

NEWSLETTER

Chinese Association for Food Protection in North America 北美华人食品保护协会

Welcome Message

- Yifan Zhang (Current President)

First of all, thank you for the honor of serving as the 2020-2021 CAFPNA President!

Please join me in welcoming our new board members: Haiping Li (President-Elect), Ren Yang (Secretary), Zengxin "Scott" Li (Treasurer & Delegate, Past President), and Mingxia Zang (Staff). While many of us have served on the board in the past, we are determined to continue serving this great association in our new role this year.

As we head into another year of uncertainty from the pandemic, tremendous efforts are still being made in protecting public health and helping our nation get vaccinated. Reflecting upon the challenges we overcame and the opportunities we created, we should all be proud of our achievements in 2020. To highlight, our annual meeting was successfully held virtually on October 26, 2020 with nearly fifty attendees. Student presenters from universities in both the US and China competed for 1st, 2nd, and 3rd prizes. Our traditional Mentor-Mentee Program is going into its 9th year now. This year our very first "CAFPNA Mentors Database" was established, owing to our exceptional Student Committee, now chaired by Jiewen Guan. A record high number of 15 Mentors and 24 Mentees have been matched up for an exciting career mentoring journey.

Also in this newsletter are our Food Safety Heroes. These two magnificent individuals in the field are Dr. Li Maria Ma of Oklahoma State University and Dr. Zhinong Yan of Walmart Food Safety Collaboration Center. We will continue our webinar series this year. The first webinar will come up soon. Please stay tuned and watch for our email announcement.

Finally, I want to take this opportunity to thank Zengxin "Scott" Li, past President of CAFPNA, for his dedication and commitment to food safety and the Chinese community. Zengxin has done an outstanding job of representing the association, and I hope to do the same during my term.

Thank you for your continuous support of CAFPNA. It is another unusual year of COVID-19 but certainly a brighter one ahead.

I wish all of you a safe and productive year of 2021!

Yifan Zhang



CAFPNA 2020 Annual Meeting

Meeting Summary



The 2020 annual meeting for the Chinese Association for Food Protection in North American (CAFPNA) was held on Oct 26 virtually. We had around 40-50 members participating the meeting this year.

IAFP executive board President-Elect Dr. Ruth Petran again joined our meeting, and provided an opening remark with a warm welcome and appreciation of CAFPNA past year accomplishment. Although Covid made it difficult for all IAFP members to meet face to face this year, she, along with IAFP executive board and other IAFP staffs did an excellent job to organize a virtual annual meeting. Dr. Petran encouraged all participants to continue their involvement and contribution for IAFP, even during this tough time.

Our current president, Zengxin "Scott" Li, followed the section with a presentation of annual activity briefs from 2019 to 2020. A summary of the students' program was then presented by Peien Wang from University of Georgia. Student activities have been boosted by a strong lead from Peien and active involvement of the student committee members. They helped with continued success of the

mentor and mentee program, 1st launch of CAFPNA newsletter, website update and detailed preparation of our annual meeting, especially for student competition. After that, Zengxin spoke about industry responses towards Covid, using his company as an example.

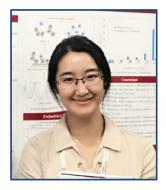
Finally, we had the 2nd student presentation competition again this year, and the number of attendees this year increased to six compared to only four last year. Student committee chair, Peien Wang hosted the events, each competitor had 10 minutes for presentation and Q&A. The competition was judged by the CAFPNA board members, and the awarded presenters are Wenqian Wang, PhD Candidate, Poultry Science, University of Arkansas (1st place, with \$150 cash reward); Xingyi Jiang, PhD Candidate, Florida State University (2nd place, with \$100 cash reward); Yafang Shen, PhD Candidate, Zhejiang University (3rd place, with \$50 cash reward). Additionally, honorable participants include:

Yidan Huang, PhD Student, Pennsylvania State University, with presentation of "Application of "Hypocrisy" Strategy in Food Safety Practices";

Shaoting Li, PhD (recent graduate), Food Science, University of Georgia, with presentation of "Microbiome-informed Food Safety and Quality: A Longitudinal and Cross-sectional Survey of Retail Chicken Microbiomes";

Xingchen Liu, PhD Candidate, Plant Sciences and Food Safety, University of Maryland, with presentation of "Drought Stress Shifts the Exometabolome Profile of Leaves in Juvenile Kale and Affects Salmonella enterica Growth in Leaf Exudates".

