

## Quarterly Newsletter

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*A report on Scholarship and Academic Activities of Interdepartmental Food Science Graduate Program (IFS GP)*



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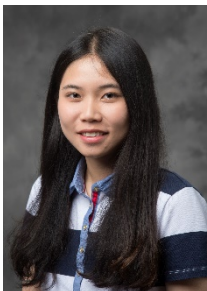
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**Welcome to Food Science new graduate student!!**



Han Chen  
M.S.  
Feng Lab

## Peer-reviewed Publications

1. **Allan, M.**, Chamberlain, M.C. & **Mauer, L.J.** 2019. RH-Temperature Stability Diagram of the Dihydrate,  $\beta$ -Anhydrate, and  $\alpha$ -Anhydrate Forms of Crystalline Trehalose. *Journal of Food Science*, 84(6): 1465-1476.
2. Bohutskyi, P., McClure, R.S., Hill, E.A., Nelson, W.C., Chrisler, W.B., Nuñez, J.R., Renslow, R.S., Charania, M.A., **Lindemann, S.R.** & Beliaev, A.S. 2019. Metabolic effects of vitamin B12 on physiology, stress resistance, growth rate and biomass productivity of *Cyanobacterium stanieri* planktonic and biofilm cultures. *Algal Research*, 42: 101580.
3. **Bonilla, J.C.**, Schaber, J.A., **Bhunia, A.K.** & **Kokini, J.L.** 2019. Mixing dynamics and molecular interactions of HMW glutenins, LMW glutenins, and gliadins analyzed by fluorescent co-localization and protein network quantification. *Journal of Cereal Science*. 89: 102792.
4. Busse, M.M., Becker, M., **Applegate, B.M.**, Camp Jr, J.W. & Blatchley III, E.R. 2019. Responses of *Salmonella* Typhimurium LT2, *Vibrio harveyi*, and *Cryptosporidium parvum* to UVB and UVA radiation. *Chemical Engineering Journal*, 371: 647-656.
5. Cheng, L., Zhu, X., **Hamaker, B.R.**, Zhang, H. & Campanella, O.H. 2019. Complexation process of amylose under different concentrations of linoleic acid using molecular dynamics simulation. *Carbohydrate Polymers*, 216: 157-166.
6. **Etter, A.J.**, **West, A.M.**, **Burnett, J.L.**, **Wu, S.T.**, **Veenhuizen, D.R.**, Ogas, R.A. & **Oliver, H.F.** 2019. *Salmonella* Heidelberg Food Isolates Associated with a Salmonellosis Outbreak Have Enhanced Stress Tolerance Capabilities. *Applied and Environmental Microbiology*, 85(16): e01065-19.
7. **Feng, Y.** & Bruhn, C. M. 2019. Motivators and barriers to cooking and refrigerator thermometer use among consumers and food workers: A review. *Journal of Food Protection*, 82(1): 128-150.
8. **Huang, J.-Y.**, Xu, F. & Zhou, W. 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.
9. **Ismail, Y.** & **Mauer, L.J.** 2019. Phase transitions of ascorbic acid and sodium ascorbate in a polymer matrix and effects on vitamin degradation. *Journal of Food Process Engineering*, 2019: e13073.
