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# 2017 AOCs Annual Meeting and Industry Showcases

**April 30-May 3** | Rosen Shingle Creek | Orlando, Florida, USA

## **Connecting Science and Business**

*The ultimate collaboration of industry, academia, and government;  
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Visit us at booth #201 Paquin to learn more

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# Contents

## Welcome!

Welcome to Orlando and the 108th occurrence of the AOCS Annual Meeting. This year's conference combines our world-renowned technical program, six Hot Topics Sessions addressing the latest industry news, and three Industry Showcases which feature more than 75 international companies offering equipment, supplies, services, and solutions. Join us in the Industry Showcases each day for refreshment breaks and Happy Hours—ideal opportunities to make new business-to-business connections. In conjunction with the 2017 AOCS Annual Meeting, the International Society for the Study of Fatty Acids and Lipids' (ISSFAL) Regional Meeting will take place Tuesday and Wednesday. Thank you to the six ISSFAL/AOCS session co-chairs and the nearly 20 speakers who have graciously agreed to share their time and expertise in the joint sessions on *Brain, Behavior, and Omega-3s; Infant Formula Optimization*; and the *Impact of Oil Processing on Health Outcomes*.

Make the most of your time at the AOCS Annual Meeting—attend sessions, peruse the Showcases, connect at the networking events, and increase your involvement in AOCS! Now is the perfect time to join a committee or a Common Interest Group, attend a Division Roundtable meeting and offer a topic for next year's meeting, or meet with your Division leaders and volunteer to chair a session! Becoming part of the AOCS community is your first step to boosting your personal and professional development.

I look forward to seeing you and hope you enjoy the 2017 AOCS Annual Meeting!

Best regards,

**NEIL R. WIDLAK**  
Annual Meeting General Chair  
Retired, USA



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### Connect with AOCS!



@AOCS #AOCS2017



*International Society for the Study of Fatty Acids and Lipids*

The International Society for the Study of Fatty Acids and Lipids (ISSFAL) is hosting their Regional Meeting in conjunction with the 2017 AOCS Annual Meeting. Session information begins on page 42.

# MEETING INFORMATION

## Abstracts

Abstracts are published as submitted. Search and print abstracts from the computer stations located in the campuses. Abstracts are also available online at [AnnualMeeting.aocs.org/Orlando2017](http://AnnualMeeting.aocs.org/Orlando2017) or on **The App** through May 31, 2017.

## The App

The official app of the 2017 AOCS Annual Meeting is provided by CrowdCompass. See page 6 for download instructions.

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## Charging Stations

Recharge your mobile device batteries in the Smalley, Paquin, and Wesson Campuses.

## Computer Stations

Work areas with computers and printer access are available in the Smalley, Paquin, and Wesson Campuses for you to check email and print abstracts.

## Copies of Papers

Many of the papers presented during the meeting will appear in AOCS Press publications. Papers may also be available to AOCS members in the inform|connect Premium Content Library.

## Emergency Contacts

- Please provide emergency contact information to AOCS by completing the reverse side of your name badge.
- You may also login to the AOCS website, select “Emergency Contacts” in the communication section, and add the information to your AOCS record. (If you do not recall your login details, please see the registrars at the Registration Desk.)
- This information will only be used by AOCS staff or medical personnel in the event of an emergency.

## Event Tickets

- If you pre-registered, your tickets are in your registration envelope along with your name badge. If you registered on site, you received your tickets with your other meeting materials.
- Keep your tickets with you, as many AOCS events require tickets to be admitted.
- Tickets fit inside your name badge holder for easy access.

## Lost and Found

Items may be turned in or recovered at the Registration Desk.

## Mobile Phones, Photography, and Recording

Please turn off your mobile phone (or set it to vibrate) during sessions. No video recording, tape recording, or still photography is allowed in the session rooms, except by registered media. Video or still photography of exhibitors or posters is not allowed, unless permission is granted by the exhibitor or poster author.

## Name Badges

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Name badges are color-coded to indicate registration status:

Full Registrants	Blue
Monday Only	Yellow
Tuesday Only	Green
Wednesday Only	Purple
Session Only	Red
Guest	White

- Only registrants that have a badge with a color stripe are allowed to attend sessions.
- Badge checkers are stationed at the campus entrances. Only those registrants with the correct badges are admitted.
- If you are not a full registrant, but would like to upgrade, please see the Registration Desk.

## Presentation Ownership

Presentations at the meeting were prepared by and are the sole property of each presenter. Speakers have been given the AOCS guidelines for developing effective presentations and it is their responsibility to follow these guidelines.

## Program Changes

Changes that came about after the printing of the Annual Meeting Program can be found on **The App**.

## Publication of Papers

AOCS encourages speakers to submit their work to AOCS for publication. Speakers who wish to publish their paper in *JAOCS*, *Lipids*, or *Journal of Surfactants and Detergents (JSD)* should visit the AOCS Press website at <http://bit.ly/aocsjournals> for more details. To submit a magazine article based on your paper to *INFORM*, contact Kathy Heine, Managing Editor, at [kathy.heine@aocs.org](mailto:kathy.heine@aocs.org).

## Registration List

The Annual Meeting registration list is available online at [AnnualMeeting.aocs.org/Orlando2017](http://AnnualMeeting.aocs.org/Orlando2017) or on **The App** through May 31, 2017.

## Safety

Please take a moment to familiarize yourself with fire-safety precautions that are posted in your hotel guest room. For your safety, double-lock the door when you are in your room, lock any connecting doors from your side, and make sure to lock your door when you leave your room. Hotels have limited liability regarding theft of personal property from hotel rooms, so please store extra cash or other valuables in a safe deposit box provided by the hotel.

## Smoking Policy

Smoking is prohibited at all AOCS functions.

## Wi-Fi

Complimentary wi-fi is available in each campus.

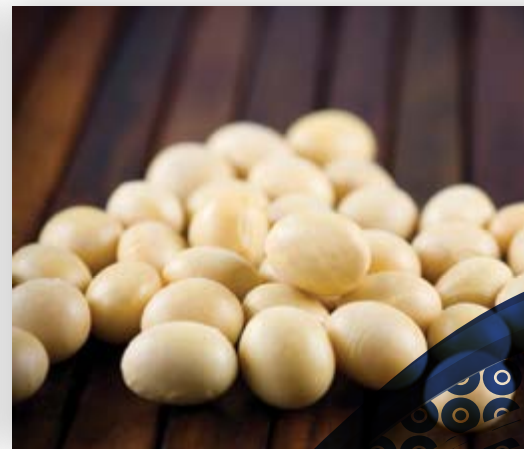
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## AOCS—Over a Century of Service to the Fats and Oils Industries

Recognizing the need to standardize methodology and to foster new techniques, nine analytical chemists founded the American Oil Chemists' Society (AOCS) in 1909. This meeting continues the traditions developed in the Society's first century and is the launching point for new initiatives and technologies to foster increased growth for the industry over the next century.

### AOCS Mission

AOCS advances the science and technology of oils, fats, surfactants, and related materials, enriching the lives of people everywhere.

### 2016–2017 AOCS Governing Board

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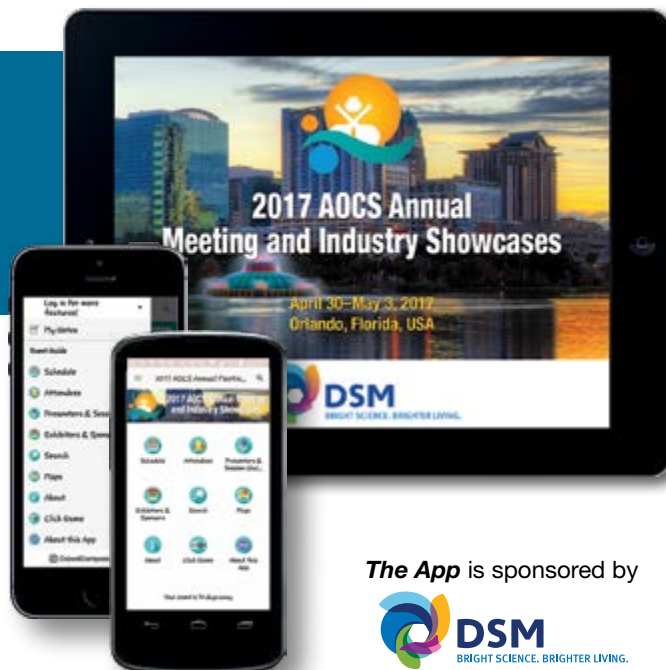
Retired from Nestlé, Switzerland

### With *The App*, you can:

- ▶ Build your meeting itinerary
- ▶ Search presentations and abstracts
- ▶ View attendee, exhibitor, and sponsor profiles
- ▶ Receive customized meeting alerts
- ▶ Contribute instant session feedback
- ▶ Connect with other attendees

### How to Access:

- Step 1:** In your device's app store, download the free *CrowdCompass Directory* app.
- Step 2:** In the *CrowdCompass Directory*, search for **AOCS**.
- Step 3:** Select the listing for the **2017 AOCS Annual Meeting and Industry Showcases** to open *The App*.



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Need assistance? Stop by *The App* Help Desk in the Panzacola Foyer near the Registration Desk.



# Thank You!

AOCS greatly appreciates the generous contributions from the following organizations. Without their support, the success of the Annual Meeting would not be possible.

## Annual Meeting Sponsors

As of March 21, 2017



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President's Welcome Reception



The App | Wi-Fi



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Pens | Networking Break



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Networking Break



Name Badges | Happy Hour Computer Station



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Water Stations | Water Bottles Networking Break



AOCS-ISSFAL Joint Sessions



Networking Break



AOCS-ISSFAL Joint Sessions

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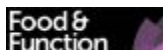
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As of March 21, 2017





# Thank You

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TMC Industries Inc.  
Tsuno Food Industrial Co. Ltd.  
Unilever R&D Port Sunlight Lab  
Ventura Foods LLC  
Wilmar International Ltd.

As of March 7, 2017

Join these prestigious companies as a Corporate Member. Visit the registration desk for information or contact Doreen Berning ([doreenb@acs.org](mailto:doreenb@acs.org)).

# NETWORKING EVENTS

Make the most of your meeting experience! Take advantage of these opportunities for face-to-face interactions with colleagues and develop important connections with other industry professionals from around the world.

Add these events to your meeting itinerary on **The App!** See page 6 for download instructions.

## Sunday, April 30

### President's Welcome Reception

5:30–7:00 pm | Gatlin Terrace

## Monday, May 1

### Networking Break

10:00–10:30 am | All Campuses

### Happy Hour

5:00–6:00 pm | Paquin and Wesson Campuses

## Tuesday, May 2

### Networking Break

9:40–10:10 am | All Campuses

### Happy Hour

5:00–6:00 pm | Smalley Campus

## Wednesday, May 3

### Networking Break

9:40–10:10 am | All Campuses

#### Networking Events Sponsored by



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# COMMON INTEREST GROUP EVENTS

AOCS Common Interest Groups (CIGs) create those ever-important connections between members who are at the same point in their careers. Whether you are a student, a young professional, or a professional educator, an AOCS CIG introduces you to peers to share experiences, insights, concerns, and solutions.

## Joint CIG Luncheon **New!**

Wednesday, May 3 | 12:00–1:45 pm  
Wekiwa 6

This joint luncheon is for members of the Student, Young Professional, and Professional Educator Common Interest Groups. Learn how to get involved and create valuable connections with members of the other CIGs.

*Sponsored in part by Pepsico/Frito-Lay and Stratas Foods.*

## Students

AOCS supports the next generation of industry leaders by providing students with networking opportunities, ways to get involved, and free resources to enhance their education.

### Speed Networking

Sunday, April 30  
4:15–5:30 pm  
Panzacola Foyer

### Business Meeting

Monday, May 1  
4:30–5:00 pm  
Wekiwa 7



Add these events to your meeting itinerary on **The App!** See page 6 for download instructions.

## Young Professionals

Bridging the gap between young professionals and older professionals who are established in their career, the Young Professional CIG creates connections to provide young professionals with the advice and support they need to flourish in their new careers, while expanding their professional networks. Participation in this CIG is limited to active individual members of AOCS (for less than 10 years) who are 34 years of age or younger.

### Reception

Sunday, April 30  
7:00–8:00 pm  
Toho Room and Deck

### Business Meeting

Tuesday, May 2  
5:00–6:00 pm  
Wekiwa 5

## Professional Educators

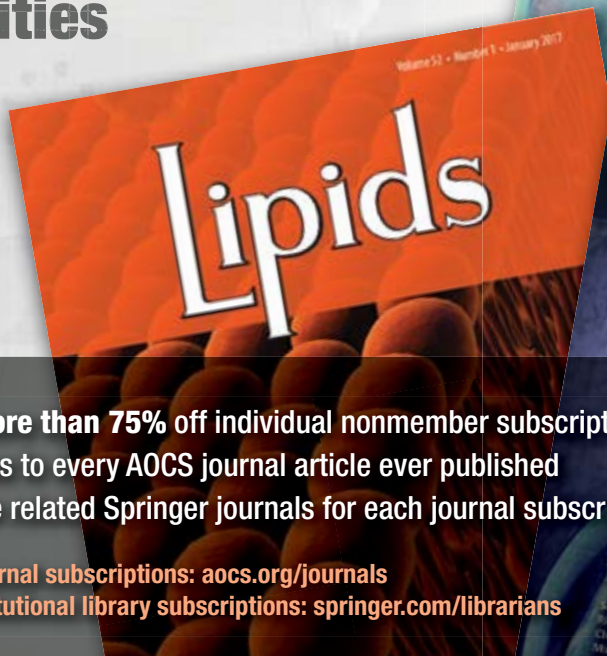
The Professional Educator CIG supports educators in the lipid science and oil technology fields, by creating connections which lead to collaboration and the sharing of information and resources throughout the year.

### Business Meeting

Tuesday, May 2 | 4:00–5:00 pm  
Wekiwa 5

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# DIVISION EVENTS

Divisions are focus-specific communities within AOCS that form the building blocks of the Society. These communities represent diversified interests, share technical expertise, and offer a multitude of educational and networking opportunities specific to each discipline.

Participation in the events listed below is open to all, and anyone interested is encouraged to attend.

Add these events to your meeting itinerary on **The App!** See page 6 for download instructions.

## Leadership Meetings

### Newly Elected Leadership Orientation

Sunday, April 30  
9:30–11:00 am  
Panzacola H-2

### Executive Steering Committees

Sunday, April 30  
1:30–3:00 pm  
Panzacola H-2

### Division Council

Sunday, April 30  
3:00–4:00 pm  
Panzacola H-2

## 2018 Session Planning Roundtables

All meeting attendees are invited to attend Roundtable discussions and assist with developing the technical program for the 2018 AOCS Annual Meeting. AOCS and the Annual Meeting Program Committee greatly value your input! Division membership is not required to participate.

### Analytical

Tuesday, May 2  
4:20–5:00 pm  
Smalley 5

### Biotechnology

Tuesday, May 2  
12:45–1:45 pm  
Wesson 1

### Edible Applications Technology

Monday, May 1  
12:20–1:30 pm  
Smalley 1

### Health and Nutrition

Monday, May 1  
12:45–1:45 pm  
Smalley 6

### Industrial Oil Products

Monday, May 1  
12:45–1:45 pm  
Wesson 2

### Lipid Oxidation and Quality

Monday, May 1  
6:00–7:00 pm  
Smalley 7

### Phospholipid

Tuesday, May 2  
12:45–1:45 pm  
Paquin 2

### Processing

Monday, May 1  
12:30–1:30 pm  
Wesson 3

### Protein and Co-Products

Tuesday, May 2  
12:45–1:45 pm  
Wesson 4

### Surfactants and Detergents

Monday, May 1  
12:45–1:45 pm  
Paquin 3

## Networking Events

Attending Division events is the best way to meet colleagues in your interest area(s).

These events are open to all attendees, but may require a ticket. *View event presentations in **The App!** See page 6 for download instructions.*

### Analytical Luncheon

Wednesday, May 3  
12:00–1:45 pm  
Suwannee 13

### Biotechnology Dinner

Tuesday, May 2  
7:30–9:30 pm  
Suwannee 16

### Edible Applications Technology Dinner

Monday, May 1  
6:30–8:30 pm  
Suwannee 15

### Health and Nutrition Dinner

Tuesday, May 2  
7:00–9:00 pm  
Suwannee 13

### Industrial Oil Products Luncheon

Tuesday, May 2  
12:00–1:45 pm  
Suwannee 17

### Lipid Oxidation and Quality Luncheon

Tuesday, May 2  
12:00–1:45 pm  
Suwannee 11

### Phospholipid Dinner

Monday, May 1  
7:00–9:00 pm  
Suwannee 18

### Processing Luncheon

Tuesday, May 2  
12:00–1:45 pm  
Suwannee 16

### Protein and Co-Products Dinner

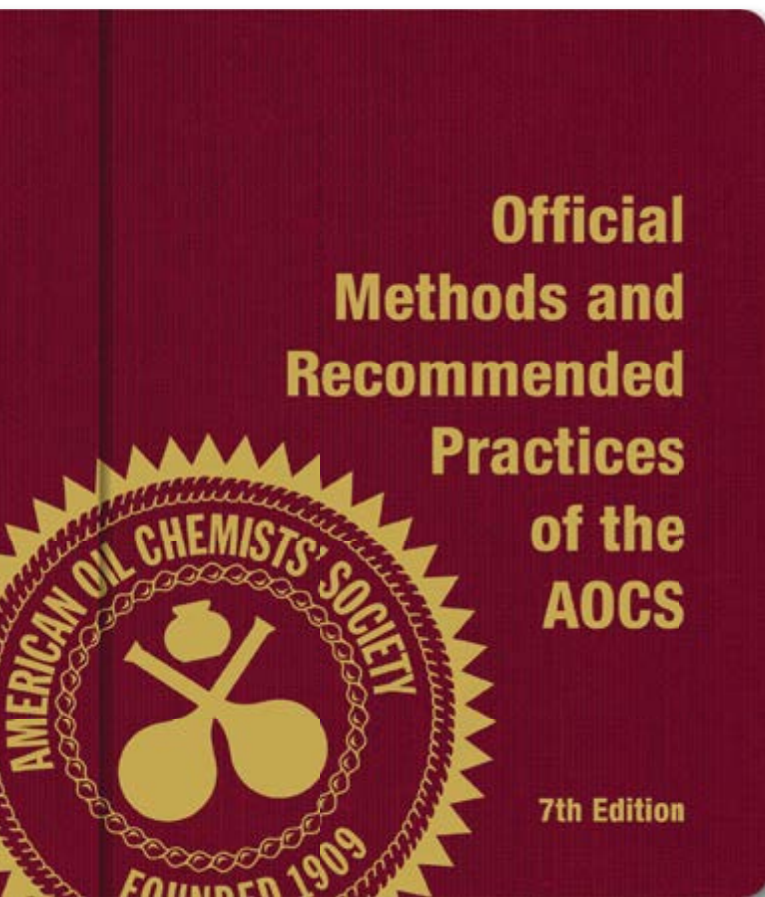
Tuesday, May 2  
7:00–9:00 pm  
Suwannee 17

### Surfactants and Detergents Networking Reception

Monday, May 1  
6:30–8:30 pm  
Suwannee 16

### Surfactants and Detergents Luncheon

Tuesday, May 2  
12:00–1:45 pm  
Suwannee 14



# Remain Compliant!

## 7th Edition Now Available

The 7th Edition was revised by academic, corporate, and government experts to ensure the most technically accurate methods are presented.