Student Presentation Competition Award Winners



1st place: Wenqian Wang PhD Candidate University of Arkansas

Title: Application of Polydopamine Molecular Imprinted Polymer on a Localized Surface Plasmon Resonance Sensor for Detection of Multi-

antibiotics in Chicken Meat

Introduction: Due to concerns of antibiotic-resistant bacterial strains from animal-derived food products, a significant portion of U.S. poultry industry has voluntarily removed antibiotics from feed and therapeutics. Different countries or organizations have established maximum residue limits (MRLs) as acceptable levels, and therefore, sensitive screening methods for identification and quantification of antibiotic residuals are critical for the stewardship of antibiotics.

Purpose: The objective of this project is to develop a localized surface plasmon resonance (LSPR) biosensing system for rapid, sensitive and selective detection of multi-antibiotics in chicken meat, using polydopamine molecular imprinted polymer (PDA-MIP) as the recognition element.

Methods: Enrofloxacin (ENRO), tetracycline (TETR) and phthalic acid (PHTH) were used as

templates, and the PDA-MIP film was fabricated by self-polymerization of dopamine (DA) and purified powder of target antibiotics in Tris buffered saline (pH 8.0) on a LSPR sensor chip. After the removal of templates with sodium dodecyl sulphate (SDS), the developed LSPR/PDA-MIP sensor was used for selective detection of prepared samples. To amplify the detection signals of small antibiotic molecules, competitors conjugated with bovine serum albumin (BSA) were synthesized and reacted with the residual binding sites on the PDA-MIP film. The corresponding sensor coated with non-imprinted polymer (NIP) was modified similarly but without the addition of the antibiotic templates.

Results: The proposed method allowed a detection range of ENRO, TETR and PHTH from 10 to 500 ng/mL, with a detection time of 20 min. The PDA-MIP film demonstrated a greater binding capacity to target antibiotics than the PDA-NIP film. Target antibiotics were discriminated from each other with the use of specific BSA-conjugate competitors.

Significance: The developed LSPR/PDA-MIP biosensing method not only extended the lifetime of modified recognition element, but also reduced the detection time compared with most reported biosensing methods and showed high potential for in-field rapid detection of multi-antibiotic residues.



2nd place: Xingyi Jiang PhD Candidate Florida State University

Title: Immunodetection of Meat Adulterants *Introduction:* It is estimated that food adulteration costs the world economy around \$49 billion

annually. Around 10% of the foods produced in the United States were adulterated. From 1980 to 2013,

the leading reported type of fraudulent foods was animal products including meat and meat products (7%).

Purpose: In order to (1) reduce the risk of intentional or unintentional contamination of foods, (2) better comply with food regulations, and (3) decrease economic loss to the food industry caused by recall, it is necessary to develop reliable and robust methods for the detection of different food adulterants.

Methods: Different monoclonal antibodies (mAb) specific to two target analytes (i.e., mammalian

skeletal troponin and porcine hemoglobulin) were developed using the hybridoma technique. Their properties, such as epitopes and species/tissue-selectivity, were characterized using fluorescent and/or chemiluminescent immunoblotting. Three mAb-based enzyme-linked immunosorbent assays (ELISA) were developed and validated for the detection of mammalian meats and porcine blood residues in foods, respectively.

Results: First, the optimized sandwich ELISA was specific to heated mammalian troponin and could detect as low as 1% (g/g) of heated mammalian meats adulterated in poultry meats. Second, an indirect competitive ELISA was established for the quantification of porcine hemoglobin spiked in

heated (100°C/15 min) meat products with excellent sensitivity (limit of detection: 0.5 ppm). Finally, a sandwich ELISA specific to porcine hemoglobin was established to quantify porcine hemoglobin residue in unheated animal meat.

Significance: Overall, these immunoassays have high species/tissue-selectivity, low limit of detections, high precision, and reproducibility with low inter- and intra-coefficient of variances, and a wide working range. The established immunoassays have the potential to fight food fraud, comply with food regulations, and decrease food recalls, which may open up new diagnostic methods for the food industry and the food regulatory authorities.



