

# AGFD

## DIVISION OF AGRICULTURAL AND FOOD CHEMISTRY

B. Park, *Program Chair*

### SUNDAY MORNING

Section A

Boston Convention & Exhibition Center  
Room 212

#### **Phytonutrients: Thinking Beyond the "Essential" Nutrient Box**

B. Burton-Freeman, I. Edirisinghe, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 1.** Chemistry and analysis of polyphenols in food and human samples. **E. Richling**, M. Schantz, D. Mueller, D. Scherbl, T. Erk, H. Bergmann

**8:35 2.** Anthocyanins in the blood: Where are they going and how do they get there? **J.A. Vinson**, I. Alshdoukhi

**9:05 3.** Understanding factors that influence the bioavailability and kinetic profile of strawberry anthocyanins: A focus on meal timing and fasted-fed state status. **A. Sandhu**, I. Edirisinghe, B. Burton-Freeman

**9:35** Intermission.

**9:50 4.** Absorption, distribution, metabolism, and excretion of orange juice flavanones in humans. **A. Crozier**

**10:20 5.** Cocoa flavanols – chemical nature, analysis, and fate during processing. **X. Wu**

**10:50 6.** Comparison of polyphenolics and secoiridoids in California-style black ripe olives and dry salt-cured olives using UHPLC/MS/MS. **J. Zweigenbaum**, E. Melliou, A.E. Mitchell

**11:20** Concluding Remarks.

Section B

Boston Convention & Exhibition Center  
Room 213

#### **Bioactive Compounds from Fruits & Vegetables**

L. Cisneros-Zevallos, F. Tomas-Barberan, *Organizers*  
C. Osorio Roa, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:05 7.** Phenolic acid profiles of Fuji, Golden Delicious, Granny Smith, and Pink Lady apples. **A.E. Mitchell**

**8:30 8.** Influence of different deposition forms of carotenoids in plant foods on their bioavailability. **R. Schweiggert, R. Carle**

**8:55 9.** Application of different analytical systems for the characterization of food bioactives. **D. Giuffrida, F. Cacciola, M. Utczas, M. Beccaria, P. Donato, P. Dugo, L. Mondello**

**9:20 10.** Effects of thermal and enzymatic treatment on polyphenol profiles during bilberry juice production. **F. Weber, P. Heffels, F. Bührle, D. Kaumans, A. Schieber**

**9:45** Intermission.

**10:05 11.** Biological effects of anthocyanins from fruits. **E. Richling, M. Schantz, M. Baum, T. Bakuradze, D. Mueller**

**10:30 12.** Transport and uptake of anthocyanins in gastric tissue and their effect on the gastric inflammatory response: Developing an in vitro model using the NCI-N87 gastric cell line. **A. Atnip, M. Giusti, J. Bomser**

**10:55 13.** Optimized and validated method for the characterization and quantification of bioactive ellagitannins in pomegranate and other fruits and nuts. **F. Tomas-Barberan, R. Garcia-Villalba, K. Aaby, T. Koivumäki, M. Heinonen, E. Pelvan, C. Alasalvar, G. Jacobs, S. Saha, J. Espin, P. Kroon**

Section C

Boston Convention & Exhibition Center  
Room 209

### **Economically Motivated Food Adulteration: Interplay Between Detection, Policy, & Food Defense**

J. Moore, P. F. Scholl, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 14.** Olive oil authenticity and adulteration: Analytical tools and standards. **R. Cantrill**

**8:35 15.** USP skim milk powder advisory group: The development of a toolbox of methods to detect food adulteration. **R.L. Magaletta, J.C. Moore**

**9:05 16.** Development of field screening methods using surface enhanced Raman spectroscopy (SERS). **L.C. Pogue, N.P. Sardesai, B.J. Yakes, S. Barcelo, M. Yamakawa, A. Rogacs, Z. Li, A. Shareef**

**9:35** Intermission.

**9:45 17.** Meat fraud and speciation: From vulnerability assessment to analytical methods. **G. Cottenet**

**10:15 18.** DNA-based species identification of seafood. **A. Eischeid**, S. Stadig , S. Handy, F.S. Fry, J. Deeds

**10:45 19.** Honey adulteration: Methods currently applied in the routine control of commercial samples, analytical challenges, legal and regulatory aspects. **L. Elflein**

**11:15** Concluding Remarks.

## **SUNDAY AFTERNOON**

Section A

Boston Convention & Exhibition Center  
Room 212

### **Phytonutrients: Thinking Beyond the "Essential" Nutrient Box**

B. Burton-Freeman, I. Edirisinghe, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 20.** Is volunteer stratification necessary in clinical trials with phenolic phytochemicals? **F. Tomas-Barberan**

**1:35 21.** Predicting the mechanism of anthocyanin-induced insulin sensitization with molecular modeling. **D. Minh**

**2:05 22.** Grape seed extract authentication. **M.A. Kelm**, S. Kupina, A. Shrikhande

**2:35** Intermission.

**2:50 23.** Proanthocyanidins and gut barrier function. **J.D. Reed**, C.G. Krueger

**3:20 24.** Anthocyanin metabolism and transport across the blood brain barrier. **P.E. Milbury**

**3:50** Concluding Remarks.

Section B

Boston Convention & Exhibition Center  
Room 213

### **Bioactive Compounds from Fruits & Vegetables**

C. Osorio Roa, F. Tomas-Barberan, *Organizers*  
L. Cisneros-Zevallos, *Organizer, Presiding*

**1:00** Introductory Remarks.

**1:05 25.** Bioactive compounds for cancer prevention and health aging. **R.H. Liu**

**1:30 26.** Citrus flavonones decreases oxidative stress in the liver and blood serum caused by high-fat diet feeding in C57BL/6J mice. **P.S. Ferreira**, A.M. Nasser, D. Gonçalves, L. Spolidorio, J.A. Manthey, T.B. Cesar

**1:55 27.** Using untargeted metabolomics to profile tomato products intended for clinical trials. **M.J. Cichon**, K.M. Riedl, S. Schwartz

**2:20 28.** Cranberry oligosaccharides decrease biofilm formation by uropathogenic *Escherichia coli*. **J. Sun**, J.P. Marais, C. Khoo, N.P. Seeram, K. Laplante, D.C. Rowley

**2:45** Intermission.

**3:05 29.** Antioxidant and antiinflammatory activity of protein hydrolysates from germinated black bean cotyledons. **L. Lopez-Barrios**

**3:30 30.** Potential antimicrobial and anticarcinogenic properties of *Rhoeo discolor* (*Tradescantia spathacea*) extracts. **R. Garcia-Varela**

Section C

Boston Convention & Exhibition Center  
Room 209

### **Economically Motivated Food Adulteration: Interplay Between Detection, Policy, & Food Defense**

J. Moore, P. F. Scholl, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 31.** Analytical puzzle of allergenic peanut and almond residues in spices: Was adulteration the root cause? **S.L. Taylor**, J.L. Baumert, S. Wijeratne

**1:40 32.** Using fraud history to inform food fraud vulnerability assessments. **J.C. Moore**, K. Everstine

**2:15** Intermission.

**2:25 33.** Food fraud mitigation framework for industry and regulators. **K. Everstine**, J. Moore

**3:00 34.** You can't test your way to safety. **S. Kennedy**

**3:35** Concluding Remarks.

Section D

Boston Convention & Exhibition Center  
Room 51

### **Modern Perspectives on Oxidation: Flavor Consequences in Foods & Beverages**

K. Tandon, *Organizer*

R. Elias, *Organizer, Presiding*

**1:00** Introductory Remarks.

**1:05 35.** Impact of antioxidants on the formation of volatile secondary lipid oxidation products in oil-in-water emulsions. **E. Bakota**, J.K. Winkler-Moser, H. Hwang

**1:30 36.** Performance stability of nonmigratory metal chelating active packaging materials in model food systems. **M. Roman**, F. Tian, Y. Ogiwara, E.A. Decker, J.M. Goddard

**1:55 37.** Unravelling chemical pathways for wine aging: Role of quinones as intermediaries on wine oxidation as “Strecker degradation reagents”. **A.C. Silva Ferreira**, C. Oliveira, A. Monforte, A. Silva

**2:20 38.** Changes to oat secondary lipid oxidation products as a function of initial moisture content. **M.J. Morello**, T. Rakofsky

**2:45 39.** Complications of analyzing acetaldehyde as a wine oxidation product. **A.L. Waterhouse**, A. Peterson

**3:10** Concluding Remarks.

## MONDAY MORNING

Section A

Boston Convention & Exhibition Center  
Room 212

### Complex Coacervation: Principles & Applications

Cosponsored by COLL<sup>‡</sup>  
P. L. Dubin, S. L. Perry, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 40.** Complex coacervation: Principles and simple theories. **R. de Vries**

