



Department: School of Biotechnology

Professional field: Biotechnology, Biochemical Engineering,
Food Science

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Profile

Zhao Li-Ming is the professor in the department of food science and technology at East China University of Science and Technology (ECUST). Zhao is Secretary of Party Committee of School of Biotechnology at ECUST, and the Director of R&D Center of Separation and Extraction Technology in Fermentation Industry ("SETCFI"), and the Dean of ECUST—HI-TECH Biobased Material Research Institute, and the Director of Key Laboratory of Biobased Material Engineering of China Light Industry, and he is also the Professor of Shanghai Collaborative Innovation Center for Biomufacturing Technology (SCICBT). He is the Visiting/Adjunct professor in Jinan University and Shanxi University. Dr. Zhao is the associate Director of Youth Work Committee, China Association of Food Science and Technology (From 2016); Director, Expert of Technician Committee, China Association of Biology and Fermentation Industry (From 2011); Expert of Experts Committee, China Health-care Association; Director of Shanghai Food Institute; Zhao is the *Editorial Boards of Food Science & Nutrition, Current Biotechnology, Science and Technology of Food Industry, China Brewing.*

Dr. Zhao received his Bachelor Degree in Food Science (1999.6), Master Degree (2001.12) and Doctor Degree (2009.12) from Jiangnan University. He has rich of experiences in R&D and engineering because he had ever worked for companies for 9 years before he came to ECUST in 2010. In April 2010, he came to the school of Biotechnology of ECUST. In July 2011, he was promoted to associate professor, and promoted to professor in July 2015. Dr. Zhao's research focuses on development and application research on chitin and its derivatives, separation and purification technology, and biobased materials. Specially interests in: 1) chitin and its derivatives (green biomanufacturing, separation and purification, and functional evaluation); 2) membrane and chromatography separation technology and equipment; 3) Biobased material research (Development of new bio-based materials, nano-based materials and their applications in food and medicine).

Dr. Zhao has won the National High-level personnel of special support program ("Ten-thousand people plan"), Science & Technology Nova Program, Shanghai "ShuGuang" project, the "Lunshiyi Education Fund Outstanding Young Scholar" in 2018, "Baogang Excellent Teacher" in 2017, "China Industry-University-Research Cooperation Innovation Award (individual)" in 2015, "China Food Science and Technology Association Scientific and Technological Innovation Award - Outstanding Youth Award" in 2013, and the second "ECUST Young Talents President Award" in 2015.

Research Field

Food, pharmaceutical and material engineering based on separation and extraction technology.

Research results and selected published papers

During the past several years, Dr. Zhao has accomplished several scientific projects at national and ministerial level, including National Key Research and Development Project, major program funded by National Natural Science Foundation of China (NSFC), the National High-tech R&D Program of Chian (863 Program). In addition, he has finished more than 20 projects from enterprises. Dr. Zhao obtained 5 provincial and ministerial science and technology awards (3 first prizes), and applied for 36 patents. 6 utility model patents, 25 patents in total, and authorized 1 American PCT patent. Dr. Zhao has published 110 academic papers, 70 of which were included in SCI. Dr. Zhao published his monograph of the Application of Membrane Technology in Food and Fermentation Industries in July 2011, and he is the editor in chief of a teaching book Principle of Food Engineering (Scheduled by Ministration of Education of China), which was published in Sept. 2013, and editor in chief of Food Engineering Processing published in Dec. 2019. He also edited the monograph of Oligosaccharides of Chitin and Chitosan: Bio-manufacture and Applications published by Springer Nature in Sept. 2019.

Representative papers published since 2016:

