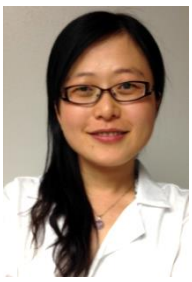
CURRICULUM VITAE



Jiang Jiang, Ph.D.
Professor
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Education

Ph.D. (2011). Food Science. Jiangnan University, Wuxi, Jiangsu, China.
Dissertation project: Structural and functional properties of pH-shifting treated soy proteins and their applications in meat products.
Advisor: Dr. Youling (Larry) Xiong (University of Kentucky)

B.S. (2005). Food Science. Jiangnan University, Wuxi, Jiangsu, China.
Thesis project: Enzymatic and ultrasonic degradation of Konjac glucomannan to improve flow behavior in aqueous systems.
Advisor: Dr. He Qian (Jiangnan University).

Experiences

06/2019 –Now, **Professor.** School of Food Science and Technology, Jiangnan University. 80% research / 20% teaching.

04/2014 –05/2019, **Associate Professor.** School of Food Science and Technology, Jiangnan University. 80% research / 20% teaching.
Activities:

a. Explore the effect of emulsifiers, hydrocolloids, and waxes on structure formation in non-hydrogenated oils. Goal is to improve product quality and prolong the shelf life of whipped cream.
   - Develop new fat systems to replace hydrogenated palm kernel oil in aerated emulsion.
   - Perform sensory evaluation, texture analyses, rheological analyses, and stability tests.
b. Protein oxidative stability and gel structure reinforcement in muscle protein/polyunsaturated fatty acid/polyphenol composites.
c. A pilot study: the effect of different ultrasonic condition on the solubility and morphology of milk powder.
d. Teaching Biochemistry courses.

07/2016 – 01/2017. **Visiting Scholar.** Dept. of Animal and Food Sciences, University of Kentucky.
Activities: Role of proteins and phenolic antioxidants for the protection of interfacial membrane in O/W emulsions.

12/2013 – 01/2015. **Postdoctoral Researcher.** School of Medicine, University of California at San Diego. Advisor: Dr. Edward Dennis.
Activities:

a. Metabolic pathway of cyclooxygenase (COX-1 and COX-2) inhibition by ω-3 fatty acids in the suppression of tumor growth.
b. Dietary fish oil-induced eicosanoid profile differentiation in mice.
c. ω-6 fatty acids metabolism and serum lipid metabolic profile as influenced by dietary oils for cardiovascular and hepatic health.

06/2011 – 04/2014. **Assistant Professor.** School of Food Science and Technology, Jiangnan University. 80% research/20% teaching.
Activities:

a. Research on legume protein chemistry and natural antioxidants, including the development of functional legume protein ingredients (pea, chickpea, soy) using various physical and chemical methods.
b. Application of wet processing and enzymatic treatments to remove cholesterol from lard.
c. Teaching Biochemistry courses.

07/2013 – 08/2013. **Visiting Scholar.** Dept. of Animal and Food Sciences, University of Kentucky.
Activities: Testing of radical-scavenging activity of pea protein after alkaline pH modification

06/2012 – 07/2012. **Visiting Scholar.** Dept. of Animal and Food Sciences, University of Kentucky.
Activities: Investigation of the steric role of legume protein adsorbed at the interface for the oxidative stability of oil/water emulsions.

09/2009 – 08/2011. **Exchanging Ph.D. Student.** Dept. of Animal and Food Sciences, University of Kentucky.
Activities:

a. Conducting Ph.D. dissertation research, including the study of protein solubility of pH-shifting treated soy protein isolate (SPI) and its 7S and 11S subunits, and their film-forming ability, interaction with muscle myofibrillar proteins, and texture-modifying capability in processed meat products.
b. Coordinating/participating in projects: Animal antioxidant diet effect on oxidative stability of meat; antioxidant mechanism of hydrolyzed yeast proteins; antioxidant activity of licorice extract.