Reviewers harmonized the methods with other leading scientific organizations including AOAC International, AACC International, FOSFA International, IOC, and ISO. Procedures were updated to include new apparatus, equipment, and supplier information including current locations, mergers, and business closures. The 7th Edition includes all additions and revisions of the 6th Edition.

### New Methods

#### Five new methods accepted in 2016

- ▶ Ac 6-16 (Official Method) Extraction and Indirect Enzyme-Linked-Lectin-Assay (ELLA) Analysis of Soybean Agglutinin in Soybean Grain
- ▶ Cd 12c-16 (Standard Procedure) Accelerated Oxidation Test for the Determination of Oxidation Stability
- ▶ Cd 30-15 (Official Method) Analysis of 2- and 3-MCPD Fatty Acid Esters and Glycidyl Fatty Acid Esters in Oil-Based Emulsions
- ▶ Ce 12-16 (Official Method) Sterols and Stanols in Foods and Dietary Supplements Containing Added Phytosterols
- ▶ Ce 13-16 (Recommended Practice) Determination of Cyclopropenoic and Nutritional Fatty Acids in Cottonseed and Cottonseed Oil by Gas Chromatography

### New Features

- ▶ **Brand-new layout** is an easier-to-read format with more clearly defined sections.
- ▶ **Meets ACS style standards** to ensure essential technical and scientific information is presented in a consistent, clear, and scientifically sound manner.
- ▶ **Method titles updated** to be more descriptive and informative.

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**Setting the Standard** | Since the 1920s, the global fats and oils industry has relied on the analytical integrity of the *Official Methods and Recommended Practices of the AOCS*. AOCS has set the standard for analytical methods critical to processing, trading, utilizing, and evaluating fats, oils, and lipid products. Worldwide acceptance has made the AOCS Methods a requirement wherever fats and oils are analyzed.

# SECTION EVENTS

AOCS Sections bring the world of fats and oils a little closer to home. Established in key regions around the globe, AOCS Sections provide a local forum for fats and oils professionals—making it easier to exchange information and discover unique opportunities, often in the language of the region.

These events are open to all attendees, but some may require a ticket.

Add these events to your meeting itinerary on **The App!** See page 6 for download instructions.

## Leadership Meetings      Networking Events

### Section Council

Monday, May 1  
3:30–4:30 pm  
Wekiwa 3

### Asian

Monday, May 1  
12:45–1:45 pm  
Wekiwa 3

### Canadian Luncheon

Monday, May 1  
12:15–1:45 pm  
Suwannee 14

### China Luncheon

Monday, May 1  
12:15–1:45 pm  
Suwannee 15

### Latin American Luncheon

Tuesday, May 2  
12:00–1:45 pm  
Suwannee 18

## Pointe Orlando Shuttles

Transportation Lobby  
Monday, May 1 and Tuesday, May 2

Enjoy a night out at this popular destination for shopping, dining, and entertainment! Complimentary shuttle buses will depart the hotel every few minutes beginning at 6:00 pm. The last return to the hotel will be at 10:00 pm.

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(as of March 15, 2017)

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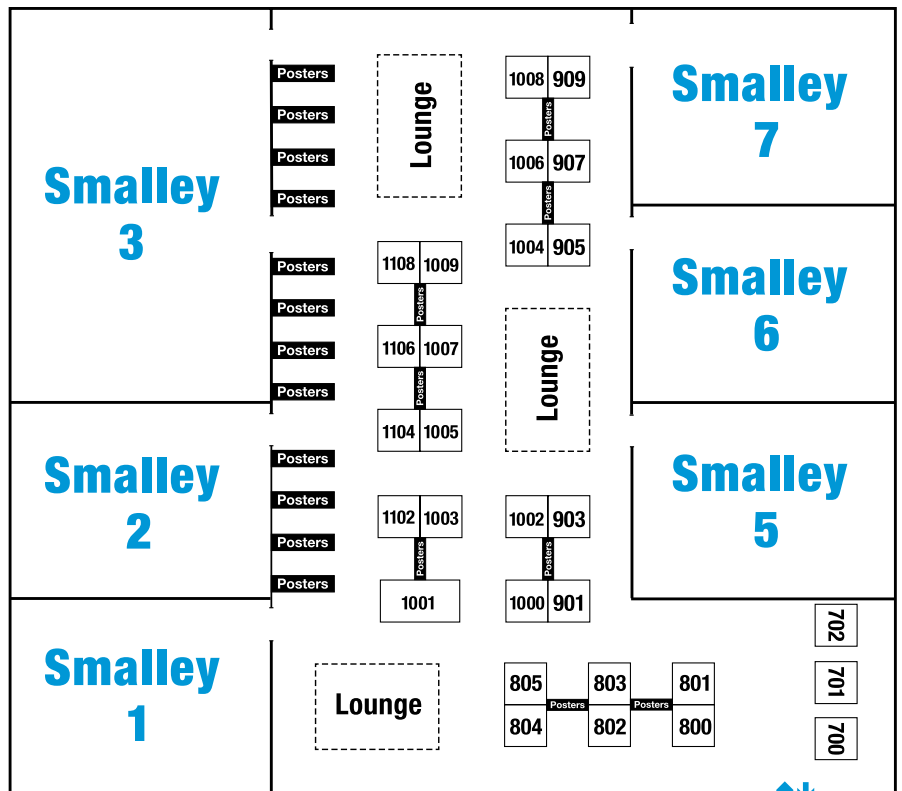
\*P=Paquin, S=Smalley, W=Wesson

- AB Enzymes (W-313)
- ADF Engineering, Inc. (W-601)
- AGI USA, Inc. (W-606)
- Agilent Technologies (S-803)
- Alaskomega/Organic Technologies (S-1006)
- Alfa Laval Inc. (W-505)
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- Chemspeed Technologies Inc. (S-801)
- Chemtech International Ltd. (S-1102)
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- Crown Iron Works Company (W-400)
- Dalian Kailai Global Trading Co. Ltd. (W-611)
- Desmet Ballestra NA (W-508)
- DSM Food Specialties B.V. (W-405)
- DuPont Nutrition & Health (S-1008)
- Elevance Renewable Sciences, Inc. (S-909)
- Emerald Scientific (S-1003)
- Enzyme Innovation (P-211)
- Evonik Corporation (P-212)
- Feel Good, Inc. (S-1004)

- Filtration Group Process, Inc. (W-603)
- Formulation Inc. (W-311)
- French Oil Mill Machinery Co. (W-503)
- GEA Group (W-502)
- Graham Corporation (W-408)
- HF Press+LipidTech (W-402)
- ICOF America, Inc. (S-700)
- Incon Process Systems/GIG Karasek (W-605)
- International Society for the Study of Fatty Acids and Lipids (ISSFAL) (S-907)
- Itaconix Corporation (P-102)
- Italmatch Chemicals (P-202)
- Kalsec (S-901)
- Kemin Industries (S-905)
- KRÜSS USA (P-200)
- Leem Filtration (W-509)
- Louisville Dryer Company (P-205)
- Lovibond Tintometer (W-513)
- Lubrizol Corporation (P-208)

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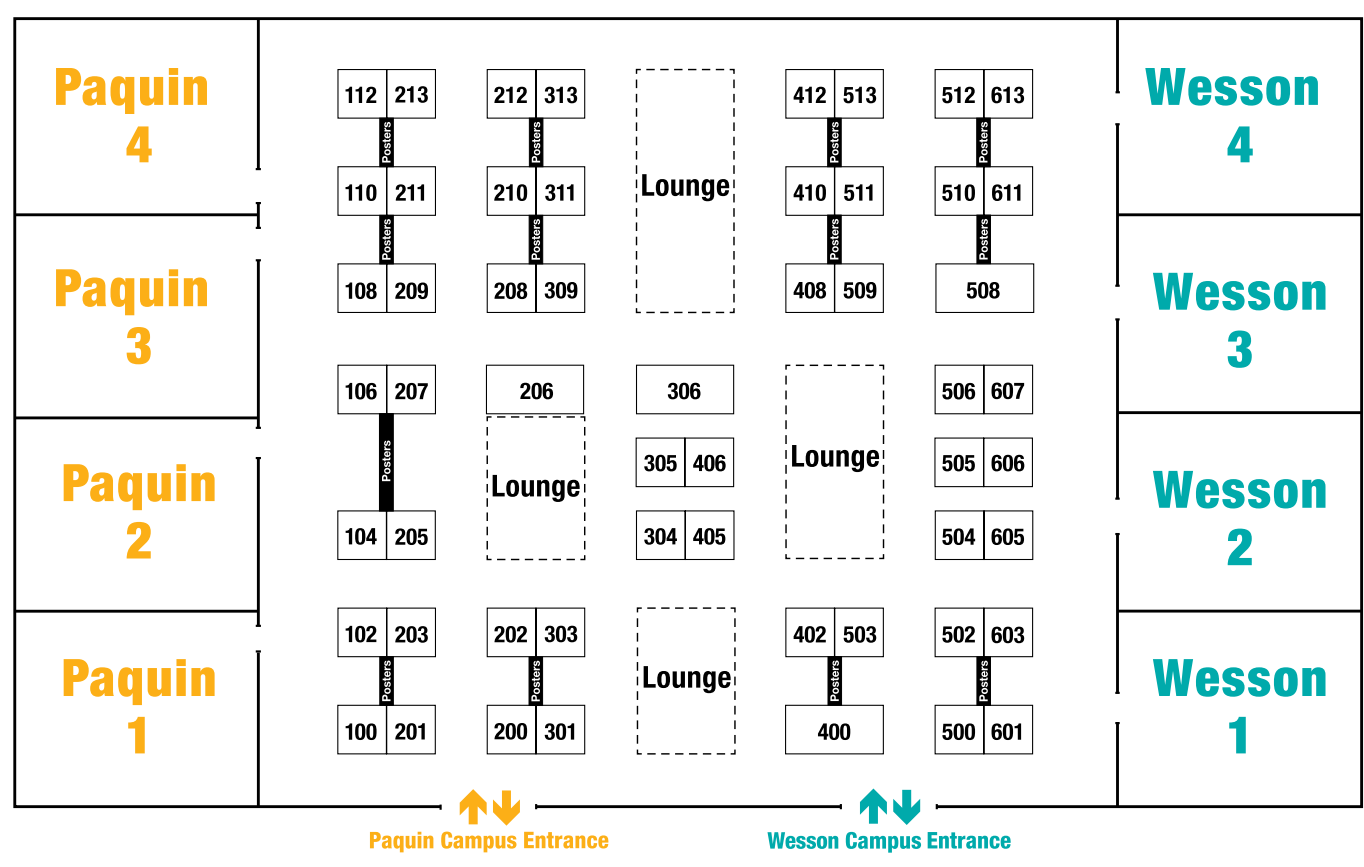
- Malaysian Palm Oil Board (S-1106)
- Metrohm (S-903)
- Myande Group Co., Ltd. (W-406)
- Myers Vacuum (W-412)
- Nisshin OilliO Group, Ltd., The (S-1005)
- Oil-Dri Corporation of America (W-504)
- Oils & Fats International/Quartz Business Media (W-410)
- optek-Danulat, Inc. (W-510)
- Paramount Minerals and Chemicals Limited (P-305)
- Pattyn North America, Inc. (P-210)
- PerkinElmer (S-701)
- Phenomenex (S-805)
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- Rotex Global (W-301)
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- VUV Analytics, Inc. (S-1108)
- Waters Corporation (S-1009)

See page 69 for the directory of Industry Showcase partners.

Connect with partners on **The App!**

See page 6 for download instructions.



# AWARD WINNERS

AOCS honors those individuals and teams who have taken the industry to the next level, who have advanced the quality and depth of the profession, and who have leveraged their knowledge for the benefit of the Society.

AOCS congratulates each of the 2016–2017 award recipients. For information on award lecture schedules, please refer to the Program-at-a-Glance or *The App*. See page 6 for download instructions.

Award lectures are highlighted on the oral and poster presentation pages by a gray box.

## Society Awards

Presented at the Awards Plenary and Business Meeting  
Monday, May 1 | 10:30 am–12:15 pm | Smalley 3

### A. R. Baldwin Distinguished Service Award

*Recognizes:* An active or previously active member of the Society making outstanding contributions and service to the Society over a substantial period of time.



A quick look at his membership record shows one reason why AOCS Fellow **Steven E. Hill**, T. Marzetti's, is the recipient of the 2017 A. R. Baldwin Distinguished Service Award. Actually, it is difficult to engineer a quick look, given the lengthy listing of his involvement with AOCS through myriad committees and service on various iterations of the Governing Board.

Dr. Hill joined AOCS in 1987 as a student and received the Honored Student Award in 1991. He remembered those early days in his acceptance speech as the 2014–2015 AOCS President: “My first annual meeting was in 1989. I was 25 years old [and] in my third year of graduate school. ...As a student member, I was welcomed into AOCS and the area of science that I was studying; this experience at my first meeting was repeated many times.”

Clearly, Dr. Hill's initial experience has informed his involvement in the Society. He has given unstintingly of his time to mentor students, to organize and teach short courses, to develop annual meeting programming, and to participate in and organize Division events. Further, he provided leadership for Sections and the AOCS Governing Board as well as the AOCS Foundation. In addition, he has served on many award committees, including as a Trustee of the Stephen S. Chang Award, as well as on the Books & Special Publications Committee, the *Inform* Editorial Committee, the Membership Development Committee, the Audit Committee, the Business Management Committee, and the Nominating and Election Committee.

It is no exaggeration to say that AOCS owes its very existence to his work, with others, during the financial downturn experienced by the Society in 2001. Dr. Hill was among the Governing Board and staff members who developed a new business model for the Society, which led to a budget surplus and financial stability immediately following implementation of the plan.

Dr. Hill's decades-long investment of time, talent, and energy in AOCS constitutes the very definition of the A.R. Baldwin Distinguished Service Award. In words taken from a letter of nomination, “Steven is not just a stalwart of the AOCS, he is our ambassador and champion of the AOCS mission.”

## Fellow Award

*Recognizes:* Achievements in science or extraordinary service to the Society.



**Dilip K. Nakhasi**, Senior Director, Research, Development and Innovation, for Stratas Foods, LLC, has a distinguished record of scientific achievement in industry as well as service to AOCS.

As a Director of Innovation for Bunge North America, Inc., he and his team developed and introduced PhytoBake. This functional shortening received a 2010 IFT Innovation Award for its delivery of nutritional benefits through the use of phytosterol esters. His team also developed and introduced Delta P/RB, which is a structured lipid that employs medium-chain triglycerides to provide nutritional benefits to children with gastroenterological problems. Yet another development led to Saturate Sparing Technology, which created a shortening system using the non-lipid component to reduce saturated fat content.

Nakhasi has been named on 10 US and numerous international patents and has published in journals ranging from *Nutrition, Metabolism & Cardiovascular Diseases* to the *Journal of Food Lipids*.

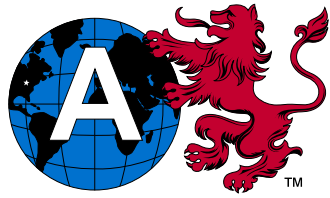
He has been an AOCS member for 22 years, serving with distinction in a variety of capacities, including as both chair and vice-chair of the Edible Applications Technology Division. Nakhasi has also organized and presented at a number of short courses and served as a member of the Annual Meeting Administrative Committee. Further, he served as chair of the Program Committee from 2010–2016. In recognition of his service, he received the AOCS Award of Merit in 2016.



**Nissim Garti**, Professor of Applied Chemistry, The Hebrew University of Jerusalem, is considered by many to be the leading international expert on the theory and practice of fat crystallization, emulsion, microemulsion, and encapsulation technologies.

Garti is the author or co-author of more than 400 peer-reviewed articles; the author, editor, or contributor to more than 70 books and special publications; and has been awarded more than 100 patents. He has conducted fundamental research that has potential for application in many different fields, from the delivery of pharmaceuticals and nutraceuticals to the stabilization of triglyceride polymorphs.

In addition to his academic pursuits, Garti has founded a number of startup companies in Israel, including LDS, NutraLease, Adumim Chemicals, and Memphile Technologies. He received the AOCS Corporate Achievement Award in 2011 for his research on the development of novel nano-sized



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self-assembled lipid carriers as delivery vehicles for improved solubilization and bioavailability. He also received the Supelco/Nicholas Pelick–AOCS Research Award in 2013 and the AOCS Stephen S. Chang Award in 2009, as well as a long list of awards from other organizations.

As a long-time AOCS member, Garti has been active at AOCS meetings, organizing and presenting at annual meeting sessions as well as conferences devoted to the physical properties of lipids. He also served as an associate editor of the *Journal of the American Oil Chemists' Society* from 2008–2012.

## Young Scientist Research Award

Award lecture given in EAT 4/H&N 4.1  
Wednesday, May 3 | 10:40–11:00 am | Smalley 1

*Recognizes: A young scientist that has made a significant and substantial research contributions in one of the areas represented by an AOCS Division.*



**Laura Nyström**, Associate Professor of Food Biochemistry, ETH Zürich, Switzerland, graduated from the University of Helsinki (UH, Finland) in 2002, finishing her doctoral studies there in 2008 in food chemistry, and continuing as a postdoctoral researcher in the Cereal Technology group at UH. After working from 2009–2016 as a tenure track assistant professor of food biochemistry at ETH Zürich, Switzerland,

she was promoted to her current position as associate professor of Food Biochemistry at the same university.