10. **Jia, F.**, **Barber, E.**, **Turasan, H.**, Seo, S., Dai, R., Liu, L., Li, X., **Bhunia, A.K.** & **Kokini, J. L.** 2019. Detection of Pyocyanin Using a New Biodegradable SERS Biosensor Fabricated Using Gold Coated Zein Nanostructures Further Decorated with Gold Nanoparticles. *Journal of Agricultural and Food Chemistry*, 67(16): 4603-4610.
11. Jo, H., **West, A.M.**, Teska, P.J., **Oliver, H.F.** & Howarter, J.A. 2019. Assessment of early onset surface damage from accelerated disinfection protocol. *Antimicrobial Resistance & Infection Control*, 8(1): 24.
12. **Kershaw, J.C.** & **Running, C.A.** 2019. Data approximation strategies between generalized line scales and the influence of labels and spacing. *Journal of Sensory Studies*, 34: e12507.
13. Kim, J.M., **Liceaga, A.M.** & Yoon, K.Y. 2019. Purification and identification of an antioxidant peptide from perilla seed (*Perilla frutescens*) meal protein hydrolysate. *Food Science & Nutrition*, 7(5): 1645-1655.
14. **Li, S.**, **Wu, B.**, **Fu, W.**, & **Reddivari, L.** 2019. The Anti-inflammatory Effects of Dietary Anthocyanins against Ulcerative Colitis. *International Journal of Molecular Sciences*, 20(10): 2588.
15. Li, X., **Maldonado, L.**, **Malm, M.**, **Rouf, T.B.**, Hua, Y. & **Kokini, J.L.** (2019). Development of hollow kafirin-based nanoparticles fabricated through layer-by-layer assembly as delivery vehicles for curcumin. *Food Hydrocolloids*, 96: 93-101.
16. **Lim, J.**, Kim, D.K., Shin, H., **Hamaker, B.R.** & Lee, B.-H. 2019. Different inhibition properties of catechins on the individual subunits of mucosal  $\alpha$ -glucosidases as measured by partially-purified rat intestinal extract. *Food & Function*. 10(7): 4407-4413.
17. **Mahnot, N.K.**, Mahanta, C L., **Farkas, B.E.**, **Keener, K.M.** & Misra, N. 2019. Atmospheric cold plasma inactivation of *Escherichia coli* and *Listeria monocytogenes* in tender coconut water: Inoculation and accelerated shelf-life studies. *Food Control*, 106: 106678.
18. **Malm, M.J.**, Narsimhan, G. & **Kokini, J.L.** 2019. Effect of contact surface, plasticized and crosslinked zein films are cast on, on the distribution of dispersive and polar surface energy using the Van Oss method of deconvolution. *Journal of Food Engineering*, 263: 252-271.
19. **Mathipa, M.G.**, Thantsha, M.S. & **Bhunia, A.K.** 2019. *Lactobacillus casei* expressing Internalins A and B reduces *Listeria monocytogenes* interaction with Caco-2 cells in vitro. *Microbial Biotechnology*, 12(4): 715-729.
20. **Mathipa, M.**, **Bhunia, A.K.**, and Thantsha, M.S. 2019. Internalin AB-expressing recombinant *Lactobacillus casei* protects Caco-2 cells from *Listeria monocytogenes*-induced damages under simulated intestinal conditions. *PLoS One* 14(7): e0220321
21. Moro, T., Rasmussen, H. & **Hamaker, B.** 2019. Potential of prebiotic butyrogenic fibers in Parkinson's disease. *Frontiers in Neurology*, 10: 663.

