

Zhi Yang
College of Tropical Agriculture and Human Resources
Department of Human Nutrition, Food, and Animal Sciences
FTE Distribution: 40%I; 60%R; 0%E

Education

<u>Degree</u>	<u>University</u>	<u>Major</u>
PhD	University of Auckland	Food Science
MS	Wageningen University	Food Science
BS	Fujian A&F University	Food Science

Professional Appointments

<u>Title</u>	<u>Employer</u>	<u>Dates Employed</u>
Assistant Professor	University of Hawaii, Manoa	2024 to Present
Senior Lecturer	Massey University, NZ	2000 to 2024
Postdoctoral researcher	Oak Ridge National Laboratory	2018 to 2020

Courses Taught

<u>Course ID and name (credits)</u>	
FSHN 430	Food Chemistry (3)
FSHN 430L	Food Chemistry Laboratory (1)
FSHN 460	Food Processing Operations (3)

Publications (reverse chronological order)

Conference Proceedings

Yang, Z., Pingali, S. V*, O'Neill, H., Bhagia, S., Evans, B. R., Davison, B. H., & Ragauskas, A. (2019). SANS study of structures and deuterium incorporation into vegetative leaf stalks of deuterated Kale (*Brassica oleracea*). *Acta Cryst*, 75, a324.

Refereed Journal Publications

[59] Hu, Y., Ye, A., Cheng, L., Lee, S., & **Yang, Z.*** (2025). Recent progress in fabrication, characterization, and application of functional protein aggregates derived from plant proteins. *Critical Reviews in Food Science and Nutrition*, Accepted for publication.

[60] Wang, H., Cheng, L., Yang, H., Shen, Q., & **Yang, Z.*** (2025). Effect of pH-shifting with heat or sonication on physicochemical properties of quinoa protein isolates (QPI) dispersions. [*International Journal of Biological Macromolecules*, 143321.](#)

[58] Wang, H., **Yang, Z.***, Liao, J., Cheng, L., Jin, D., Xu, J., ... & Shen, Q*. (2025). Ultrasonication improved myofibrillar protein-stabilized emulsions: Oil/water interface adsorption behavior and rheological behavior. [*International Journal of Biological Macromolecules*, 142390.](#)

[57] Lin, J., & Tian, H. & **Yang, Z.*** (2025). Effect of sonication on the physicochemical properties of mussel (*Perna canaliculus*) protein concentrates (MPC) dispersions as influenced by pH values. [*Food Bioscience*, 106050.](#)

[56] Hu, Y., Cheng, L., & **Yang, Z.*** (2025). Impact of various physical treatments on physicochemical

and microstructural characteristics of vegetable oil-based whipped cream stabilised by faba bean protein isolate. [*Food Hydrocolloids*, 111084.](#)

[55] Yang, M., **Yang, Z.**, Everett, D. W., Gilbert, E.P., Singh, H., and Ye, A.*. (2025). Digestion of food proteins: the role of pepsin. [*Critical Reviews in Food Science and Nutrition*, 1-22.](#)

[54] Yang, M., Ye, A.*, **Yang, Z.**, Everett, D. W., de Campo, L., Singh, H., & Gilbert, E. P. (2025). Probing structural modification of milk proteins in the presence of pepsin and/or acid using small-and ultra-small-angle neutron scattering. [*Food Hydrocolloids*, 110681.](#)

[53] Hu, Y., Cheng, L., Gilbert, E.P., Loo, T., Lee, S.J., **Yang, Z.*** (2024) Impact of thermosonication at neutral pH on the structural characteristics of faba bean protein isolate dispersions and their physicochemical and techno-functional properties. [*Food Hydrocolloids*, 110140.](#)

[52] Hu, Y., Cheng, L., Gilbert, E.P., Loo, T., Lee, S.J., Harrison, J., **Yang, Z.*** (2024) Fibrillization of faba bean protein isolate by thermosonication for process efficacy: microstructural characteristics, assembly behaviour, and physicochemical properties. [*Food Hydrocolloids*, 110217.](#)