Nyström has worked as a visiting scientist at the United States Department of Agriculture/Agricultural Research Service Eastern Regional Research Center (Wyndmoor, Pennsylvania, USA); the University of Nebraska–Lincoln (USA); and the University of Copenhagen (Denmark). Her research focuses on dietary fibers in cereal grains and associated minor phytochemicals, radical mediated degradation of polysaccharides, lipid oxidation and antioxidants, and enzymatic lipid modification. The two main thrusts of her program center on the stability and molecular interactions of dietary fibers, and the identity and bioactivities of sterol conjugates.

## 2017 Award Sponsors

AOCS thanks all award sponsors for their generous support. Sponsors make it possible for AOCS to recognize outstanding scientists, researchers, technicians, and students within our community.

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Bunge Oils, Inc.	Nicholas Pelick
Cargill, Inc.	Milton J. Rosen
Stephen S. and Lucy D. Chang	Vijai K.S. Shukla
Manuchehr (Manny) Eijadi	Thomas H. Smouse and Family
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“A key facet of our research strategy,” she writes, “is to integrate cutting-edge technologies that provide a greater detail and depth of understanding of the topics. Our long-term goal is to identify and optimize tailored food ingredients for optimized nutrition and technological functionality.”

Nyström has published more than 40 original publications, two book chapters, and has participated in over 50 international conferences. She received the Euro Fed Lipid Young Lipid Scientist Award in 2012, the Young Scientist Research Award of the AACCC International in 2015, and a Starting Grant from the European Research Council in 2015. She has been an AOCS member since 2011.

## Scientific Awards

Award lecture given at the Awards Plenary and Business Meeting  
Monday, May 1 | 10:30 am–12:15 pm | Smalley 3

### MilliporeSigma/Nicholas Pelick – AOCS Research Award

*Recognizes: Outstanding original research in fats, oils, lipid chemistry, or biochemistry.*

*Award: Plaque, \$10,000 honorarium, and \$1,500 travel stipend.*

*Sponsored by: MilliporeSigma and Nicholas Pelick, a long-time member and Past President of AOCS.*



**Fereidoon Shahidi**, University Research Professor in Biochemistry, Memorial University of Newfoundland, Canada, is an internationally recognized scientist in the area of nutraceuticals and functional foods, particularly in food lipids and natural antioxidants. His research has concerned both basic and applied areas of lipid science and technology. Further, he has been listed among the most highly cited scientists in the areas of food, nutrition, and agricultural sciences.

Shahidi's first contribution to the understanding of fats and oils was in formulating nitrite-free meat-curing systems. He found that the pigment responsible for the color of cured meats was a mononitrosyl ferroheme rather than a dinitrosyl compound as was originally thought. He further confirmed that this pigment had its own antioxidant potential and was able, together with other cure adjuncts, to render similar stability to treated meats as those observed for nitrite-cured products.

For almost 30 years, he has concentrated on the role of omega-3 fatty acids and marine oils in combatting degenerative diseases. His recent findings have revealed that chemically binding highly unsaturated fatty acids found in marine and algal oils with epigallocatechin gallate (the main catechin in green tea) can fully arrest colon cancer in a mouse model and to reverse tumor growth in human lung cancer.

Shahidi has published more than 750 research articles in peer-reviewed journals, as well as book chapters, and has edited or written 64 books, including serving as editor-in-chief of all six volumes of the 6th edition of *Bailey's Industrial Oil and Fat Products* (2005) and is now preparing the 7th Edition of this set in 7 volumes. He is an active member of a number of professional societies, including AOCS, the American Chemical Society, the Institute of Food Technologists, the Royal Society of Chemistry, the International Union of Food Science and

Technology, and the International Society for Nutraceuticals and Functional Foods—which he founded.

His involvement in AOCS is lengthy and wide-ranging. Named as an AOCS Fellow in 2008, Shahidi has also served as chair of both the Lipid Oxidation and Quality and Protein and Co-products Divisions. He received the AOCS Stephen S. Chang and Alton E. Bailey Awards in 2014 and has been an AOCS member for 25 years.

## Stephen S. Chang Award

**Recognizes:** A scientist or technologist who has made decisive accomplishments in research for the improvement or development of products related to lipids.

**Award:** Jade sculpture and \$1,500 honorarium.

**Endowed by:** The late Stephen S. Chang and his wife, Lucy D. Chang.



**Moghis U. Ahmad**, Vice President, Jina Pharmaceuticals Inc., Illinois, USA, has conducted both basic and applied research, and has discovered a variety of new lipid products for chemical, pharmaceutical and biotechnological applications. He has contributed to the field of lipid chemistry in numerous ways, including through the search for new industrial oils, the chemical and enzymatic synthesis of lipid products,

the synthesis of dietary cis and trans fatty acids, process research, and large-scale synthesis of lipid products for industrial applications.

He is a founding member of Jina Pharmaceuticals Inc., which was established in 2006. Under his direction, Jina developed the Nanoqualip® Technology to administer poorly soluble therapeutic drugs for various treatments including cancer. Using this novel technology, several lipid-based formulations were developed in complete aqueous systems free from toxic organic solvents. In addition, he has contributed to the synthesis and applications of a new class of lipid molecules for the development of nanosomal or liposomal drug-delivery systems, such as carbohydrate-lipid conjugates for drug targeting.

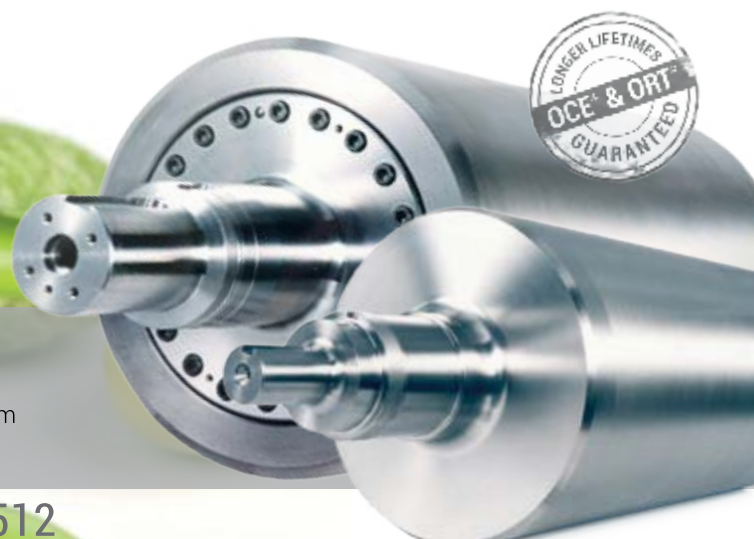
Dr. Ahmad's innovative career in the pharmaceutical industry was initiated with the development of synthetic cardiolipin (a complex phospholipid) through novel synthetic procedures, followed by the application of synthetic cardiolipin in liposomal drug delivery. He was the first to develop a novel cationic cardiolipin and analogues that have proven to be less toxic than commercially available cationic lipids. This research led to the first cationic cardiolipin-based transfection reagents, marketed by NeoPharm, Inc.

His research is detailed at length in 60 research publications in peer-reviewed journals and book chapters, and more than 30 patents and patent applications. His leadership in AOCS—which he joined in 1970—includes serving as an officer in the AOCS Phospholipids Division and editing several AOCS Press books. Titles include *Lipids in Nanotechnology* and *Polar Lipids: Biology Chemistry, and Technology*. Ahmad is currently editing the upcoming book *Fatty Acids: Chemistry, Synthesis, and Applications*. He is an elected officer of the Lecithin and Phospholipid Society and is currently vice president of that society. Ahmad is an elected fellow of both the Royal Society of Chemistry (2011) and AOCS (2014), and the recipient of the AOCS Alton E. Bailey Award (2016).

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## Division Awards

### Analytical

#### *Herbert J. Dutton Award*

N. A. Michael Eskin, University of Manitoba, Canada

Lecture: ANA Luncheon

#### *Student Award*

Katrin Matheis, Technical University of Munich, Germany

Lecture: ANA 2b

Sarah Mayfield, University of Arkansas, USA

Lecture: ANA 1

### Biotechnology

#### *Student Award*

**First place:** Jingbo Li, Aarhus University, Denmark

Lecture: BIO 2.1/IOP 2

**Second place:** Hee Jin Kim, Korea University, Republic of Korea

Lecture: BIO 3

**Third place:** Sarah Willett, University of Georgia, USA

Lecture: BIO 5

### Edible Applications Technology

#### *Timothy L. Mounts Award*

Jorge Toro-Vazquez, Universidad Autónoma de San Luis Potosí, Mexico

Lecture: EAT 1

#### *Outstanding Achievement Award*

Robert Reeves, Retired, USA

#### *Student Award*

Pere Ramel, University of Guelph, Canada

Lecture: EAT 1.1

### Health and Nutrition

#### *Ralph Holman Lifetime Achievement Award*

Alice Lichtenstein, Tufts University, USA

Lecture: H&N Dinner

#### *New Investigator Research Award*

Ameer Y. Taha, University of California, USA

Lecture: H&N 3

#### *Student Award*

Amanda N. Rogers, Chapman University, USA

Poster: H&N-P

### Industrial Oil Products

#### *ACI/NBB Glycerine Innovation Award*

Christophe Len, Université de Technologie de Compiègne, France

Lecture: IOP 4

#### *Student Award*

Prince Boakye, Delaware State University, USA

Lecture: BIO 1.1/IOP 1

### Processing

#### *Distinguished Service Award*

Michael Boyer, AWT, USA

Recognition: PRO Luncheon

#### *Student Award*

Henok D. Belayneh, University of Nebraska-Lincoln, USA

Lecture: PRO 5

Clare L. Flakelar, Charles Sturt University, Australia

Lecture: PRO 5

Jingbo Li, Aarhus University, Denmark

Lecture: PRO 4

### Surfactants and Detergents

#### *Distinguished Service Award*

Edgar Acosta, University of Toronto, Canada

Recognition: S&D Luncheon

#### *Samuel Rosen Memorial Award*

Randal Hill, Flotek Chemistry, USA

Lecture: S&D Luncheon

#### *Student Award*

Sachin Goel, University of Toronto, Canada

Lecture: S&D 4

### Student Awards

#### AOCS Foundation

##### *Manuchehr (Manny) Eijadi Award*

Syed Awais Ali Shah Bokhari, Universiti Teknologi PETRONAS, Malaysia

Lecture: IOP3

##### *Honored Student Award*

Syed Awais Ali Shah Bokhari, Universiti Teknologi PETRONAS, Malaysia

Lecture: IOP3

Subin Raj Cheri Kunnumal Rajendran, Dalhousie University, Canada

Lecture: PCP 5

Jingbo Li, Aarhus University, Denmark

Lecture: PRO 4

Pere Ramel, University of Guelph, Canada

Lecture: EAT 1.1

Ryan West, Ryerson University, Canada

Lecture: ANA 4

Zipei Zhang, University of Massachusetts Amherst, USA

Lecture: H&N 5.1

##### *Peter and Clare Kalustian Award*

Zipei Zhang, University of Massachusetts Amherst, USA

Lecture: H&N 5.1

##### *Ralph H. Potts Memorial Fellowship Award*

Sachin Goel, University of Toronto, Canada

Lecture: S&D 4

##### *Thomas H. Smouse Fellowship Award*

Ifeanyi Nwachukwu, University of Manitoba, Canada

Lecture: PCP 5

### Best Paper Awards

#### *ACI Distinguished Paper*

*Elucidation of Softening Mechanism in Rinse-Cycle Fabric Softeners. Part*

*2: Uneven Adsorption—The Key Phenomenon to the Effect of Fabric Softeners (JSD 19(4):756-773).*

Takako Igarashi, Koichi Nakamura, Masato Hoshi, Teruyuki Hara, Hironori Kojima, Masatsugu Itou, Reiko Ikeda, and Yoshimasa Okamoto

Recognition: S&D Luncheon

#### *Archer Daniels Midland Award for Best Paper in Protein and Co-Products*

*Conversion of Canola Meal into a High Protein Feed Additive via Solid State Fungal Incubation Process (JAOCS 93(4):499-507).*

Jason R. Croat, Mark Berhow, Bishnu Karki, Kasiviswanathan Muthukumarappan, and William R. Gibbons

Recognition: PCP Dinner

#### *Engineering/Technology*

*Optimization of Enzymatic Process Condition for Protein Enrichment, Sugar Recovery and Digestibility Improvement of Soy Flour (JAOCS 93(8):1063-1073)*

Abdullah A. Loman and Lu-Kwang Ju

Recognition: PCP Dinner

#### *Edwin N. Frankel Award for Best Paper in Lipid Oxidation and Quality*

*Kinetic Analysis of Co-oxidation of Biomembrane Lipids Induced by Water-Soluble Radicals (JAOCS 93(6):803-811).*

Atsushi Takahashi, Naomi Shibasaki-Kitakawa, Takao Noda, Yuko Sukegawa, Yuya Kimura, and Toshikuni Yonemoto

Lecture: LOQ Luncheon

#### *Phospholipid Best Paper Award*

*Chitosan/Lecithin Liposomal Nanovesicles as an Oral Insulin Delivery System (Pharmaceutical Development and Technology 22(3):390-398)*

Mayyas Al-Remawi, Amani Elsayed, Ibrahim Maghrabi, Mohammad Hamaidi, and Nisrein Jaber

Lecture: PHO Dinner

### Additional Awards

#### Alton E. Bailey Award

Alejandro Marangoni, University of Guelph, Canada

Lecture: EAT 4/H&N 4.1

#### Hans Kaunitz Award

Ruojie Zhang, University of Massachusetts Amherst, USA

Lecture: PHO 3

### Laboratory Proficiency Program Awards

AOCS' Laboratory Proficiency Program is the world's most extensive and respected collaborative proficiency program for oil- and fat-related commodities, oilseeds, oilseed meals, and edible fats. A full listing of the Laboratory Program winners begins on page 76.

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# HOT TOPICS SYMPOSIA

Monday, May 1

These sessions will feature global discussions on matters that affect the future of our industries, and expand beyond the science to address how current, critical issues impact the business of fats and oils. The presenter is the first author listed.

Add these sessions to your meeting itinerary and connect with presenters on **The App!** See page 6 for download instructions.

## HT 1: Clean Label Ingredients and Processes for Food and Beverages

7:55–10:00 am | Wesson 3

Organizers: G. Napolitano, Nestlé NDC, USA; and P. Rousset, Nestlé NDC, USA

Speakers in this session will discuss sources, usages, and functionalities of clean label and naturally perceived ingredients and additives replacing their widely used artificial and synthetic counterparts. Those food components include lipid antioxidants, emulsifiers, emulsion stabilizers, as well as major ingredients as conventional vegetable fats and oils.

7:55 **Opening Remarks.**

8:00 **Clean Label Trends and Demands from Consumers.** A.E. Sloan, Sloan Trends, Inc., USA.

8:20 **Minimally Refined, Natural, and Non-GMO Vegetable Oils.** M. Stavro, Bunge, USA.

8:40 **Clean Label, Natural Emulsifiers.** C.E. Gumus and D.J. McClements, Department of Food Science, University of Massachusetts, Chenoweth Laboratory, USA.

9:00 **Application of Pulse Proteins as Natural Stabilizers in Oil-in-Water Emulsions.** S. Ghosh, Department of Food & Bioproduct Sciences, University of Saskatchewan, Canada.

9:20 **Natural Solutions to Controlling Lipid Oxidation.** E.A. Decker, University of Massachusetts, USA.

9:40 **Clean Label Food Emulsions by Means of Processing.** V.M. Balasubramaniam, Ohio State University, USA.

## HT 2: MUFA: A Secret Weapon for Making “Healthy” Food Claims

7:55–10:00 am | Paquin 3

Organizer: P.M. Kearney, PMK Associates, Inc., USA

This session will discuss the issues raised by FDA on the use of the word “health” in labeling, examine new guidelines from the American Heart Association on healthy dietary patterns, delve into the functional benefits of unsaturated fats in the diet, discuss new research on how certain fatty acids can be used to manage weight and prevent chronic disease, and examine how ingredient innovation is leading to the development of healthier products.

7:55 **Opening Remarks.**

8:00 **Overview on the Use of the Term “Healthy” in Labeling Food Products.** P.M. Kearney, PMK Associates, Inc., USA.

8:20 **The Functional Benefits of Unsaturated Fats.** P. Jones, Richardson Center for Functional Foods and Nutraceuticals, University of Manitoba, Canada.

8:45 **The Role of MUFA in Weight Management and Healthy Dietary Patterns.** P. Kris-Etherton, The Pennsylvania State University, USA.

9:10 **High Stability Oils: A Cornerstone for Healthier Products.** D. Dzisiak, Dow AgroSciences, USA.

9:35 **Panel Discussion, Q & A.**

## HT 3: The Regulatory Changes—Impact on Lipids

7:55–10:05 am | Smalley 5

Organizers: S. Bhandari, Merieux NutriSciences, USA; and P. Delmonte, FDA, USA

On June 17, 2015, the FDA made a final determination that there is no longer a consensus among qualified experts that partially hydrogenated oils (PHOs) are generally recognized as safe (GRAS) for any use in human food, and on June 22, 2016, President Obama signed the Frank R. Lautenberg Chemical Safety for the 21st Century Act, which updates the Toxic Substances Control Act (TSCA). These changes have a direct effect throughout the food industry as they work to develop products in compliance with the new regulations.

7:55 **Opening Remarks.**

8:00 **A Regulatory Review: Partially Hydrogenated Oils and Trans Fat.** M. Honigfort, FDA, USA.

8:25 **Current and Proposed Canadian Regulations Regarding Partially Hydrogenated Oils and Trans Fat.** W. Yan, Health Canada, Canada.

8:50 **Trans Fatty Acids in Foods: Lessons Learned and the Way Forward.** F. Dionisi, Nestlé, Switzerland.

9:15 **How Industry is Adjusting with Recent Changes in the Regulations Related to Lipids and Fat.** D. Iassonova, Oils & Shortening R&D, Global Edible Oil Solutions—Specialties, Cargill, USA.