Main accomplishments:

a. Completed the SPI, 7S and 11S solubility study (2 IFT posters; 3 journal papers).

b. Completed soy protein film-forming study (1 IFT presentation, 1 ACS presentation – graduate paper competition, 1 journal paper).
c. Completed myofibrillar protein-SPI interaction study (1 IFT poster; 1 journal paper).
d. Completed the licorice antioxidant activity assessment (1 journal paper).

09/2009 – 08/2011. Member of Food Science Club. Dept. of Animal and Food Sciences, University of Kentucky.
Activities:
a. Fund-raising: Amazon packaging; meal preparation for hospital patients; Kentucky State Fair ice cream sale; Bluegrass IFT suppliers night.
b. Attended regular club meetings and other functions.

10/2008. Organizer. 4th Postgraduate Forum of Food and Biotechnology, Wuxi, China.

06/2008. Co-organizer. National Food Science Ph.D. Student Intern Delegation, Luohe, Henan, China.

11/2007. Lead Volunteer. 7th International Conference of Food Science and Technology (ICFST, co-organized by Jiangnan University and University of California - Davis), Wuxi, China.

Research Interest

Rheological and textural characteristic in protein film and emulsion system; Physical and chemical properties of legume proteins (solubility, emulsifying, gelling, and antioxidant properties); Processing technology innovation for protein functionality improvement; Fat and fat emulsion crystallization;Lipid chemistry; oil processing; Lipid metabolisms and pathways strategy; Metabolomics of omega-3 and omega-6 fatty acids and their health benefits; Biochemistry of cyclooxygenase; Lipid metabolism changes of G-couple protein knocked out mice.

Research skills

Lipid oxidation analysis; Lipid fractionation; Enzymatic oil processing; UPLC-MS; Cell culture; Protein isolation, fractionation and purification (legumes, muscle); Protein structural analysis (CD, DSC, fluorescence); Protein detection (SDS-PAGE); Protein/food emulsion digestibility *in vitro*; Imaging techniques (electron microscopy, phases contrast microscopy); Animal model studies (mice tissue: muscle, plasma, lipid, liver, visceral and subcutaneous fat); Human serum extraction.

Research grants

❖ Protein oxidative stability and gel structure reinforcement in muscle protein/polyunsaturated fatty acid/polyphenol composites. **National**

Natural Science Foundation, China (Grants No. 31301497), (Chinese ￥230,000 or US $38,000). Jiang (PI). 1/2014 –12/2016.

❖ Key technology of deep processing of lard and industrialization. **Ministry of Science and Technology**, China (2012BAD28B04), (Chinese ￥380,000 or US $40,000). Jiang (PI). 1/2014 –12/2016.

❖ The utilization of enzyme assisted extraction in high oil and protein plant resource. **Ministry of Science and Technology**, China (2013AA102103), (Chinese ￥700,000 or US $68,000). Jiang (PI). 1/2014 –12/2018.

❖ Technology and mechanism of pH-shifting to enhance legume protein functionality and oxidative stability. **USDA/AFRI,** USA (pending). Jiang (Co-PI).

Teaching

Biochemistry (3.5 cr)
Biochemistry experiments (2 cr)

Awards & Honors

2013 – Travel grant ($2,000), awarded by the Institute of Food Technologists (USA) to support my invited protein functionality symposium presentation at the national IFT meeting in Chicago.

2011 - Finalist Award, Graduate Paper Competition, American Chemical Society, Agricultural and Food Chemistry Div. (prize includes $1000 travel money award).

2010-2011 - Student Representative, North American Jiangnan University Alumni and Friends Association.

2007-2009 – President, Graduate Student Council, Jiangnan University.