**8:45 41.** Polyelectrolyte complex-coacervate continuum. **J.B. Schlenoff**, Q. Wang

**9:15 42.** Electrostatic complexes between (bio)polyelectrolytes and nanoparticles. Effect of the chain persistence length over particle diameter ratio. **F. Boue**

**9:45** Intermission.

**10:10 43.** Multivalent counterion-induced bridging of polyelectrolyte chains. **B.K. Brettmann**, N. Laugel, P. Pincus, M.V. Tirrell

**10:30 44.** New opportunities for complex coacervation control exposed by bridging the gap between two classical models. **C.E. Sing**, M. Radhakrishna

**11:00 45.** Complex coacervates for enzyme encapsulation and stabilization. **B.D. Olsen**, A. Obermeyer, C. Mills, X. Dong, W. Shi

**11:30 46.** Effect of multivalent ions on hydrated polyelectrolyte multilayers. **D. Reid**, A. Kavarthapu, J.L. Lutkenhaus

Section B

Boston Convention & Exhibition Center  
Room 213

### **Bioactive Compounds from Fruits & Vegetables**

L. Cisneros-Zevallos, C. Osorio Roa, *Organizers*  
F. Tomas-Barberan, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:05 47.** Characterization of the activity of dietary organosulfides from vegetables as natural donors of hydrogen sulfide in cell line model. **D. Huang**, D. Liang, C. Wang, H. Wu, R. Tocmo

**8:30 48.** Characterization of tomato volatiles by headspace-solid-phase micro extraction. **G. Jayaprakasha**, B. Patil

**8:55 49.** Bioactives from berries and their by-products. **F. Shahidi**

**9:20 50.** Establishing biochemical justification for the value of fruit pomace a path from discovery to application. **J.W. Finley**

**9:45** Intermission.

**10:05 51.** Organic resveratrol: Natural occurrence and sunlight phototransformations. **A.A. Gakh**, A. Sosnov

**10:30 52.** Preservation of anthocyanins in solid lipid nanoparticles: Optimization of microemulsion dilution method by Plackett Burman and Box Behnken design. **R. Ravanfar**, A. Tamadon, **M. Niakousari**, M. Moein

**10:55 53.** DOPC liposomes doped with octadecylferulate. **K. Evans**, D.L. Compton, J.A. Laszlo

**11:20** Concluding Remarks.

Section C

Boston Convention & Exhibition Center  
Room 209

### **Food Toxicants Formed During Food Processing & Storage**

S. Wang, L. L. Yu, *Organizers, Presiding*

**8:30 54.** Reactive carbonyl species: Will they be the next food safety issue? **C. Ho**

**9:05 55.** Formation and reduction of furan in various food model systems. J. Her, M. Kim, **K.G. Lee**

**9:40 56.** Influence of California-style black ripe olive processing methods on acrylamide formation. **A.E. Mitchell**

**10:15** Intermission.

**10:30 57.** Free radical mediated 3-MCPD fatty acid ester formation and the potential catalytic effect of Fe. Z. Zhang, **B. Gao**, X. Zhang, H. Shi, L.L. Yu

**11:05 58.** Chemodiversity and biosynthesis of cereulide, the food-born emetic toxin of *Bacillus cereus*. **T. Hofmann**, S. Marxen, T.D. Stark, A. Rutschle, G. Luecking, E. Frenzel, S. Scherer, M. Ehling-Schulz

Section D

Boston Convention & Exhibition Center  
Room 211

### **Metabolites & Metabolomics of Food Bioactives & Influence of Gut Microbiota: Chemistry and Health Effects**

S. Sang, F. Shahidi, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 59.** Food phenolics, their bioactivities, and their metabolites. **F. Shahidi**

**8:40 60.** Interplays between microbiota and plant bioactives. **C.O. Chen**

**9:15 61.** 2-Way interaction of dietary polyphenols with gut microbiota and effects on human health. **F. Tomas-Barberan**

**9:50** Intermission.

**10:10 62.** Biotransformation of cranberry A-type proanthocyanidins: Influence on gut microbiota and immune function. **J.W. Soares**, K. Racicot, L.A. Doherty, S. Arcidiacono, E. Apostolidis, C.O. Chen

**10:45 63.** Metabolism of oat avenanthramides by gut microbiota. S. Sang, **P. Wang**, H. Chen

### **MONDAY AFTERNOON**

Section A

Boston Convention & Exhibition Center  
Room 212

### **Complex Coacervation: Principles & Applications**

Cosponsored by COLL<sup>‡</sup>

P. L. Dubin, *Organizer*

S. L. Perry, Y. Wang, *Organizers, Presiding*

**1:15** Introductory Remarks.

**1:20 64.** Artificial cells in picoliter droplets. **W. Huck**

**1:50 65.** Biomimetic microcompartmentalization by aqueous phase separation. **C.D. Keating**

**2:20 66.** Directing the phase behavior of biopolyelectrolyte complexes. **L. Leon Gibbons**, S.L. Perry, M.J. Lueckheide, J. Viereg, R.A. Klein, N. Pacalin, M.V. Tirrell

**2:50** Intermission.

**3:15 67.** Design and construction of higher-order structure and function in coacervate-based protocells. **S. Mann**

**3:45 68.** Biomimetic effects on actin cytoskeletal filament growth. **S.L. Perry**, P. McCall, S. Srivastava, D. Kovar, M. Gardel, M.V. Tirrell

**4:15 69.** In vitro reconstitution of a nonmembrane-bound RNA-protein compartment. **S. Saha**, A. Hyman

**4:45 70.** Coacervation of mussel-inspired zwitterionic adhesives. **H. Waite**, B. Ahn

Section B

Boston Convention & Exhibition Center  
Room 213

### **Chemistry, Composition & Analysis of Dietary Supplements**

M. Sukan, *Organizer*

K. Goodner, Y. Kim, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 71.** Heavy metals and aflatoxins in various herbal medicines and health functional foods. **K.G. Lee**

**1:25 72.** Reactions between polyphenolic dietary supplements and other biomolecules dictate bioactivity, bioavailability and analysis. **A.E. Hagerman**

**1:45 73.** Rosemary: From nature to table. **M. Jordan**, C. Martinez-Conesa, S. Bañon, J. Sotomayor

**2:05 74.** Simple UPLC–MS to monitor the presence of pomegranate in pomegranate juices. **C. Mathon**, A. Green, C.K. Larive

**2:25** Intermission.

**2:40 75.** New methods and antioxidants to prevent oxidation of omega-3 oil supplements. M. Phaner, **H. Hwang**, J.K. Winkler-Moser, E.L. Bakota, S.X. Liu

**3:00 76.** Facile synthesis and characterization of curcumin metformin adduct: Potentially important gamma-secretase inhibitor for Alzheimer disease. **B. Dayal**

**3:20 77.** Coffee-based dietary supplements contain kaurane diterpenoid glycosides inhibiting adenine nucleotide translocase in mitochondria and reduce respiration. **R. Lang**, T. Fromme, A. Beusch, T. Lang, M. Klingenspor, T. Hofmann



**3:40 78.** Multivitamin and mineral supplements: An overview of key product issues. **E.T. Finocchiaro**

**4:00** Concluding Remarks.

Section C

Boston Convention & Exhibition Center  
Room 209

### **Food Toxicants Formed During Food Processing & Storage**

S. Wang, L. L. Yu, *Organizers, Presiding*

**1:00 79.** Generation of reactive oxidative species during thermal and UV processing of sugars. **R.V. Tikekar**

**1:35 80.** Lipid oxidation as a source of diverse food toxicants. **B.E. De Meulenaer**

**2:10 81.** Evaluation of temperature effect on the concentration levels of polycyclic aromatic hydrocarbons (PAHs) in edible vegetable oil. **O.S. Olatunji**, B.O. Opeolu, O.S. Fatoki, B.J. Ximba

**2:45** Intermission.

**3:00 82.** Effects of thermal and high pressure processing on chemical migration in food contact polymers. **J.L. Koontz**, Y. Song, Y. Zhou, K. Pillai, K. Zhao, R.O. Juskelis

**3:35 83.** FDA update on acrylamide, furan, and other processing toxicants. **L. Jackson**

Section D

Boston Convention & Exhibition Center  
Room 211

### **Metabolites & Metabolomics of Food Bioactives & Influence of Gut Microbiota: Chemistry and Health Effects**

S. Sang, F. Shahidi, *Organizers, Presiding*

**1:00 84.** Metabolic and colonic microbiota transformation may alter the bioactivities of dietary food bioactives. **C. Ho**, M. Pan, F. Shahidi