1. Mengyao Zhao, Liming Gu, Yun Li, Shumin Chen, Jiangshan You, Liqiang Fan, Yudong Wang, Liming Zhao*. Chitooligosaccharides display anti-tumor effects against human cervical cancer cells via the apoptotic and autophagic pathways. *Carbohydrate Polymers*. 9 August 2019, 115171
2. Zhen Qin#, Si Lin#, Yongjun Qiu, Qiming Chen, Yin Zhang, Jiachun Zhou, Liming Zhao*. One-step immobilization-purification of enzymes by carbohydrate-binding module family 56 tag fusion [J]. *Food Chemistry*, Volume 299, 30 November 2019, 125037.
3. Si Lin#, Zhen Qin#, Qiming Chen, Liqiang Fan, Jiachun Zhou, Liming Zhao*. Efficient immobilization of bacterial GH family 46 chitosanase by carbohydrate-binding module fusion for the controllable preparation of chitooligosaccharides [J]. *Journal of agricultural and food chemistry*, 2019, 67(24): 6847-6855.
4. Jun Lu#, Qiming Chen#, Bolin Pan, Zhen Qin, Liqiang Fan, Quanming Xia, Liming Zhao*. Efficient inhibition of Cronobacter biofilms by chitooligosaccharides of specific molecular weight [J]. *World Journal of Microbiology and Biotechnology*, 2019, 35(6): 87.
5. Qiming Chen, Lu Jun, Yongjun Qiu, Liming Zhao*. Bioinformatics-based mining of novel gene targets for identification of Cronobacter turicensis using PCR [J]. *Journal of dairy science*, 2019, 102(7): 6023-6026.
6. Sijing Jiang, Liqiang Fan*, Mengyao Zhao, Yongjun Qiu, Liming Zhao*. Enhanced Low Molecular Weight Poly- γ -Glutamic Acid Production in Recombinant *Bacillus subtilis* 1A751 with Zinc Ion [J]. *Applied biochemistry and biotechnology*, 2019. <https://doi.org/10.1007/s12010-019-03004-2>.
7. Yang Zhang, Liqiang Fan, Mengyao Zhao, Qiming Chen, Zhen Qin, Zhihang Feng, Toru Fujiwara, Liming Zhao*. Chitooligosaccharide plays essential roles in regulating proline metabolism and cold stress tolerance in rice seedlings [J]. *Acta Physiologiae Plantarum*, 2019, 41(6): 77.
8. Ping Chen, Mengyao Zhao, Qiming Chen, Liqiang Fan, Feng Gao, and Liming Zhao*. Absorption Characteristics of Chitobiose and Chitopentaose in the Human Intestinal Cell Line Caco-2 and Everted Gut Sacs, *Journal of Agricultural and Food Chemistry*, 2019, 67(16), 4513-4523.
9. Mengyao Zhao, Xin Shen, Xiaodan Li, Baoli Chen, Liqiang Fan, Quanming Xia, Liming Zhao*, Chitooligosaccharide supplementation prevents the development of high fat diet-induced non-alcoholic fatty liver disease (NAFLD) in mice via the inhibition of cluster of differentiation 36 (CD36), *Journal of Functional Foods*, 57 (2019): 7-18
10. Jiachun Zhou, Qiao Chen, Yang Zhang, Liqiang Fan, Zhen Qin, Qiming Chen, Yongjun Qiu, Lihua Jiang* and Liming Zhao*, Chitooligosaccharides enhance cold tolerance by repairing photodamaged PS II in rice, *The Journal of Agricultural Science*, 2018, 156: 888-899.
11. Wei Li, Mengyao Zhao, Zhen Qin, Qiming Chen, Liqiang Fan, Jiachun Zhou, Liming Zhao*, Inhibitory effect of chitooligosaccharides on retinol metabolism and bioavailability in mice, *J Food Biochem*. 2019, 43(3): 1-10.
12. Lei Yao, Zhen Qin, Qiming Chen, Mengyao Zhao, Hefei Zhao, Waheed Ahmad, Liqiang Fan, Liming Zhao*, Insights into the nanofiltration separation mechanism of monosaccharides by molecular dynamics simulation, *Separation and Purification Technology*, 205 (2018) :48-57.
13. Xiaodan Li#, Mengyao Zhao#, Liqiang Fan, Xuni Cao, Liehuan Chen, Junhui Chen, Y. Martin Lo, Liming Zhao*, Chitobiose alleviates oleic acid-induced lipid accumulation by decreasing fatty acid uptake and triglyceride synthesis in HepG2 cells, *Journal of Functional Foods*, 46 (2018): 202-211.
14. Zhen Qin, Sa Luo, Yun Li, Qiming Chen, Yongjun Qiu, Liming Zhao, Lihua Jiang, Jiachun Zhou, Biochemical properties of anovel chitosanase from *Bacillus amyloliquefaciens* and its use in membrane reactor. *LWT - Food Science and Technology*, 97 (2018): 9-16.
15. Xiaoxing Yang, Jiachun Zhou, Liqiang Fan, Zhen Qin, Qiming Chen, Liming Zhao*. Antioxidant properties of a vegetable-fruit beverage fermented with two *Lactobacillus plantarum* strains. *Food Science and Biotechnology*, (2018) 27(6): 1719-1726.
16. Li-Qiang Fan*, Ming-Wei Li, Yong-jun Qiu, Qi-ming Chen, Si-Jing Jiang, Yu-Jie Shang, Li-Ming Zhao*, Increasing thermal stability of glutamate decarboxylase from *Escherichia coli* by site-directed saturation mutagenesis and its application in GABA production. *Journal of Biotechnology*, 278 (2018): 1-9.
17. Zhen Qin, Qiming Chen, Si Lin, Sa Luo, Yongjun Qiu, Liming Zhao*. Expression and characterization of a novel cold adapted chitosanase suitable for chitooligosaccharides controllable preparation. *Food Chemistry*, 253 (2018): 139-147.