Professional services

❖ Manuscript reviewer/ Editorial Board:
- Journal of Food Science (Editorial Board)
- Journal of Food Chemistry
- Journal of Agricultural and Food Chemistry
- Food Bioscience
- Food Science and Human Wellness

❖ Reviewer for graduate paper competition, Institute of Food Technologists (IFT), 2014
- Dairy Foods Division
- Food Microbiology Division
- Sensory and Consumer Sciences Division

❖ Judge, Innovation Scholarship, North American Jiangnan University Alumni & Friends Association, 2012, 2013, 2014, 2015, 2016

Conference presentations

1. **Jiang, J.**, Xiong, Y.L., and Chen, J. Role of glycinin (11s) and β-conglycinin (7s) subunits in the pH-induced structural and physicochemical changes of soy protein isolate. Presented at the

Institute of Food Technologists (IFT) annual conference, Chicago, IL, July 17-21, 2010. (Oral).

2. **Jiang, J.**, Xiong, Y.L., and Chen, J. The pH-shifting alters solubility characteristics and thermal stability of soy protein isolate and its globulin fractions in different pH, salt concentration and temperature conditions. Presented at the Institute of Food Technologists (IFT) annual conference, Chicago, IL, July 17-21, 2010. (Poster).

3. **Jiang, J.** and Xiong, Y.L. Formation of stable O/W emulsions and cold-set films by pH-shifting-treated soy proteins is attributed to the dissociation and unfolding of β–conglycinin and glycinin. Presented at the 241st National Meeting of American Chemical Society (ACS), Anaheim, CA, March 27-31, 2011. (Oral). Invited.

4. **Jiang, J.**, Xiong, Y.L., Newman, M.C., and Rentfrow, G.K. Film-forming properties of alkaline and acidic pH-shifting-treated soy proteins. Presented at the Institute of Food Technologists (IFT) annual conference, New Orleans, LA, June 11-14, 2011. (Poster).

5. **Jiang, J.**, Xiong, Y.L., and Liu, Y. Effect of extreme pH-treated soy protein isolate and its O/W emulsion droplets on the gelling properties of myofibrillar proteins. Presented at the Institute of Food Technologists (IFT) annual conference, Las Vegas, NV, June 24-27, 2012. (Poster).

6. **Jiang, J.** pH shifting to improve plant protein functionality: mechanism and applications. Presented at the Institute of Food Technologists (IFT) annual conference, Chicago, IL, July 16-19, 2013. (Oral).

7. Xiong, Y.L., Liu, Z., and **Jiang, J.** 2013. Muscle structure hierarchy: a biophysical mechanism for radical-induced variation of protein oxidation and functionality in processed meat products. International Congress of Meat Science and Technology, Izmir, Turkey, August 19-23, 2013. (Oral).

8. **Jiang, J.**, Zhu, B., Liu, Y., and Xiong, Y.L. 2014. Steric hindrance at the oil-water interaction for the oxidative stability of emulsion droplets coated with alkaline pH-treated pea protein. Presented at the Institute of Food Technologists (IFT) annual conference, New Orleans, LA, June 21-24, 2014. (Poster).

9. **Jiang J.,** Zhu B., Liu, Y., Xiong Y.L. Accentuation of antioxidant activity of pea protein by the removal of endogenous polyphenols, Institute of Food Technologists (IFT), Chicago, IL, July 11-July 14,

2015. (Poster).

10. **Jiang J.,** Liu, Y., Xiong Y.L. Morphological and rheological characteristics of cholesterol-reduced soft lard emulsion prepared with dairy proteins and ultrasound process. Presented at the Institute of Food Technologists (IFT) annual conference, Las Vegas, NV, June 25-28, 2017. (Poster).

11. **Jiang Jiang**., Yan Jin., Yuanfa Liu. Competitive Interfacial Adsorption of Protein and Surfactants in Crystallized Solid Fat Emulsions. Presented at the American Oil Chemists' Society (AOCS) China section. Wuxi, Jiangsu, Nov 10-12, 2017. (Oral)

12. **Jiang Jiang**., Weiqin Jing., Yuanfa Liu. Non-Covalent Interaction of Chlorogenic Acid to Whey Protein and Casein at Neutral pH Enhances Radical-Scavenging Activity of In Vitro Protein Digests. Presented at the Institute of Food Technologists (IFT) annual conference, Chicago, IL, July 15-18, 2018. (Poster).

