

AGFD Program ACS Fall 2022 National Meeting – Symposium Synopses

AGFD001 – Extraction & Biotechnology: A Natural & Sustainable Future for Flavors

Extraction & Biotechnology: A Natural & Sustainable Future for Flavors:

08:00am - 10:00am USA / Canada - Central - August 21, 2022 | Location: S504bc (McCormick Place Convention Center)

Lewis Jones, Organizer; Elizabeth Kreger, Organizer; Fenette Peche, Presider; Terry Miesle, Presider; Taylor Windbiel, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Extraction & Biotechnology: A Natural & Sustainable Future for Flavors:

02:00pm - 04:05pm USA / Canada - Central - August 21, 2022 | Location: S503a (McCormick Place Convention Center)

Lewis Jones, Organizer; Elizabeth Kreger, Organizer; Fenette Peche, Presider; Terry Miesle, Presider; Taylor Windbiel, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Synopsis: Extraction and fermentation of food, herbs and spices predates history. However, through the 20th and into the 21st century the flavor industry grew to industrialization, utilizing chemical synthesis. Now the landscape is changing to reflect the needs of consumers to be more natural, sustainable and authentic. This session will highlight the past, present and future of creating flavors from natural ingredients

AGFD003 – New Insights in Gut Microbiota Health-Benefits

New Insights in Gut Microbiota Health-Benefits:

08:00am - 10:20am USA / Canada - Central - August 23, 2022 | Location: S504d (McCormick Place Convention Center)

Coralia Osorio Roa, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Synopsis: The human microbiota is composed of ca. 10¹⁴ bacterial cells, with high qualitative and quantitative diversity among individuals. Some studies have revealed that 98 % of human intestinal microbiota belongs to only four bacterial families: *Firmicutes* (64 %), *Bacteroidetes* (23 %), *Proteobacteria* (8 %) and *Actinobacteria* (3 %). Gut dysbiosis (when bacteria in the gastrointestinal tract are unbalanced) has been associated with developing lifestyle diseases, such as metabolic syndrome, colorectal cancer and obesity. Although each individual has a unique microbiota composition, it has been seen that gut microbiota modulation can help to control those diseases. Thus, this symposium aims to show the advances in this field.

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AGFD007 – Modification of Agricultural Biomass into Value-Added Products

Modification of Agricultural Biomass into Value-Added Products: Utilization of Agricultural Biomass-1

08:00am - 12:00pm USA / Canada - Central - August 24, 2022 | Location: S504bc (McCormick Place Convention Center)

[Helen Ngo](#), Organizer, Presider; [Majher Sarker](#), Organizer, Presider; [Majher Sarker](#), Organizer, Presider; [Madhav Yadav](#), Organizer; [Madhav Yadav](#), Organizer

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Modification of Agricultural Biomass into Value-Added Products: Utilization of Agricultural Biomass-2

02:00pm - 06:00pm USA / Canada - Central - August 24, 2022 | Location: S503a (McCormick Place Convention Center)

[Helen Ngo](#), Organizer, Presider; [Majher Sarker](#), Organizer, Presider; [Madhav Yadav](#), Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Synopsis: In this symposium, speakers from all over the world will present their outstanding research outcomes on technology development to produce valuable products from agricultural waste/byproducts. New renewable biomass, bio-synthesis, catalysis, chemical modification, technological process, life cycle and techno-economic analyses will be the key areas focused on in this symposium platform.

AGFD011 – Sustainability & Greentech in Agriculture & Food

Sustainability & Greentech in Agriculture & Food:

08:00am - 12:00pm USA / Canada - Central - August 22, 2022 | Location: S504d (McCormick Place Convention Center)

[Michael Appell](#), Organizer; [Michael Appell](#), Organizer; [Omowunmi Sadik](#), Organizer, Presider; [Vinka Craver](#), Presider; [Vinka Craver](#), Presider; [Y. Jane Tseng](#), Presider; [Lingyun Chen](#), Presider; [Lingyun Chen](#), Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Sustainability & Greentech in Agriculture & Food:

02:00pm - 06:00pm USA / Canada - Central - August 22, 2022 | Location: S504a (McCormick Place Convention Center)

[Michael Appell](#), Organizer, Presider; [Omowunmi Sadik](#), Organizer, Presider; [Y. Jane Tseng](#), Presider; [Lingyun Chen](#), Presider; [Lingyun Chen](#), Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: This symposium focuses on emerging developments and applications of sustainable chemistry for food security, green agriculture, energy, water, synthetic biology, systems engineering, bio-products, byproduct stream valorization, data integration, and analysis. It will discuss how social science can identify the most outstanding systems-level opportunities for minimizing resource inputs and waste and maximizing crop productivity and food utilization. The symposium will identify the scientific, engineering, and data challenges that must be overcome to realize a sustainable food-agriculture-green technology system. Topics to be explored include sustainable food supplies, green processing technologies, food waste & bio-product utilization, nanosensors, and wireless sensor networks to improve yields and minimize inputs. Other relevant areas include innovative and economically viable chemical products and technologies.