**1:35 85.** Metabolites of wheat phytochemicals as the exposure biomarkers of whole grain wheat intake. **Y. Zhu**, S. Sang

**2:10 86.** Gastrointestinal biotransformation of resveratrol and pterostilbene in mice. Y. Sun, M. Song, F. Li, Y. Cao, **H. Xiao**

**2:45** Intermission.

**3:05 87.** Biological importance of fucoxanthin and its metabolites. **K. Miyashita**, M. Hosokawa, N. Mikami, Y. Kokai

**3:40 88.** Are anthocyanins PPAR $\alpha$  agonists? **A.M. Rimando**, S. Khan, C. Mizuno, G. Ren, S. Mathews, H. Kim, W. Yokoyama

**4:15** Concluding Remarks.

Section E

Boston Convention & Exhibition Center  
Halls A/B1

### **Complex Coacervation: Principles & Applications**

Cosponsored by COLL<sup>‡</sup>

P. L. Dubin, S. L. Perry, *Organizers, Presiding*

**12:00 - 2:00**

**89.** Effect of supercharging on coacervation between proteins and polyelectrolytes. **A. Obermeyer**, C. Mills, X. Dong, B.D. Olsen

**90.** Effect of charge patterning on polypeptide-based complex coacervation. **L. Chang**, S.L. Perry

**91.** Liquid-to-solid transitions in polyelectrolyte complexes. **Y. Liu**, H.H. Winter, S.L. Perry

**92.** Polypeptide complexation: From bulk coacervates to nanoscale assemblies. **D. Priftis**, L. Leon, K.O. Margossian, A. Tropnikova, M.V. Tirrell

**93.** Polyelectrolyte complex formation in acetone-water mixture. **H. Acar**, S. Srivastava, D. Priftis, J. Cabaral, M.V. Tirrell

### **Undergraduate Research Posters**

#### **Agricultural and Food Chemistry**

Sponsored by CHED, Cosponsored by AGFD and SOCED

### **MONDAY EVENING**

Section A

Boston Convention & Exhibition Center  
Hall C

#### **Sci-Mix**

B. Park, *Organizer*

**8:00 - 10:00**

26, 30, 57. See previous listings.

136, 150, 153, 209, 221, 227, 229, 242-243, 245, 248-249, 251-252, 254-257, 259, 291, 305. See subsequent listings.

## **The Future of Innovation Now**

Sponsored by MPPG, Cosponsored by AGFD, AGRO, BIOT, MEDI, PMSE and SCHB

## **TUESDAY MORNING**

Section A

Boston Convention & Exhibition Center  
Room 212

### **Complex Coacervation: Principles & Applications**

Cosponsored by COLL<sup>‡</sup>

S. L. Perry, *Organizer*

P. L. Dubin, S. Mann, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 94.** Chirality-selected phase behavior in complexes of ionic polypeptides. **M.V. Tirrell**

**8:35 95.** Marine sandcastle worm-inspired medical adhesives based on liquid-liquid phase separation. **R. Stewart**, M. Sima, R. O'Hara

**9:05 96.** Self-assembled nanostructures from block copolymers for biomedical application. **Y. Anraku**

**9:35** Intermission.

**10:00 97.** Beyond elastin: New peptide polymers that exhibit aqueous coacervation. **A. Chilkoti**

**10:30 98.** Directing encapsulated stem cell fate via in situ forming, growth factor-loaded coacervate microparticle-embedded hydrogels. **E. Alsberg**, O. Jeon

**11:00 99.** Coacervates of ionic polysaccharides for tissue engineering. O. Karabiyik, E. Kilic Iyilik, G. Kose, **A.B. Kayitmazer**

**11:30 100.** Complex coacervates as protein delivery vehicles: Preserved activity, controlled release rate, and in vivo efficacy. N. Johnson, W. Chen, **Y. Wang**

Section B

Boston Convention & Exhibition Center  
Room 213

### **Browned Flavors: Analysis, Formation, & Physiology**

P. H. Schieberle, *Organizer*  
M. Granvogl, D. G. Peterson, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 101.** Using real time measurement of galvanic electrode potentials to clock the course of Maillard reactions. **G.P. Rizzi**

**(Michael Granvogl will present) 8:35 102.** Different reaction pathways generate aroma-active amino acid degradation products during fermentation, roasting and eating of cocoa. **P.H. Schieberle**

**9:05 103.** On the role of Amadori-rearrangement products as precursors of aroma-active Strecker aldehydes in cocoa. **S. Hartmann**, P. Schieberle

**9:35** Intermission.

**9:55 104.** Formation of Strecker aldehydes and biogenic amines as a consequence of carbonyl-amine reactions initiated by oxidized lipids. R. Zamora, M. Leon, **F.J. Hidalgo**

**(Withdrawal) 10:25 105.** Food-borne taste modulators from Mother Nature and culinary art. **T. Hofmann**

**10:55** Concluding Remarks.

Section C

Boston Convention & Exhibition Center  
Room 209

### **Food Toxicants Formed During Food Processing & Storage**

S. Wang, L. L. Yu, *Organizers, Presiding*

**8:30 106.** Improved detection methods for food toxin with nanotechnology. **B. Park**, B. Wang, B. Xu

**9:05 107.** Lipid rafts may involve in TFA-induced apoptosis and inflammation of human umbilical vein endothelial cells. **Z. Deng**, H. Rao, B. Qiu, B. Liu, J. Li

**9:40 108.** 3-MCPD 1-monopalmitate induces apoptosis in NRK-52E cells via activation of p53-JNK pathway. **G. Huang**, M. Liu, H. Shi, **X. Sun**, **L.L. Yu**

**10:15** Intermission.

**10:30 109.** Stable isotope labeling experiments - a useful tool to identify formation pathways of food-borne toxicants. **M. Granvogl**

**11:05 110.** Chemoprotection effect of catechins on detoxicity of dietary acrylamide in mercapturic acid adduct level in rats. **Y. Zhang**, J. Cheng, Q. Wang, X. Chen

Section D

Boston Convention & Exhibition Center  
Room 211

## **Recovery of Bioactive Compounds from Processing By-Products**

S. Talcott, *Organizer*

L. Howard, Y. Kim, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 111.** Utilization of agricultural by-products in healthful food products: Organogelators, antioxidants, and spreadable products. **H. Hwang**, J.K. Winkler-Moser, E.L. Bakota, S.X. Liu

**8:35 112.** Extraction and analysis of high-value compounds in agricultural and forest byproducts using water, ethanol, and carbon dioxide at elevated temperature and pressure as solvents. V. Abrahamsson, S. Al-Hamimi, F. Jumaah, J. Liu, M. Plaza, M. Sun, M. Sandahl, **C. Turner**

**9:05 113.** Components responsible for the functional properties of corn fiber gum. **M.P. Yadav**

**9:35** Intermission.

**9:55 114.** Hemp waste as a potential source of valuable chemicals. **A. Hunt**, T. Attard, C. Bainier, M. Reinaud, A. Lanot, S. McQueen-Mason, J. Clark

**10:25 115.** Pressurized liquid sequential and direct extraction of phytochemicals from Dancy tangerines for their comprehensive characterization by LC–DAD–ESI–HR–MS. G. Jayaprakasha, **B. Patil**

**10:55 116.** Orange peel by-products as a source of bioactive compounds. **J.A. Manthey**, R.G. Cameron

## **International Entrepreneurship: How To Start a Business and Thrive in the Global Marketplace**

Sponsored by IAC, Cosponsored by AGFD, AGRO, BMGT, CARB, CELL, INOR, MEDI, ORGN, POLY, PRES<sup>‡</sup>, PROF and SCHB

## **Current Topics in Chemical Safety Information**

### **Use Cases for Chemical Safety Information**

Sponsored by CHAS, Cosponsored by AGFD, CCS, CHED and CINF<sup>‡</sup>

## **Journal of Agricultural and Food Chemistry Best Paper Awards**

Sponsored by AGRO, Cosponsored by AGFD<sup>‡</sup>

## USDA-ARS Sterling B. Hendricks Memorial Lectureship: James H. Tumlinson

Sponsored by AGRO, Cosponsored by AGFD

### TUESDAY AFTERNOON

Section A

Boston Convention & Exhibition Center  
Room 251

#### Complex Coacervation: Principles & Applications

Cosponsored by COLL<sup>‡</sup>

P. L. Dubin, S. L. Perry, *Organizers, Presiding*

**1:15** Introductory Remarks.

**1:20 117.** Interaction/coacervation between food proteins: Mechanisms and potential application. **S. Bouhallab**, G. Tavares, A. Chapeau, P. Hamon, T. Croguennec