Refereed Journal Publications

1. **Jiang, J.**, Chen, J., and Xiong, Y.L. 2009. Structural and emulsifying properties of soy protein isolate subjected to acid and alkaline pH-shifting processes. *Journal of Agricultural and Food Chemistry* 57:7576–83. IF: 3.412.

2. **Jiang, J.**, Xiong, Y.L., and Chen, J. 2010. pH-shifting alters solubility characteristics and thermal stability of soy protein isolate and its globulin fractions in different pH, salt concentration, and temperature conditions. *Journal of Agricultural and Food Chemistry* 58:8035–44. IF: 3.412.

3. **Jiang, J.**, Chen, J., and Xiong, Y.L. 2011. Role of β-conglycinin and glycinin subunits in the pH-shifting-induced structural and physicochemical changes of soy protein isolate. *Journal of Food Science* 76:C293–302. IF: 2.018.

4. **Jiang, J.**, Xiong, Y.L., Newman, M.C., and Rentfrow, G.K. 2012. Structure-modifying alkaline and acidic pH-shifting processes promote film formation of soy proteins. *Food Chemistry* 132:1944–1950. IF: 4.946.

5. **Jiang, J.,** and Xiong, Y.L. 2013. Extreme pH treatments enhance the structure-reinforcement role of soy protein isolate and its emulsions in pork myofibrillar protein gels in the presence of microbial

transglutaminase. *Meat Science* 93:469–476. IF: 2.821.

6. **Jiang, J.**, Zhang, X., True, A.D., Zhou, L., and Xiong, Y.L. 2013. Inhibition of lipid oxidation and rancidity in precooked pork patties by radical-scavenging licorice (*Glycyrrhiza glabra*) extract. *Journal of Food Science* 78:C1686–C1694. IF: 2.018.

7. Suliman, T.E., Meng, Z., Li, J.W., **Jiang, J.,** Liu, Y.F. 2013. Optimisation of sunflower oil deodorising: balance between oil stability and other quality attributes. *International Journal of Food Science and Technology* 48: 1822–1827. IF: 1.384

8. **Jiang, J.,** Li, K.F., Liu, Y.F., and Xiong, Y.L. 2013. Gelation properties of pea protein isolate with pH-shifting treatment. *Food Science* (Chinese) 21:10–15.

9. **Jiang, J.,** Zhu, B., Liu, Y.F., Xiong, Y.L. 2013. Functional properties of pea protein isolate subjected to dephenol process. *Food Science* (Chinese) 23:1–5.

10. **Jiang, J.,** Wang, Y., and Liu, Y.F. 2014. Development of nondairy whipped cream with modified pea protein as fat replacer. *Journal of Food and Engineering* (Chinese) 5:24-29.

11. **Jiang, J.**, Zhu, B., Liu, Y., and Xiong, Y.L. 2014. Interfacial structural role of pH-shifting processed pea protein in the oxidative stability of O/W emulsions. *Journal of Agricultural and Food Chemistry* 62:1683–1691. IF: 3.412.

12. **Jiang, J.,** and Xiong, Y.L. 2015. Technologies and mechanisms for safety control of ready-to-eat muscle foods: an updated review. *Critical Reviews in Food Science and Nutrition* 55:1886-1901. IF: 6.015.

13. **Jiang, J**., and Xiong, Y.L. 2015. Role of interfacial protein membrane in oxidative stability of vegetable oil substitution emulsions applicable to nutritionally modified sausage. *Meat science* 109:56-65. IF: 2.821.