18. Sha Huang, Liming Zhao*, Qiming Chen, Zhen Qin, Jiachun Zhou, Yongjun Qiu, Yin Zhang, Mingyue Ma, Physicochemical Characteristics of Edible Bird's Nest Proteins and Their Cooking Processing Properties. *International Journal of Food Engineering*. 2018; 20170152.
19. Qiming CHEN, Yang ZHU, Zhen QIN, Yongjun QIU, Liming ZHAO*, Cronobacter spp., foodborne pathogens threatening neonates and infants, *Front. Agr. Sci. Eng.* 2018, 5(3): 330-339.
20. Ye Sun, Zhen Qing, Liming Zhao*, Qiming Chen, Qingyun Hou, Hua Lin, Lihua Jiang, Jinchang Liu, Zheng Du. Membrane fouling mechanisms and permeate flux decline model in soy sauce microfiltration. *J Food Process Eng.* 41(1), 2018: 1-10.
21. Hetian Liu, Yang Yang, Liming Zhao*, Hefei Zhao, Liqiang Fan, Lihua Jiang, Yongjun Qiu, Jiachun Zhou, Influence of the physical conditions of a xylose and arabinose solution on nanofiltration separation performance, *Desalination and Water Treatment*, 68 (2017) 49-59.
22. Yin Zhang, Chandrasekar Venkatasamy, Zhongli Pan, Wenlong Liu, and Liming Zhao. Novel Umami Ingredients: Umami Peptides and Their Taste. *Journal of Food Science*, Vol. 82, No. 1, 2017.
23. Yin Zhang, Xiong Wei, Zhou Lu, Zhongli Pan, Xinhua Gou, Chandrasekar Venkatasamy, Siya Guo, Liming Zhao. Optimization of culturing conditions of recombinant *Escherichia coli* to produce umami octopeptide-containing protein. *Food Chemistry*, 227 (2017) 78-84.
24. Xin Xu, Jine Wang, Yifeng Wang, Liming Zhao, Yulin Li, Changsheng Liu. Formation of graphene oxide-hybridized nanogels for combinative anticancer therapy. *Nanomedicine: Nanotechnology, Biology, and Medicine*, (2017).
25. Liu Wenlong, Jiang Weiwei, Yan Chenran, Feng Wei, Wang Dongxia, Zhao Liming, Feng Tingting and Gong Feng. Hydrothermal Synthesis of Hierarchical Hollow Li(Ni_{0.8}Co_{0.15}Al_{0.05})O₂ Microspheres for Lithium Ion Batteries. *Bulletin of the Korean Chemical Society*. 2017, Vol. 38, 1269-1274.
26. Zhen Qin, Shaoqing Yang, Liming Zhao, Xin You, Qiaojuan Yan, Zhengqiang Jiang*, Catalytic mechanism of a novel glycoside hydrolase family 16 "elongating" β -transglycosylase. *Journal of Biological Chemistry*, 292 (2017), 1666-1678.
27. Xiaohua Nie*, Liming Zhao, Joe M. Regenstein, Dan Xu, Xianghe Meng*, Antioxidant capacity of Maillard reaction products' fractions with different molecular weight distribution from chicken bone hydrolysate - galactose system, *International Journal of Food Science and Technology*, 2017, 52, 1632-1638.
28. Xiaohua Nie*, Liming Zhao, Ningning Wang, Xianghe Meng*, Phenolics-protein interaction involved in silver carp myofibrillar protein films with hydrolysable and condensed tannins, *LWT - Food Science and Technology*, 81 (2017) :258-264.
29. Xiaohua Nie*, Dan Xu, Liming Zhao, Xianghe Meng. Antioxidant activities of chicken bone peptide fractions and their Maillard reaction products: Effects of different molecular weight distributions. *International Journal of Food Properties*, 20, 2017: S457-S466.
30. Zhongli Pan*, Hamed M. El Mashad, Xuan Li, Ragab Khir, Griffiths Atungulu, Liming Zhao, Pramote Kuson, Tara McHugh, Ruihong Zhang. Demonstration tests of infrared peeling system with electrical emitters for tomatoes. *Transactions of the ASABE*, 59(4). 2016: 985-994.
31. Li-Qiang Fan*, Guo-Xiu Du, Peng-Fei Li, Ming-Wei Li, Yao Sun, Li-Ming Zhao, Improved breast cancer cell-specific intracellular drug delivery and therapeutic efficacy by coupling decoration with cell penetrating peptide and SP90 peptide. *Biomedicine & Pharmacotherapy*, 84 (2016) 1783-1791.
32. Jun Hou, Donghui Fan*, Liming Zhao, Baoqin Yu, Jiacan Su*, Jie Wei, Jung-Woog Shin. Degradability, cytocompatibility, and osteogenesis of porous scaffolds of nanobredigite and PCL-PEG-PCL composite. *International Journal of Nanomedicine*, 2016: 11 3545-3555.
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34. Junying Zhu, Xiangyang Zhu, Jinlou Gu, Liming Zhao*, Lihua Jiang, Yongjun Qiu, Effective Adsorption and Concentration of Carnosine by Nickel Species within Mesoporous Silica, *LWT - Food Science and Technology*, 74 (2016), 211-218.
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36. Shengnan Zhang, Jiachun Zhou, Liqiang Fan, Yongjun Qiu, Lihua Jiang* and Liming Zhao*. Investigating the mechanism of nanofiltration separation of glucosamine hydrochloride and N-acetyl glucosamine, *Bioresources and Bioprocessing*, 2016, 3:34.