**1:50 118.** Assembly of protein/polysaccharide complexes-based Pickering emulsions for nutraceutical delivery. **Q. Huang**

**2:20 119.** Formation of a coacervate film across the oil-water interface: Stabilization of emulsions. H. Monteillet, **M. Kleijn**, F. Leermakers, J. Sprakel

**2:50** Intermission.

**3:15 120.** Complex coacervation in heteroprotein systems: A special form of macromolecular liquid-liquid phase separation. **D. Seeman**, P.L. Dubin

**3:45 121.** Complex coacervation with oppositely charged polymer and surfactant: Determination factor in the morphology of coacervated complexes during the dilution process. **M. Miyake**

**4:15 122.** Optimization of milk protein–native gum (tragacanth and Persian gums) interactions: Complex coacervation and soluble complexes. **S. Abbasi**, F. Azarikia

**4:45 123.** Study of complex coacervation of gelatin A with sodium carboxymethyl cellulose/sodium alginate/carrageenan: Formation of smart microparticles and encapsulation. **N. Devi**, T. Maji, D. Kakati

Section B

Boston Convention & Exhibition Center  
Room 213

#### Browned Flavors: Analysis, Formation, & Physiology

M. Granvogl, *Organizer*

D. G. Peterson, P. H. Schieberle, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 124.** Variation in Maillard reaction product formation in oats from 13 cultivars. **M.J. Morello**, B.C. Vastano

**(Eva Ortner will present) 1:35 125.** Characterization of key aroma-active compounds in raw and roasted mustard seeds (*Sinapis alba* L.). **M. Granvogl**, E. Ortner, P.H. Schieberle

**2:05 126.** Defining mechanisms of flavor development in foodstuffs. **D.G. Peterson**, L. Zhang, S. Kokkinidou

**2:35** Intermission.

**2:55 127.** Formation of reactive fragmentation products during Maillard degradation of higher sugars. **M.A. Glomb**, M. Smuda, C. Henning

**3:25 128.** Characterization of color formation in juice products. **L. Paravisini**, D.G. Peterson

**3:55** Concluding Remarks.

Section C

Boston Convention & Exhibition Center  
Room 209

### **Young Scientist Award Symposium**

C. J. Brine, *Organizer, Presiding*

**1:00** Introductory Remarks.

**1:05 129.** Development and applications of surface-enhanced Raman spectroscopy in food science. **L. He**

**1:35 130.** Primary expectations of secondary metabolites. **J. Lee**

**2:05 131.** Concentration of propolis extract using hydrophobic membrane. **C. Leo**

**2:35** Intermission.

**2:50 132.** Utilization of in vitro and in vivo gastrointestinal models in the production of optimum functional food formulations. **Y. Ting**, Y. Jiang, C. Ho, Q. Huang

**3:20 133.** High-resolution mass spectrometry for the exploration of novel plant sterol conjugates. **L. Nystroem**

**3:50 134.** Integrated advanced multi-omics strategies: A new paradigm for agricultural and medicinal plant biotechnology. **J. Marques**, D.S. Dalisay, M. Costa, B. Herman, L.B. Davin, N.G. Lewis

**4:20** Concluding Remarks.

Section D

Boston Convention & Exhibition Center  
Room 211

## Recovery of Bioactive Compounds from Processing By-Products

S. Talcott, *Organizer*

L. Howard, Y. Kim, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 135.** Recovery and development of value-added applications of fruit juice processing byproducts. **Y. Zhao**

**1:35 136.** Eco-innovative polyphenol extraction using subcritical water from red and white pomace, coupled with purification by membrane processes. **S. Yammine**, X. Vitrac, R. Rabagliato, M. Mietton Peuchot, R. Ghidossi

**2:05 137.** Incorporation of pressurized fluid technology in the recovery of bioactive constituents from pomace processing wastes. **J.W. King**, L. Howard

**2:35** Intermission.

**2:55 138.** Physicochemical challenges to recover polyphenolics from Concord grapes skins. **S. Talcott**

**3:25 139.** Comparison between antioxidant potentials of extracts from black chokeberry pomace and walnut husk using supercritical carbon dioxide and ethanol. **J. Wenzel**, T. Dixon, E. Tucker, L. Burrows, N. Dwarshuis, E. Hossink, L. Wang, M. Ammerman, C. Samaniego

Section E

Boston Convention & Exhibition Center  
Room 212

### AGFD Division Award: Symposium in honor of Dr. Andrew Taylor

K. D. Deibler, *Organizer, Presiding*

**1:00** Introductory Remarks.

**1:10 140.** Acrylamide – a challenge to food scientists in industry and academia. **D.S. Mottram**

**1:35 141.** 2,5-Diketopiperazines – interesting markers of reaction or compounds with sensory and bioactive properties? **N.C. Da Costa**, M.Z. Chen

**2:00 142.** On-line aroma monitoring with mass spectrometry and link to flavor release and flavor perception. **J. Le Quere**

**2:25** Intermission.

**2:40 143.** Separation and concentration of trace high-impact odorants using multidimensional gas chromatography-mass spectrometry-olfactometry with integrated preparative fraction collection. **L. Jones**, K. Chu, B. White, A. Ward

**3:05 144.** Encapsulation, multimodal perception, and its applications. **G. Reineccius**



**3:30 145.** Modelling mass transfer under simulated nasal conditions – innovative laboratory experimental systems. **M. Yabuki**, D. Scott, L. Briand, A.J. Taylor

**3:55 146.** Biology of taste: Studies of the order Carnivora. **G.K. Beauchamp**, P. Jiang

**4:20** Concluding Remarks.

Section F

Boston Convention & Exhibition Center  
Halls A/B1

### **Complex Coacervation: Principles & Applications**

Cosponsored by COLL<sup>‡</sup>

P. L. Dubin, S. L. Perry, *Organizers, Presiding*

**1:00 - 3:00**

**147.** Understanding colloidal stability and thermal transitions in polyelectrolyte complexes. **Y. Zhang**, D. Reid, E. Yildirim, H.S. Antila, R. Zhang, M. Sammalkorpi, J.L. Lutkenhaus

**148.** Thermal transition in polyelectrolyte complexes via LCST mechanism. E. Yildirim, Y. Zhang, R. Zhang, J.L. Lutkenhaus, **M. Sammalkorpi**

**149.** Polyelectrolyte complexes of DNA and polypeptides. **M.J. Lueckheide**, L. Leon, J. Vieregg, M.V. Tirrell

**150.** Complexation of linear poly(ethylene imine)/poly(acrylic acid) and branched poly(ethylene imine)/metal ions: The effect of ionic strength, molar ratio, and pH. **H. Zhang**, N. Zacharia

**151.** Hydrogen bonded polymer complexes with hydrophobic associations. Y. Gu, R.A. Weiss, **N. Zacharia**

Section F

Boston Convention & Exhibition Center  
Halls A/B1

### **General Posters**

B. Park, *Organizer*

**3:00 - 5:00**

**152.** Mineral nutrient profile of orange juice. **M. Azik**, D. McLean

**153.** Residual effects of low and/or high temperature treatment at mature green stage on volatile production of tomatoes at following ripeness stages. L. Wang, B. Elizabeth, A. Plotto, J. Brecht, Z. Yu, **J. Bai**

**154.** Use of foliar fungicide spray for control of HLB-related pre-harvest fruit drop. W. Zhao, **J. Bai**, G. McCollum, T. Gottwald, A. Plotto, B. Elizabeth

