. Lille, France. March, 2022.
2. Scientific Committee, Green Food Tech 2020. Quebec City, Canada. May, 2020.
  3. Advisory Panel, Project Lead The Way: Achievement Level Descriptor. Indianapolis, USA. May 2019.
4. Session Chair, Inverse Estimation in Rheology, Inverse Problems Symposium. West Lafayette, USA. May, 2019.
5. Session Chair, Life Cycle Assessment 4, 26th CIRP Life Cycle Engineering Conference. West Lafayette, USA. May, 2019.
6. Session Chair, Adding Value to Food By-products, Green Food Tech 2018. Quebec City, Canada. October, 2018.
7. Session Chair, Hygienic Design, Fouling and Cleaning, Conference of Food Engineering. Minneapolis, USA. September, 2018.
8. Advisory Panel, Midwest Taiwanese Biotechnology Association Symposium 2018. Chicago, USA, September, 2018.

### **Editorial Services for Professional Journals**

1. Frontiers in Sustainable Food Systems (Editorial Board member), 2020 – present

### **Ad hoc Reviewer for Professional Journals**

1. ACS Sustainable Chemistry & Engineering
2. ACS Applied Bio Materials
3. Chemical Engineering Research and Design
4. Environment, Development and Sustainability
5. European Food Research and Technology
6. Food and Bioprocess Technology
7. Food and Bioproducts Processing
8. Food Control

9. Food Research International
10. Food Structure
11. Frontiers of Chemical Science and Engineering
12. Innovative Food Science and Emerging Technologies
13. International Journal of Biological Macromolecules
14. Journal of Cleaner Production
15. Journal of Food Engineering
16. Journal of Food Science
17. Trends in Food Science & Technology
18. Waste Management