[51] Yang, M., Ye, A.*, Gilbert, E.P., **Yang, Z.**, Everett, D., Singh, H. (2024) Pepsin-induced hydrolysis, and coagulation of proteins in goat, sheep, and cow milk. [*International Dairy Journal*, 153, 105898.](#)

[50] Zhang, J., **Yang, Z.**, Aditya, P., Manjula, S., Pingali, S.V.*, & Marcus, F*. (2024). Structural evolution of lignin using in-situ small angle neutron scattering during catalytic disassembly. [*ACS Sustainable Chemistry & Engineering*, 12, 6, 2241-2251.](#)

[49] Cheng, L., Leon-Rodriguez, L.M.D., Gilbert, E.P., Loo, T., Petter, L., **Yang, Z.*** (2024) Self-assembly and hydrogelation of a potential bioactive peptide derived from quinoa proteins. [*International Journal of Biological Macromolecules*, 259, 129296.](#)

[48] **Yang, Z.***, Cheng, L. (2024). Impact of ultrasound emulsification on the physicochemical properties of emulsions stabilised by quinoa protein isolates at different pHs. [*Food Biophysics*, 19, 160-171.](#)

[47] **Yang, Z.**, Samarthya, B., O'Neill, H., Barbara, E., Arthur, R., Brian, D., & Pingali, S.V.* (2023). Deconvoluting structures of component biopolymers using deuterium labelled *Brassica oleracea* stems. [*ACS Sustainable Chemistry & Engineering*, 11, 49, 17238-17248.](#)

[46] Hu, Y., Cheng, L., Lee, S.J., **Yang, Z.***. (2023) Formation and characterisation of concentrated emulsion gels stabilised by faba bean protein isolate and its applications for 3D food printing. [*Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 671, 131622.](#)

[45] Cheng, L., Ye, A., **Yang, Z.**, Hemar, Y., & Singh, H. (2023). Formation and properties of highly concentrated oil-in-water emulsions stabilised by emulsion droplets. [*Food Hydrocolloids*, 145, 109059.](#)

[44] Yang, M., Ye, A.*, **Yang, Z.**, Everett, D. W., Gilbert, E. P., & Singh, H. (2023). Role of Ca²⁺ in the pepsin-induced coagulation and in the dynamic *in vitro* gastric digestion behavior of casein micelles. [*Food & Function*.14, 6985-6997.](#)

[43] Yang, M., Ye, A., **Yang, Z.**, Everett, D. W., Gilbert, E. P., & Singh, H. (2023). Effect of ingestion temperature on the pepsin-induced coagulation and the in vitro gastric digestion behavior of milk. [*Food Hydrocolloids*, 139, 108550.](#)

[42] Khan, M. A., Hemar, Y., Li, J., **Yang, Z.**, & De Leon-Rodriguez, L. M. (2023). Fabrication, characterization, and potential applications of re-assembled casein micelles. [*Critical Reviews in Food Science and Nutrition*, 1-25.](#)

[41] **Yang, Z.***, Cheng, L., de Campo, L., Gilbert, E. P., Mittelbach, R., Luo, L., ... & Hemar, Y. (2023). Microstructural evolution during acid induced gelation of cow, goat, and sheep milk probed by time-resolved (ultra)-small angle neutron scattering. [*Food Hydrocolloids*, 108381.](#)

[40] Wang, X., Cheng, L., Wang, H., & **Yang, Z.***. (2022). Limited Alcalase hydrolysis improves the

thermally-induced gelation of quinoa protein isolate (QPI) dispersions. [*Current Research in Food Science*, 5, 2061-2069.](#)

[39] Lu, F., Zhu, X. F., Tao, H., Wang, H. L., & **Yang, Z.** (2022). Controlling starch surface characteristics-Impact on dough formation in a reconstituted dough system. [*LWT*, 113591.](#)

[38] Luo, L., **Yang, Z.***, Wang, H., Ashokkumar, M., & Hemar, Y. (2022). Impacts of sonication and high hydrostatic pressure on the structural and physicochemical properties of quinoa protein isolate dispersions at acidic, neutral, and alkaline pHs. [*Ultrasonics Sonochemistry*, 106232.](#)