- 155.** Self-assembly of two-way nanotubes by proteolysis of wheat bran albumins with protease V8, in presence of calcium ions. G. Chaquilla-Quilca, **R.R. Balandran-Quintana**, J.A. Azamar-Barrios, G. Ramos Clamont-Montfort, A.M. Mendoza-Wilson, J.N. Mercado-Ruiz, T.J. Madera-Santana, Y.L. Lopez-Franco
- 156.** Synthesis of wheat bran albumin nanoparticles by a cold gelation/desolvation method. J.G. Luna-Valdez, **R.R. Balandran-Quintana**, J.A. Azamar-Barrios, G. Ramos Clamont-Montfort, A.M. Mendoza-Wilson, J.N. Mercado-Ruiz, T.J. Madera-Santana, A. Rascon-Chu
- 157.** Improvements in the measurement of chlorophylls in soybean oil. **A.C. Litin**, D.D. Brooks
- 158.** Impact of food preparation on total phenolic contents and anti-oxidant capacities of regularly consumed botanicals. **L. Yu, B. Gao**, T.T. Wang, **L.L. Yu**
- 159.** Effects of home-based preparation approaches in determining the release of bioactivity compounds in fruits and vegetables. **B. Gao**, L. Yu, T.T. Wang, **L.L. Yu**
- 160.** Determination of the heavy metals in the health functional foods by inductively-coupled plasma/atomic emission spectrometry. **J. Hong**, C. Lim, Y. Chang, C. Lim, T. Kang
- 161.** Multiresidue analysis of pesticides in commercial agricultural products using LC-MS/MS. **S. Won**, S. Kim, N. Kang, Y. Kang, D. Kim, H. Chang, D. Kim, I. Jung, S. Woo, S. Kim, J. Park, H. Yoon
- 162.** Antimicrobial peptide segments from soy protein for use in food safety. N. Xiang, Y. Lyu, A. Bhunia, **G. Narsimhan**
- 163.** Flavonol glycosides in wild and cultivated berries of two major subspecies of sea buckthorn and influence of growth sites. **X. Ma**, O. Laaksonen, H. Kallio, B. Yang
- 164.** Flavonol glycosides in leaves of different varieties of black currant, green currant, red currant, white currant and changes of growing season, growth location, leaf position. **W. Yang**, H. Kallio, B. Yang
- 165.** Pilot-scale bioreactor production and long term stability of feruloyl soy glycerides. **D.L. Compton**, J.R. Goodell, S. Grall, K. Evans
- 166.** Synthesis and lead discovery of pyrazolcyclohexanol derivatives. **G. Aiying**, C. Liu, Y. Xie, Z. Huang, J. Wang, X. Wang, Q. Sun, X. Sun, J. Yang, Y. Wu
- 167.** Design, synthesis, and bioactivity of novel aryloxy pyridine pyrazole amide derivatives. F. Yang, **C. Liu**, G. Aiying, W. Chen, J. Yang, Z. Li, Y. Song
- 168.** Design, synthesis, and fungicidal activity of pyrazolecarboxamide derivatives. L. Wang, **C. Liu**, Y. Xie, Z. Li, J. Lan, X. Sun, G. Aiying
- 169.** Synthesis and lead discovery of phenylhydrazine derivatives. H. Li, **C. Liu**, G. Aiying, Z. Li, S. Ma, X. Wang, Y. Wu
- 170.** Design, synthesis, and biological activities of new strobilurin derivatives containing trifluoromethyl in the side chain. M. Li, H. Chi, J. Yang, Z. Li, **C. Liu**
- 171.** Design, synthesis, and insecticidal evaluation of novel insecticidal aryloxy dihaloropropene derivatives. j. Yang, C. Liu, M. Li, X. Chang, **G. Aiying**, Q. Wu, Y. Song

- 172.** Synthesis, characterization, and fungicidal activity of some new N-phenyl benzothiazolamine derivatives. **G. Aiying**, C. Liu, H. Li, Q. Sun, X. Sun, J. Wang, Y. Xie, F. Yang, J. Yang
- 173.** Synthesis and herbicidal activity of novel substituted 3-(pyridin-2-yl)benzenesulfonamide derivatives. Y. Xie, H. Chi, **G. Aiying**, C. Liu, H. Ma
- 174.** Synthesis and insecticidal activity study of 2-(2,6-dichlorobenzamido)-4-thiazolecarboxamide derivatives. Y. Xie, S. Xu, **G. Aiying**, L. Wang, C. Liu
- 175.** Adulteration and its detection of black raspberry products. **J. Lee**
- 176.** Effect of fresh and commercially processed orange juice on the oxidative status in healthy humans. **J.Q. Silveira**, T.B. Cesar, A.M. Nasser, J.A. Manthey, B. Elizabeth
- 177.** Luteolin-mediated apoptosis in leukemia cells involves PTTG1 oncoprotein and differential responses. **H. Tien**, P. Chen, J. Chen, M. Wu, J. Yen
- 178.** Development of lecithin emulsion gel to enhance the oral bioaccessibility of nobiletin. **Y. Ting**, Y. Pan, Q. Huang
- 179.** Updated exposure assessment for 4-methylimidazole (4-MEI) for the U.S. population based on quantitative data from foods. **D.E. Folmer**, D.L. Doell, H.S. Lee, G.O. Noonan, S.E. Carberry
- 180.** In-vitro digestion properties of Pickering emulsions stabilized by starch nanocrystals. **R. Liang**, Y. Jiang, C. Yang
- 181.** Tanshinone IIA modulates cell-surface LDLR level and LDL uptake via suppression of PCSK9 gene expression in HepG2 cells. **H. Chen**, M. Wu, P. Chen, Y. Chen, M. Tai, J. Yen
- 182.** Novel SERS-based approach to detect hydrogen peroxide scavenging activity. **W. Qian**
- 183.** Simultaneous analysis of unregistered pesticides in Korea by liquid chromatography-tandem mass spectrometry. **S. Lee**, J. Hwang, S. Jeon, J. Kim, Y.D. Lee, H. Kim, H. Lee, M. Jang, G. Lee
- 184.** Combination of pre-column nitro-reduction and ultraperformance liquid chromatography with fluorescence detection for the sensitive quantification of 1-nitronaphthalene, 2-nitrofluorene, and 1-nitropyrene in meat products. **K. Deng**, W. Chan
- 185.** Updated exposure estimate for FD&C color additives for the U.S. population. **D.L. Doell**, D.E. Folmer, H.S. Lee, K.M. Butts, S.E. Carberry
- 186.** Preparation and rheological characterization of food grade gellan hydrogels with calcium ions as gelling agent. **E.N. Ambebila**
- 187.** Saponins quantification in pigmented chickpeas cultivars. **A.K. Milan**, S.R. Serna Saldivar, J. Gutierrez
- 188.** Development and validation of analytical method of furan in seven different types of food matrices using SPME-GC/MS. **Y. Seok**, S. Jeong, J. Her, K.G. Lee
- 189.** Analytical advances in food-technology by establishment of a 14-C food –technology lab and kitchen. **M. Kotthoff**, M. Bücking

- 190.** Carotenoid composition analysis in fruit of rose hip (*Rosa glauca*) by HPLC-DAD-APCI<sup>+</sup>-MS. **L. Zhong**, K. Gustavsson, M. Olsson
- 191.** Convenient, inexpensive measurement of free and copper-complexed hydrogen sulfide in wine. **Y. Chen**, Jastrzembski, I. Ryona, G.L. Sacks
- 192.** Interaction between caseinophosphopeptides and theaflavin-3,3'-digallate and its impact on the antioxidant activity of theaflavin-3,3'-digallate. **Y. Jiang**, Y. Ting, J. Li, Q. Huang
- 193.** Micronanopores in diatomite fabricated by high energy electron beam and hydrothermal treatment to control the loss of pesticide. **X. Zhang**, **Z. Wu**
- 194.** Determination of protein-bound metabolites of nitrofurans by combining on-line precolumn derivatization and high performance liquid chromatography with fluorescence detection. **W. Yinan**, W. Chan
- 195.** HPLC-MS of hesperidin metabolites in rat urine. **D. Gonçalves**, M. Rodrigues, T. Cesar, J.A. Mantney
- 196.** Spectrofluorimetric study of the interaction of the mycotoxin citrinin with gold nanoparticles. **M. Appell**, **W. Bosma**
- 197.** Inhibitory effects of edible berry extracts on the formation of advanced glycation endproducts. **H. Ma**, W. Liu, J.A. Dain, N.P. Seeram
- 198.** Pomegranate polyphenols inhibit the formation of advanced glycation endproducts and aggregation of beta amyloid. **H. Ma**, W. Liu, D.B. Niesen, J.A. Dain, N.P. Seeram
- 199.** Standardized food grade maple syrup extract (MSX) imparts lipid lowering and anti-inflammatory effects in mature differentiated mouse and human adipocytes. **P. Nahar**, A.L. Slitt, N.P. Seeram
- 200.** Natural product derived brain absorbable RAGE inhibitors for Alzheimer's disease: The case of the urolithins. **D.B. Niesen**, N. Shah, H. Ma, N.P. Seeram
- 201.** Beyond L-DOPA: Bioactives in *Mucuna pruriens* for the treatment of Parkinson's disease. **C. Hessler**, D.B. Niesen, H. Ma, N.P. Seeram
- 202.** Methylglyoxal induced cell cytotoxicity inhibitory and scavenging properties of a standardized food grade maple syrup extract (MSX). **W. Liu**, Z. Wei, H. Ma, J.A. Dain, Z. Shaikh, N.P. Seeram
- 203.** 3'-Hydroxypterostilbene simultaneously induces apoptosis and autophagy in human prostate cancer cells. **H. Tsai**, T. Huang, C. Ho, **Y. Chen**
- 204.** Evaluating Raman spectroscopic data by using principal component analysis to determine the freshness of fish samples. **H. Temiz**, H.M. Velioglu, I.H. Boyaci
- 205.** Raman spectroscopic method for determination of erucic acid in canola oils. **E. Ercioglu**, S.D. Velioglu, H. Temiz, H.M. Velioglu, I.H. Boyaci
- 206.** Effects of KCl substitution on textural properties of Queso Fresco. **M.H. Tunick**
- 207.** Biological activities of diterpenoids from *Hyptis verticillata*. **R.B. Porter**
- 208.** Study of the encapsulation of aroma compounds from starch emulsions by reversed flow gas chromatography (RFGC). **J. Kapolos**, A. Koliadima, G. Karaiskakis