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AGFD015 – Emerging In Vitro Gut Models for Understanding Nutrient-Microbiome Interactions

Emerging in Vitro Gut Models for Understanding Nutrient-Microbiome Interactions: New Insights in Gut Microbiota Health-Benefits

02:00pm - 03:30pm USA / Canada - Central - August 24, 2022 | Location: S504a (McCormick Place Convention Center)

Laurel Doherty, Organizer; Ida Pantoja-Feliciano, Organizer; Coralia Osorio Roa, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Emerging in Vitro Gut Models for Understanding Nutrient-Microbiome Interactions: Emerging in Vitro Gut Models for Understanding Nutrient-Microbiome Interactions

08:00am - 12:00pm USA / Canada - Central - August 24, 2022 | Location: S504a (McCormick Place Convention Center)

Laurel Doherty, Organizer, Presider; Ida Pantoja-Feliciano, Organizer, Presider; Karley Mahalak, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: The human gut microbiome is the site of numerous biochemical and microbiological interactions with repercussions for nutrition and health; however, detailed study of the gut microbiome within the human host is limited due to logistical and ethical concerns. To facilitate in-depth understanding of nutrient-microbiome interactions, numerous model systems have been developed. This symposium will highlight advances in the state of the art of gut microbiome models, as well as new insights into gut microbiome implications for host health and nutrition.

AGFD017 – Advancements in Food & Metabolomics

Advancements in Food & Metabolomics:

02:00pm - 05:45pm USA / Canada - Central - August 24, 2022 | Location: S504d (McCormick Place Convention Center)

Dr. Jessica Cooperstone, Organizer, Presider; Devin Peterson, Organizer

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Co-Sponsor/Theme: Co-sponsor - Nominal AGFD: Division of Agricultural and Food Chemistry

Synopsis: Untargeted metabolomics is an emerging research approach that utilizes comprehensive chemical profiling techniques of all small molecules with multivariate data analysis techniques to interrogate how chemical compounds relate to characteristics of interest. Since data collection is comprehensive, analyzing hundreds to thousands of compounds, this approach allows an unbiased investigation of chemical profile without the need to determine compounds of interest *a priori*. In this symposium, work presented will describe methods and applications for the use of untargeted chemical profiling in foods.

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AGFD019 – Food, Food System & Precision Nutrition

Food, Food System & Precision Nutrition:

08:00am - 12:00pm USA / Canada - Central - August 25, 2022 | Location: S504bc (McCormick Place Convention Center)

Thomas Wang, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: Diet plays a critical role in modulating an individual's nutrition and ultimately health. The field of nutrition, similar to that of medicine, has evolved in recent years from study of diet to focus on personalization and precision. However, these are complex issues and require efforts ranging from food production to basic mechanistic studies. In addition to a focus on food, consideration of food system is also necessary to fully capture impact of environmental changes and processing on food components, bio-actives; which ultimately impact human nutrition and health. This symposium seeks to stimulate discussion on the role, relationship and contribution by food, food system toward personalized, precision nutrition.

AGFD021 – Nanoencapsulation & Delivery of Bioactive Food Ingredients Using Food Biopolymers

Nanoencapsulation & Delivery of Bioactive Food Ingredients Using Food Biopolymers:

03:00pm - 05:25pm USA / Canada - Central - August 22, 2022 | Location: Virtual-only (Zoom)

Qingrong Huang, Organizer, Presider; Qin Wang, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

Nanoencapsulation & Delivery of Bioactive Food Ingredients Using Food Biopolymers:

03:00pm - 05:45pm USA / Canada - Central - August 23, 2022 | Location: Virtual-only (Zoom)

Qingrong Huang, Organizer, Presider; Qin Wang, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

Nanoencapsulation & Delivery of Bioactive Food Ingredients Using Food Biopolymers:

03:00pm - 05:50pm USA / Canada - Central - August 24, 2022 | Location: Virtual-only (Zoom)

Qingrong Huang, Organizer, Presider; Qin Wang, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

Synopsis: Bioactive food ingredients are a group of components with functions to promote human health and improve our quality of life. However, most of them are not stable during food processing and storage. Moreover, they have a low bioavailability when they are admitted orally. Therefore, different delivery systems are developed to improve their solubility, stability, as well as bioavailability. Nanoencapsulation systems constructed by food biopolymers, including food proteins and polysaccharides, were found to be able to protect and target delivery of the bioactive components. Those novel systems include but not limited to nanoparticles, nanoemulsions, Pickering nanoemulsions, solid-lipid nanoparticles, etc. The objective of this symposium is to provide an opportunity for scholars to discuss current progress in this area and to exchange their ideas and research findings, and thereby promote collaborations between researchers who share similar research interests.

