

## Chenxu Yu

### Associate Professor

3344 Elings Hall  
515-294-4554  
chenxuyu@iastate.edu  
www.abe.iastate.edu

### Education

Ph.D. Biological Systems Engineering, 2003,  
University of Wisconsin-Madison

M.S. Biochemical Engineering, 1998, Dalian  
Polytechnic University, Dalian, PRC

B.S. Physics and Astronomy, 1993, Nanjing  
University, Nanjing, PRC

### Recent Publications (out of 78)

Jiang D, Bai Y, He BY, Sui Y, Dong XF, Yu C and Qi H, Improvement of gel properties of mackerel mince by phlorotannin extracts from sporophyll of *Undaria pinnatifida* and UVA induced cross-linking, *J. Textural Studies*, DOI:10.1111/jtxs.12480, 2019

Liu XY, Wang ZX, Zhang J, Song L, Li DY, Wu ZX, Zhu BW, Nakamura Y, Shahidi F, Yu C, and Zhou DY, Isolation and identification of zinc-chelating peptides from sea cucumber (*Stichopus japonicus*) protein hydrolysate, *J. the Science of Food and Agriculture*, DOI:10.1002/jsfa.9919, 2019

Liu XY, Wang ZX, Yin FW, Liu YX, Qin NB, Nakamura Y, Shahidi F, Yu C, Zhou DY, Zhu BW, Zinc-Chelating Mechanism of Sea Cucumber (*Stichopus japonicus*)-Derived Synthetic Peptides, *Marine Drugs*, 17, 438, doi:10.3390/md17080438, 2019

Dong XF, Bai Y, Xu Z, Shi YX, Sun YH, Janaswamy S, Yu C, Qi H, Phlorotannins from *Undaria pinnatifida* Sporophyll: Extraction, Antioxidant, and Anti-Inflammatory Activities, *Marine Drugs*, 17, 434, doi:10.3390/md17080434, 2019

Xiong X, He BY, Jiang D, Koosis A, Yu C, Qi H, Postmortem biochemical and textural changes in the *Patinopecten yessoensis* adductor muscle (PYAM) during iced storage, *Inter. J. Food Properties*, 22, 1024-1034, 2019

Sun H, Li DM, Jiang D, Dong XF, Yu C, Qi H, Protective polysaccharide extracts from sporophyll of *Undaria pinnatifida* to improve cookie quality, *Food Measurement and Characterization*, 13(1), 764-774, 2019

Zhang XY, Jiang D, Li DM, Yu C, Dong XF, Qi H, Characterization of a seafood-flavoring enzymatic hydrolysate from brown alga *Laminaria japonica*, *Journal of Food Measurement and Characterization*, 13(2), 1185-1194, 2019

Li JQ, Cao L, Li DM, Yu C, Tan MQ, Carbon dots from roasted mackerel (*Scomberomorus niphonius*) for free radical scavenging, *LWT-Food Sci. Technol.*, 111, 588-593, 2019

Bao R, Gao N, Lv J, Ji CF, Liang HP, Li SJ, Yu C, Wang ZY, Lin XP, Enhancement of *Torularhodin* Production in *Rhodospiridium toruloides* by *Agrobacterium tumefaciens*-Mediated Transformation and Culture Condition Optimization, *Journal of Agricultural and Food Chemistry* 67 (4), 1156-1164, 2019

Zhang, J, Hu J, Wang S, Lin X, Liang H, Li S, Yu C, Dong X, Ji C, Developing and Validating a UPLC-MS Method with a StageTip-Based Extraction for the Biogenic Amines Analysis in Fish, *J Food Sci.* 84(5), 1138-1144. doi: 10.1111/1750-3841, 2019

Li, SJ, Yu C, Pan JF, Ma RC, Lin XP and Dong XP, Combined effects of aging and low temperature, long time heating on pork toughness, *Meat Science*, 150, 33-39, 2019

Dong XP, Liu WT, Song X, Lin XY, Yu D, Yu C and Zhu BW, Characterization of Heat-Induced Water Adsorption of Sea Cucumber Body Wall, *J. Food Science*, 84(1), 92-100, 2019

Hu J, Zhao TF, Li SJ, Wang ZY, Wen CR, Wang HT, Yu C, Ji CF, Stability, microstructure, and digestibility of whey protein isolate – *Tremella fuciformis* polysaccharide complexes, *Food Hydrocolloids*, 89, 379-385, 2019

Mammadova N, Kokemuller R, Summers C, He Q, Ding S, Baron T, Yu C, Valentine R, Sakaguchi D, Kanthasamy A, Greenlee J and Greenlee MHW, Accelerated accumulation of retinal  $\alpha$ -synuclein (pSer129) and tau, neuroinflammation and autophagic dysregulation in a seeded mouse model of Parkinson's disease, *Neurobiology of Disease*, 121, 1-16, 2019

## Teaching

Dr. Yu teaches one BSE undergraduate course (ABE 380 Introduction to biological systems engineering) and one ABE graduate course, ABE 451/551 Food and bioprocess engineering. He is also involved in ABE capstone design courses as faculty mentor to student teams.

## Research

Dr. Yu's research focuses on bionanotechnology and biosensor development, and their applications in biomedical diagnosis, food and water safety monitoring and control, and environmental surveillance. He is currently working on several projects:

*Nano-enabled spectroscopic imaging to analyze biological systems.*

In this project we are developing nano-enabled spectroscopic imaging techniques to characterize various biological systems, such as plant cell wall, animal skin tissue, food/environmental samples, etc., to understand their structures/physical/chemical properties. The techniques we are developing can find applications in disease diagnosis, pathogen detection, and material characterization.

*Nano-particle based drug/vaccine delivery systems*

In this project we are utilizing chemically functionalized 3-D nanoparticles as carriers that can recognize specific cell type and use them as pathways to deliver drugs/vaccines across digestive tract walls. Our findings will facilitate development of more efficient and effective oral vaccines/drugs for various diseases.

*Nano-enabled harvesting of valuable proteins from biomaterials*

In this project, we set to develop a method to utilize nanomaterials as molecular harvesters to collect valuable, functional proteins from biomaterials.

*Characterization and utilization of biochar*

In this project we are collaborating with a local company (ARTi) to characterize how biochar interact with soil microbiota, to develop better ways to utilize biochar for various agricultural and environmental applications.

Dr. Yu also conducts research in food processing techniques for seafood and meat products, food quality evaluation using nondestructive spectroscopic methods, and functional food development, in collaboration with colleagues from China.

## Professional Activities

Dr. Yu has been an active member of several professional associations, including Institute of Biological Engineering (IBE), American Chemical Society (ACS), and American Society of Agricultural and Biological Engineers (ASABE). He has served as chair of ASABE Biosensors committee from 2011-2012.