- 209.** Stereochemical determination of methamidophos and ruelene, organophosphorus compounds. **M.C. Chiu**, K. Tami, C. Kinahan, A. Ng, G. Proni
- 210.** Analysis of carcinogenic 4(5)-methylimidazole in various commercially available foods and beverages. S. Lee, **J. Her**, M. Jung, K.G. Lee
- 211.** Metabolic exploration about blueberry, raspberry, and blackberry. W. Kim, J. Pyo, **J. Her**, K.G. Lee
- 212.** Formation and reduction of furan in soy sauce (ganjang) according to the time of addition of food additives. M. Kim, **J. Her**, J. Lee, K.G. Lee
- 213.** Validation of an analytical method for quantification of Benzo(a)pyrene in two different types of food matrices using GC/MS. S. Park, J. Jeong, **J. Her**, K.G. Lee
- 214.** Formation and reduction of ethyl carbamate in soybean paste (Doenjang) model system. S. Lee, H. Song, **J. Her**, K.G. Lee
- 215.** Development of an analytical method for quantification of biogenic amines in fermented soybean paste (Doenjang). Y. Kim, J. Lee, **J. Her**, K.G. Lee
- 216.** Oil lipolysis process controlled by formation of Pickering emulsion. **W. Jin**, Y. Jiang, B. Li, Q. Huang
- 217.** Use of fat compost from dairy industry wastewater as a new organic amendment for pepper (*Capsicum annuum* L.) crop. M. Fiasconaro, M. Lovato, **C. Martin**
- 218.** Anti-inflammatory effect of resveratrol metabolite,  $\delta$ -viniferin, on LPS-stimulated murine macrophage. **P. Hsieh**, M. Pan, C. Ho
- 219.** Density functional theory study of the formation mechanism of acrylamide with glyoxal and asparagine as precursors. **F.M. Tao**, J. Wu, Z. Wang
- 220.** Characterization and quantification of flavonoids and organic acids throughout fruit development in American cranberry (*Vaccinium macrocarpon*) using HPLC and APCI-MS/MS. **Y. Wang**, J. Johnson-Cicalese, A.P. Singh, N. Vorsa
- 221.** Flavor chemical analysis of shrimp from near-shore Louisiana Gulf Coast estuaries. **K.H. Driggers**
- 222.** Time-resolved determination of physicochemical quantities for physically adsorbed or chemisorbed aroma compounds on starch granules, by inverse gas chromatography. **A. Koliadima**, J. Kapolos, G. Karaiskakis
- 223.** Early detection of milk spoilage via volatile organic compound analysis using multidimensional gas chromatograph/mass spectrometry. **K. Rochford**
- 224.** Structural properties of B-type procyanidin oligomers and their ability to scavenge free radicals: A DFT study. **A.M. Mendoza-Wilson**, S.I. Castro-Arredondo, R.R. Balandran-Quintana
- 225.** Determination of the antiradical and chelating potential of a phenolic extract and a procyanidin-rich fraction of apple peel by experimental and computational methods. **A.M. Mendoza-Wilson**, A. Espinosa-Plascencia, R. Robles-Burgueño, R.R. Balandran-Quintana, M.d. Bermudez-Almada
- 226.** New active packaging film from natural resources. **A. Machado**

227. Development of a novel biomagnetic separation method for rapid detection of *Escherichia coli* by phage display technique. **Z. Wang**
228. Withdrawn.
229. Synthesis of quinolactamide, penicillamine, penicillamine, and their analogs as potential insecticides. S. Rasapalli, **R. Mastrolia**
230. Inhibitory activity of *Enterococcus faecalis* PL9003 on oxidation and melanogenesis. **Y. Lee**, H. Lee
231. Studies on the discovery of agriculturally active compounds from marine endophytic fungi. **H. Sun**, C. Wang, Q. Song, Y. Tang, Y. Xia
232. Study of vitro digestion on desiccated coconut. H. Wu, **J. Xiong**, J. Ye
233. Quantitation of chiral heterocyclic key aroma compounds in cooked *Alliaceae* varieties using a stable isotope dilution assay. **M. Flaig**, M. Granvogl, P.H. Schieberle
234. Peri-receptor modulation of the human salivary proteome by taste stimuli. **T. Stolle**, M. Bader, T. Hofmann
235. Modeling the leachability of pH-dependent ionizable organic contaminants from municipal sewage sludge. **A. Venkatesan**, R.U. Halden
236. Alkaloid profiles of hairy root cultures of *Catharanthus roseus* differ when generated by different strains of *Agrobacterium rhizogenes*. **J. de la Parra**, N. Rizvi, R.A. Kautz, P. Wang, R. Giese, C.W. Lee-Parsons
237. Ensuring coffee freshness in portioned coffee system. L. Poisson, S. Legrand, Y. Wyser, **F. Mestdagh**, B. Folmer, J. Kerler
238. Red shortening: Characterization and utilization in formulating novel functional biscuits. **H. Abou Gharbia**
239. Analysis of lipid transfer proteins in *Arabidopsis thaliana* by means of epitope tags to decipher the role of LTP4's lipid in plant senescence. **J. Bautista**
240. Identifying T-DNA insertion site in *Arabidopsis thaliana* LTP-4 and LTP-3 mutants by thermal asymmetric interlaced PCR (TAIL-PCR). **I. Santana**, J. Ortiz, R.L. Vellanoweth
241. Capillary electrophoresis coupled with inductively-coupled plasma mass spectrometry as an analytical tool for arsenic speciation in rice. **H. Qu**, T. Mudalige, S. Linder
242. Prevention and treatment of *Staphylococcus aureus* biofilm formation using Russian Propolis ethanol extracts. **J. Bryan**, C. Traba, M.J. Castaldi
243. Orange juice reduces oxidative stress and inflammatory markers in patients with chronic hepatitis C. **D.R. Gonçalves**, C.G. Lima, P.S. Ferreira, P.I. Costa, T.B. Cesar
244. Characterization of constituents from cranberry non-dialyzable material that inhibit bacterial co-aggregation and adhesion. **K. Penndorf**, **C.C. Neto**, M. Feldman, S. Meron-Sudai, Z. Rones, D. Steinberg, M. Fridman, I. Ginsburg, I. Ofek, E. Weiss

- 245.** Inhibition of colon cancer growth and inflammation in cellular and mouse models by cranberry extracts (*Vaccinium macrocarpon*). **S. Frade**, A. Liberty, A. Tata, X. Wu, M. Song, X. Cai, H. Xiao, C.C. Neto
- 246.** NMR-based metabolomic analysis and quantification of phytochemical constituents in North American cranberry fruit (*Vaccinium macrocarpon*). **A. Milstead**, **L. Xue**, K.L. Colson, C.C. Neto
- 247.** Dietary exposure of nonphthalate-based plasticizers from use in food contact material. **L.T. Cureton**, A.B. Bailey
- 248.** Preparation of metal chelating active food packaging materials by laminated photografting. **J.Z. Lin**, M. Roman, F. Tian, E.A. Decker, J.M. Goddard
- 249.** Rapid detection of *Salmonella* using a redox cycling-based electrochemical method. **D. Wang**, A. Kinchla, S.R. Nugen
- 250.** Metal oxide gas sensor array combined with a miniaturized gas chromatographic system for fast detection of volatile quality indicators. **M. Kotthoff**, **M. Bücking**, J. Bruckert, M. Bauersfeld, J. Wöllenstein
- 251.** Metabolomics application for rapid screening and authentication of Asian palm civet coffee (Kopi Luwak). **U. Jumhawan**, S. Putri, Y. Yusianto, T. Bamba, E. Fukusaki
- 252.** Designing the rolling circle amplification based surface-enhanced Raman spectroscopy method for 35S promoter maize gene detection. **B. Guven**, I.H. Boyaci, U. Tamer, E. Acar Soykut
- 253.** Modeling the human colon: An automated multistage fermentation approach. **L.A. Doherty**, S. Arcidiacono, K. Racicot, J.W. Soares
- 254.** Antioxidant activity and inhibition of amylase by Washington navel oranges. **S. Kommein**, B. Patil
- 255.** Determination of microbial volatile organic compounds patterns from virulent and hypovirulent *Cryphonectria parasitica* isolates by headspace-SPME-GC-MS. **J. She**, M. King, B. Stokes, Y. Jiang, R. Baird, T.E. Mlsna
- 256.** Kinetic stability of bean and pea proteins: Effect on protein digestibility and bean resistance to environmental conditions. **K. Xia**, J. Wilcox, S. Pittelli, W. Colon
- 257.** Antioxidative compounds from *Garcinia buchananii* stem bark. **M. Salger**, T.D. Stark, J. Wakamatsu, T. Hofmann
- 258.** Innovative microwave-assisted procedure for the extraction and purification of policosanols from beeswax. **V. Brighenti**, A. Chiossi, A. Venturelli, F. Pellati
- 259.** Determination of hydrogen bonding acidity values and distribution coefficients for flavonoids with multiple hydroxyl substituents. **C.E. Earp**, W.L. Whaley, M.H. Abraham
- 260.** Characterization and phytoremediation of a crude oil contaminated wetland. **E.O. Nwaichi**, L. Opara, P. Nwoha
- 261.** Stabilization of whey protein isolate (WPI) by sugar beet pectin (SBP) through a Maillard-type reaction in solution. **P.X. Qi**, Y. Xiao
- 262.** Adsorption of clay microparticles at the interface of PEG/dextran aqueous biphasic systems: Formation of clay-stabilized aqueous-aqueous emulsion droplets. **F. Pir-Cakmak**, C.D. Keating