9:40 **The New Toxic Substances Control Act and Why You Should Care.** L.L. Bergeson, Bergeson & Campbell, P.C., USA.

## HT 4: China Fat and Oil Industry: A Fast Growing Segment with Opportunities and Challenges

7:55–10:00 am | Wesson 1

Organizers: L. Jiang, College of Food Science, Northeast Agricultural University, China; K. Liu, U.S. Department of Agriculture, Agricultural Research Service, USA; and X. Xu, Wilmar Global Research and Development Center, China

**Sponsored by the AOCS China Section**

The session will provide updates on the current status of the fats and oils industry in China, including production, consumer trends, and resources for healthy oils products, research and



product development, and markets for edible oil products as well as protein co-products. Attendees will discover the latest market trends, uncover sources of future market growth for the Chinese oils and fats industry, gain competitive information, and learn about opportunities and challenges facing the industry.

7:55 **Opening Remarks.**

8:00 **Food Oils and Fats in China: Status and Developments.** Y. Liu, College of Food Science, Jiangnan University, China.

8:25 **Potential “Novel” Oils and Fats Resources in China for Modern “Healthy” Food Consumption.** X. Xu, Wilmar Global Research and Development Center, China.

8:50 **Consumer Perceptions and Trends for Oils and Fats in China.** G. Chen, China National Cereals, Oils and Foodstuffs Corporation, China.

9:15 **Food Proteins in China: Status and Developments.** L. Jiang, College of Food Science, Northeast Agricultural University, China.

9:40 **Panel Discussion, Q & A.**

## HT 5: Surfactants for the Non-Expert

7:55–10:00 am | Paquin 1

*Organizers: B. Grady, University of Oklahoma, USA; and M. Williams, Evonik Materials, USA*

The purpose of this session is to introduce surfactants to those that are new to surfactants, or those that work with surfactants but surfactants are not their primary area of interest. The program is formulated for those that are from Divisions other than the Surfactants and Detergent Division but have an interest in surfactants; no surfactant knowledge is presumed.

7:55 **Opening Remarks.**

8:00 **What are Surfactants?** B. Grady, University of Oklahoma, USA.

8:20 **Manufacture of Surfactants.** P. Sharko, Shell Global Solutions (US) Inc., USA.

8:40 **Surfactants in Solution.** E. Acosta, University of Toronto, Canada.

9:00 **Surfactants at the Liquid-Liquid, Air-Liquid and Solid-Liquid Interface.** D. Sabatini, University of Oklahoma, USA.

9:20 **Applications and Formulation.** G. Smith, Huntsman Performance Products, USA.

9:40 **Panel Discussion, Q & A.**

## HT 6: Lipid Oxidation: Lessons Learned, Health Implications, and Moving Towards Standardization of Analytical Methods

7:55–10:00 am | Smalley 2

*Organizer: E. Bailey-Hall, DSM, USA*

In this session, presenters will discuss the mechanism of lipid oxidation, its implications in human health, and the relevant methods to analyze lipid oxidation. Global Organization for EPA and DHA Omega-3s' (GOED) response to the fallout of the New Zealand study will be presented to highlight the need for standardization of lipid oxidation testing across industry and academia, and present effective strategies for industry to respond to unfavorable media coverage. A roundtable discussion on relevant topics such as the peer review process, AOCS proficiency testing, and lipid oxidation will follow.

7:55 **Opening Remarks.**

8:00 **Lipid Oxidation: Mechanisms and Implications in Human Health.**

8:20 **Relevant Methods of Oxidation Testing and Why We Should Standardize.** A. DeBoer, Nutrasource Diagnostics Inc., Canada.

8:40 **The New Zealand Study: A Case Study for the Need for the Standardization of Methods and Effective Strategies for Industry to Respond to Unfavorable Media Coverage.** A. Ismail, Global Organization for EPA and DHA Omega-3s (GOED), USA.

9:00 **Panel Discussion, Q & A.**

# SPECIAL SESSION

Monday, May 1

Add this session to your meeting itinerary and connect with award winners on **The App!** See page 6 for download instructions.

## SS 1: Awards Plenary and Business Meeting

10:30 am–12:15 pm | Smalley 3

Want to be in the know? Attend this event so you can learn what Society leaders are planning for the year ahead and see your fellow members be recognized for their achievements. AOCS President W. Blake Hendrix and AOCS President-elect Neil R. Widlak will each deliver a brief address and routine AOCS business will be conducted. Society and Scientific awards will be presented, with lectures for the Stephen S. Chang Award and the MilliporeSigma/Nicholas Pelick–AOCS Research Award given during this session. Biographies of Society and Scientific award winners begin on page 16.

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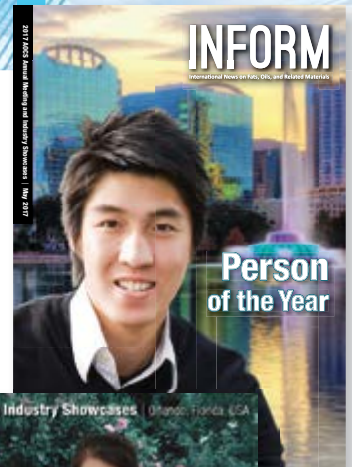


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# ORAL PRESENTATIONS

- ▶ Presenters are identified with an asterisk (\*).
- ▶ Abstracts are available online at [AnnualMeeting.aocs.org/Orlando2017](http://AnnualMeeting.aocs.org/Orlando2017) or on **The App**. See page 6 for download instructions.
- ▶ Access and print abstracts at the computer stations located in the campuses.
- ▶ Award presentations are highlighted by a gray box.
- ▶ No video recording, tape recording, or still photography is allowed in the session rooms, except by registered media.

## Monday Morning

### SS 1: Awards Plenary and Business Meeting

10:30 am–12:15 pm

Smalley 3

**Phospholipids in Pharmaceutical Developments.** Moghis U. Ahmad (*Stephen S. Chang Award Winner*) Jina Pharmaceuticals, Inc., USA

**The Fats of Life: The Omega-3 and Beyond.** Fereidoon Shahidi (*The MilliporeSigma/Nicholas Pelick-AOCS Research Award Winner*), Memorial University of Newfoundland, Canada.

## Monday Afternoon

Analytical

### ANA 1: Advanced and Rapid Techniques in Lipid Analysis

Chairs: William Byrdwell, USDA, ARS, BHNRC, FCMDL, USA; and Bernd W.K. Diehl, Spectral Service AG, Germany

Smalley 5

1:55 Introduction.

2:00 **A Routine, Rapid Analytical Method for Identifying and Quantifying Triacylglycerol Mixtures.** Sarah E. Mayfield\*<sup>1</sup> (*Analytical Division Student Award Winner*), Rohana Liyanage<sup>2</sup>, Jackson O. Lay<sup>2</sup>, Andrew Proctor<sup>1</sup>, and Koen Dewettinck<sup>3</sup>, <sup>1</sup>Dept. of Food Science, University of Arkansas, USA; <sup>2</sup>University of Arkansas, USA; <sup>3</sup>Ghent University, Belgium

- 2:20 **Analysis of Vitamin D in Food.** Jinchuan Yang\*, Kari Organtini, and Gareth Cleland, *Waters, USA*
- 2:40 **Comprehensive Two-dimensional Liquid Chromatography with Quadruple Parallel Mass Spectrometry, LC1MS2 x LC1MS2 = LC2MS4.** William C. Byrdwell\*, *USDA, ARS, BHNRC, FCMDL, USA*
- 3:00 **Differential Ion Mobility Spectrometry Dramatically Improves the Specificity of Untargeted Lipidomics Analysis by “Shotgun” Analytical Approaches.** Paul R.S. Baker\*, *SCIEX, USA*
- 3:20 **The Thermo Q Exactive LC-MS instrument Combined with LipidSearch Software: Application of a Chromatography-based Workflow to Analysis of Lipid Extracts from Seeds and Plants.** Daniel Gachotte<sup>1\*</sup>, Yelena Adelfinskaya<sup>1</sup>, Jeff Gilbert<sup>1</sup>, Yasuto Yokoi<sup>2</sup>, Yukihiro Fukamachi<sup>2</sup> and David A. Peake<sup>3</sup>, <sup>1</sup>Dow AgroSciences LLC, USA; <sup>2</sup>Mitsui Knowledge Industry Co., Ltd., Japan; <sup>3</sup>Thermo Fisher Scientific, USA
- 3:40 **Improvement of Current Official Methods for the Analysis of Non-hydrogenated High Value Oils.** Pierluigi Delmonte\*, Andrea Milani, and Shivani Bhangle, *US Food and Drug Administration, USA*
- 4:00 **Rapid and Sensitive Detection of Free Fatty Acids in Edible Oils Based on Simple Chemical Derivatization Coupled with Shotgun-electrospray Ionization-tandem Mass Spectrometry.** Ming Liu<sup>1</sup>, Fang Wei<sup>2\*</sup>, Xin Lv<sup>1</sup>, Xu-yan Dong<sup>1</sup>, and Hong Chen<sup>1</sup>, <sup>1</sup>Chinese Academy of Agricultural Sciences, China; <sup>2</sup>Oil Crops Research Institute, CAAS, China
- 4:20 **Determination of Peroxide Values of Edible and Marine Oils by Nuclear Magnetic Resonance Spectroscopy.** Elina Zailer\*, Bernd W.K. Diehl, and Sascha Wiedemann, *Spectral Service AG, Germany*
- 4:40 **Determination of Peroxide Values of Krill Oil and Lecithins by Nuclear Magnetic Resonance Spectroscopy.** Elina Zailer\*, Bernd W.K. Diehl, and Sascha Wiedemann, *Spectral Service AG, Germany*

Have a voice...

## 2018 Session Planning Roundtables

Bring your ideas and expertise to a roundtable planning session for next year's meeting.

Interest Area	Day	Time	Room
Analytical	Tuesday	4:20–5:00 pm	Smalley 5
Biotechnology	Tuesday	12:45–1:45 pm	Wesson 1
Edible Applications Technology	Monday	12:20–1:30 pm	Smalley 1
Health and Nutrition	Monday	12:45–1:45 pm	Smalley 6
Industrial Oil Products	Monday	12:45–1:45 pm	Wesson 2
Lipid Oxidation and Quality	Monday	6:00–7:00 pm	Smalley 7
Phospholipid	Tuesday	12:45–1:45 pm	Paquin 2
Processing	Monday	12:30–1:30 pm	Wesson 3
Protein and Co-Products	Tuesday	12:45–1:45 pm	Wesson 4
Surfactants and Detergents	Monday	12:45–1:45 pm	Paquin 3

All meeting attendees are welcome; Division membership is not required to participate.

Add it to your agenda in **The App!**  
See page 6 for download instructions.

“Attending the roundtable is your opportunity to ensure that next year’s technical program encompasses topics that meet your interests!”

Eric “Rick” Theiner  
AOCS Program Committee Chairperson  
Sr. Pr. Applications Chemist, Evonik Industries AG

Analytical

**ANA 1.1/LOQ 1b: Evaluation and Prediction of Oxidative Stability and Shelf-life**

Chairs: Hong-Sik Hwang, USDA, ARS, NCAUR, USA; and Min Hu, DuPont Nutrition &amp; Health, USA

**Smalley 7**

- 3:35 **Introduction.**
- 3:40 **Analyzing Multiple Lipid Oxidation Products—Required, or Not?** Karen M. Schaich\*, Dept. of Food Science, Rutgers University, USA
- 4:00 **Explaining the Polar Paradox and Cut-off Effect for AO Distributions and Reactivity in Emulsions.** Laurence S. Romsted\*<sup>1</sup> and Carlos Bravo Diaz<sup>2</sup>, <sup>1</sup>Rutgers University, USA; <sup>2</sup>University of Vigo, Spain
- 4:20 **Oxidative Stability and Shelf-life of Bulk Oils and Fats.** Min Hu\*, DuPont Nutrition & Health, USA
- 4:40 **Correlation of Sensory Evaluation with Chemical Assays in Oils/Fats and Oil/Fat-based Foods.** Robin Boyle and Nora Yang\*, Kalsec, Inc., USA

Biotechnology

**BIO 1: Biocatalysis I***This session is sponsored in part by Malaysian Palm Oil Board and The Nisshin Oillio Group, Ltd.*

Chairs: Ching Hou, USDA, ARS, NCAUR, USA; and Jun Ogawa, Kyoto University, Japan

**Wesson 1**

- 1:55 **Introduction.**
- 2:00 **Identification of Molecular Species of Acylglycerols of Philippine Wild Edible Mushroom, *Ganoderma lucidum*.** Ching T. Hou\*<sup>1</sup>, Jiann-Tsyh Lin<sup>2</sup>, Rich M. Dulay<sup>3</sup>, and Karen Ray<sup>4</sup>, <sup>1</sup>USDA, ARS, NCAUR, USA; <sup>2</sup>WRRC, USDA, USA; <sup>3</sup>Center for R&D, Central Luzon State University, Philippines; <sup>4</sup>NCAUR, USDA, USA
- 2:20 **Asymmetric Production of *trans*-4-Hydroxy-L-Pipecolic Acid by a New Fungal Fe(II)/ $\alpha$ -Ketoglutarate-Dependent Dioxygenase.** Jun Ogawa\*<sup>1</sup>, Makoto Hibi<sup>2</sup>, Ryosuke Mori<sup>3</sup>, Ryoma Miyake<sup>4</sup>, Hiroshi Kawabata<sup>4</sup>, and Satomi Takahashi<sup>2</sup>, <sup>1</sup>Kyoto University, Japan; <sup>2</sup>Laboratory Industrial Microbiology, Graduate School of Agriculture, Kyoto University, Japan; <sup>3</sup>Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan; <sup>4</sup>Mitsubishi Chemical Group Science and Technology Research Center, Inc., Japan
- 2:40 **Recent Developments in the Production of Transgenic Oil Palm.** Ahmad Parveez Ghulam Kadir\*, Abdul Masani Mat Yunus, Dayang Izwati Abang Masli, Bahariah Bohari, Siti Masura Subhi, Nur Hanin Ayub, Wan Nur Syuhada Wan Sulaiman, Nurhafisza Abdul Rahman, Nor Fakhrana Iskandar, Lim Fook Hwa, and Ravigadevi Sambanthamurthi, Malaysian Palm Oil Board, Malaysia
- 3:00 **Enhanced Alpha-galactosidase Expression in *Pseudomonas chlororaphis*.** Daniel K.Y. Solaiman\*, Richard D. Ashby, and Nicole V. Crocker, USDA, ARS, ERRC, USA
- 3:20 **Production of Steryl Esters with Fatty Acids from Cottonseed Oil Using *Candida rugosa* Lipase.** Yuji Shimada\*, Okamura Oil Mill Co., Ltd., Japan
- 3:40 **Evaluation of Selective Antibacterial Activity of Palmitoleic Acid with Co-cultivation of *Staphylococcus aureus* and *S. epidermidis*.** Toshihiro Nagao\*<sup>1</sup> and Noriaki Kishimoto<sup>2</sup>, <sup>1</sup>Osaka Municipal Technical Research Institute, Japan; <sup>2</sup>Kinki University, Japan
- 4:00 **Corn Stover Hydrolysate, a Lignocellulosic Feedstock for Polyhydroxyalkanoate Biosynthesis: Property Manipulation Using a Co-feed Strategy with Levulinic Acid.** Richard D. Ashby\*, Daniel K.Y. Solaiman, and Gary Strahan, USDA, ARS, ERRC, USA
- 4:20 **Concentration of PUFA in *Aurantiocytrium* sp. Single Cell Oil by Liquid Lipase Preparation.** Yomi Watanabe\*<sup>1</sup>, Tsunehiro

Aki<sup>2</sup>, and Araki Masuyama<sup>3</sup>, <sup>1</sup>Osaka Municipal Technical Research Institute, Japan; <sup>2</sup>Hiroshima University, Japan; <sup>3</sup>Osaka Institute of Technology, Japan

- 4:40 **Production of Diacylglycerol-enriched Oils by Enzymatic Interesterification and Molecular Distillation Using Soybean Oil and Distilled Saturated Monoacylglycerol.** Yong Wang<sup>1</sup>, Ying Li<sup>2</sup>, Guanghui Li<sup>3</sup>, Jiazi Chen<sup>3</sup>, Qiong Chen<sup>2</sup>, Junning Fu<sup>2</sup>, Xiang Ma<sup>2</sup>, and Yinglai Teng\*<sup>2</sup>, <sup>1</sup>Jinan University, China; <sup>2</sup>Guangdong Saskatchewan Oilseed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, China; <sup>3</sup>Dept. of Food Science and Engineering, Jinan University, Guangzhou, China

Biotechnology

**BIO 1.1/IOP 1: Biorenewable Polymers***This session is sponsored in part by Soy 20/20.*

Chairs: Richard Ashby, USDA, ARS, ERRC, USA; and Rongpeng Wang, CVC Thermoset Specialties, USA