22. Muramatsu, Y., Dolan, K.D. & **Mishra, D.K.** 2019. Factors influencing estimation of thermal inactivation parameters in low-moisture foods using a test cell. *Journal of Food Engineering*, 262: 100-108.
23. Nakorn, K.N., Kulrattanak, T., **Hamaker, B.R.** & Tongta, S. 2019. Starch digestion kinetics of extruded reformed rice is changed in different ways with added protein or fiber. *Food & Function*, 10: 4577-4583
24. Radcliffe, J.S., Brito, L.F., **Reddivari, L.**, Schmidt, M., Herman, E.M. & Schinckel, A. P. 2019. A swine model of soy protein-induced food allergenicity: implications in human and swine nutrition. *Animal Frontiers*, 9(3): 52-59.
25. **Rouf T.B.**, **Schmidt, G.**, Cakmak M., & **Kokini J.L.** 2019. Design and mechanistic understanding of graphene oxide reinforced zein nanocomposites with improved mechanical, barrier and thermal properties. *Journal of Material Science*, 54:12533–12552.
26. **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.
27. **Singh, A.**, & **Bhunja, A.K.** 2019. Animal-Use Antibiotics Induce Cross-Resistance in Bacterial Pathogens to Human Therapeutic Antibiotics. *Current Microbiology*, 76: 1112-1117.
28. Song, H.-S., Lee, J.-Y., Haruta, S., Nelson, W.C., Lee, D.-Y., **Lindemann, S.R.**, Frederickson, J.K. & Bernstein, H. C. (2019). Minimal Interspecies Interaction Adjustment (MIIA): inference of neighbor-dependent interactions in microbial communities. *Frontiers in Microbiology*, 10: 1264.
29. **To, C.** & **Bhunja, A.K.** 2019. Three-Dimensional Vero Cell-Platform for Rapid and Sensitive Screening of Shiga-Toxin Producing *Escherichia coli*. *Frontiers in Microbiology*, 10: 949.
30. **Tunçil, Y.E.**, **Fevzioglu, M.**, **Arioglu-Tunçil, S.**, Ejeta, G., Campanella, O.H. & **Hamaker, B.R.** 2019. Transglutaminase Shows Better Functionality on High Digestible, High Lysine Sorghum-Wheat Composite Dough and Bread, Compared to Normal Sorghum-Wheat Composites. *Turkish Journal of Agriculture-Food Science and Technology*, 7(6): 877-882.
31. **Urbizo-Reyes, U.**, **San Martin-González, M.F.**, Garcia-Bravo, J., Malo, A.L. & **Liceaga, A.M.** 2019. Physicochemical characteristics of chia seed (*Salvia hispanica*) protein hydrolysates produced using ultrasonication followed by microwave-assisted hydrolysis. *Food Hydrocolloids*, 97:105187.
32. van der Sman, R., & **Mauer, L.J.** 2019. Starch gelatinization temperature in sugar and polyol solutions explained by hydrogen bond density. *Food Hydrocolloids*, 94: 371-380.
33. Whited, T., **Feng, Y.**, & Bruhn, C. M. 2019. Evaluation of the high school food safety curriculum using a positive deviance model. *Food Control*, 96: 324-328.
34. Yeung, H.F., Bruhn, C., Blackburn, M., Ganthavorn, C., Martin, A., Mendoza, C., Neelon, C., Smith, M., Soule, D., Spezzano, T.M., **Barrett, T.** & **Feng, Y.** 2019. Evaluation of in-person and on-line food safety education programs for community volunteers. *Food Control*, 99, 34-39.
35. Yue, Y., Shen, P., Chang, A. L., Qi, W., **Kim, K.-H.**, Kim, D., & Park, Y. 2019. trans-Trismethoxy resveratrol decreased fat accumulation dependent on fat-6 and fat-7 in *Caenorhabditis elegans*. *Food & Function*, 10: 4966-4974.
36. Zengler, K., Hofmockel, K., Baliga, N.S., Behie, S.W., Bernstein, H.C., Brown, J.B., Dinneny, J.R., Flöge, S.A., Forry, P., Hess, M., Jackson, S.A., Jansson, C., **Lindemann, S.R.**, Pett-Ridge, J., Maranas, C., Venturelli, O.S., Wallenstein, M.D., Shank, E.A. & Northen, T.R. 2019. EcoFABs: advancing microbiome science through standardized fabricated ecosystems. *Nature Methods*, 16: 567–571.
37. **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.
38. **Zhang, X.**, **Chen, T.**, **Lim, J.**, **Xie, J.**, **Zhang, B.**, **Yao, T.**, & **Hamaker, B.R.** 2019. Fabrication of a soluble crosslinked corn bran arabinoxylan matrix supports a shift to butyrogenic gut bacteria. *Food & Function*, 10: 4497-4504.
39. Zhuang, H., Feng, T. & **BeMiller, J.N.** 2019. Effects of hydrocolloids on normal maize starch and its distarch phosphates. *Food Hydrocolloids*, 96: 231-245.