3rd place: Yafang Shen PhD Candidate Zhejiang University

Title: A Novel Optical Biosensor Based on Target-induced Immunomagnetic Beads Aggregation for Label-free and Portable Detection of Enrofloxacin

Introduction: Antibiotic residues in poultry could lead to the development of resistant bacteria, posing a risk to human health. Enrofloxacin (ENR) is a kind of synthetic antibiotic that has been used in the poultry industry in China. Since conventional methods for ENR detection, such as HPLC are complicated and time-consuming, new methods are needed for rapid detection with portable devices for in-field application.

Purpose: The objective of this study was to develop a novel biosensor based on target-induced immunomagnetic beads (IMBs) aggregation for one-step and portable detection of ENR in poultry products.

Methods: IMBs were prepared by conjugating antibodies to the surface of magnetic beads based on a carbodiimide method, and used for both sample

separation and signal generation. After reaction with ENR, initially well-dispersed IMBs were aggregated in a concentration-dependent manner. Two detection strategies were developed for signal outputs: 1) 200 μ L of the mixture of IMBs and IMBs-ENR aggregates were magnetically separated for 20 s, and the turbidity of the collected supernatant was measured for ENR quantitation; and 2) 50 μ L of the mixture of IMBs and IMBs-ENR aggregates was loaded into a specially designed syringe and automatically filtered through a nitrocellulose membrane, and the gray scales of the trapped IMBs on the membrane were measured to determine the concentration of ENR.

Results: The proposed method allowed sensitive detection of ENR in less than 15 min without any labels, and exhibited a satisfactory limit of detection of 0.91 ng mL-1, which is better than or comparable with most of reported immunoassays with complicated signal amplification. Recoveries in the range of 74.9-121.8% demonstrated its ability to detect ENR in chicken samples.

Significance: The developed biosensor is rapid, label-free and portable for in-field detection of ENR and has the potential for applications to poultry supply chain to improve food safety.

Food Safety Heroes



Dr. Li Maria Ma
Professor in Food Safety and Biosecurity, National Institute for Microbial
Forensics & Food and Agricultural Biosecurity (NIMFFAB), Oklahoma State
University

Dr. Li Maria Ma is a professor in food safety and biosecurity at the National Institute for Microbial Forensics & Food and Agricultural Biosecurity (NIMFFAB) at Oklahoma State University. She received her B.S. in Food Engineering from Dalian Polytechnic University, P.R. China, and Ph.D. in Food Microbiology from Purdue University. Dr. Ma has over 20 years of working experience with a variety of human foodborne pathogens including Shiga toxin-producing *E. coli*, Salmonella,

Shigella, Listeria monocytogenes, Campylobacter jejuni, and Clostridium botulinum.

Her current research areas include the development of rapid molecular detection and DNA fingerprinting methods for human foodborne pathogens, ecological studies of foodborne pathogens in plant/animal environments through conventional and metagenomic & meta-transcriptomic approaches, and development of novel control measures against foodborne pathogen contamination of foods. She has published over 40 peer-reviewed scientific articles and holds 4 U. S. patents.

Dr. Ma is the 3rd past president of CAFPNA and currently serves as the president for the Oklahoma Association for Food Protection (OKAFP), an affiliate of the International Association for Food Protection (IAFP).





Dr. Zhinong Yan
Executive Director, Walmart Food Safety Collaboration Center (WFSCC)
Food Industry Microbiologist
Member of the Global Food Safety Initiative's (GFSI) China Steering
Committee
Expert Advisor of Food Safety Committee of the China Chain-Store &
Franchise Association (CCFA).

Dr. Zhinong Yan is the executive director of the Walmart Food Safety Collaboration Center (WFSCC). He leads a team that promotes the development of food safety in China through stakeholder collaboration in the three areas of food safety innovation,

education and policy support.

Dr. Yan has nearly 30 years of academic and industry experience in microbiology and food safety. His experience spans the entire food supply chain from farm to table. His expertise includes analysis and overall solution against the occurrence, contamination, traceability and control of foodborne risk factors during the stages of production, processing, retail and catering for grain, meat, fruits, vegetables, and snack foods; Dr. Yan has extensive experience in microbiological inspections, analysis, monitoring and control of food processing equipment during production and in the business environment. He has published over 30 research papers and book chapters.

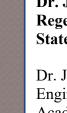
Dr. Yan was previously the Asia-Pacific food safety director for Ecolab. Prior to this he also worked at a food processing equipment firm and a food safety consultancy. He has provided food safety services for over 150 food processing plants in more than 20 countries in North America, South America, Europe and Asia. He has designed and conducted over 200 training sessions on enterprise food hygiene and safety.