[37] Bai, J., Zhang, H., **Yang, Z.**, Li, P., Liu, B., Li, D., ... & Li, Y. (2022). On demand regulation of blood glucose level by biocompatible oxidized starch-Con A nanogels for glucose-responsive release of exenatide. [*Journal of Controlled Release*, 352, 673-684.](#)

[36] Yang, M., Ye, A., **Yang, Z.**, Everett, D. W., Gilbert, E. P., & Singh, H. (2023). Pepsin-induced coagulation of casein micelles: Effect of whey proteins and heat treatment. [*Food Chemistry*, 402, 134214.](#)

[35] Liang, L., Wang, Y., Bhagia, S., Sethuraman, V., **Yang, Z.**, Meng, X., Bryant, N., Petridis, L., Smith, J., Pingali, S., Gallego, N., Pu, Y., Evans, B., Neill, H., Davison, B., Ragauskas, A*. (2022) Chemical and morphological structure of transgenic switchgrass organosolv lignin extracted by ethanol, tetrahydrofuran, and γ -valerolactone pretreatments. [*ACS Sustainable Chemistry & Engineering*, 10\(28\), 9041-9052.](#)

[34] Cheng, L., Ye, A.*, **Yang, Z.**, Gilbert, E.P., Knott, R., de Campo, L., Storer, B., Hemar, Y., Singh, H. (2022) Small-angle X-ray scattering (SAXS) and small-angle neutron scattering (SANS) study on the structure of sodium caseinate in dispersions and at the oil-water interface: Effect of calcium ions. [*Food Structure*, 32, 100276.](#)

[33] Luo, L., Cheng, L., Zhang, R., **Yang, Z.*** (2022) Impact of high-pressure homogenization on physico-chemical, structural, and rheological properties of quinoa protein isolates. [*Food Structure*, 32, 100265.](#)

[32] Zhang, J., Zhu, X., Lu, F., **Yang, Z.**, Tao, H., Xu, Y., Wang, H.* (2022) Physical modification of waxy maize starch: Combining SDS and freezing/thawing treatments to modify starch structure and functionality. [*Food Structure*, 32, 100263.](#)

[31] Patole, S., Cheng, L., & **Yang, Z.*** (2022) Impact of incorporations of various polysaccharides on rheological and microstructural characteristics of heat-induced quinoa protein isolate gels. [*Food Biophysics*, 17 \(3\), 314-323.](#)

[30] **Yang, Z.***, de Campo, L., Gilbert, E.P., Knott, R., Cheng, L., Storer, B., Lin, X., Lan, L., Patole, S., & Hemar, Y. (2022) Effect of NaCl and CaCl₂ concentration on the rheological and structural characteristics of thermally induced quinoa protein gels. [*Food Hydrocolloids*, 124, 107350.](#)

[29] **Yang, Z.**, Foston, M., O' Neill, H., Urban, V.S., Ragauskas, A., Evans, B., Davison, B., & Pingali, V.* (2022) Structural reorganization of non-cellulosic polymers observed in-situ during dilute acid pretreatment by small-angle neutron scattering. [*ACS Sustainable Chemistry & Engineering*, 10, 1, 314-322.](#)

[28] Yang, M., Ye, A.*, **Yang, Z.**, David, E., Gilbert, E., & Singh, H. (2022) Kinetics of pepsin-induced hydrolysis and the coagulation of milk proteins. [*Journal of Dairy Science*, 105 \(2\), 990-1003.](#)

[27] Chen, D., Pinho, L., Federici, E., Zuo X., Ilavsky, J., Kuzmenko, I., **Yang, Z.**, Jones, O.*, & Campanella, O. * (2022) Heat accelerates degradation of β -lactoglobulin fibrils at neutral pH. [*Food Hydrocolloids*, 124, 107291.](#)