263. Rechargeable antimicrobial N-halamine coatings for food contact surfaces. **L.J. Bastarrachea**, J.M. Goddard
264. Sodium diffusion in potatoes. **J.K. Pandya**, A. Kinchla
265. Determination of furan levels in commercial orange juice products and its correlation to the sensory and physiochemical characteristics. **M. Kim**, M. Kim, K.G. Lee
266. Optimization of essential oils properties by enzymatic modification of their chemical composition: Toward sustainable processes for the production of new fragrant ingredients. **S. Antoniotti**
267. Analytical chemistry, formation, reduction, chemoprevention, and in vivo exposure of acrylamide. **Y. Zhang**
268. Synthesis and development of a new respiratory inhibition-type fungicide. **W. Lee**, J. Kim, H. Shin, I. Hwang
269. Differentiation of red Port wines categories according to their volatile carbonyl compounds. N. Moreira, I. Vasconcelos, F. Rogerson, **P. Guedes de Pinho**
270. Influence of plant-based protein diet on orange-spotted grouper (*Epinephelus coioides*) white muscle proteome profile. **Y. Ko**, **C. Liou**, F. Huang, B. Kazlowski, S. Shu, Y. Tan, Y. Luo, I. Sie

### **International Entrepreneurship: How To Start a Business and Thrive in the Global Marketplace**

Sponsored by IAC, Cosponsored by AGFD, AGRO, BMGT, CARB, CELL, INOR, MEDI, ORGN, POLY, PRES<sup>‡</sup>, PROF and SCHB

### **WEDNESDAY MORNING**

Section A

Boston Convention & Exhibition Center  
Room 212

### **Challenges in Applied Flavor Sciences**

L. Jones, J. W. Marshall, A. J. Taylor, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:10 271.** Food's combinatorial odor codes – new knowledge on how nature recruits volatiles to make our foods smell so good. **A. Dunkel**, M. Steinhaus, M. Kotthoff, B. Nowak, D. Krautwurst, P. Schieberle, T. Hofmann

**8:40 272.** Application of sensomics to commercial flavour analyses. **M. Thornton**, M. Bueno-Fernandez, J. Addison, K. Chu, L. Jones

**9:00 273.** Insights into the chemical composition of processed food products. **A.J. Taylor**, N. Wollmann, J.W. Marshall



**9:30** Intermission.

**9:50 274.** Needle in a haystack: Flavor analysis in complex food systems. **J.W. Marshall**, T. Andy, A. Obee

**10:20 275.** From model food to real food systems: Advances and challenges in relating sensory measurements to in vivo flavor release. **J. Le Quere**, E. Guichard, P. Schlich

**10:50 276.** Mechanism of flavor release from a pet food: Learnings and challenges. **P. Mohapatra**, C. Cox, B. Bennett

**(Withdrawal) 11:10 277.** Using in vivo analytical techniques to screen for masking and enhancing solution and to understand flavor interactions on compound level in a complex food flavor system. **C. de Jong**, A. Villiere, L. Lethuaut, C. Prost

Section B

Boston Convention & Exhibition Center  
Room 213

### **Browned Flavors: Analysis, Formation, & Physiology**

D. G. Peterson, P. H. Schieberle, *Organizers*

M. Granvogl, *Organizer, Presiding*

V. Somoza, *Presiding*

**8:00** Introductory Remarks.

**8:05 278.** Covalent polyphenol-protein interactions – challenges and research needs. **S. Rohn**

**8:35 279.** Do dietary Maillard reaction products play a role in the progression of noncommunicable diseases? **V. Somoza**, A. Holik

**9:05 280.** Kinetic modeling of acrylamide formation during the finish-frying of french fries with variable sugar content. **D.P. Balagiannis**, J.K. Parker, J. Higley, T. Henson, G. Smith, B.L. Wedzicha, D.S. Mottram

**9:35** Intermission.

**9:55 281.** Producing low acrylamide risk potatoes: A three-year public/private sector collaborative project focused on genetics, agronomy, and storage. **N. Halford**

**10:25 282.** Flavor and Acrylamide Formation. **J.S. Elmore**

**10:55 283.** Reducing the acrylamide-forming potential of wheat and rye. **T. Curtis**, J. Postles, N. Halford

**11:25** Concluding Remarks.

Section C

Boston Convention & Exhibition Center  
Room 209

## Environmental Effect on Plant Volatile Formation & Nonvolatile Composition

M. C. Qian, A. M. Rimando, *Organizers, Presiding*

**8:25** Introductory Remarks.

**8:30 284.** Impact of water deficit on volatile composition of grapes and wine. **M.C. Qian**, K. Shellie

**8:55 285.** Influence of sunlight exposure on Pinot noir grape and wine volatile composition. M.C. Qian, **F. Yuan**

**9:20 286.** Not your ordinary *terroir* - the role of pathogenesis related proteins (PRPs) in limiting tannin extraction across winegrape varieties and regions. L.F. Springer, **G.L. Sacks**

**9:45** Intermission.

**10:00 287.** Accumulation of exogenous volatiles in *Vitis vinifera* fruit and leaves as nonvolatile glycoconjugates. **K. Wilkinson**, R. Ristic, J. Culbert, L. Van der Hulst, A. Pardo-Garcia, G. Alonso, R. Salinas, N. Lloyd, Y. Hayasaka

**10:25 288.** Changes in orange juice flavor volatile and non-volatile compounds in response to citrus greening or Huanglongbing (HLB) disease and disease management strategies. **B. Elizabeth**, A. Plotto, J. Bai, J.A. Manthey, S. Raithore, H. Yang, S. Deterre, S. Dea

**10:50 289.** Postharvest practices to alleviate flavor loss of tomatoes under current marketing systems. **J. Bai**, B. Elizabeth, A. Plotto, L. Wang

**11:15 290.** Molecular assessment of metabolome changes in carrots (*Daucus carota* L.) induced by abiotic stress challenges. **C. Dawid**, A. Dunkel, T. Nothnagel, D. Ulrich, B. Singldinger, D. Günzkofer, T. Hofmann

## WEDNESDAY AFTERNOON

Section A

Boston Convention & Exhibition Center  
Room 212

### Challenges in Applied Flavor Sciences

L. Jones, J. W. Marshall, A. J. Taylor, *Organizers, Presiding*

**1:00 291.** Flavour formation in skimmed milk powder in a low-moisture model system. **A. Stewart**, A. Ryan, A. Grandison, J.K. Parker

**1:20 292.** Use of gas chromatography with quadrupole time-of-flight mass spectrometry (GC/Q-ToF) to compare odor formation in meat and model meat systems following the addition of precursor flavors. **L. Jones**, J. Addison, N. Hawkins, K. Ridgway

**1:40 293.** Parameters impacting flavour profile and shelf-life of dairy ingredients. **M. Trotin**, A. Czepa, B. Suess, P.R. Guilet, J. Pfeifer

**2:00 294.** Sensory and instrumental analysis of sweet potato fries. **J.K. Parker**, S. Lignou, J.S. Elmore, D.P. Balagiannis, J. Higley, G.L. Smith, D.S. Mottram

