

Qinchun Rao

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EDUCATION

- 2009 **Ph.D. in Food and Nutrition**, Florida State University, USA.
2004 **M.S. in Food and Nutrition**, Florida State University, USA.
1997 **B.S. in Food Science and Engineering**, Jinan University, P.R. China.

PROFESSIONAL EXPERIENCE

- 2014–present **Assistant Professor**, Department of Nutrition, Food and Exercise Sciences, Florida State University.
- 2012–2014 **Research Associate**, Department of Food Science and Nutrition, University of Minnesota.
- 2010–2012 **Postdoctoral Associate**, Department of Food Science and Nutrition, University of Minnesota.
- 2002–2010 **Graduate Research Assistant**, Department of Nutrition, Food and Exercise Sciences, Florida State University.
- 1997–2002 **Assistant Engineer, Student Services Coordinator & Academic Advisor**, Jinan University.

TEACHING EXPERIENCE

1. Food Safety and Quality (FOS 4209), 2008–2009. Florida State University.
2. Commodity Science Laboratory, 1997–2002. Jinan University.

AWARDED RESEARCH GRANTS

1. Technology review for dairy protein glycosylation. Co-PI. 2013 Literature Review Program, Midwest Dairy Association. \$5,000 (01/01/2014–12/31/2014).
2. Aggregation in dry and intermediate-moisture food matrices containing protein hydrolysates. Co-PI. 2011 Agriculture and Food Research Initiative Competitive Grants Program, United States Department of Agriculture (USDA-AFRI). \$500,000 (12/01/2011–11/30/2014).
3. Development of a rapid in-plant method for the detection of dairy proteins in processed meat products. Co-PI. Dairy Research Institute. \$92,991 (12/01/2012–07/31/2015).
4. Characterization of milk protein aggregates in intermediate moisture food matrix during storage. Co-PI. 2012 Cryo-TEM and Electron Tomography SEED project, University of Minnesota. \$1,500 (10/01/2012–09/30/2013).

5. Physicochemical changes leading to loss of functionality of protein hydrolysates in engineered foods and modalities to control such changes. Co-PI. 2011 Literature Review Program, Midwest Dairy Association. \$5,000 (10/01/2011–09/30/2012).
6. Monoclonal antibody-based enzyme immunoassays for the detection of bovine central nervous system tissues for food safety. College of Human Sciences Dissertation Award Program, Florida State University. \$500 (04/2007–06/2007).

PEER-REVIEWED JOURNAL ARTICLES

1. **Rao, Q. C.** & Hsieh, Y-H. P. 2015. Effect of pH, temperature and storage time on the stability of bovine myelin basic protein. *Food Control*, 50, 166-172.
2. **Rao, Q. C.** & Hsieh, Y-H. P. 2014. Enhanced immunodetection of bovine central nervous tissue using an improved extraction method. *Food Control*, 46, 282-290.
3. **Rao, Q. C.**, Fisher, M. C., Guo, M. F. & Labuza, T. P. 2013. Storage stability of a commercial hen egg yolk powder in dry and intermediate-moisture food matrices. *Journal of Agricultural and Food Chemistry*, 61, 8676–8686.
4. **Rao, Q. C.**, Klaassen Kamdar, A. & Labuza, T. P. 2013. Storage stability of food protein hydrolysates – a review. *Critical Reviews in Food Science and Nutrition*. DOI: 10.1080/10408398.2012.758085.
5. **Rao, Q. C.**, Rocca-Smith, J. R. & Labuza, T. P. 2013. Storage stability of hen egg white powders in three protein/water dough model systems. *Food Chemistry*, 138, 1087–1094.
6. **Rao, Q. C.**, Rocca-Smith, J. R. & Labuza, T. P. 2012. Moisture-induced quality changes of hen egg white proteins in a protein/water model system. *Journal of Agricultural and Food Chemistry*, 60, 10625–10633.
7. **Rao, Q. C.**, Rocca-Smith, J. R., Schoenfuss, T. C. & Labuza, T. P. 2012. Accelerated shelf-life testing of quality loss for a commercial hydrolyzed hen egg white powder. *Food Chemistry*, 135, 464–472.
8. **Rao, Q. C.** & Labuza, T. P. 2012. Effect of moisture content on selected physicochemical properties of two commercial hen egg white powders. *Food Chemistry*, 132, 373–384.
9. **Rao, Q. C.** & Hsieh, Y-H. P. 2008. Competitive enzyme-linked immunosorbent assay for quantitative detection of bovine blood in heat-processed meat and feed. *Journal of Food Protection*, 71, 1000–1006.
10. Hsieh, Y-H. P., Ofori, J. A., **Rao, Q. C.** & Bridgman, R. C. 2007. Monoclonal antibodies specific to thermo-stable proteins in animal blood. *Journal of Agricultural and Food Chemistry*, 55, 6720–6725.
11. **Rao, Q. C.** & Hsieh, Y-H. P. 2007. Evaluation of a commercial lateral flow feed test for rapid detection of beef and sheep content in raw and cooked meats. *Meat Science*, 76, 489–494.