14. Wang, Q.L., **Jiang, J.,** Li, J.W., Qiu, M.B., and Liu, Y.F. 2016. High quality lard with low cholesterol content produced by aqueous enzymatic extraction and beta-cyclodextrin treatment. *European Journal of Lipid Science and Technology* 118:553–563. IF: 2.033.

15. **Jiang, J.,** and Xiong, Y.L. 2016. Natural antioxidants as food and feed additives to promote health benefits and quality of meat products: A review. *Meat Science* 120:107–117. IF: 2.821.

16. **Jiang, J.,** Tang, X., Xue, Y., Lin, G. and Xiong, Y.L. 2017. Dietary linseed oil supplemented with organic selenium improved the fatty acid nutritional profile, muscular selenium deposition, water retention, and tenderness of fresh pork. *Meat Science* 131:99-106. IF:2.821

17. Bowden, J.A. et al., 2017. Harmonizing lipidomics: NIST interlaboratory comparison exercise for lipidomics using standard reference material 1950 metabolites in frozen human plasma. *Joural of Lipid Research* (jlr-M079012.). (**Jiang, J** is one of 94 co-authors. Jiang's contribution: Analysis of metabolic lipid profile of plasma)

18. Jiang, J., Jin, Y., Liang, X., Piatko, M., Campbell, S., Lo, S.K. and Liu, Y., 2018. Synergetic interfacial adsorption of protein and low-molecular-weight emulsifiers in aerated emulsions. *Food Hydrocolloids* 81: 15-22. IF:5.089

19. Jiang, J., Zhang, Z., Zhao, J. and Liu, Y., 2018. The effect of non-covalent interaction of chlorogenic acid with whey protein and casein on physicochemical and radical-scavenging activity of in vitro protein digests. *Food Chemistry* 268: 334-341. IF:4.946

20. Jiang, J., Wang, Q. and Xiong, Y.L., 2018. A pH shift approach to the improvement of interfacial properties of plant seed proteins. Current Opinion in Food Science. IF:3.734

21. Quehenberger, O., Dahlberg-Wright, S., Jiang, J., Armando, A.M. and Dennis, E.A., 2018. Quantitative determination of esterified eicosanoids and related oxygenated metabolites after base hydrolysis. Journal of lipid research, pp.jlr-D089516.

22. Deng, B.X., Li, B., Li, X.D., Zaaboul, F., Jiang, J., Li, J.W., Li, Q., Cao, P.R. and Liu, Y.F., 2018. Using Short-Wave Infrared Radiation to Improve Aqueous Enzymatic Extraction of Peanut Oil: Evaluation of Peanut Cotyledon Microstructure and Oil Quality. European Journal of Lipid Science and Technology, 120(2), p.1700285.

23. Jiang, J., Jing, W., Xiong, Y.L. and Liu, Y.F., 2019. Interfacial competitive adsorption of different amphipathicity emulsifiers and milk protein affect fat crystallization, physical properties, and morphology of frozen aerated emulsion. Food Hydrocolloids, 87, pp.670-678.

24. Jiang, J., Song, Z., Wang, Q., Xu, X., Liu, Y., and Xiong, Y. L. (2019). Ultrasound-mediated interfacial protein adsorption and fat crystallization in cholesterol-reduced lard emulsion. Ultrasonics

Sonochemistry, 104641.

25. Jiang, J., Nie, Y., Sun, X. and Xiong, Y.L., 2021. Partial Removal of Phenolics Coupled with Alkaline pH Shift Improves Canola Protein Interfacial Properties and Emulsion in In Vitro Digestibility. Foods, 10(6), p.1283.
26. Jiang, J., Jin, F., Lin, G. and Xiong, Y.L., 2021. Modulation of muscle antioxidant enzymes and fresh meat quality through feeding peptide-chelated trace minerals in swine production. Food Bioscience, p.101191
27. Yang, K., Lin, R., Zhang, S., Zhao, X., Jiang, J. and Liu, Y., 2022. Ultrasound-modified interfacial properties and crystallization behavior of aerated emulsions fabricated with pH-shifting treated pea protein. Food Chemistry, 367, p.130536.