Dr. Yan received his B.S. and M.S. in plant pathology from China Agricultural University in 1988 and 1994 respectively, and his PhD from Auburn University in 2000. He completed his postdoctoral research at the University of Georgia, and Michigan State University where he also served as an assistant professor in the Department of Food Science and Human Nutrition. He was formerly the vice chair of the International Association on Food Protection's (IAFP) Food Hygiene and Sanitation Professional Development Group, as well as the founder and two-time chairman of the North American Chinese Association for Food Protection. Dr. Yan is currently a member of the Global Food Safety Initiative's (GFSI) China Steering Committee and expert advisor of the Food Safety Committee of the China Chain-Store & Franchise Association (CCFA).



Member News

Food Safety Researcher Elected to National Academy of Engineering



Dr. Juming Tang
Regents Professor, Department of Biological Systems Engineering, Washington
State University

Dr. Juming Tang is a regents professor in the Department of Biological Systems Engineering at Washington State University, who has been elected to the National Academy of Engineering (NAE) for invention and commercialization of electromagnetic spectrum wave-based food processes. The announcement was made by NAE President John L. Anderson on Tuesday, February 9th, 2021.

Dr. Juming Tang's work is in the Food Engineering Emphasis Area. He holds several patents and numerous awards and honors for his research into Microwave Pasteurization, Microwave Sterilization of food, and Low Moisture Food Safety. He is currently the principal investigator of a multi-institutional team represented by members of industry, academia, and government investigating engineering solutions to ensure microbial safety of frozen and refrigerated meals in retail markets. He is also director of the Microwave Sterilization Consortium, again represented by members of industry, academia, and government that was awarded the first ever industrial microwave sterilization process approval from the US Federal Drug Administration (FDA).

In the interview, Dr. Tang said "This is the highest achievement an engineer can get in the United States. I am honored and it feels very unreal to me."

Due to the ongoing COVID-19 pandemic, the Academy altered their notification process. Dr. Tang found out about the award when he received a general email announcing all members. He was just scrolling through the list of the 106 new electees to see if he knew anyone, or could learn about interesting projects, when he saw his name. "There was no warning," he said. "It was a total shock."

Dr. Tang's research focuses on advancing thermal processing technologies and supporting knowledge for control of bacterial and viral pathogens in foods with minimum adverse effects on taste and nutrition, and has developed two commercially viable technologies based on 915 MHz microwaves for production of high quality ready-to-eat meals with extended shelf-life in different storage conditions. "It's been an interesting journey from concept to industrial application," He said.

Dr. Tang considers this recognition a milestone in his life-time career on advancing technologies for food safety and quality, and hopes to move forward and realize his vision for helping society by providing innovative engineering solutions and safe high-quality food.

IAFP 2020 Student Travel Scholarship Recipients



Xingyi Jiang Florida State University Tallahassee, Florida

Xingyi Jiang is a third-year Ph.D. candidate in the Department of Nutrition, Food and Exercise Sciences at Florida State University in Tallahassee, where she also obtained her M.S. She earned a B.S. in Food Quality and Safety at Nanjing Agriculture University in China.

Ms. Jiang's research interest is utilizing immunochemical techniques to develop assays for food adulterant detection. Food adulterants may induce economic fraud, food recalls,

and pose negative health impacts such as food allergy. She has identified animal meat marker proteins such as hemoglobin and skeletal troponin complex and established several immunoassays to detect them. It is expected that these assays can be utilized by the government and the food industry for surveillance in food safety. One of her current research projects focuses on the assay development for the major fish allergen.

As a teaching assistant, Ms. Jiang has taught Foods Laboratory and Food Science Laboratory. She also actively took the lead in undergraduate research projects, enjoying this experience with the undergraduates.

Ms. Jiang is extremely honored to receive the IAFP Student Travel Scholarship. She hopes to share her research findings, communicate with other students majoring in food science, and learn from other food safety professionals.



Xinyu Liao Zhejiang University Hangzhou, China

Xinyu Liao is a Ph.D. candidate in the College of Biosystems Engineering and Food Science of Zhejiang University in Hangzhou, China, where she also obtained her undergraduate degree in Food Safety and Nutrition in 2016. During her undergraduate studies, Ms. Liao worked on the hurdle treatment of ultrasound and slightly acidic electrolyzed water for tackling the foodborne pathogen Staphylococcus aureus.