INVENTION DISCLOSURES

1. Hsieh, Y-H. P. & **Rao, Q. C.** 2009. An improved extraction method enhances the detection of bovine central nervous system (CNS) tissue.
2. Hsieh, Y-H. P. & **Rao, Q. C.** 2009. Monoclonal antibodies (mAb) 3E3 based competitive ELISA method for the detection of ruminant CNS tissue in processed food and feedstuffs. *Note: FSU has licensed a U.S. diagnostic company for developing a commercial detection kit on 04/11/2013 (<http://news.fsu.edu/More-FSU-News/Florida-State-licenses-new-technology-to-test-for-mad-cow-disease>).*

INVITED ORAL PRESENTATIONS

1. Storage stability of food protein hydrolysate powders. 08/2012. Davigo Foods International, Inc. Eden Prairie, MN.
2. Detection of animal proteins in processed food products. 09/2011. The 6th International Forum on Food Safety and 2011 Annual Meeting of MOST-USDA Joint Research Center for Food Safety. Shanghai, P.R. China.

OTHER SELECTED ORAL PRESENTATIONS

1. Labuza, T. P. & **Rao, Q. C.** 2012. Storage stability of whey proteins in intermediate-moisture food model systems. Davigo Foods International, Inc. Eden Prairie, MN.
2. Labuza, T. P., Ismail, B. & **Rao, Q. C.** 2012. Changes in stability of bioactive peptides through glycation with short dextrans. 7th EUROFOODWATER Conference on Water in Food, Helsinki, Finland.
3. **Rao, Q. C.** 2009. Competitive enzyme-linked immunosorbent assay for quantitative detection of bovine central nervous system tissue. 2009 Graduate Research and Creativity Expo of the Graduate School, Florida State University.
4. Hsieh, Y-H. P. & **Rao, Q. C.** 2008. An improved extraction method enhances the detection of CNS tissue in processed food and feedstuffs. 14th IUFOST World Congress of Food Science and Technology, Shanghai, P.R. China.
5. **Rao, Q. C.** & Hsieh, Y-H. P. 2008. Stability of bovine myelin basic protein. IFT 2008 Annual Meeting, New Orleans, LA.
6. Hsieh, Y-H. P., Ofori, J. A., **Rao, Q. C.** & Bridgman, C. R. 2007. Monoclonal antibody specific to thermo-stable proteins in animal blood. IFT 2007 Annual Meeting, Chicago, IL.
7. Hsieh, Y-H. P., Rojas, G. R., **Rao, Q. C.**, Bridgman, C. R. & Liu, L. 2004. Production and characterization of monoclonal antibodies specific to mammalian muscle protein. IFT 2004 Annual Meeting, Las Vegas, NV.

SELECTED POSTER PRESENTATIONS

1. Taterka, H., **Rao, Q. C.**, Labuza, T. P., Castillo, M. 2014. Kinetic analysis of the pH-specific mechanisms of denatured whey protein interaction for the development of an optical light backscatter sensor. 7th International Whey Conference, Rotterdam, Netherlands.
2. **Rao, Q. C.**, Klaassen Kamdar, A. & Labuza, T. P. Effect of degree of hydrolysis on selected physicochemical properties of whey and casein powders. IFT 2014 Annual Meeting, New Orleans, LA.
3. Chen, T., **Rao, Q. C.** & Labuza, T. P. Development of a fruit surface swab method for the detection of acetamiprid. IFT 2014 Annual Meeting, New Orleans, LA.
4. Gillman, L., Nones, M., **Rao, Q. C.**, Labuza, T. P. & Ismail, B. Effects of moisture-induced aggregation on soy protein isolate and hydrolysate powders during accelerated shelf-life testing. IFT 2014 Annual Meeting, New Orleans, LA.
5. Taylor, A., **Rao, Q. C.** & Labuza, T. P. Rapid detection of soy protein using surfaced enhanced Raman spectroscopy (SERS). Part one: characteristics of Raman spectra of two commercial soy protein powders. 2013 Summer Undergraduate Research Expo, University of Minnesota.