**2:20 295.** 1-p-Menthen-8-thiol, the grapefruit character impact volatile, is a thermally generated artifact in citrus juices. F. Jabapurwala, J. Lin, **R.L. Rouseff**

**2:40** Intermission.

**3:00 296.** Chiral mono-terpene profile in Pinot Gris and Riesling wines determined by head phase-solid phase micro-extraction-multidimensional gas chromatography-mass spectrometry (HS-SPME-MDGC-MS). M. Song, Y. Xia, **E. Tomasino**

**3:20 297.** Understanding the effects of ethanol-flavor interactions on flavor perception in alcoholic beverages. **C. Ickes**, K.R. Cadwallader

**3:40 298.** Enantiomeric analysis of volatile chiral compounds in ready-to-drink tea beverages during storage using multidimensional gas chromatography. **F. He**, Y.L. Qian, M.C. Qian

**4:00 299.** Changes in the key aroma compounds of Shiitake and Oyster mushrooms induced by a thermal treatment. **P. Schmidberger**, P. Schieberle

Section B

Boston Convention & Exhibition Center  
Room 213

### **Chemistry and Bioactivities of Natural Polymethoxyflavones**

C. Ho, *Organizer*

S. Li, M. Pan, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 300.** Molecular mechanisms of disease chemoprevention by polymethoxyflavones. **M. Pan**, C. Lai, C. Lo, S. Li, C. Ho

**1:30 301.** Lipid-lowering activity of citrus polymethoxylated flavones is mediated by down-regulation of lipogenic genes. **Z. Chen**, L. Lei

**1:55 302.** Citrus polymethoxyflavones and monodemethylated polymethoxyflavones inhibit adipogenesis in 3T3-L1 adipocytes. S. Lin, P. Chen, M. Pan, S. Li, C. Ho, **C.Y. Lo**

**2:20 303.** Anti-adipogenesis effect of 5-demethylnobiletin and its acetylated derivative in 3T3-L1 preadipocyte model. **Y. Tung**, G. Wei, S. Li, M. Pan, C. Ho

**2:45** Intermissions.

**3:00 304.** Polymethoxyflavones from aged orange peels: Extraction, formulation, and bioefficacy. **Q. Huang**

**3:25 305.** Molecular characterization of the interactions between polymethoxyflavones and kappa casein. **C. Ma**, H. Xiao, L. He

**3:50 306.** Gastrointestinal biotransformation enhances biological effects of polymethoxyflavones. M. Wang, M. Song, X. Wu, Z. Gao, F. Xu, Y. Cao, **H. Xiao**

Section C

Boston Convention & Exhibition Center  
Room 209

### **Environmental Effect on Plant Volatile Formation & Nonvolatile Composition**

M. C. Qian, A. M. Rimando, *Organizers, Presiding*

**1:15** Introductory Remarks.

**1:20 307.** Metabolite profiling of barley grain: Impact of induced drought stress. **K. Engel**, A. Lanzinger, T. Frank, G. Reichenberger, M. Herz

**1:45 308.** Effect of growing environment on the characteristics of soybeans for food uses. **S.K. Chang**, S. Meng

**2:10 309.** Growing conditions affect flavonoid concentration and yield in American skullcap (*Scutellaria lateriflora*). **D.A. Shannon**, A. Similien, A.M. Rimando, E. van Santen, C.W. Wood, N. Joshee, B.W. Kempainen

**2:35** Intermission.

**2:50 310.** Chemical characterization of pigments in three guava (*Psidium guajava*) Colombian varieties. I. González, A. Melendez, F. Heredia, **C. Osorio Roa**

**3:15 311.** Fresh ginger vs. dry ginger: The impact of temperature on the bioactive components in ginger. **S. Sang**

**3:40 312.** Differentiating organic and conventional oregano using ultraperformance liquid chromatography mass spectrometry (UPLC-MS), headspace gas chromatography with flame ionization detection (headspace-GC-FID), and flow injection mass spectrum (FIMS) fingerprints combined with multivariate data analysis. **B. Gao**, W. Lu, L.L. Yu

Section D

Boston Convention & Exhibition Center  
Room 211

### **General Papers**

B. Park, *Organizer, Presiding*

**1:00** Introductory Remarks.

**1:05 313.** Detection of *Escherichia coli* in drinking water using T7 bacteriophage-conjugated magnetic probe. **J. Chen**, Z. Jiang, S.D. Alcaine, V.M. Rotello, S.R. Nugen

**1:30 314.** Electrospun water soluble nanofibers for dehydration and storage of bacteriophage for decontamination of agricultural water. **C. Koo**, S.R. Nugen

**1:55 315.** Withdrawn.

**2:20 316.** In-product anti-counterfeiting agrochemicals using phase change nanoparticles. **M. Wang, M. Su**

**2:45 317.** Functional diet ginger (*Zingiber officinale* Roscoe, Zingiberaceae). **H. Wang**

**3:10** Intermission.

**3:25 318.** Is our salad safe? Efficacy of disinfection techniques to decontaminate spinach leaves and reduce cross-contamination. **N. Kinsinger**, S.L. Walker

**3:50 319.** Authentic milk powder variance study and detection of melamine adulteration using Raman spectroscopy and chemometrics. **S. Karunathilaka**, S. Farris, M. Mossoba, B.J. Yakes

**4:15 320.** Thermal dependence of riboflavin photodegradation in amorphous sucrose matrices. **Y.L. Wang**, M. Corradini, R.D. Ludescher

**4:40 321.** Investigating the potato's defensive shield: Metabolites profiling and solid-state NMR compositional analysis of suberin-enriched wound-healing tissues. **K. Dastmalchi**, L.R. Kallash, V.C. Phan, W. Huang, O. Serra, R. Stark

**5:05** Concluding Remarks.

## **THURSDAY MORNING**

Section B

Boston Convention & Exhibition Center  
Room 213

### **Chemistry and Bioactivities of Natural Polymethoxyflavones**

M. Pan, *Organizer*

C. Ho, S. Li, *Organizers, Presiding*

**8:00 322.** Neuroprotective effect of heptamethoxyflavone in the mouse brain. **S. Okuyama**, Y. Amakura, M. Yoshimura, T. Yoshida, A. Sawamoto, M. Nakajima, Y. Furukawa

**8:25 323.** Citrus polymethoxyflavones preventing the development of Alzheimer's disease by regulating A $\beta$  metabolism. **L. Guo**, L. Wang, **W. Zhang**, H. Li, S. Li

**8:50 324.** 5-Demethylnobiletin synergistically enhances the anticancer activity of paclitaxel in non-small cell lung carcinoma (NSCLC). **C. Lin**, S. Li, C. Ho

**9:15** Intermission.

**9:30 325.** 5-Acetyloxy-6,7,8,4'-tetramethoxyflavone, a tangeretin derivative, inhibits cell growth in human prostate cancer PC-3 cells. **Y. Chen**, Y. Chen, J. Guo, T. Huang, S. Li, C. Ho

**9:55 326.** Distribution investigation of polymethoxyflavones in citrus peels. **T. Long**, L. Xu, H. Zhao, C. Ho, S. Li

**10:20 327.** Chemistry and nutraceutical properties of polymethoxyflavones from citrus peels. **S. Li**, C. Ho, M. Pan

**10:45** Concluding Remarks.

Section D

Boston Convention & Exhibition Center  
Room 209

### **General Papers**

B. Park, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:05 328.** Biomimicking the stratum corneum to engineer edible oleogel. **T. Wang**

**8:30 329.** Water alkalinity and hardness in beer brewing. **R. Barth**

**9:20 331.** Influence of molecular structure on interactions of dietary polyphenols and an immunodominant gluten peptide. **C. Van Buiten**, C.N. Pacheco, E. Hatzakis, R. Elias

**9:45** Intermission.

**10:00 332.** Sugar dialdehydes as glutaraldehyde analogs for cross-linked and immobilized chymotrypsin. **D.E. Wong**, J.M. Goddard

**10:25 333.** DNA-comprising iron oxide/silica particles as tags against extra virgin olive oil adulteration. **M. Puddu**, D. Paunescu, W.J. Stark, R.N. Grass

**10:50 334.** Biological soil quality indicators and conditioners in the phytoremediation of crude oil polluted agricultural soil. **E.O. Nwaichi**, L.I. Opara, E.O. Anosike

**11:15 335.** *Ginkgo biloba*: A new look at an old plant. **J.D. Williams**, G.R. Boyce

**11:40** Concluding Remarks.

### **Nanoparticles in Food, Agricultural, & Environmental Settings**

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**THURSDAY AFTERNOON**

## **Nanoparticles in Food, Agricultural, & Environmental Settings**

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