**Wesson 2**

- 1:55 **Introduction.**
- 2:00 **Strategic Planning of Polymeric Materials from Vegetable Oils.** Zoran Petrovic\*, Pittsburg State University, USA
- 2:20 **Sequential Liquefaction of *Nicotiana tabacum* Stems Biomass by Crude Polyhydric Alcohols for the Production of Polyols and Rigid Polyurethane Foams.** Chiragkumar M. Patel\*<sup>1</sup>, Jina R. Patel<sup>2</sup>, Amitkumar A. Barot<sup>2</sup>, and Vijay K. Sinha<sup>1</sup>, <sup>1</sup>Industrial Chemistry Dept., V. P. & R. P. T. P. Science College, India; <sup>2</sup>V. P. & R. P. T. P. Science College, India
- 2:40 **The Effect of Monoglyceride Incorporation on the Solvent Absorption and Mechanical Properties of Glycerol-based Polymer Films.** Prince G. Boakye\*<sup>1</sup> (Industrial Oil Products Division Student Excellence Award Winner), Kerby C. Jones<sup>2</sup>, Nicholas P. Latona<sup>2</sup>, Cheng Kung Liu<sup>2</sup>, Samuel A. Besong<sup>3</sup>, Stephen E. Lumor<sup>3</sup>, and Victor T. Wyatt<sup>2</sup>, <sup>1</sup>Delaware State University, USA; <sup>2</sup>USDA, ARS, ERRC, USA; <sup>3</sup>Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA
- 3:00 **Fluorescence Emission and Catalyst Effect of Precious Metal Nanocomposites Based on Autoxidized Unsaturated Plant Oils/Fatty Acids.** Baki Hazer\*, Bülent Ecevit University, Turkey
- 3:20 **Reactivity and Structure-property Performance of Natural Oil Polyols in Polyurethanes.** Ibrahim Sendjarevic\*, Troy Polymers, Inc., USA
- 3:40 **Free Radical Polymerization of Monomers Based on Plant Oils.** Zoriana Demchuk<sup>1</sup>, Kyle Kingsley<sup>1</sup>, Oleh Shevchuk<sup>1</sup>, Ihor Tarnavchik<sup>1</sup>, Vasylyna Kirianchuk<sup>2</sup>, Ananiy Kohut<sup>2</sup>, Stanislav Voronov<sup>2</sup>, and Andriy Voronov\*<sup>1</sup>, <sup>1</sup>North Dakota State University, USA; <sup>2</sup>Lviv Polytechnic National University, Ukraine
- 4:00 **Synthesis of a New Generation Biopolyols from Canola and Other Plant Oils.** Jonathan M. Curtis\*<sup>1</sup>, Tolibjon S. Omonov<sup>2</sup>, Ereddad Kharraz<sup>2</sup>, Xiaohua Kong<sup>2</sup>, and M. Hossein Tavassoli-Kafrani<sup>2</sup>, <sup>1</sup>Dept. of Agricultural, Food and Nutritional Science, University of Alberta, Canada; <sup>2</sup>University of Alberta, Canada
- 4:20 **Synthesis and Characterization of Fatty Acid Modified Amines with Improved Water Barrier Properties.** John H. Vergara\*<sup>1</sup>, Yunze Tian<sup>1</sup>, John J. La Scala<sup>2</sup>, Joshua M. Sadler<sup>2</sup>, and Giuseppe R. Palmese<sup>1</sup>, <sup>1</sup>Drexel University, USA; <sup>2</sup>Army Research Laboratory, USA
- 4:40 **Microwave-assisted Maleation of Tung Oil for Bio-based Products.** Chengguo Liu<sup>1</sup>, Zengshe Liu\*<sup>2</sup>, Brent H. Tisserat<sup>3</sup>, Rongpeng Wang<sup>4</sup>, Thomas Schuman<sup>5</sup>, Yonghong Zhou<sup>1</sup>, and Lihong Hu<sup>1</sup>, <sup>1</sup>Institute of Chemical Industry of Forestry Products, CAF, China; <sup>2</sup>Food and Industrial Oil Research, NCAUR, ARS/USDA, USA; <sup>3</sup>Function Food Research, NCAUR, ARS/USDA, USA; <sup>4</sup>CVC Thermoset Specialties, USA; <sup>5</sup>Dept. of Chemistry, Missouri University of Science and Technology, USA

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## Cannabinoid Analytics

**CAN 1: Lab Proficiency Programs and Reference Samples**

Chairs: Steven P. Bennett, Evolab, USA; and Doug Rennie, AOCS, USA

**Paquin 1**

- 1:55 **Welcome. AOCS Activities.** Doug Rennie, AOCS, USA
- 2:00 **State of Cannabis—A Bird's Eye View.** Steven P. Bennett, Evolab, USA
- 2:20 **Building Bridges: Cannabis Science Education and Medical Reform.** Josh Crossney\*, *jCanna & Cannabis Science Conference, USA*
- 2:40 **Cannabis Contaminants: Practical Considerations vs. Regulatory Requirements.** Christopher J. Hudalla\*, *ProVerde Laboratories, Inc., USA*
- 3:20 **Novel Regioselective Extraction of CBD by Modified Microemulsions.** Rotem Edri, Sharon Garti-Levi, and Nissim Garti\*, *Hebrew University, Israel*
- 4:00 **Cannabis Extraction and Refinement in Colorado: A 5,280 ft. View.** Christian F. Sweeney\*, *Cannabistry Labs, USA*
- 4:20 **Advances in Extraction: Double Yield in Half the Time by Focusing on Essential Principles and Practices.** John A. MacKay\*, *Waters Corporation, USA*

## Edible Applications Technology

**EAT 1: Lipid Gels**

Chairs: Ashok Patel, International Iberian Nanotechnology Laboratory, Portugal; and Arjen Bot, Unilever R&D Vlaardingen, The Netherlands

**Smalley 1**

- 1:55 **Introduction.**
- 2:00 **Ethylcellulose and Stearyl Alcohol: Stearic Acid (EC/SO:SA) Mixed Oleogels: Characterizing the Influence of EC as a Function of SO:SA Ratio.** Andrew J. Gravelle\*<sup>1</sup>, Carolin Blach<sup>2</sup>, Jochen Weiss<sup>2</sup>, Shai Barbut<sup>1</sup>, and Alejandro G. Marangoni<sup>1</sup>, <sup>1</sup>*University of Guelph, Canada*; <sup>2</sup>*University of Hohenheim, Germany*
- 2:20 **Organogelation Under Different Shearing and Cooling Rate Conditions of Selected Gelators.** Jorge F. Toro-Vazquez\* (*Timothy L. Mounts Award Winner*), Anaid De la Peña-Gil, Miriam A. Charo-Alonso, and Flor Alvarez-Mitre, *Universidad Autónoma de San Luis Potosí, Mexico*
- 2:40 **Controlled-release Microemulsion: A Novel Organogel.** Mehdi Nouraei\* and Edgar Acosta, *University of Toronto, Canada*
- 3:00 **To Gel or Not to Gel—Lessons Learned in Predicting Gelation of Oils.** Michael Rogers\* and Andrew Singh, *University of Guelph, Canada*
- 3:20 **Oleocolloids Matrices Designed for Food Systems.** Clifford Park\*, Rafael Jimenez-Flores, and Farnaz Maleky, *Ohio State University, USA*
- 3:40 **Next Generation Multifunctional Oil Structuring Agents for Trans Fat Alternatives—A Nanotechnology Enabled Platform.** George John\*, *The City College of New York, USA*
- 4:00 **Engineering Oleogel Structure for an Effective Protection of Retinyl Palmitate Activity.** Yixing Tian\* and Nuria C. Acevedo, *Iowa State University, USA*
- 4:20 **Rheology-structure Relationships in Bakery Fats.** Alejandro G. Marangoni\* and Braulio A. Macias Rodriguez, *University of Guelph, Canada*
- 4:40 **Physical Properties of Beeswax, Sunflower Wax, and Candelilla Wax Mixtures and Organogels.** Jill Moser\* and Hong-Sik Hwang, *USDA, ARS, NCAUR, USA*

## Edible Applications Technology

**EAT 1.1: Phase Transition in Edible Applications**

Chairs: Farnaz Maleky, Ohio State University, USA; and Musfirah Zulkurnain, Ohio State University, USA

**Smalley 2**

- 1:55 **Introduction.**
- 2:00 **Characterization of the Polymorphism of Milk Fat within Processed Cheese Products.** Pere R. Ramel\* (*Honored Student Award Winner; Edible Applications Technology Division Student Excellence Award Winner*) and Alejandro G. Marangoni, *University of Guelph, Canada*
- 2:20 **Mechanism of Lipid Crystallization Under High Pressure Treatments.** Musfirah Zulkurnain\*, V.M. (Bala) Balasubramaniam, and Farnaz Maleky, *Ohio State University, USA*
- 2:40 **A Structure-based Model for Moisture Diffusion in Lipids.** Sravanti Paluri\*, Dennis R. Heldman, and Farnaz Maleky, *Ohio State University, USA*
- 3:00 **Crystallization Behavior of Triacylglycerol Under Super Rapid Cooling.** Kengoh Nakanishi\*<sup>1</sup>, Takashi Ishiguro<sup>2</sup>, and Satoru Ueno<sup>3</sup>, <sup>1</sup>*Miyoshi Oil & Fat Co., Ltd./Hiroshima University, Japan*; <sup>2</sup>*Miyoshi Oil & Fat Co., Ltd., Japan*; <sup>3</sup>*Graduate School of Biosphere Science, Hiroshima University, Japan*
- 3:20 **Effects of High Intensity Ultrasound Frequency on Fat Crystallization.** Roberta C. Silva\*, Juhee Lee, and Silvana Martini, *Utah State University, USA*
- 3:40 **Molecular Asymmetry and Entropy of TAGs Related to Their Phase Behavior.** Karoline Kroener and Alejandro G. Marangoni\*, *University of Guelph, Canada*
- 4:00 **Low Saturated Baking Fats Using Novel Algae Butter Hard Stock.** Long Zou\*<sup>1</sup>, Flavio Galhardo<sup>2</sup>, and Blum Eelco<sup>3</sup>, <sup>1</sup>*Bunge Oils, USA*; <sup>2</sup>*Bunge Ltd., USA*; <sup>3</sup>*TerraVia, USA*
- 4:20 **Impact of Nitrogen Concentration on Bakery Shortening Texture and Color.** Rachel E. Mertz\*, Dilip Nakhasi, and Roger Daniels, *Stratas Foods, USA*

## Health and Nutrition

**H&N 1: N-6 PUFA: They Are Not as Bad as You Think**

*This session sponsored in part by Nestlé and Pepsico.*

Chairs: Martha Belury, Ohio State University, USA; and Matthew Picklo, USDA, ARS, Grand Forks Human Nutrition Research Center, USA

**Smalley 6**

- 1:55 **Introduction.**
- 2:00 **Are All Fatty Acids Created Equal?** David W.L. Ma\*, *University of Guelph, Canada*
- 2:40 **The Relation Between Omega-6 Fatty Acids and Inflammation.** Philip Calder\*, *University of Southampton, UK*
- 3:20 **Break.**
- 3:40 **N-6 Polyunsaturated Fatty Acid Intake and Health Outcomes in Epidemiological Studies.** Dong Wang\*, *Harvard T.H. Chan School of Public Health, USA*
- 4:20 **Omega-6 and Omega-3 Fatty Acids: Focus on Ratios or Levels?** William S. Harris\*, *University of South Dakota School of Medicine, USA*

## Industrial Oil Products

**BIO 1.1/IOP 1: Biorenewable Polymers**

*This session is sponsored in part by Soy 20/20.*

Chairs: Richard Ashby, USDA, ARS, ERRC, USA; and Rongpeng Wang, CVC Thermostat Specialties, USA

**Wesson 2**

Joint session: For details, see **BIO 1.1/IOP 1**, on page 26.



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## Lipid Oxidation and Quality

**LOQ 1a: Lipid Oxidation Evaluation by Sensory Methods**

Chairs: Minwei Xu, North Dakota State University, USA; and Shalla Ramnarain, DSM Nutritional Products, USA

**Smalley 7**

- 1:55 **Introduction.**
- 2:00 **Sensory Foundations, What to Keep in Mind When Evaluating Products.** Bob Baron\*, *Sensory Spectrum, Inc., USA*
- 2:20 **Characterization of the “Fusty, Muddy Sediment” and “Musty” Off-flavor of Olive Oils Using the Molecular Sensory Science Concept.** Michael Granvogel\*, Anja Neugebauer, and Peter Schieberle, *Technical University of Munich, Germany*
- 2:40 **Best Practices for In-house Sensory Testing of Oils and Fats.** Clare A. Dus\* and Lee Stapleton, *Sensory Spectrum, Inc., USA*
- 3:00 **Understanding Aroma Off-notes with Analytical Techniques.** Tanya F. MacGillivray\*, *DSM Nutritional Products, Canada*

## Lipid Oxidation and Quality

**ANA 1.1/LOQ 1b: Evaluation and Prediction of Oxidative Stability and Shelf-life**

Chairs: Hong-Sik Hwang, USDA, ARS, NCAUR, USA; and Min Hu, DuPont Nutrition & Health, USA

**Smalley 7**

Joint session: For details, see **ANA 1.1/LOQ 1b**, on page 26.

## Phospholipid

**PHO 1: General and New Sources of Phospholipids and Applications**

Chairs: Mabel Tomás, CIDCA (CONICET-UNLP), Argentina; and Swapnil Jadhav, Archer Daniels Midland Co., USA

**Paquin 2**

- 1:55 **Introduction.**
- 2:00 **Characterization of Glycerophospholipid Molecular Species in Marine Edible Clams by Using HPLC-ESI-MS/MS.** Dayong Zhou\*<sup>1</sup>, Zhongyuan Liu<sup>2</sup>, Fawen Yin<sup>2</sup>, Liang Song<sup>2</sup>, Qi Zhao<sup>2</sup>, and Beiwei Zhu<sup>2</sup>, <sup>1</sup>Dalian Polytechnic University, China; <sup>2</sup>College of Food Science & Technology, Dalian Polytechnic University, China
- 2:20 **Facilitating Phospholipids Analysis in Complex Matrices by Using Automated Routines.** Yulia B. Monakhova\*, Bernd W.K. Diehl, and Elina Zailer, *Spectral Service AG, Germany*
- 2:40 **Characterization of Chia Microencapsulated Oil from Freeze-dried Layer-by-Layer Emulsions with Sunflower Lecithin.** Luciana M. Julio<sup>1</sup>, Vanesa Y. Ixtaina<sup>1</sup>, Susana M. Nolasco<sup>2</sup>, and Mabel Tomás\*<sup>1</sup>, <sup>1</sup>CIDCA (CONICET-UNLP), Argentina; <sup>2</sup>TECSE (Fac. Ing.-UNCPBA), Argentina
- 3:00 **Chia Seed Oil Bi-layer Emulsions with Modified Sunflower Lecithin.** Luciana M. Julio<sup>1</sup>, Claudia N. Copado<sup>1</sup>, Susana M. Nolasco<sup>2</sup>, Vanesa Y. Ixtaina<sup>1</sup>, and Mabel Tomás\*<sup>1</sup>, <sup>1</sup>CIDCA (CONICET-UNLP), Argentina; <sup>2</sup>TECSE (Fac. Ing.-UNCPBA), Argentina

## Processing

**PRO 1: Processing from Seed to Refined Oil**

Chairs: Farah Skold, Solex Thermal Science Inc., Canada; and Hans Christian Holm, Novozymes A/S, Denmark

**Wesson 3**

- 1:55 **Introduction.**
- 2:00 **Cleaning, Cracking, and Dehulling Soybeans.** Bill Morphew\*, *Crown Iron Works Company, USA*
- 2:20 **Energy Recovery Optimisation.** Farah Skold\*, *Solex Thermal Science Inc., Canada*
- 2:40 **Modern Pressing Technology.** Jon Hanft\*, *HF Press + Lipid Tech, USA*
- 3:00 **Solvent Extraction.** Timothy G. Kemper\*, *Desmet Ballestra, USA*
- 3:20 **Break.**
- 3:40 **Recent Developments in Degumming of Oils and Fats.** Robert Zeldenrust\*, *GEA, Germany*
- 4:00 **Current State of Adsorptive Bleaching, Materials, and Processes.** Chris Mitchell\*, *Clariant Corp., USA*
- 4:20 **Deodorization.** William Younggreen\*, *Alfa Laval Inc., USA*
- 4:40 **Fat Modification Technologies—Fractionation and Interesterification.** Gijs Calliauw\*, *Desmet Ballestra Group, Belgium*

## Protein and Co-Products

**PCP 1: Advances in Bioactive Peptides**

Chairs: Hisham Ibrahim, Kagoshima University, Japan; Hitomi Kumagai, Nihon University, Japan; and Jianping Wu, University of Alberta, Canada

**Wesson 4**

- 1:55 **Introduction.**
- 2:00 **Hypocholesterolemic Pentapeptide Lactostatin (IIAEK) Activates Cholesterol Degradation via Hepatocyte Nuclear Factor 3 $\alpha$  in HepG2 Cells.** Satoshi Nagaoka\*, *Gifu University, Japan*
- 2:20 **Bean Peptides Have High Binding Affinities for N-terminal Domain of Cholesterol Receptor Niemann-Pick C1 Like-1.** Luis M. Real Hernandez\*<sup>1</sup>, and Elvira Gonzalez de Mejia<sup>2</sup>, <sup>1</sup>Ohio State University, USA; <sup>2</sup>University of Illinois, USA
- 2:40 **Absorption of Peptides into Rat Blood: Effect of Peptide-length and Aging of Rats on Absorption.** Toshiro Matsui\*, *Kyushu University, Japan*
- 3:00 **Enzymatic Processing and *in vivo* Actions of Anti-hypertensive Peptides.** Naoyuki Yamamoto\*, *Asahi Group Holdings, Japan*
- 3:20 **Suppression of Melanoma Proliferation by an Amino Acid in Garlic.** Hitomi Kumagai\*<sup>1</sup>, Toshiki Ando<sup>1</sup>, Tomoaki Yazaki<sup>1</sup>, Hiroyuki Hara<sup>2</sup>, and Makoto Akao<sup>1</sup>, <sup>1</sup>Dept. of Chemistry and Life Science, College of Bioresource Sciences, Nihon University, Japan; <sup>2</sup>Dept. of Dermatology, School of Medicine, Nihon University, Japan
- 3:40 **Bitter Blockers: In Search of a Universal Bitter Taste Blocker.** Prashen Chelikani\*, *University of Manitoba, Canada*
- 4:00 **Molecular Basis of Anti-inflammatory Action of Commercial Bromelain.** Hisham Ibrahim\*, *Kagoshima University, Japan*
- 4:20 **Egg Yolk Antibody (IgY) Against Ornamental Carp's Pathogens and Its Prophylactic Effect.** Hajime Hatta\*<sup>1</sup>, Atsushi Sato<sup>2</sup>, Kinjirou Morimoto<sup>3</sup>, and Tomonori Somamoto<sup>4</sup>, <sup>1</sup>Kyoto Women's University, Japan; <sup>2</sup>Kyorin Co. Ltd., Japan; <sup>3</sup>Yasuda University, Japan; <sup>4</sup>Kyushu University, Japan
- 4:40 **Scale-up Production and Product Development of Egg White Protein Hydrolysate with Angiotensin I Converting Enzyme Inhibitory Activity.** Jianping Wu\* and Qiyi Li, *University of Alberta, Canada*

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## S&D 1: Fabric Care Performance Boosters and New Benefits

Chairs: Kathleen Stanton, American Cleaning Institute, USA; and Tyler N. Smith, Lightbox Laboratories, USA