6. Gillman, L. E., **Rao, Q. C.**, Ismail, B. & Labuza, T. P. Characterization of soy protein/peptide aggregation in dry powder systems as a function of various storage conditions. IFT 2013 Annual Meeting, Chicago, IL.
7. Guo, M. F., **Rao, Q. C.** & Labuza, T. P. Storage stability of a commercial spray-dried hen egg yolk powder. IFT 2013 Annual Meeting, Chicago, IL.
8. **Rao, Q. C.**, Ismail, B., & Labuza, T. P. Aggregation in dry and intermediate-moisture food matrices containing protein hydrolysates (part one). 2013 USDA Project Director Meeting, Chicago, IL.
9. **Rao, Q. C.**, Rocca-Smith, J. R., Schoenfuss, T. C. & Labuza, T. P. Effect of water activity on selected physicochemical properties of a commercial hydrolyzed hen egg white powder during storage at 45°C. IFT 2012 Annual Meeting, Las Vegas, NV.
10. **Rao, Q. C.**, Rocca-Smith, J. R. & Labuza, T. P. Effect of temperature on selected physicochemical properties of a commercial hydrolyzed hen egg white powder in three different protein/water model systems. IFT 2012 Annual Meeting, Las Vegas, NV.
11. Fisher, M. C., **Rao, Q. C.** & Labuza, T. P. Effect of temperature and humectants on hen egg protein bar quality loss during storage. IFT 2012 Annual Meeting, Las Vegas, NV.
12. Wang, Q., **Rao, Q. C.**, Rudd, K., Labuza, T. P. & Ismail, B. Evaluation of storage stability of thermally treated solutions of partially glycosylated whey protein. IFT 2012 Annual Meeting, Las Vegas, NV.
13. Ismail, B., **Rao, Q. C.** & Labuza, T. P. Aggregation in dry and intermediate-moisture food matrices containing protein hydrolysates and the effect of glycosylation. 2012 USDA Project Director Meeting, Las Vegas, NV.
14. **Rao, Q. C.** & Labuza, T. P. Effect of moisture content on glass transition and protein aggregation of egg white powder. IFT 2011 Annual Meeting, New Orleans, LA.
15. **Rao, Q. C.** & Hsieh, Y-H. P. An improved immunoassay for the detection of bovine CNS tissue in processed meat and feed products. IFT 2010 Annual Meeting, Chicago, IL.
16. **Rao, Q. C.** & Hsieh, Y-H. P. A sensitive immunoassay for the detection of raw and processed bovine brain. IFT 2009 Annual Meeting, Anaheim, CA.
17. **Rao, Q. C.** & Hsieh, Y-H. P. Stability of bovine myelin basic protein. IFT 2008 Annual Meeting, New Orleans, LA.
18. Hsieh, Y-H. P., **Rao, Q. C.** & Ofori, J. A. Thermal-stable marker proteins for detection of bovine central nerve system tissues and blood in feedstuffs. 2007 USDA Animal Protection & Biosecurity Project Director Workshop, Chicago, IL.
19. **Rao, Q. C.** & Hsieh, Y-H. P. Characterization of a monoclonal antibody specific to ruminant blood. IAFP 2007 Annual Meeting, Orlando, FL.
20. Gajewski, K., **Rao, Q. C.** & Hsieh, Y-H. P. Enzyme-linked immunosorbent assay (ELISA) for detection of poultry content in heat-processed meat. IAFP 2006 Annual Meeting, Calgary, Alberta, Canada.
21. **Rao, Q. C.** & Hsieh, Y-H. P. Thermal-stable marker protein in the bovine central nervous system. IFT 2006 Annual Meeting, Orlando, FL.
22. **Rao, Q. C.** & Hsieh, Y-H. P. Monoclonal antibody-based sandwich enzyme immunoassay for the detection of mammalian meat in raw, cooked and autoclaved poultry products. IFT 2005 Annual Meeting, New Orleans, LA.
23. **Rao, Q. C.** & Hsieh, Y-H. P. Evaluation of a commercial MBM Strip test for rapid detection of beef and lamb adulteration in raw, cooked and autoclaved meats. IFT 2004 Annual Meeting, Las Vegas, NV.

PROFESSIONAL ACTIVITIES

1. Editorial Board Member of *Food Control*
2. General Referee and Reviewer for the AOAC International Research Institute
3. IFT Annual Meeting Scientific Program Reviewer (2014-2015)
4. IFT Samuel Cate Prescott Award Juror (2011, 2013–2015)
5. IFT 2012 Student Oral Professional Development Session Moderator/Judge
6. Ad Hoc Journal Reviewer for
 - a) *Food Chemistry*
 - b) *Journal of Agricultural and Food Chemistry*
 - c) *Food Control*
 - d) *Journal of Food Science*
 - e) *Meat Science*
 - f) *Food Biophysics*
 - g) *Food Bioscience*
 - h) *Food Science and Human Wellness*
 - i) *Agriculture, Food and Analytical Bacteriology*
 - j) *Food Science (P.R. China)*
 - k) *African Journal of Microbiology Research*

PROFESSIONAL MEMBERSHIPS

1. Institute of Food Technologists (IFT)
2. Sigma Xi
3. Chinese American Food Society

SELECTED HONORS AND AWARDS

1. The first-place winner of Food Chemistry Division Graduate Student Research Paper Competition (co-author), IFT 2014 Annual Meeting
2. Jacqueline Boudier Clemens and Leslie Clemens Scholarship, Florida State University, 2009
3. Pao-Sen Chi Scholarship, Florida State University, 2008 and 2009
4. Kappa Omicron Nu Honor Society, 2008
5. College of Human Sciences Dissertation Award, Florida State University, 2007
6. Graduate Student Scholarship Award, Chinese American Food Society, 2005
7. College Teaching Fellowship, Florida State University, 2003
8. College of Human Sciences Scholar Award, Florida State University, 2002