- [26] Luo, L., Zhang, R., Palmer, J., Hemar, Y., & **Yang, Z.*** (2021) Impact of high hydrostatic pressure on the gelation behaviour and microstructure of quinoa protein isolate dispersions. [*ACS Food Science & Technology* 1 \(11\), 2144-2151.](#)
- [25] Zhang, R., Cheng, L., Luo, L. Hemar, Y., & **Yang, Z.*** (2021) Formation and characterisation of high-internal-phase emulsions stabilised by high-pressure homogenised quinoa protein isolate. [*Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 631,127688.](#)
- [24] Li, J., **Yang, Z.***, Lin, X., Wu, S., Li, G., Li, N., ... & Hemar, Y. (2021). In-flow SAXS investigation of whey protein isolate hydrolysed by bromelain. [*Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 631, 127662.](#)
- [23] Zhang, R., Lan, L., **Yang, Z.,*** Ashokkumar, M., Hemar, Y.* (2021) Formation by high power ultrasound of aggregated emulsions stabilised with milk protein concentrate (MPC70). [*Ultrasonics Sonochemistry*, 81, 105852.](#)
- [22] Wang, H., **Yang, Z.***, Yang, H., Xue, J., Li, Y., Wang, S., Ge, L., Shen, Q., Zhang, M. (2021) Comparative study on the rheological properties of myofibrillar proteins from different kinds of meat. [*LWT-Food Science and Technology*, 112458](#)
- [21] Wu, Q.; Ren, M.; Zhang, X.; Li, C.; Li, T.; **Yang, Z.**, Chen, Z.; Wang, L*. Comparison of Cd (II) adsorption properties onto cellulose, hemicellulose and lignin extracted from rice bran. (2021) [*LWT: Food Science and Technology*, 111230.](#)
- [20] **Yang, Z.***; Chaieb, S.; Hemar, Y. Gelatin-based nanocomposites: A review. (2021). [*Polymer Reviews*, 61 \(4\), 765-813.](#)
- [19] Hemar, Y., Banjar, W., Otter, D., **Yang, Z.***, Viscosity, size, structural and interfacial properties of sodium caseinate obtained from A2 milk. [*Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 2021, 614, 126163.](#)
- [18] **Yang, Z.***, Xu, X., Hemar, Y.* , Mo, G., de Camp, L., & Gilbert, E. P. (2020) Effect of porous waxy rice starch addition on acid milk gels: structural and physicochemical functionality. [*Food Hydrocolloids*, 109, 106092.](#)
- [17] Singh, R., Hemar, Y.* , Gilbert, E.P., Wu, Z., & **Yang, Z.***, Effect of genipin cross-linking on the structural features of skim milk in the presence of ethylenediaminetetraacetic acid (EDTA). (2020) [*Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 603, 125174.](#)
- [16] Chen, D., Narayanan, N., Federici, E., **Yang, Z.**, Zuo, X. B., Gao, J. L., Fang, F., Deng, M., Campanella, O., Jones, O. G.* Electrospraying induced orientation of protein fibrils. (2020) [*Biomacromolecules*, 21, 2772-2785.](#)
- [15] Chundawat, S.*, Sousa, L., Roy, S., **Yang, Z.**, Gupta, S., Pal, R., Zhao, C., O' Neill, H., & Pingali, V. Ammonia-salt solvent promotes cellulosic biomass deconstruction under ambient pretreatment conditions to enable rapid soluble sugar production at ultra-low enzyme loadings.(2020) [*Green Chemistry*, 22, 204-218.](#)
- [14] Lin, Q., Liang, R., Zhong, F.* , Ye, A.* , Hemar, Y., **Yang, Z.**, & Singh, H. Self-assembled micelles based on OSA-modified starches for enhancing solubility of β -Carotene: Effect of starch macromolecular architecture. (2019) [*Journal of Agriculture and Food Chemistry*, 67 \(23\), 6614-6624.](#)
- [13] Wang, Y., Eastwood, B., **Yang, Z.***, de Campo, L., Prosser, C., Carpenter, L., & Hemar, Y. Rheological and structural characterization of acidified skim milks and infant formulae made from cow and goat milks. (2019) [*Food Hydrocolloids*, 96, 161-170.](#)