### Paquin 3

- 1:55 **Introduction.**
- 2:00 **Rational Design of Lipases: A Case Study.** Jakob Skjold-Jørgensen\*, *Novozymes A/S, Denmark*
- 2:20 **Engineering an Improved Cellulase for Fabric Care in Liquid Detergents.** Christian Adams\*<sup>1</sup>, Andre Krouwer<sup>2</sup>, and Arjen J. Hoekstra<sup>2</sup>, <sup>1</sup>*DuPont Industrial Biosciences, USA*; <sup>2</sup>*DuPont Industrial Biosciences, The Netherlands*
- 2:40 **Breakthrough Solution for Odor Reduction in Cleaning Products.** Anita Augustyniak and Yvon G. Durant\*, *Itaconix, USA*
- 3:00 **Study on Bacterial Control During Washing with Laundry Detergent.** Nanami Sasaki\*, Keisuke Mori, Takahiro Hayashi, Misa Nakagawa, Masayoshi Oishi, Hiroaki Shindo, Hiroyuki Masui, and Takahiro Okamoto, *Lion Corporation, Japan*
- 3:20 **Laundry Detergency of Solid Non-particulate Soil or Waxy Solids: Relation to Oily Soil Removal Above the Melting Point.** David A. Sabatini\*<sup>1</sup>, John Scamehorn<sup>1</sup>, Jarussri Chanwattanakit<sup>2</sup>, and Sumaeth Chavadej<sup>2</sup>, <sup>1</sup>*University of Oklahoma, USA*; <sup>2</sup>*Chulalongkorn University, Thailand*
- 4:00 **Polymers and Detergency—A Complex Game of Interactions.** Keith E. Gutowski<sup>1</sup> and Dieter Boeckh\*<sup>2</sup>, <sup>1</sup>*BASF Corporation, USA*; <sup>2</sup>*BASF SE, Germany*
- 4:20 **Protect and Care—Silicone Effects for Perceivable Benefits.** John H. Richards\*, *Wacker Chemical Corporation, USA*

## S&D 1.1: New Technologies in Industry

Chairs: Eric Theiner, Evonik Corporation, USA; and Hongwei Shen, Colgate Palmolive Co., USA

### Paquin 4

- 1:55 **Introduction.**
- 2:00 **Surface Restoration Achieved Using STEPOSOL® CITRI-MET via Partial Softening and Cure of Existing Polymer Coatings.** Ron A. Masters\*, *Stepan Company, USA*
- 2:20 **Viscosity Control for a Vesicle Suspension System with Non-adsorbed Polymer.** Ryo Inoue\*<sup>1</sup>, Asami Miyajima<sup>1</sup>, Taku Ogura<sup>1</sup>, Otto Glatter<sup>2</sup>, and Norio Tabori<sup>1</sup>, <sup>1</sup>*Lion Corporation, Japan*; <sup>2</sup>*University of Graz, Austria*
- 2:40 **Potential of Biosurfactants as New Performance Ingredients in Liquid Laundry.** Alexander Schulz\* and Michael Dreja, *Henkel AG & Co. KGaA, Germany*
- 3:00 **Elucidation of Softening Mechanism in Rinse Cycle Fabric Softeners.** Takako Igarashi\*, Koichi Nakamura, Masato Hoshi, Teruyuki Hara, Hironori Kojima, Masatsugu Itou, Reiko Ikeda, and Yoshimasa Okamoto, *Kao Corporation, Japan*
- 3:40 **Development of a Spherulite Structured Liquid Cleanser at Reduced Surfactant Concentrations.** Peter R. Hilliard\*, *Colgate Palmolive Co., USA*
- 4:00 **Noverite™ Polymers for Window and Bathroom Cleaners: Improved Anti-fog, Reduced Hard Water Spotting, and Easier Soap Scum Removal.** Jobiah J. Sabelko\*, Chris Cypcar, and Eve De Maesschalck, *Lubrizol Advanced Materials, Inc., USA*
- 4:20 **Hydrotroping Properties of Naturally-derived Surfactants in Alkaline Formulations.** Robert J. Coots\* and Dennis Abbeduto, *Colonial Chemical, Inc., USA*

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- Pesticide Residue (ICP-MS)
- Residual Solvent (Headspace GC)
- Microbial Contamination (various methods)

\*Will require cannabis licensed testing facilities. All other samples will be non-cannabis surrogates that any qualified lab may run.

## Learn More About Participating

- ▶ **Attend the cannabis sessions in Paquin 1:** Monday, 1:55–5:00 p.m., or Tuesday, 7:55 a.m.–Noon
- ▶ **Contact Cynthia Ludwig at** [Cynthia.ludwig@aoacs.org](mailto:Cynthia.ludwig@aoacs.org) or call 314-780-3798

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## Tuesday Morning

Analytical

### ANA 2a: Advances in the Sample Processing and Lipid Extraction Techniques

Chairs: Susan Seegers, Bunge Oils, USA; and Tiffanie West, USA

Smalley 5

- 7:55 **Introduction.**
- 8:00 **Sample Preparation Techniques for Oxidative Stability Measurements in Difficult Samples.** Scott S. Segro\*, *Metrohm USA, USA*
- 8:20 **Factors Affecting the DNPH Reaction with Carbonyl Products of Lipid Oxidation.** Morgan Kandrach\*, Chris Izzo<sup>1</sup>, and Karen M. Schaich<sup>2</sup>, <sup>1</sup>*Rutgers University, Dept. of Food Science, USA*; <sup>2</sup>*Dept. of Food Science, Rutgers University, USA*
- 8:40 **Status and Recommendations on Analysis of Free and Ester-bound 2- & 3-MCPD- and Glycidol.** Jan Kuhlmann\*, *SGS Germany GmbH, Germany*

Analytical

### ANA 2b: General Analytical

Chairs: Sanjeewa Karunathilaka, US Food and Drug Administration, USA; and Magdi Mossoba, US Food and Drug Administration, USA

Smalley 5

- 10:15 **Introduction.**
- 10:20 **Application of a Novel FT-NIR Spectroscopy and PLS Procedure to Predict the Authenticity of Extra Virgin Olive Oil Retail Products in the US.** Magdi Mossoba\*, Hormoz Azizian<sup>2</sup>, Ali Reza Fardin-Kia<sup>1</sup>, Sanjeewa R. Karunathilaka<sup>1</sup>, and John K.G. Kramer<sup>3</sup>, <sup>1</sup>*US Food and Drug Administration, USA*; <sup>2</sup>*NIR Technologies, Canada*; <sup>3</sup>*Guelph Food Research Center, Canada*
- 10:40 **Fusty/Musty Off-flavor in Native Cold-pressed Rapeseed Oil: Sensomics, Principal Component Analysis, Development of a Quick Method for Quality Control.** Katrin Matheis\* (*Analytical Division Student Award Winner*) and Michael Granvogl, *Chair for Food Chemistry, Technical University of Munich, Germany*
- 11:00 **Rapid Identification and Quantification of Nutraceutical Oils by Near-infrared Spectroscopy.** Kyle Hollister\*, *Metrohm USA, USA*
- 11:20 **Trans-fat Determination by Gas Chromatography Vacuum Ultraviolet Detection.** Jonathan Smuts\*<sup>1</sup> and Barbara A. Mitchell<sup>2</sup>, <sup>1</sup>*VUV Analytics, USA*; <sup>2</sup>*Covance Labs, Inc., USA*
- 11:40 **Rapid Prediction of Low Levels of *trans* Fat in Edible Oils/Fats and Fast Foods by ATR-FTIR and PLSR.** Sanjeewa R. Karunathilaka\*, Cynthia Srigley, Samantha Farris, and Magdi Mossoba, *US Food and Drug Administration, USA*

Biotechnology

### BIO 2: Biocatalysis II

*This session is sponsored in part by Malaysian Palm Oil Board and The Nisshin Oillio Group, Ltd.*

Chairs: Masashi Hosokawa, Hokkaido University, Japan; and Lu-Kwang Ju, University of Akron, USA

Wesson 1

- 7:55 **Introduction.**
- 8:00 **Enzyme-based Soy Processing.** Abdullah A. Loman<sup>1</sup>, Nicholas V. Callow<sup>1</sup>, and Lu-Kwang Ju\*<sup>2</sup>, <sup>1</sup>*The University of Akron, USA*; <sup>2</sup>*University of Akron, USA*
- 8:20 **Synthesis of Polyglycerol Fatty Acid Mono-esters by Lipase Reactions.** Yoshitaka Nishiyama\*, Yutaro Kataoka, Hidetaka Uehara, and Yoshihiro Ueda, *The Nisshin Oillio Group, Ltd., Japan*
- 8:40 **Restructuring Lipids Enzymatically.** Casimir C. Akoh\*, *University of Georgia, USA*

- 9:00 **Preparation of Phytosteryl Ester and Enrichment of Stearidonic Acid via One-step Lipase-catalyzed Esterification.** Nakyung Choi and In-Hwan Kim\*, *Korea University, Republic of Korea*
- 9:20 **Improving the Positional Specificity and the Reaction Efficiency of Phospholipase D-mediated Phosphatidylinositol Synthesis.** Yugo Iwasaki\*<sup>1</sup>, Jasmina Damjanovic<sup>2</sup>, Michiko Muraki<sup>2</sup>, and Hideo Nakano<sup>2</sup>, <sup>1</sup>*Graduate School of Bioagricultural Sciences, Nagoya University, Japan*; <sup>2</sup>*Nagoya University, Japan*
- 9:40 **Networking Break.**
- 10:20 **Metabolism and Beneficial Function of Docosapentaenoic Acid.** Masashi Hosokawa\*<sup>1</sup>, Yanzhu Tian<sup>1</sup>, Kazuo Miyashita<sup>1</sup>, Donato Romanazzi<sup>2</sup>, and Tadahiro Tsumishima<sup>3</sup>, <sup>1</sup>*Hokkaido University, Japan*; <sup>2</sup>*Cawthron Institute, New Zealand*; <sup>3</sup>*Bizen Chemical Co. Ltd., Japan*
- 10:40 **Regulation of Carotenoid Biosynthesis in Marine *Thraustochytrid*, *Aurantiochytrium* sp.** Kenshi Watanabe, Hirokazu Takahashi, Yoshiko Okamura, Takahisa Tajima, Yukihiko Matsumura, Yutaka Nakashimada, and Tsunehiro Aki\*, *Hiroshima University, Japan*
- 11:00 **Novel Conjugated PUFAs Produced by Anaerobic Bacteria via the Biohydrogenation of C20 PUFAs.** Shigenobu Kishino\*, Kousuke Mihara, and Jun Ogawa, *Kyoto University, Japan*

Biotechnology

### BIO 2.1/IOP 2: Biofuels

Chairs: Adeb Hayyan, University of Malaya, Malaysia; Lieve Laurens, National Renewable Energy Laboratory, USA; and Jun Ogawa, Kyoto University, Japan

Wesson 2

- 7:55 **Introduction.**
- 8:00 **Recovery of Fatty Acids from Advanced Biofuels: Improvement in Acid Number and Value.** Justice Asomaning\* and David C. Bressler, *University of Alberta, Canada*
- 8:20 **Synthesis and Purification of Polyphenolic Branched-chain Fatty Acids with Natural Monophenols.** Helen Ngo Lew\*<sup>1</sup>, Zongcheng Yan<sup>2</sup>, Karen Wagner<sup>1</sup>, and Robert A. Moreau<sup>1</sup>, <sup>1</sup>*USDA, ARS, ERRC, USA*; <sup>2</sup>*South China University of Technology, China*
- 8:40 **Animal Fatty Wastewater Sludge recovery by Acid-catalyzed Esterification into Fatty Acid Butyl Esters as Potential Biodiesel.** Christopher Wallis<sup>1</sup>, Muriel Cerny<sup>1</sup>, Eric Lacroux\*<sup>2</sup>, and Zéphirin Mouloungui<sup>1</sup>, <sup>1</sup>*Laboratoire de Chimie Agro-Industrielle, France*; <sup>2</sup>*Chimie Agro-Industrielle, France*
- 9:00 **Ionic Liquids Derived from Amino Acids for Catalytic Biodiesel Production.** Jingbo Li\* (*Biotechnology Division Student Best Paper Award Winner*) and Zheng Guo, *Aarhus University, Denmark*
- 9:20 **Grease Formulation Using Post-consumed Clothes: A Sustainable Approach.** Amitkumar A. Barot\*<sup>1</sup>, Chiragkumar M. Patel<sup>2</sup>, Tirth M. Panchal<sup>3</sup>, Jigar V. Patel<sup>3</sup>, and Vijay K. Sinha<sup>2</sup>, <sup>1</sup>*V. P. & R. P. T. P. Science College, India*; <sup>2</sup>*Industrial Chemistry Dept., V. P. & R. P. T. P. Science College, India*; <sup>3</sup>*Dept. of Industrial Chemistry, Institute of Science and Technology for Advanced Studies and Research, India*
- 9:40 **Networking Break.**
- 10:20 **Enzymatic Catalyzed Fat-splitting as Replacement to Chemical Fat-splitting Process.** Anders Rancke-Madsen<sup>1</sup>, Hans Christian Holm, and Per Munk Nielsen, *Novozymes A/S, Denmark*
- 10:40 **Process Development of a Sustainable Aromatic Hydrocarbons Derived from *Camelina sativa*.** Randy L. Maglinao\*<sup>1</sup>, Chazley J. Hulett<sup>2</sup>, Eleazer P. Resurreccion<sup>2</sup>, and Alexandra K. Jones<sup>1</sup>, <sup>1</sup>*Advanced Fuel Center, Montana State University-Northern, USA*; <sup>2</sup>*Montana State University Northern, USA*
- 11:00 **Novel Building Blocks Designed from Metathesized Vegetable Oils.** Frederyk Ngantung\*, *Elevance, USA*
- 11:20 **Sterol Molecular Fingerprinting in Different Algae Provide Options for High-value Co-Product Development in a Conversion Process.** Lieve Laurens\*, Oliver Palardy, Keegan Duff, and Stefanie Van Wycken, *National Renewable Energy Laboratory, USA*



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Sun, 8:00am-5:00pm—**Experimental Design & Analysis: Simple Tools to Maximize Product Performance**; Rick Theiner, Sr. Pr. Applications Chemist

Mon, 7:55am-10:00am—**HT5: Surfactants for the Non-Expert**  
Mike Williams, Pr. Research Chemist, Session Chair

Mon, 1:55pm-4:20pm—**S&D1.1: New Technologies in Industry**  
Rick Theiner, Sr. Pr. Applications Chemist, Session Chair

Tue, 8:00am-8:20am—**A New Approach to Developing Soluble Surfactants in Highly Alkaline Systems**; Rick Theiner, Sr. Pr. Applications Chemist

Wed, 9:00am-9:20am—**Sophorolipids in Hard Surface Cleaning Applications**  
Zheng Xue, Oil, Gas, and Geotech Chemist

Wed, 3:00pm-3:20pm—**Driving Foam Performance with Surfactant Interactions**  
Rick Theiner, Sr. Pr. Applications Chemist



Visit us at Booth 212.

11:40 **Determination of Solubility and Kinetic Parameters for Switchable Solvents Using Microfluidics.** Ghata M. Nirmal<sup>\*1</sup>, Thomas F. Leary<sup>2</sup>, and Arun Ramchandran<sup>2</sup>, <sup>1</sup>University of Toronto, St. George, Canada; <sup>2</sup>University of Toronto, Canada

Cannabinoid Analytics

## CAN 2: Method Development

Chairs: Steven P. Bennett, Evolab, USA; and Douglas Rennie, AOCS, USA

### Paquin 1

- 7:55 **Introduction. AOCS Methods for Cannabis.** Douglas Rennie, AOCS, USA
- 8:00 **Analyzing Cannabis: What has Changed?** Susan Audino\*, Audino & Associates LLC, USA
- 8:20 **Method Validation and Quality Control: Overview and Strategies for Cannabis-Specific Analytical Methods.** Amanda Rigdon<sup>\*1</sup>, Fred Hill<sup>1</sup>, and Frank Dorman<sup>2</sup>, <sup>1</sup>Emerald Scientific, USA; <sup>2</sup>Pennsylvania State University, USA
- 9:00 **Sample Preparation using Cryogenic Grinding.** Sandy Mangan\*, SPEX SamplePrep LLC, USA
- 9:20 **Analysis of Terpenes in Cannabis by Liquid Chromatography.** Dylan Wilks\* and Don Lavery, Orange Photonics, Inc., USA
- 9:40 **Networking Break.**
- 10:20 **Rapid Field and Laboratory Methods for Precise Detection of Aflatoxin and Ochratoxin A in Plant Tissue, Extracts and Edible Products Across the Botanicals Industry.** Lanny Smith\*, Vicam, USA
- 10:40 **Analysis of Pesticide Residues in Cannabis Regulated by Oregon State using QSight LC/MS/MS.** Jason Weisenseel\*, PerkinElmer, USA
- 11:00 **Validation of a Rapid Analytical Method for the Measurement of E. Coli in Cannabis Surrogates.** Edward F. Askew\*, Cannabinoid Technical Group, USA
- 11:20 **High Throughput Microarray Analysis of Multiple Pathogens on Cannabis.** Michael E. Hogan<sup>\*1</sup>, Rick Eggers<sup>1</sup>, Melissa May<sup>1</sup>, Kevin O'Brien<sup>1</sup>, Carl Yamashiro<sup>1</sup>, Reggie Gaudino<sup>2</sup>, Christian Cizek<sup>2</sup>, and Anthony Torres<sup>2</sup>, <sup>1</sup>PathogenDx, USA; <sup>2</sup>Steep Hill Labs, USA
- 11:40 **Q&A. Closing Remarks.**

Edible Applications Technology

## EAT 2: Confectionary Fats (Session Dedicated to Ralph Timms)

Chairs: Dérick Rousseau, Ryerson University, Canada; and Alejandro Marangoni, University of Guelph, Canada