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AGFD023 – General Paper

General Paper:

08:00am - 12:00pm USA / Canada - Central - August 22, 2022 | Location: S505a (McCormick Place Convention Center)

[Michael Granvogl](#), Organizer; [Jonathan Beauchamp](#), Organizer; [Lin Liu](#), Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

General Paper:

02:00pm - 06:00pm USA / Canada - Central - August 22, 2022 | Location: S505a (McCormick Place Convention Center)

[Michael Granvogl](#), Organizer; [Lin Liu](#), Organizer, Presider; [Jonathan Beauchamp](#), Organizer

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

General Paper:

10:00am - 01:50pm USA / Canada - Central - August 24, 2022 | Location: Virtual-only (Zoom)

[Michael Granvogl](#), Organizer; [Lin Liu](#), Organizer, Presider; [Jonathan Beauchamp](#), Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

General Paper:

10:00am - 01:45pm USA / Canada - Central - August 25, 2022 | Location: Virtual-only (Zoom)

[Michael Granvogl](#), Organizer; [Lin Liu](#), Organizer, Presider; [Jonathan Beauchamp](#), Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

Synopsis: A potpourri of cutting-edge research spanning the broad and exciting field of agricultural and food chemistry. If you are a chemist who eats food, then this symposium is not to be missed!

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AGFD024 – General Papers: Posters

General Paper: Virtual posters

12:00pm - 02:00pm USA / Canada - Central - August 24, 2022 | Location: Virtual-only (Zoom)

[Jonathan Beauchamp](#), Organizer; [Lin Liu](#), Organizer

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Poster - Virtual

General Paper:

12:00pm - 02:00pm USA / Canada - Central - August 24, 2022 | Location: Hall F2 (McCormick Place Convention Center)

[Jonathan Beauchamp](#), Organizer; [Lin Liu](#), Organizer

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Poster - In-person

Synopsis: An eclectic collection of all AGFD posters crammed into a mind-blowingly comprehensive poster session. Come and broaden your horizon by marveling at the painstaking experiments and ground-breaking data packed onto a 4'x8' canvas and a chance to mingle and network with leading emerging and food scientists with an eager passion to discuss their work.

AGFD025 – Biobased Polymers & Applications

Biobased Polymers & Applications:

08:00am - 11:55am USA / Canada - Central - August 21, 2022 | Location: S503a (McCormick Place Convention Center)

[Raisha Gorshkova](#), Organizer; [Lin Liu](#), Organizer; [Jinwen Zhang](#), Organizer; [Xiao Zhang](#), Presider; [Zengshe Liu](#), Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Biobased Polymers & Applications:

02:00pm - 05:35pm USA / Canada - Central - August 21, 2022 | Location: S504bc (McCormick Place Convention Center)

[Raisha Gorshkova](#), Organizer; [Lin Liu](#), Organizer; [Jinwen Zhang](#), Organizer; [Chris Hunt](#), Presider; [Sevim Erhan](#), Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: None available

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AGFD027 – Alternative Protein Sources for Human Nutrition (Plant-Based Protein)

Alternative Protein Sources for Human Nutrition (Plant-Based Protein):

02:00pm - 05:25pm USA / Canada - Central - August 24, 2022 | Location: S504bc (McCormick Place Convention Center)

[John Finley](#), Organizer, Presider; [Brian Guthrie](#), Organizer, Presider; [Michael Morello](#), Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: The development and use of non-meat proteins, called alternative protein, is rapidly advancing. The chemistry, physics, processing, quality and nutrition of foods with alternative proteins are expected to have a significant impact on the entire supply chain from the farm to the fork. Many new alternative proteins are currently under development. Research on isolation and concentration of plant proteins, analysis of protein functionality, optimizing sensory properties, use in matrixes, and measurement and prediction of digestibility will be presented during this symposium.