Ms. Liao's current research centers on non-thermal plasma (NTP), an emerging decontamination technology to assure food safety which has gained increasingly global attention in recent years. She has completed work on the microbial inactivation mechanisms of NTP, along with the application of NTP for food decontamination and environmental hazard degradation. These works have yielded her more than ten first-authored publications in high-impact journals during the last four years. Her recent focus is on the potential risks for the induction of the microbial stress responses, especially the viable but non-culturable (VBNC) state, during the NTP process.

Ms. Liao feels greatly honored to receive the IAFP Student Travel Scholarship to participate in IAFP 2020, where she has the invaluable opportunity to share her current research work about the molecular mechanisms of VBNC S. aureus induced during NTP treatment. She also hopes to communicate with experts in food safety and science and learn more constructive knowledge about advanced topics in the field of food safety and quality.

Students at CAFPNA

Meet Our Student Committee (2020-2021)

CAFPNA student committee is an important part of CAFPNA. The goal is to unite current students and recent graduates within the CAFPNA community to share information, organize student activities, and provide our expectation and needs to current CAFPNA officers for better serving students and recent graduates in our community.

Student chair:

Jiewen Guan, Washington State University **Student vice chairs:**

Peien Wang, University of Georgia Wengian Wang, University of Arkansas



Student members:

Biyu Wu, University of Hawaii
Jinge Huang, Clemson University
Ivy Li, University of McGill
Marti Hua, University of McGill
Siman Liu, University of Florida
Yafang Shen, Zhejiang University
Yaxi Dai, University of Georgia
Yutong Wang, University of Guelph
Zhiying Wang, University of Alberta
Zhuosheng Liu, University of California, Davis

Student Activities

<u>Mentor-mentee program</u> is a traditional program aiming to bridge students and recent graduates to our experienced professionals within CAFPNA based on their common interests and fields. This program has been very fruitful and developed great connections among our members over the past few years.

Annual student presentation award competition is to encourage students and recent graduates to conduct a short presentation on their original research at the CAFPNA Annual Meeting and foster their professionalism through contact with peers and professional members of CAFPNA. Winners will receive a money award funded by our generous financial contributions from our members.

<u>Quarterly committee meeting</u> student members are staying connected throughout the year, student committee meetings are held quarterly to discuss current needs of student members, plan student activities, and gather information for quarterly newsletter.

Annual social event: student committee invites all student members at the CAFPNA annual meeting to join the after meeting gathering and get to know more about our peers.

Join Us!

New member sign-up sheet:

https://forms.gle/AyzXjvPusgbJx1cy9

New student member sign-up sheet:

https://forms.gle/s45OscRv19ovMnJC9

Student Committee WeChat

Group QR Code:



Website contact page:

http://www.cafpna.org/www/contact

LinkedIn group:

https://www.linkedin.com/groups/6749315/

Email:

cafpnateam@gmail.com

CAFPNA Mentor-Mentee Program (2020-2021) is Happening Now!

Current progress of the Program (Dec 2020-July 2021)

By January 4th, 2021, a total of *15 mentors and 24 mentees* have signed up for our program. All the mentees have been matched up with their first or second choice of the preferred mentors and started their first communications. We would like to express our deep gratitude for all members who have been involved in this program for their full support for CAFPNA and student development. We hope all participants enjoy their conversations and foster great mentorships through this program.

CAFPNA Mentor-Mentee Program (MM Program) is a traditional program of our affiliation, it aims to bridge students/recent graduates to our experienced professionals within CAFPNA based on their common interests and fields. In a form of one-on-one communication or group discussion, mentors will be able to advise students/young professionals on their career or academic path and share valuable resources on a regular basis throughout the year. This program has been very fruitful and developed great connections among our members over the past few years.

Event highlights

From this year, we would like to invite our mentors to sign up first by completing the mentor's sign-up survey and uploading a short biography. Information collected will be used to establish our very first "CAFPNA mentor database" and shared in the mentee's sign-up survey for student members to choose their preferred mentors based on their individual background.

This is a great opportunity to acknowledge our extraordinary mentor team, improve our program transparency, provide students with more freedom to choose their mentors, encourage more students to join this program, and most importantly, motivate students to initiate the communication more proactively and frequently throughout the year. Therefore, we invite our food professionals from industry, regulatory agencies, and academia (including post-doc) to join the CAFPNA mentor team this year!