### Smalley 1

- 8:15 **Introduction.**
- 8:20 **The Fat Man's Tale.** Ralph E. Timms\*, Retired, UK
- 9:00 **Current Situation and the Future of Confectionery Fats.** Kiyotaka Sato\*, Hiroshima University, Japan
- 9:40 **Networking Break.**
- 10:20 **Trading Phases: Importance of Fat Physical Properties!** Kevin W. Smith\*, Fat Science Consulting Ltd., UK
- 11:00 **Mathematical Approaches to Estimating Thermal Properties of Acylglycerides.** Arun S. Moorthy<sup>\*1</sup>, Gianfranco Mazzanti<sup>2</sup>, Leendert H. Wesdorp<sup>3</sup>, and Alejandro G. Marangoni<sup>4</sup>, <sup>1</sup>National Institute of Standards and Technology, USA; <sup>2</sup>Dalhousie University, Canada; <sup>3</sup>Wesdorp Raad en Daad, The Netherlands; <sup>4</sup>University of Guelph, Canada
- 11:40 **Innovations That Have Had a Significant Impact on the Commercialization of Chocolate and Related Products.** Neil Widlak\*, Consultant, USA

Edible Applications Technology

## EAT 2.1: Delivery and Dispersed Systems

Chairs: Koen Dewettinck, Ghent University, Belgium; and Iris Tavernier, Ghent University, Belgium

### Smalley 2

- 7:55 **Introduction.**
- 8:00 **Effect of Protein Types on the Formation of Nanogels from Nanoemulsions.** Aakash Patel\* and Supratim Ghosh, University of Saskatchewan, Canada
- 8:20 **New Food Emulsions Stabilized by Colloidal Lipid Particles with Tailored Microstructure.** Claire C. Berton-Carabin, Karin Schroën, Anja Schroder\*, and Joris Sprakel, Wageningen University & Research, The Netherlands
- 8:40 **In vitro Digestion of O/W Emulsions: Role of the Physical State of the Dispersed Oil Phase.** Qing Guo\*, Nick Bellissimo, and Dérick Rousseau, Ryerson University, Canada
- 9:00 **Hollow Solid Lipid Micro- and Nanospheres: Novel Carriers for Fish Oil.** Junsu Yang\* and Ozan N. Ciftci, University of Nebraska-Lincoln, USA
- 9:20 **Plant Proteins Can Partly Replace Dairy Proteins in Lycopene-loaded Emulsions to Enhance Physicochemical Stability.** Kacie K.H.Y. Ho<sup>\*1</sup>, Karin Schroën<sup>2</sup>, M. Fernanda San Martín-Gonzalez<sup>1</sup>, and Claire C. Berton-Carabin<sup>2</sup>, <sup>1</sup>Purdue University, USA; <sup>2</sup>Wageningen University & Research, The Netherlands
- 9:40 **Networking Break.**
- 10:20 **Cosolubilization of DHA and Curcumin as Synergistic Anti-inflammation Nutraceuticals.** Ketty Uzilevsky, Abraham Aserin, and Nissim Garti\*, Hebrew University, Israel
- 10:40 **Fat Crystal-stabilized Pickering Water-in-Oil Emulsions for Controlled Release Applications.** Xin Zhao<sup>1</sup> and Dérick Rousseau<sup>\*2</sup>, <sup>1</sup>Guangdong Industry Technical College, China; <sup>2</sup>Ryerson University, Canada
- 11:00 **Surfactant-mediated Fat Crystallization at the Oil-water Interface.** Nicole Green\* and Dérick Rousseau, Ryerson University, Canada
- 11:20 **Crystallization Behaviour of Roll-in Fats in the Matrix of Laminated Dough Products.** Kristin Mattice\* and Alejandro G. Marangoni, University of Guelph, Canada
- 11:40 **Self-assembling Behavior of Glycerol Monoundecenoate in Water: Efficient Lamellar Gelled System for Concrete Curing.** Gildas Nyame Mendendy Boussambe<sup>1</sup>, Romain Valentin<sup>\*1</sup>, Jean-Francois Fabre<sup>2</sup>, and Zéphirin Mouloungui<sup>3</sup>, <sup>1</sup>INRA, France; <sup>2</sup>LCA UMR1010 INRA-INP/ENSICACET, France; <sup>3</sup>Laboratoire de Chimie Agro-Industrielle, France

Health and Nutrition

## H&N 2: Medium Chain Triglycerides and Health

This session is sponsored in part by Nestlé Health Science and Nestlé Purina Pet Care Research.

Chairs: Fabiola Dionisi, Nestlé Research Center, Switzerland; and Robert Ward, Utah State University, USA

### Smalley 6

- 7:55 **Introduction.**
- 8:00 **Medium Chain Triglyceride in Food Fats and Their Metabolism.** J. Thomas Brenna\*, Cornell University, USA
- 8:20 **Brain Fatty Acid Beta-Oxidation. If It Isn't a Source of ATP, What Is It For?** Richard P. Bazinet\*, University of Toronto, Canada
- 8:40 **Dietary Medium Chain Saturated Fat Reduces Obesity-induced Outcomes in Mice.** Matthew Picklo<sup>1</sup>, Petr Žáček<sup>1,2</sup>, Michael Bukowski<sup>1</sup>, LuAnn Johnson<sup>1</sup>, Joseph Idso<sup>1</sup>, and Susan K. Raatz<sup>1</sup>, <sup>1</sup>USDA-ARS Grand Forks Human Nutrition Research Center; <sup>2</sup>Institute of Organic Chemistry and Biochemistry Academy of Sciences of the Czech Republic, Czech Republic



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- 9:00 **The Ketogenic Effect of MCT: Implications for Attenuating the Impact of Alzheimer's Disease.** Stephen C. Cunnane\*, *Research Center on Aging, Canada*
- 9:40 **Networking Break.**
- 10:20 **Octanoic Acid and Ghrelin Octanoylation: Origin of C8:0, Mechanisms, and Physiological Effects.** Vincent Rioux\*, *Agrocampus Ouest, France*
- 11:00 **MCT Oil for Weight Management: Can Coconut Oil Do the Same?** Marie-Pierre St-Onge\*, *Columbia University, USA*

#### Industrial Oil Products

### BIO 2.1/IOP 2: Biofuels

*Chairs: Adeeb Hayyan, University of Malaya, Malaysia; Lieve Laurens, National Renewable Energy Laboratory, USA; and Jun Ogawa, Kyoto University, Japan*

#### Wesson 2

Joint session: For details, see **BIO 2.1/IOP 2: Biofuels**, on page 32.

#### Lipid Oxidation and Quality

### LOQ 2a: Metabolic Products and Toxicity of Lipid Oxidation and Antioxidants in Foods and Biological Systems

*Chairs: Weerasinghe Indrasena, DSM Nutritional Products, Canada; and Jian Kong, Abbott Nutrition, USA*

#### Smalley 7

- 7:55 **Introduction.**
- 8:00 **Successful Prevention of Fish Oil Flavor Deterioration by Sphingoid Base.** Mariko Uemura<sup>1</sup>, Ako Shibata<sup>1</sup>, Saiko Sudo<sup>1</sup>, Masashi Hosokawa<sup>1</sup>, Kazuo Miyashita<sup>1</sup>, Ai Iwashima-Suzuki<sup>2</sup>, Ai Iwasawa<sup>2</sup>, and Makoto Shiota<sup>2</sup>, <sup>1</sup>Hokkaido University, Japan; <sup>2</sup>Megmilk Snow Brand Co. Ltd., Japan
- 8:20 **Lipid Oxidation Products and Aging.** Mary E. Camire\*, *University of Maine, USA*
- 8:40 **Lipid Oxidation in Complex Nutritional Matrices.** Gary Katz\*, *Abbott Nutrition, USA*
- 9:00 **Re-evaluation of Toxicity of Lipid Oxidation Products and Natural Antioxidants.** Karen M. Schaich\*, *Dept. of Food Science, Rutgers University, USA*
- 9:20 **Acrolein as Important Flavor Contributor in Fish Oil Oxidative Deterioration.** Ako Shibata, Mariko Uemura, Masashi Hosokawa, and Kazuo Miyashita\*, *Hokkaido University, Japan*

#### Lipid Oxidation and Quality

### LOQ 2b: Stabilization of Omega-3, Bioactive Lipids, and Antioxidants

*Chairs: Constantijn Sanders, Nestlé, Switzerland; and Kazuo Miyashita, Hokkaido University, Japan*

#### Smalley 7

- 10:15 **Introduction.**
- 10:20 **High Throughput Electro-hydrodynamic Processing for the Encapsulation of DHA Enriched Oils.** Jose M. Lagaron\*, *CSIC, Spain*
- 10:40 **Influence of Legume Proteins on the Lipid Oxidation of Omega-3 Emulsions.** Cansu E. Gumus\*, Eric A. Decker, and David J. McClements, *University of Massachusetts Amherst, USA*
- 11:00 **Label Friendly Ingredient Toolbox for the Stabilization of Omega-3 at Different Stages.** Lan Ban, Joan Randall, Yvonne Gildemaster, Marie Shen, and Will Schroeder\*, *Kemin Food Technologies, USA*
- 11:20 **Oxidative and Physical Stability of Fish Oil-in-Water Emulsions Stabilized with Sodium Caseinate and Modified Alginate.**

Betül Yesiltas\*<sup>1</sup>, Ann-Dorit M. Sørensen<sup>2</sup>, Pedro J. Garcia-Moreno<sup>2</sup>, Sampson Anankanbil<sup>3</sup>, Zheng Guo<sup>4</sup>, and Charlotte Jacobsen<sup>2</sup>, <sup>1</sup>National Food Institute, Technical University of Denmark, Denmark; <sup>2</sup>Technical University of Denmark, Denmark; <sup>3</sup>Dept. of Engineering, Aarhus University, Denmark; <sup>4</sup>Aarhus University, Denmark

- 11:40 **Ferulates in Fish Oil Enriched Milk: Partitioning, Protein, and Lipid Oxidation.** Xujian Qui<sup>1</sup>, Charlotte Jacobsen<sup>2</sup>, Pierre Villeneuve<sup>3</sup>, and Ann-Dorit M. Sørensen\*<sup>2</sup>, <sup>1</sup>National Food Institute, Technical University of Denmark, Denmark; <sup>2</sup>Technical University of Denmark, Denmark; <sup>3</sup>CIRAD/INRA, UMR 1208 IATE, France

#### Phospholipid

### PHO 2: Chemical and Enzymatic Synthesis of Phospholipids

*Chairs: Moghis Ahmad, Jina Pharmaceuticals Inc., USA; and Xuebing Xu, Wilmar Global Research and Development Center, China*

#### Paquin 2

- 7:55 **Introduction.**
- 8:00 **Synthesis and Characterization of a Novel Array of Polyphenol-containing Phospholipids: A Physicochemical Study.** Sampson Anankanbil\*<sup>1</sup>, Zheng Guo<sup>2</sup>, and Bianca Perez<sup>1</sup>, <sup>1</sup>Dept. of Engineering, Aarhus University, Denmark; <sup>2</sup>Aarhus University, Denmark
- 8:20 **Natural vs. Synthetic Phospholipids: Pharmaceutical Applications as Drug Delivery System.** Moghis Ahmad\*, Shoukath M. Ali, Ateeq Ahmad, Saifuddin Sheikh, Paul Chen, and Imran Ahmad, *Jina Pharmaceuticals Inc., USA*
- 8:40 **Novel Syntheses of Phospholipids.** Chris Dayton\*, *Bunge Limited, USA*
- 9:40 **Networking Break.**

#### Processing

### PRO 2: Enzymatic Processes—A User Perspective

*Chairs: Xuebing Xu, Wilmar Global Research and Development Center, China; and Krish Bhaggan, IOI Lodders Croklaan, The Netherlands*

#### Wesson 3

- 7:55 **Introduction.**
- 8:00 **Enzymes to Improve OER in Palm Oil Extraction.** Chandrakumar L. Rathi\* and Saylee Pradhan, *Advanced Enzyme Technologies Ltd., India*
- 8:20 **Enzymatic Synthesis of Biodiesel from Waste Cooking Oils.** Li Deng\*, Meng Wang, Kaili Nie, Fang Wang, and Tianwei Tan, *Beijing University of Chemical Technology, China*
- 8:40 **Biocatalysts in Refining and Concentrating PUFA Oils and Producing Advanced Bioactives.** Jari Kralovec\*, Paul Mugford, Erick Suarez, and Zhuliang Tan, *DSM Nutritional Products, Canada*
- 9:00 **New Concepts in Oil Degumming.** Fang Cong\*<sup>1</sup>, Ulrich Sohling<sup>2</sup>, Kirstin Suck<sup>2</sup>, Yuanyuan Gao<sup>1</sup>, and Xuebing Xu<sup>3</sup>, <sup>1</sup>Wilmar Global R&D Center, China; <sup>2</sup>Clariant, Germany; <sup>3</sup>Wilmar Global Research and Development Center, China
- 9:20 **Plant Scale Enzymatic FFA-remediation of Rice Bran Oil.** Steen Balchen\*<sup>1</sup>, Prasert Setwipatanachai<sup>2</sup>, Yee Hong Seng<sup>3</sup>, CheeKeong Tan<sup>4</sup>, and Lars Harild<sup>5</sup>, <sup>1</sup>Alfa Laval, Denmark; <sup>2</sup>Surin Bran Oil, Thailand; <sup>3</sup>Novozymes, Malaysia; <sup>4</sup>Alfa Laval, Malaysia; <sup>5</sup>Alfa Laval Copenhagen, Denmark
- 9:40 **Networking Break.**
- 10:20 **Enzymatic Synthesis of Functional Lipids-phytosterol Esters with Controllable Fatty Acid Composition.** Mingming Zheng\*, *Oil Crops Research Institute, CAAS, China*
- 10:40 **Chemo-enzymatic Synthesis and Characterization of a Novel Array of Phenolic-containing Emulsifiers: A Physico-chemical Study.** Zheng Guo<sup>1</sup>, Bianca Perez<sup>2</sup>, and Sampson Anankanbil\*<sup>2</sup>, <sup>1</sup>Aarhus University, Denmark; <sup>2</sup>Dept. of Engineering, Aarhus University, Denmark

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- 11:00 **Enzymatic Production of Specialty Fats CBE and HMF Substitute – SOS/OPO.** Krish Bhaggan\* and Jeanine Werleman, *IOI Loders Crocklaan, The Netherlands*
- 11:20 **Oil Yield Increase in Enzymatically Assisted Degumming of Vegetable Oil in a 1-step Process.** Nina Schroegel-Truxius\*, *AB Enzymes, Germany*

## Protein and Co-Products

**PCP 2a: Advances in Protein Structure and Function**

*Chairs: Navam Hettiarachchy, University of Arkansas, USA; and Rotimi Aluko, University of Manitoba, Canada*

**Wesson 4**

- 7:55 **Introduction.**
- 8:00 **Antioxidant Activities and Iron Binding Capacity of Protein Fractions from a High Protein Soybean Line.** Navam S. Hettiarachchy<sup>1</sup>, Ali A. Bisly<sup>2</sup>, and Ronny Horax<sup>2</sup>, <sup>1</sup>*University of Arkansas, USA; <sup>2</sup>University of Arkansas Fayetteville, USA*
- 8:20 **Interactions of Whey and Casein Proteins on Yoghurt Microstructure, Sensory, Tribology, and Rheological Behaviour.** Saara Laiho, Roderick Williams, Astrid Poelman, Ingrid Appelqvist, and Amy S. Logan\*, *CSIRO, Australia*
- 8:40 **The Use of Dairy and Plant Proteins in Foaming Applications and the Effect of Phosphates on Foam Capacity and Stability.** Jane Whittinghill and Sharon L. Book\*, *ICL Food Specialties, USA*
- 9:00 **Inhibition of ADAM17/TACE Enzymatic Activity by Rye Secalin-derived Peptides and Their Analogues.** Chinonye M. Udechukwu<sup>1</sup>, Apollinaire Tsopmo<sup>2</sup>, Rong He<sup>3</sup>, and Chibuike C. Udenigwe<sup>4</sup>, <sup>1</sup>*Dalhousie University, Canada; <sup>2</sup>Carleton University, Canada; <sup>3</sup>Nanjing University of Finance and Economics, China; <sup>4</sup>University of Ottawa, Canada*
- 9:20 **High-pressure Homogenization of Lentil Protein Isolates Significantly Influences Emulsion Stability and Emulsified Lipid Digestion Behavior.** Supratim Ghosh\*, Maja Primozic, Akaysha Duchek, and Michael Nickerson, *University of Saskatchewan, Canada*

## Protein and Co-Products

**PCP 2b: Proteins for Delivery Functions**

*Chairs: Chibuike Udenigwe, University of Ottawa, Canada; and Lingyun Chen, University of Alberta, Canada*

**Wesson 4**

- 10:15 **Introduction.**
- 10:20 **Food Protein Micro/Nano Particles for Controlled Nutraceutical Delivery in Functional Foods.** Lingyun Chen\*, Jingqi Yang, and Cherry Yang, *University of Alberta, Canada*
- 10:40 **Chemistry Underlying the Preparation and Functionality of Protein-based Nanodelivery Systems.** Subin R.C.K. Rajendran<sup>1</sup>, Rickey Yada<sup>2</sup>, and Chibuike C. Udenigwe<sup>3</sup>, <sup>1</sup>*Dalhousie University, Canada; <sup>2</sup>University of British Columbia, Canada; <sup>3</sup>University of Ottawa, Canada*
- 11:00 **Simultaneous Encapsulation of Bioactive Nutrients based on O/W Emulsions Stabilized Whey Proteins.** Zheng Fang, Hao Cheng, Qi Fan, and Li Liang\*, *Jiangnan University, China*
- 11:20 **Evaluation of Flaxseed Protein-polysaccharide Matrices for Encapsulation of Lipophilic Components.** Xu-yan Dong<sup>1</sup>, Shanshan Du<sup>2</sup>, Fang Wei<sup>3</sup>, Xin Lv<sup>2</sup>, Hong Chen<sup>1</sup>, and Fenghong Huang<sup>2</sup>, <sup>1</sup>*Chinese Academy of Agricultural Sciences, China; <sup>2</sup>Oil Crops Research Institute, Chinese Academy of Agricultural Sciences, China; <sup>3</sup>Oil Crops Research Institute, CAAS, China*

## Surfactants and Detergents

**S&D 2: New Trends in Cleaning: Hard Surface, Detergency, Hand Dish, and Autodish**

*Chairs: Paul Sharko, Shell Global Solutions, Inc., USA; and Masaki Tsumadori, Senior Advisor, R&D, Kao Corporation, Japan*