### Book, Book Chapters & Conference Proceedings

1. **Hamaker, B.R.**, **Tuncil, Y.E.** & **Shen, X.** 2019. Carbohydrates of the Kernel. In Corn (Third Edition) ed. Serna-Saldivar, S.O. pp.305-318. Oxford: AACC International Press.
2. Wongekalak, L.-O., **Hamaker, B.R.** & Hongsprabhas, P. 2019. Self-assembly of peptide-carbohydrate aggregates during in vitro gastrointestinal digestion of mungbean protein hydrolysate and mungbean protein hydrolysate-asiatic acid. The 2019 Pure and Applied Chemistry International Conference (PACCON 2019)

## Presentations

1. **Abdelhaseib\*, M.U., Singh, A.K. & Bhunia, A.K.** 2019. SELA-Light scattering sensor for rapid multipathogen Detection. "4th International Conference on Food Microbiology and Food Market" New York, NY, March 20-21, 2019. [**\*Recipient of best poster award**].
2. **Bao, Y., Reddivari, L., Xu, Q. & Huang, J.-Y.** Enhancement of phenolic compounds extraction from tomato pomace by high voltage atmospheric cold plasma. Institute of Food Technologists Annual Meeting. New Orleans, USA. June 2-5, 2019.
3. **Bhunias, A.K.** 2019. Foodborne Disease Prevention Strategies: Biosensors and Probiotic Vaccine. King Abdulaziz University, Jeddah, Saudi Arabia; March 5-7, 2019 (**Invited talk**).
4. **Bhunias, A.K.** 2019. Global Food Safety Issues, and Solutions" (**Keynote Talk**). AgroFood2019, Istanbul, Turkey, June 20-21, 2019
5. **Bhunias, A.K.** 2019. Impact of environmental and host induced stress on pathogenesis and microbial detection. AgroFood2019, Istanbul, Turkey, June 20-21, 2019. (**Invited talk**)
6. **Bhunias, A.K.** 2019. Molecular Mechanism of *Listeria monocytogenes* Infection and Disease Prevention using a Next-Generation Bioengineered Probiotic" IIT-Delhi, India June 26, 2019. (**Invited talk**)
7. **Bhunias, A.K.** 2019. Mechanism of *Listeria monocytogenes* Pathogenesis and Next-Generation Bioengineered Probiotic Approach in Prevention. West Bengal University of Animal and Fishery Sciences, Belgachia, Kolkatta, WB, India. July 9, 2019. (**Invited talk**)
8. **Bhunias, A.K.** 2019. Next-generation bioengineered probiotic approach in preventing enteric pathogen infection. Visva-Bharati University, Santiniketan, West Bengal, India, July 12, 2019. (**Invited talk**)
9. **Bonilla, J., Schaber, J., Bhunia, A. & Kokini, J.L.** 2019. Fluorescent Visualization and Image Analysis of Gliadins, Low Molecular Weight Glutenins, and High Molecular Weight Glutenins at Different Stages of Dough Mixing in a Farinograph. Institute of Food Technologists, Annual Meeting. New Orleans, LA, June 2-5, 2019.
10. Bowen, K.J., Kris-Etherton, P.M., Jones, P.J. & **Reddivari, L.** 2019. Abstract P293: Effects of Diets That Vary in Fatty Acid Composition on Fecal Short-chain Fatty Acid Levels and Their Relationship with Circulating Lipids and Lipoproteins. *Circulation*, 139(Suppl\_1), AP293-AP293.
11. **Chapa, J., Salazar, M.B., Kipp, S., Cai, H. & Huang, J.-Y.** Effects of seasonality and locality on the environmental footprint of blueberries. 26th CIRP Life Cycle Engineering Conference. West Lafayette, USA. May 7-9, 2019.
12. **Cladis, D.P.,** Andolino, C. Calvert, R. **Running, C.R.** 2019. Demonstrating protein functionality in foods: an innovative teaching lab for students in any setting. Institute of Food Technologists Nat'l Meeting, New Orleans, LA, June 3, 2019. Poster Presentation #P02-001.
13. **Cladis, D.P., Debelo, H., Ferruzzi, M.G., Weaver, C.M.** 2019. Colonic Metabolism of Blueberry Polyphenols in Ovariectomized Rats Increases in a Dose-Response Fashion. ASN Nutrition Nat'l Mtg., Baltimore, MD, June 11, 2019. Oral Presentation.
14. **Cladis, D.P.,** Debelo, J., Ferruzzi, M.G., Weaver, C.M. 2019. Colonic Metabolism of Blueberry Polyphenols in Ovariectomized Rats Increases in a Dose-Response Fashion. ASN Nutrition Nat'l Mtg., Baltimore, MD, June 8, 2019 Poster Presentation #OR34-06-19.
15. **Cladis, D.P., Debelo, H., Ferruzzi, M.G., Weaver, C.M.** 2019. Colonic Metabolism of Blueberry Polyphenols in Ovariectomized Rats Increases in a Dose-Response Fashion. Office of Interdepartmental Graduate Programs Spring Poster Session, West Lafayette, IN, May 1, 2019 Poster Presentation.
16. Cooper, K., **Cladis, D.P.** 2019. Quantification and Analysis of Blueberry Polyphenols. Purdue Undergraduate Research Conference, West Lafayette, IN, April 9, 2019. Poster Presentation #163b.
17. Doh, I.-J., Min, H.J., **Coronel-Aguilera, C., Lim, T., Applegate, B.M., & Bae, E.** 2019. Portable bioluminescence detection for food safety: smartphone vs. silicon photomultiplier. Paper presented at the Sensing for Agriculture and Food Quality and Safety XI.
18. Esmailzadeh, H., **Cladis, D.P.,** Silva Serpa, P.B., Lachcik, P.J., **Weaver, C.M.,** dos Santos, A.P. 2019. Effects of blueberry toxicity on reactive oxygen species production and red blood cell morphology. Purdue International Scholar Research Symposium, West Lafayette, IN, April 17, 2019. Poster Presentation.
19. Hudson, J.L., Braun E., Wang Y., **Hayes, A.M.R.,** Hill, E.R., Couture, S.C., Douglas, S.M., Reister, E.J., Hunter, S.R., Cheon, E., McGowan, B., Gunaratna, **Mattes, R.D., Higgins, K.A.** 2019. Systematic review and meta-analysis on the effect of portion size and ingestive frequency on energy intake and body weight among adults in randomized controlled trials. Nutrition 2019. American Society for Nutrition Annual Meeting, Baltimore, Maryland, USA. Poster Presentation. June 2019.