AGFD028 – Advancement of Application & Food Chemistry Award: Symposium Honoring Shengmin Sang

Advancement of Application of Agricultural & Food Chemistry Award: Symposium honoring Shengmin Sang (Invited):

03:00pm - 05:55pm USA / Canada - Central - August 21, 2022 | Location: Virtual-only (Zoom)

[Lin Liu](#), Organizer, Presider; [Michael Morello](#), Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

Synopsis: Invited colleagues will help review and celebrate Distinguished Professor Sang's innovative contributions to Agricultural and Food Chemistry. The symposium will focus on how compounds isolated from agricultural products can serve as therapeutic agents in treating chronic diseases. Presentations will address the microbiome in cancer therapeutics, influence of compounds from ginger on lung inflammation, the zebrafish model in natural product discovery, potential of phloretin and quercetin to reduce tissue methylglyoxal, along with Prof. Sang's review of his research.

AGFD029 – Spencer Award: Symposium in Honor of Dr H.N. Cheng

Spencer Award: Symposium in honor of Dr. H.N. Cheng (Invited):

02:00pm - 05:50pm USA / Canada - Central - August 22, 2022 | Location: S504bc (McCormick Place Convention Center)

[Michael Appell](#), Organizer, Presider; [Christine Hilbert](#), Presider; [Sarah Leibowitz](#), Presider; [Michael Morello](#), Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: None available

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AGFD030 – JAFRC Research Article of the Year Award & AGFD Young Scientist Award Symposium

JAFRC Research Article of the Year Award & AGFD Young Scientist Award Symposium (Invited):

02:00pm - 03:35pm USA / Canada - Central - August 23, 2022 | Location: S504bc (McCormick Place Convention Center)

Michael Granvogl, Organizer; Thomas Hofmann, Organizer; Jonathan Beauchamp, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: None available.

AGFD031 – Sustainable Agriceuticals

Sustainable Agriceuticals:

02:00pm - 05:25pm USA / Canada - Central - August 22, 2022 | Location: S504d (McCormick Place Convention Center)

Dr. Hyunsook Kim, Organizer, Presider; Lin Liu, Organizer; Dr DAXI REN, Organizer; Wallace Yokoyama, Organizer; Liangli Yu, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Sustainable Agriceuticals:

10:00am - 12:30pm USA / Canada - Central - August 23, 2022 | Location: Virtual-only (Zoom)

Dr. Hyunsook Kim, Organizer; Lin Liu, Organizer; Dr DAXI REN, Organizer, Presider; Wallace Yokoyama, Organizer, Presider; Liangli Yu, Organizer

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

Sustainable Agriceuticals:

03:00pm - 06:10pm USA / Canada - Central - August 23, 2022 | Location: Virtual-only (Zoom)

Dr. Hyunsook Kim, Organizer; Lin Liu, Organizer, Presider; Dr DAXI REN, Organizer; Wallace Yokoyama, Organizer, Presider; Liangli Yu, Organizer

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Virtual

Synopsis: Agricultural and food processing wastes contain nutritional and health-promoting components that, if utilized, would improve the economics of farming and food production. We have called these valuable bioactive waste or byproducts "Agriceuticals". They are often discarded or removed because of undesirable taste or textural sensory properties. These undesirable properties are often the characteristics of bioactive constituents. Scientists from China, Japan, Philippines, South Korea, Spain, Tajikistan, and USA will present their research on *in vitro* and *in vivo* studies of peptides, polysaccharides, phenolic and polyphenolic components of leaves, peels, seeds. The role of bacteria, both as probiotics and food fermentation, to further process and increase the value of agriceutical byproducts will also be presented.

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AGFD033 – Utilization of Upcycled Foods in New Product Innovation

Utilization of Upcycled Foods in New Product Innovation:

08:00am - 11:20am USA / Canada - Central - August 25, 2022 | Location: S504a (McCormick Place Convention Center)

Dr. Xiaofen Du, Organizer, Presider; Yixiang Xu, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: Future sustainable global agriculture and food systems call for waste reduction and efficient use of natural resources. Upcycling food wastes and by-products back to the food production chain would help to address the shortage/depletion of natural resources, environmental pollution, alleviate the social economic related issues, thereby facilitating the sustainable development of the food industry. In this symposium, six latest studies in utilization of different upcycled foods in the food value chain for potential product innovation will be presented. The topics cover upcycling wine-grape polyphenols for cocoa-based product, volatile composition of wine-grape seeds, pectin fraction from citrus peel and its modification, HLB citrus using as volatile source, watermelon rind upcycling for its amino acids and volatiles, and volatiles from coffee pulp. The symposium will serve as a platform for presenting state-of-art research and scientific exchange in this emerging sustainability-oriented innovation.