Refereed Abstracts

1. **Jiang, J.**, Xiong, Y.L., and Chen, J. 2010. The pH-shifting induced changes in solubility and thermal stability of soy protein isolate and its 7S and 11S fractions: Influence of pH, salt concentration and temperature. Book of Abstracts. Annual Meeting of the Institute of Food Technologists. (Abst. No. 229-08).

2. **Jiang, J.**, Xiong, Y.L., and Chen, J. 2010. Role of glycinin and β-conglycinin subunits in the extreme pH-induced structural and physicochemical changes of soy protein isolate. Book of Abstracts. Annual Meeting of the Institute of Food Technologists. (Abst. No. 210-03).

3. **Jiang, J.** and Xiong, Y.L. 2011. Formation of stable O/W emulsions and cold-set films by pH-shifting-treated soy proteins is attributed to the dissociation and unfolding of β-conglycinin and glycinin. Abstracts of 241st National Meeting of American Chemical Society, Ag. & Food Chem. Div., Abstract No. AGFD 6.

4. **Jiang, J.**, Xiong, Y.L., Newman, M.C., and Rentfrow, G.K. 2011. Film-forming properties of alkaline and acidic pH-shifting-treated soy proteins. Book of Abstracts. Annual Meeting of the Institute of Food Technologists. (Abst. No. 150-06).

5. **Jiang, J.**, Xiong, Y.L., and Liu, Y. 2012. Effect of extreme ph-treated soy protein isolate and its o/w emulsion droplets on the gelling properties of myofibrillar proteins. Book of Abstracts. Annual Meeting

of the Institute of Food Technologists. (Abst. No. 277-07).

6. Xiong, Y.L., Liu, Z., and **Jiang, J.** 2013. Muscle structure hierarchy: a biophysical mechanism for radical-induced variation of protein oxidation and functionality in processed meat products. Proceed. 59th Intl. Cong. Meat Sci. Technol. (ICoMST). (Abstract and full paper published as CD copies).

7. **Jiang, J.** 2013. pH shifting to improve plant protein functionality: Mechanism and applications. Book of Abstracts. Annual Meeting of the Institute of Food Technologists. (Abst. No. 017-01).

8. **Jiang, J.**, Zhu, B., Liu, Y., and Xiong, Y.L. 2014. Steric hindrance at the oil-water interaction for the oxidative stability of emulsion droplets coated with alkaline pH-treated pea protein. Book of Abstracts. Annual Meeting of the Institute of Food Technologists. (Abst. No. 206-32).

9. **Jiang, J.**, Zhu, B., Liu, Y., and Xiong, Y.L. 2015. Accentuation of antioxidant activity of pea protein by the removal of endogenous polyphenols. Book of Abstracts. Annual Meeting of the Institute of Food Technologists. (Abst. No. 098-3).

10. **Jiang, J.**, Liu, Y., and Xiong, Y.L. 2017. Morphorlogical and rheological characteristics of cholesterol-reduced soft lard emulsion prepared with dairy proteins and ultrasound process. Book of Abstracts. Annual Meeting of the Institute of Food Technologists. (Abst. No. 021).

13. Jiang Jiang., Yan Jin., Yuanfa Liu. Competitive Interfacial Adsorption of Protein and Surfactants in Crystallized Solid Fat Emulsions. Presented at the American Oil Chemists' Society (AOCS) China section. Wuxi, Jiangsu, Nov 10-12, 2017. (Oral)

14. Jiang Jiang., Xuemei Sun., Yuanfa Liu. Non-Covalent Interaction of Chlorogenic Acid to Whey Protein and Casein at Neutral pH Enhances Radical-Scavenging Activity of In Vitro Protein Digests. Presented at the Institute of Food Technologists (IFT) annual conference, Chicago, IL, July 15-18, 2018. (Poster). (Abst. No. Food Chem 81)