20. Indukuri, V., Mason, M., **Reddivari, L.**, Vanamala, J. & Lambert, J. 2019. Anti-inflammatory Effect of Table Grapes in Apc (Min/+) Mouse Model of Intestinal Tumorigenesis. The FASEB Journal, 33(1\_supplement): 872.872-872.872.
21. **Lim, J., Zhang, X., Ferruzzi, M. & Hamaker, B.R.** 2019. Insight into flavonoid structure for mammalian  $\alpha$ -amylase and  $\alpha$ -glucosidase inhibition to control starch digestion rate. The FASEB Journal, 33(1\_supplement): 470.476-470.476.
22. **Malm, M. & Kokini, J.L.** 2019. Fluorinating zein protein films for improved food packaging. Institute of Food Technologists, 2019 Annual Meeting, New Orleans, LA, June 2-5, 2019.
23. **Rouf, T.B., Schmidt, G., Cakmak, M. & Kokini, J.L.** 2019. Mechanistic Understanding of the Design and Characterization of Zein films reinforced with Graphene Oxide Nanoparticles for Biodegradable Packaging Application, Proceeding of Institute of Food Technologists, New Orleans, LA, June 2-5, 2019.
24. **Turasan H., Cakmak, M., Kokini, J.L.** 2019. A plant protein-based SERS biosensor platform for detection of food toxins and allergens. Institute of Food Technologists, Annual Meeting. New Orleans, LA, June 2-5, 2019. E-poster presentation.
25. Westendorf, S.G., **Cladis, D.P.** 2019. Health and Safety of Blueberry Polyphenols Using a 90-Day Oral Toxicity Model in Rats. Purdue Undergraduate Research Conference, West Lafayette, IN, April 9, 2019. Poster Presentation #202b.
26. **Yildirim, M., Yazar, G., Duvarci, O.C. & Kokini, J.L.** 2019. LAOS (Large Amplitude Oscillatory Shear) rheological characteristics of non-fat, low-fat, and high-fat yogurt samples. Institute of Food Technologists, 2019 Annual Meeting, New Orleans, LA June 2-5, 2019. E-poster presentation.
27. **Zhang, B.Y., Tong, Y., Singh, S., Cai, H. & Huang, J.-Y.** 2019. Environmental trade-offs of nano-packaging for food preservation. 26th CIRP Life Cycle Engineering Conference. West Lafayette, USA. May 7, 2019.

#### Graduated Students with Thesis/Dissertation Titles

1. **Miguel Alvarez Gonzalez-MS (Yao):** Establishment of High-Throughput Techniques for Studying Starch Functionalities
2. **Yezhi Fu-PhD (Yao):** Interventions to Reduce Microbial Load of Foodborne Pathogens at the Surface of Fresh Produce
3. **Smith Nkhata-PhD (Hamaker):** Post-Harvest Storage of Provitamin A Carotenoid Biofortified Maize in Purdue Improved Crop Storage (PICS) Bags and Effect on Subsequent Flour Rheology and Carotenoid Bioaccessibility
4. **Robison Schmidt, Leigh-PhD (Hamaker):** Investigating phenolic-mediated protein matrix development for potential control of cereal starch digestion.

#### Graduate Student/Post Doctorate Achievements/Awards

1. **Dennis Cladis**-ASN Emerging Leaders in Nutrition Poster competition, Dietary Bioactive Components RIS-Summer 2019.
2. **Dennis Cladis**-Vitamin World Travel World, Summer 2019.
3. **Sarah Corwin**-AACC Product Development Competition, Finalist, 2019.
4. **Sarah Corwin**-Agriculture and Biological Engineering Graduate Industrial Research Symposium, 2<sup>nd</sup> Place, 2019.
5. **Sarah Corwin**-American Society of Baking Product Development Competition, Finalist, 2019.
6. **Anna Hayes**-Institute of Food Technologists (IFT) Carbohydrate Division, Outstanding Service Award, June 2019.
7. **Morgan Malm**-Soybean Alliance Competition-1<sup>st</sup> Place, Summer 2019.
8. **Halak Mehta**-2019 IFT Food Engineering Division Competition, New Orleans, LA, June 2019.
9. **Bruce Yizhe Zhang**-2019 Interdisciplinary Research Award, Certificate of Excellence, Office of Interdisciplinary Graduate Programs, Purdue University, West Lafayette, May 2019.