AGFD035 – Breeding for Better Nutrients and Flavor for Freshly Consumed Fruits and Vegetables

Breeding for Better Nutrients and Flavor for Freshly Consumed Fruits and Vegetables:

02:00pm - 05:40pm USA / Canada - Central - August 21, 2022 | Location: S504a (McCormick Place Convention Center)

Dr. Xiaofen Du, Organizer, Presider; Yun Yin, Organizer, Presider; Yun Yin, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: Health and wellness are a subject increasingly interesting consumer, manufacturer, researcher, and policy maker. Increasing fruit and vegetable consumption fits into this critical mission as one of the major determining factors for their consistent intake is improved flavor and nutrients, which could be achieved by advanced plant breeding technologies. This symposium includes eight presentations starting with a review of plant breeding, followed by research on breeding better aroma, taste, and texture for cucumber, tomato, strawberry, blueberry, orange, soybean, and lettuce. Insights on flavor-contributing chemicals and corresponding genetic expression of the aforementioned seven fruits and vegetables will be exhibited by this symposium. The symposium will show the latest research in plant breeding associated with flavor, while traditional plant breeding has a major focus on yield and disease control. The symposium will cover scientific aspects and potential industry value to achieve the nationwide goal of promoting fresh fruit and vegetable consumption by improved flavor and nutrients.

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AGFD036 – Advances in Packaging Recycling and Sustainability

Advances in Packaging Recycling and Sustainability:

08:00am - 11:40am USA / Canada - Central - August 23, 2022 | Location: S505a (McCormick Place Convention Center)

Dr. John L Koontz, Organizer, Presider; Yoon Song, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - In-person

Co-Sponsor/Theme: [Co-sponsor - Nominal POLY: Division of Polymer Chemistry](#) [Co-sponsor - Nominal ENVR: Division of Environmental Chemistry](#) [Co-sponsor - Nominal PMSE: Division of Polymeric Materials Science and Engineering](#)

Advances in Packaging Recycling and Sustainability:

02:00pm - 05:40pm USA / Canada - Central - August 23, 2022 | Location: S504a (McCormick Place Convention Center)

Dr. John L Koontz, Organizer, Presider; Yoon Song, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Co-Sponsor/Theme: [Co-sponsor - Nominal POLY: Division of Polymer Chemistry](#) [Co-sponsor - Nominal ENVR: Division of Environmental Chemistry](#) [Co-sponsor - Nominal PMSE: Division of Polymeric Materials Science and Engineering](#)

Synopsis: One of the biggest sustainability challenges facing the global food packaging industry is the push to incorporate recycled plastic and paper in food contact packaging materials to fuel the circular economy. Typical challenges for recycled material include traceability, overcoming potential misuse during prior handling, and separation of food contact compliant from non-compliant waste. This stresses the need to have a more complete understanding of the risks from undesirable contaminants in the food packaging made from the recyclate. Replacing petroleum-based plastics with biodegradable options is another key approach towards improving packaging sustainability and reducing plastic waste. Consumer and industry trust in recycled packaging is critical for market growth and is dependent upon due diligence to identify and remove contaminants from the recyclate.

AGFD037 – Food Bioactives in Infectious and Autoimmune Diseases

Food Bioactives in Infectious and Autoimmune Diseases:

08:00am - 10:35am USA / Canada - Central - August 23, 2022 | Location: S504bc (McCormick Place Convention Center)

Fang Li, Organizer, Presider; Hang Ma, Organizer, Presider; Xian Wu, Organizer, Presider

Division: [AGFD] Division of Agricultural and Food Chemistry

Session Type: Oral - Hybrid

Synopsis: Common autoimmune diseases include celiac disease, type 1 diabetes, inflammatory bowel disease, multiple sclerosis, psoriasis, rheumatoid arthritis, and systemic lupus erythematosus. It is believed that the cause of autoimmune diseases is a combination of environmental factors, immune system changes, and genetics. Dietary bioactive components, for example, flavonoids, linoleic acid, and tryptophan are known for their biological immunomodulatory activities. However, they are typically subjected to extensive biotransformation by the host's enzymes, immune cells, and gut microbiota in the gastrointestinal tract. This symposium encourages research that explores novel dietary bioactive components or metabolites derived from known bioactive components with the goal of preventing and alleviating infectious and/or autoimmune diseases. The testing range of dietary bioactive components includes but is not limited to phytochemicals, herbs, vitamins, minerals, polypeptides, and polysaccharides. In addition, this symposium covers studies that focus on how dietary bioactive components/metabolites regulate gut microbiota, impact inflammatory cytokines, influence intestinal mucosal barrier, and monitor immune cells' function. Dissecting these scientific questions will provide critical and innovative insights into developing dietary preventative interventions and curative treatments for infectious and autoimmune diseases.