- [12] **Yang, Z.***, Xu, X., Singh, R., de Campo, L., Gilbert, E. P., Wu, Z., & Hemar, Y. Effect of amyloglucosidase hydrolysis on the multi-scale supramolecular structure of corn starch. (2019) [*Carbohydrate Polymers*, 212, 40-50.](#)
- [11] **Yang, Z.**, Yang HJ., & Yang H*. Characterisation of rheology and microstructures of κ -carrageenan in ethanol-water mixtures. (2018) [*Food Research International*, 107, 738-746.](#)
- [10] Li, Z., **Yang, Z.**, Otter, D., Rehm, C., Li, N., Zhou, P., & Hemar, Y*. Rheological and structural properties of coagulated milks reconstituted in D₂O: Comparison between rennet and a tamarillo enzyme (tamarillin). (2018) [*Food Hydrocolloids*, 79, 170-178.](#)
- [9] **Yang, Z.**, Yang, H., & Yang, H*. Effects of sucrose addition on the rheology and microstructure of κ -carrageenan gel. (2018). [*Food Hydrocolloids*, 75, 164-173.](#)
- [8] **Yang, Z.**, Gu, Q., Banjar, W., Li, N., & Hemar, Y*. *In situ* study of skim milk structure changes under high hydrostatic pressure using synchrotron SAXS. (2017). [*Food Hydrocolloids*, 77, 772-776.](#)
- [7] **Yang, Z.**, Chaib, S., Gu, Q., & Hemar, Y*. Impact of pressure on physicochemical properties of starch dispersions. (2017). [*Food Hydrocolloids*, 68, 164-177.](#)
- [6] **Yang, Z.**, Swedlund, P., Gu, Q., Hemar, Y., & Chaieb, S*. Retrogradation of maize starch after high hydrostatic pressure gelation: Effect of amylose content and depressurization rate. (2016) [*PloS ONE*, 11\(5\), e0156061.](#)
- [5] **Yang, Z.**, Gu, Q., Lam, E., Tian, F., Chaieb, S., & Hemar, Y*. *In situ* study starch gelatinization under ultra-high hydrostatic pressure using synchrotron SAXS. (2016) [*Food Hydrocolloids*, 56, 58-61.](#)
- [4] **Yang, Z.**, Swedlund, P., Hemar, Y*, Mo, G., Wei, Y., Li, Z., & Wu, Z. Effect of high hydrostatic pressure on the supramolecular structure of corn starch with different amylose contents.(2016) [*International Journal of Biological Macromolecules*, 85, 604-614.](#)
- [3] **Yang, Z.**, Hemar, Y., Hilliou, L., Gilbert, E. P., McGillivray, D. J., Williams, M. A., & Chaieb, S*. Nonlinear behavior of gelatin networks reveals a hierarchical structure. (2016) [*Biomacromolecules*, 17\(2\), 590-600.](#)
- [2] **Yang, Z.**, Chaieb, S., Hemar, Y.*, de Campo, L., Rehm, C., & McGillivray, D. J. Investigating linear and nonlinear viscoelastic behaviour and microstructures of gelatin-multiwalled carbon nanotube composites. (2015) [*RSC Advances*, 5\(130\), 107916-107926.](#)
- [1] **Yang, Z.**, Gu, Q., & Hemar, Y*. *In situ* study of maize starch gelatinization under ultra-high hydrostatic pressure using X-ray diffraction. [*Carbohydrate Polymers*, 97\(1\), 235-238.](#)

Leadership Roles (Committees, Boards, Advisory, etc.)

Guest editor of *Gels*

Professional members of New Zealand Institute of Food Science and Technology (NZIFST)

Member of Neutron Scattering Society of America (NSSA)

Graduate Students

<u>Category</u>	<u>Current Number of Students</u>	<u>Number Graduated (Career)</u>
Chair of Master Committees	0	3
Chair of PhD Committees	0	1
Member of Master Committees	0	2
Member of PhD Committees	1	1

Grant Support

Title of Grant: Start-up fund

Source of Grant: CTAHR and HFANS

Total Dollar Value (Your share of the grant value): \$180,000

Dates of Grant: 2024-2027

Role: PI