Mentors do not have to commit to continuous serving. Our student committee will ensure this database is renewed every year based on mentors' availability. We will also make sure each mentor's contact information is confidential to his/her matched mentee(s).

Comments from MM program (2019-2020)

- "Connection to an industrial mentor and learn about the career path and mindsets."
- "There are mutual gains in exchanging knowledge and experience."
- "Learning the needs of industries and expanding professional network"
- "I got a better and deeper understanding of the works in academia."
- "Communicate with students to understand their needs and provide help."
- "I really enjoyed this program and have signed up in the last three years. It is great to have different mentors to coach you as they could provide different perspectives based on their experiences."

CAFPNA Board Member (2020-2021) Introduction



President: Dr. Yifan Zhang Professor, Department of Nutrition and Food Science, Wayne State University

Dr. Yifan Zhang is a professor of food microbiology at Wayne State University. Her work on food safety research is to understand the role that food, agriculture, and the environment play in transmitting human pathogenic bacteria and antimicrobial resistance. Dr. Zhang and her research group apply traditional microbiological tools with modern technology to understand the prevalence of antimicrobial resistance in food and agriculture, food safety and sustainability in urban agriculture and phage as a reservoir and transmission vehicle of antimicrobial resistance. Prior to her current position, she was a postdoctoral researcher at Ohio Agricultural Research and

Development Center (OARDC), The Ohio State University.



President-Elect: Dr. Haiping Li Food Technologist, USDA/AMS/Dairy Programs

The Chinese proverb "Travel thousands of miles, read millions of books" is the inspiration behind Dr.Haiping Li's 25 more years' unique food safety career. She travels acrossing three continents: Academia, Regulation agency, and Food industry. Her last post for 6 years is the director of scientific and regulatory affairs at Dairy Farmers of America, Chestnut labs (Acquired by Merieux NutriScience in 2020). Prior to this, she was a principal investigator leading many food safety regulatory science related research in the U.S. Food and Drug Administration and was a thesis advisor for graduate students at IFSH (Institute for Food Safety and Health). While

she never counts the number of books she read, her rich experience in starter culture genetic modification, pathogen detection, processing risk assessment, food manufacture quality assurance and third-party testing business operation is likely to qualify her for the effort in reading "millions of books". She has recently joined the USDA AMS Dairy Programs in hope to serve the Dairy Agriculture and Industry on a broader scope.

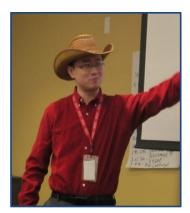




Secretary: Dr. Ren Yang Postdoc Scholar, Department of Biological Systems Engineering, Washington State University

Dr. Ren Yang currently works as a postdoc scholar at the Department of Biological Systems Engineering, Washington State University. He does research in manufacturing engineering and food science, and currently focuses on the project of 'Thermal resistance study of Salmonella in low moisture foods'. Prior his current position, he worked as a research assistant in the low moisture group for five years, and also had engineering working experience in McCormick & Company before his academic career and accumulated strong background in microbiology and

engineering related to food safety and quality assurance.



Treasurer & Delegate: Zengxin "Scott" Li Senior Manager, Global Food Safety and Microbiology, Rich Product

Zengxin "Scott" Li is senior manager for Global Food Safety and Microbiology at Rich Product in Buffalo, New York. In this position, he works with his colleagues all over the world to establish food safety standards and programs for Rich Products, provides technical support for manufacturing plants in areas of food safety and microbiological testing, and serves as lead instructor for various food safety training programs. Scott engaged with various industrial associations, such as International Association for Food Protection, Consumer Brand Association, to enhance food safety practice and culture. Scott has over ten years for experience in the food

industry, prior to working in the industry, he was a research scientist in U.S. FDA.



Staff: Mingxia Zang, Flying Foods Group R&D Technical Project/Support Manager, Flying Food Group

Mingxia Zang currently works as the R&D technical project/support manager at Flying Food Group in the Greater Seattle area. She has rich experience in R&D, QA/QC, and SQF Auditing in the food industry, and also provides microbiological and chemical technical support, as well as food safety and regulatory expertise for manufacturing plants. Prior to her current work, she also had two years of experience in the research of sanitizer efficacy in preventing cross-contamination while she worked as a research assistant at FDA.