**Paquin 3**

- 7:55 **Introduction.**
- 8:00 **Improving Hand Dishwashing Liquid Cleaning Performance with Enzymes.** Lotte J. Jensen-Holm<sup>1</sup>, and Thomas J. Burns<sup>2</sup>, <sup>1</sup>*Novozymes A/S, Denmark; <sup>2</sup>Novozymes North America, Inc., USA*
- 8:20 **Glucamides—Versatile Sugar Surfactants for Sustainable Cleaning of Hard Surfaces.** Carsten Cohrs\*, Florian Schinle, Gabi Ohlendorf, and Christine Müller, *Clariant, Germany*
- 8:40 **Novel Dishwashing Process Converting Fatty Soil into Surfactant.** Mariko Kagaya\* and Takaya Sakai, *Kao Corporation, Japan*
- 9:00 **Increasing the Performance of Automatic Dishwashing with Enzymes.** Roberta Mustacchi<sup>1</sup>, Lotte J. Jensen-Holm<sup>1</sup>, and Thomas J. Burns<sup>2</sup>, <sup>1</sup>*Novozymes A/S, Denmark; <sup>2</sup>Novozymes North America, Inc., USA*
- 9:20 **Cracking the Code for Spotless Dishes.** Peter Miller\* and Keith E. Gutowski, *BASF Corporation, USA*
- 9:40 **Networking Break.**
- 10:20 **Future Trends in Auto-dish Wash Detergents.** Mike Orr\*, Nilgun Aksoy, Rob Roggeband and Graham A. Sorrie, *The Procter & Gamble Co., UK*
- 10:40 **In situ Monitoring of Soil Removal Processes from Hard Surfaces Using Quartz Crystal Microbalance Technique.** Yu Kanasaki<sup>1</sup>, Yasuyuki Kobayashi<sup>2</sup>, and Keiko Gotoh<sup>3</sup>, <sup>1</sup>*Nara Women's University, Japan; <sup>2</sup>Osaka Municipal Technical Research Institute, Japan; <sup>3</sup>National Institute of Technology, Nara College, Japan*
- 11:00 **Silicone-free Rubber and Plastic Dressing for Enhanced Carwashing.** Danielle Goodwin and Dave McCall\*, *Madonna University, USA*
- 11:20 **Methane Sulfonic Acid and Methylglycinediacetic Acid Benefits in Acidic Bathroom Cleaning Formulations.** Kevin M. Salmon\* and Stephen F. Gross, *BASF Corporation, USA*
- 11:40 **Spontaneously-generated Peeling of Keratin Grime from Hard Surfaces by the Effects of Permeation, Chelation, and Swelling.** Yosuke Watanabe\*, Asako Kawasaki, Yukihiro Kaneko, and Ryoji Yasue, *Lion Corporation, Japan*

## Surfactants and Detergents

**S&D 2.1: General Surfactants**

*Chairs: Sanja Natali, USA; and Phillip Vinson, The Procter & Gamble Co., USA*

**Paquin 4**

- 7:55 **Introduction.**
- 8:00 **A New Approach to Developing Surfactants Soluble in Highly Alkaline Systems.** Renae Bennett, Eric Theiner\*, Khalil Yacoub, Brian Smith, and Larry Meyers, *Evonik Corporation, USA*
- 8:20 **Assessment of Narcotic-like Effects of Surfactants Using a Larval Zebrafish Neurobehavioral Assay.** Harry W. Broening<sup>1</sup>, Lisa Truong<sup>2</sup>, Jane K. La Du<sup>2</sup>, Greg J. Carr<sup>1</sup>, J.F. Nash<sup>1</sup>, George P. Daston<sup>1</sup>, and Robert L. Tanguay<sup>2</sup>, <sup>1</sup>*The Procter & Gamble Co., USA; <sup>2</sup>Oregon State University, USA*
- 8:40 **Counterion Binding on Coacervation of Dioctyl Sulfosuccinate in Aqueous Sodium Chloride.** Shengbo Wang, Changlong Chen\*, Ben Shiau, and Jeffrey Harwell, *University of Oklahoma, USA*
- 9:00 **Salt-viscosity Response of Alcohol Ethoxylate/Alcohol Ethoxylate Sulfate in Solutions and in Liquid Laundry Detergents.** Thu Nguyen\*, Christian Jones, and Tamra Weemes, *Sasol Performance Chemicals, USA*
- 9:20 **Self-shaping Drops: From Formation Mechanisms to Potential**





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**Applications.** Diana P. Cholakova<sup>\*1</sup>, Nikolai D. Denkov<sup>2</sup>, Slavka S. Tcholakova<sup>2</sup>, Ivan I. Lesov<sup>2</sup>, and Stoyan K. Smoukov<sup>3</sup>, <sup>1</sup>*Sofia University, Bulgaria*; <sup>2</sup>*Dept. of Chemical and Pharmaceutical Engineering Faculty of Chemistry and Pharmacy, Sofia University, Bulgaria*; <sup>3</sup>*Dept. of Materials Science and Metallurgy, University of Cambridge, UK*

- 9:40 **Networking Break.**
- 10:20 **Synthesis of Isomerically Pure 2-Phenyl Linear Alkyl Benzene Sulfonates.** Richard L. Pederson<sup>\*</sup>, *Materia Inc., USA*
- 10:40 **The Effect of Regular Surface Patterning on Surfactant Adsorption.** Brian P. Grady<sup>\*</sup> and Joshua J. Hamon, *University of Oklahoma, USA*
- 11:00 **Rheology Modifications for Functional Markets.** David R. Allen, Aaron W. Sanders<sup>\*</sup>, Elodie Shaw, Ginger Wren, Dawn Friesen, Eric Weber, and Kelly Buchek, *Stepan Company, USA*
- 11:20 **Development and Characterization of a New Class of Castor Oil Ethoxylates.** Cornell Stanciu<sup>\*</sup>, Jorge M. Fernandez, and Ning Xie, *Sasol North America, USA*
- 11:40 **The Effect of Small Molecules on Cetylpyridinium Chloride's Behavior in Solution and at Interface.** Hongwei Shen<sup>\*</sup>, Chi-Yuan Cheng, Kevin Chi, Donghui Wu, Venda P. Maloney, and Ravi Subramanyam, *Colgate Palmolive Co., USA*

Technology Showcase

### TECH 1: Technology Showcase I

*Chair: James Jasko, ICOF America, Inc.; a Member of Musim Mas Group, USA*

#### Smalley 3

- 7:55 Introduction.
- 8:00 **High Performance Structural Analysis of Fat Crystals, Oils, Waxes, and Gels Using Passive Thermally-activated Microrheology.** Maxime Bazin<sup>1</sup>, Giovanni Brambilla<sup>1</sup>, Roland Ramsch<sup>1</sup>, Mathias Fleury<sup>1</sup>, Matt Vanden Eynden<sup>\*2</sup>, and Gerard Meunier<sup>1</sup>, <sup>1</sup>*Formulation, France*; <sup>2</sup>*Formulation, USA*
- 8:20 **Application of Gas Chromatography-vacuum Ultraviolet Absorption Detection to the Analysis of Fatty Acid Methyl Esters.** Jonathan Smuts<sup>\*1</sup>, Phillip Walsh<sup>1</sup>, Kevin A. Schug<sup>2</sup>, and Paul Johnson<sup>1</sup>, <sup>1</sup>*VUV Analytics, USA*; <sup>2</sup>*University of Texas, USA*
- 8:40 **New Distillation Applications in the Fats and Oil Industry.** Robert J. Schavey<sup>\*</sup>, *VTA GmbH & Co., KG, USA*
- 9:00 **Enabling High Performance in Low Temperature Washing with Enzymes and Chemistry.** Keith E. Gutowski<sup>\*</sup>, *BASF Corporation, USA*
- 9:20 **UltraPerformance Convergence Chromatography™ for Food Analysis.** Jinchuan Yang<sup>\*</sup>, *Waters, USA*
- 9:40 **Networking Break.**
- 10:20 **Introducing the Vapor Pro® XL—A Chemical Free Karl Fischer Alternative.** Quincy Biamonte and Garrett Rowe<sup>\*</sup>, *Arizona Instrument LLC, USA*
- 10:40 **Reduction of Toxins in Fish Oil from PPM to PPB in a Specialized Passive Stripper at Micron-level Vacuum.** Perry Alasti, Csky Young<sup>\*</sup>, and Caitlin A. Davis, *Artisan Industries Inc., USA*
- 11:00 **Optimized GC Column Selectivity for Fast Separation of Complex cis/trans Fatty Acid Methyl Esters (FAMES).** A. Carl Sanchez, Marc Gregerson, Ramkumar Dhandapani<sup>\*</sup>, Kristen Parnell, and Timothy Anderson, *Phenomenex, USA*
- 11:20 **The Power of Controlled Flow Cavitation to Enhance Degumming, Refining, and Biodiesel Operations.** Oleg Kozyuk<sup>1</sup>, Paul Reinking<sup>2</sup>, and Darren J. Little<sup>\*3</sup>, <sup>1</sup>*ASI Chief Technology Officer, Ukraine*; <sup>2</sup>*ASI Director of New Applications Engineering, USA*; <sup>3</sup>*Arisdyne Systems, Inc., USA*
- 11:40 **NMR Spectroscopy Will be the Answer of All Your Questions.** Bernd W.K. Diehl<sup>\*</sup> and Elina Zailer, *Spectral Service AG, Germany*

## Tuesday Afternoon

Analytical

### ANA 3: Marine and Krill Oil—Analytical Advances

*Chairs: Cynthia Srigley, US Food and Drug Administration, USA; and Erik Fuglseth, Orivo AS, Norway*

#### Smalley 5

- 1:55 **Introduction.**
- 2:00 **Matrix Extension Validation of AOCS Official Method Ce 2c-11 for Foods and Dietary Supplements Containing Added Marine Oil.** Cynthia Srigley<sup>\*1</sup>, Shaun P. Kotoski<sup>2</sup>, and Ziyi Li<sup>1</sup>, <sup>1</sup>*US Food and Drug Administration, USA*; <sup>2</sup>*University of Maryland, USA*
- 2:20 **A Novel Tool for the Determination of Authenticity of Marine Ingredients.** Erik Fuglseth<sup>\*</sup>, *Orivo AS, Norway*
- 2:40 **Vibrational Spectroscopy and PLS Procedures for the Rapid Prediction of Omega-3 Polyunsaturated Fatty Acid Concentrations in Marine Oil Dietary Supplements.** Sanjeeva R. Karunathilaka<sup>\*</sup>, Jin Kyu Chung, Cynthia Srigley, and Magdi Mossoba, *US Food and Drug Administration, USA*
- 3:00 **Physical and Oxidation Stability of Self-emulsifying Krill Oil-in-Water Emulsions.** Qian Wu<sup>\*1</sup>, Eric A. Decker<sup>2</sup>, Sibel Uluta<sup>3</sup>, Leqi Cui<sup>4</sup>, Chao Wang<sup>1</sup>, and Dongsheng Li<sup>1</sup>, <sup>1</sup>*Hubei University of Technology, China*; <sup>2</sup>*University of Massachusetts Amherst, USA*; <sup>3</sup>*Dept. of Food Technology, Inonu University, Turkey*; <sup>4</sup>*Fuli School of Food Equipment Engineering and Science, Xi'an Jiaotong University, China*
- 3:20 **Performance Assessment in Quantitative NMR Analyses of Krill Oils.** Elina Zailer and Bernd W.K. Diehl<sup>\*</sup>, *Spectral Service AG, Germany*
- 3:40 **Qualitative Detection of Krill Oil Adulteration with Fish Species and Synthetic Oil by <sup>13</sup>C NMR Spectroscopy.** Yulia B. Monakhova<sup>\*</sup>, Bernd W.K. Diehl, and Elina Zailer, *Spectral Service AG, Germany*
- 4:00 **Qualitative Detection of Fish Oil Adulteration by Nuclear Magnetic Resonance Spectroscopy Pattern Recognition.** Yulia B. Monakhova, Bernd W.K. Diehl<sup>\*</sup>, and Elina Zailer, *Spectral Service AG, Germany*

Biotechnology

### BIO 3: Advances in Bioactive Fats

*Chairs: Suk Hoo Yoon, Woosuk University, Korea; and Masashi Hosokawa, Hokkaido University, Japan*

#### Wesson 1

- 1:55 **Introduction.**
- 2:00 **Effects of Heating Methods on Thermal Isomerization and Degradation of Carotenes.** Suk Hoo Yoon<sup>\*</sup>, *Woosuk University, Korea*
- 2:20 **Synthesis of Trimethylolpropane Esters Using an Immobilized Lipase.** Heejin Kim<sup>\*1</sup> (*Biotechnology Division Student Best Paper Award Winner*) and In-Hwan Kim<sup>2</sup>, <sup>1</sup>*Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea*; <sup>2</sup>*Korea University, Republic of Korea*
- 2:40 **Functional Lipid Production by Microalgae *Phaeodactylum tricorutum*.** Yu-Hong Yang<sup>1</sup>, Lei Du<sup>1</sup>, Masashi Hosokawa<sup>1</sup>, Kazuo Miyashita<sup>\*1</sup>, Noritaka Yoshikawa<sup>2</sup>, Yume Kokubun<sup>2</sup>, Hisayoshi Arai<sup>2</sup>, and Hiroyuki Taroda<sup>2</sup>, <sup>1</sup>*Hokkaido University, Japan*; <sup>2</sup>*DIC Corporation, Japan*
- 3:00 **Effects of Peanut Oil on Regioselectivity *Yarrowia lipolytica* Lipase in Hydrolysis Reaction.** Emilia Akil<sup>\*1</sup>, Priscilla Amaral<sup>2</sup>, Jérôme Lecomte<sup>3</sup>, Torres Alexandre<sup>2</sup>, and Pierre Villeneuve<sup>4</sup>, <sup>1</sup>*Federal University of Rio de Janeiro, Brazil*; <sup>2</sup>*UFRJ, Brazil*; <sup>3</sup>*CIRAD, Greece*; <sup>4</sup>*CIRAD/INRA, UMR 1208 IATE, France*
- 3:20 **Pennycress—A Novel Emerging Oilseed Providing a Unique Oil Feedstock for Food and Biofuels.** Tim Ulmasov<sup>\*</sup>, *Arvegenix, USA*



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## Biotechnology

**BIO 3.1/PRO 3.1: Biodiesel from Low-quality Feed Stocks**

Chairs: Casimir Akoh, University of Georgia, USA; and Per Munk Nielsen, Novozymes, Denmark

**Paquin 1**

- 1:55 **Introduction.**
- 2:00 **Lipase-mediated Biodiesel Production and Its Commercialization Progress.** Dehua Liu\*, *Tsinghua University, China*
- 2:40 **Industrial Applications in Continuous Enzymatic Biodiesel Processing.** Brent Chrabas\* and Stu Lamb, *Viesel Fuel LLC, USA*
- 3:00 **Biodiesel Produced from Oil Recovered from Waste Water Plants.** Frankie Mathis\*, *Tactical Fabrication LLC, USA*
- 3:20 **Industrial Enzymatic Biodiesel from Low-cost Feedstocks.** Marcelo Cantele\*, *Tranfertech Gestão de Inovações LTDA, Brazil*
- 3:40 **Customized Solutions Through Modular Engineering of Renewable Biodiesel Production Plants.** Gijs Calliauw\*, Wim De Greyt, Dario Altera, and Marc J. Kellens, *Desmet Ballestra Group, Belgium*
- 4:00 **Enzymatic Biodiesel from Distiller's Corn Oil. Experiences from Full Scale Production.** Anders Rancke-Madsen\*<sup>1</sup>, Mark Bollinger<sup>2</sup>, Hans Christian Holm<sup>1</sup>, and Per Munk Nielsen<sup>1</sup>, <sup>1</sup>*Novozymes, Denmark*; <sup>2</sup>*Novozymes, USA*
- 4:20 **Eurofins QTA, AOCs Ck2-09 Solution for the Quality/Process Control in Enzymatic Biodiesel Production.** Nan Wang<sup>1</sup> and Kangming Ma\*<sup>2</sup>, <sup>1</sup>*Eurofins Analytical, USA*; <sup>2</sup>*Eurofins QTA Inc., USA*

## Edible Applications Technology

**EAT 3: Nano-, Micro-, Macrostructure**

Chairs: Alejandro Marangoni, University of Guelph, Canada; and Pere Ramel, University of Guelph, Canada

**Smalley 1**

- 1:55 **Introduction.**
- 2:00 **Thermodynamic Considerations for Molecular Gel Formation.** Yaqi Lan\*<sup>1</sup>, Maria G. Corradini<sup>2</sup>, and Michael Rogers<sup>3</sup>, <sup>1</sup>*South China Agriculture University, China*; <sup>2</sup>*University of Massachusetts Amherst, USA*; <sup>3</sup>*University of Guelph, Canada*
- 2:20 **Restructuring of Palm Mid Fraction by Interesterification Improved Its Consistency and Crystallization Rate.** Noor Lida Habi Mat Dian\*, Miskandar Mat Sahri, Sivaruby Kanagaratnam, and Rafidah Abd Hamid, *Malaysian Palm Oil Board, Malaysia*
- 2:40 **Aggregation of CrysTalline Nanoplatelets and the Effects of Constant Shear Using Dissipative Particle Dynamics.** David A. Pink\*<sup>1</sup>, Beth Townsend<sup>2</sup>, Fernanda Peyronel<sup>2</sup>, and Alejandro G. Marangoni<sup>3</sup>, <sup>1</sup>*St. Francis Xavier University, Canada*; <sup>2</sup>*Dept. of Food Science, University of Guelph, Canada*; <sup>3</sup>*University of Guelph, Canada*
- 3:00 **Extraction of Gossypol and Purification of Cotton Oil and Cotton Meal Using Novel Liquid Nano Vehicles.** Yael Prigat and Nissim Garti\*, *Hebrew University, Israel*
- 3:20 **Effects of High Intensity Ultrasound and Emulsifiers on Crystallization Behavior of Palm Oil.** Zong Meng\*, Hongjuan He, and Yuanfa Liu, *Jiangnan University, China*
- 3:40 **Mechanism for the Effects of High Behenic Acid Stabilizers on Fat Stability.** Ga Yae Kim\* and Alejandro G. Marangoni, *University of Guelph, Canada*
- 4:00 **Modification of Butter Physical Properties Using High Intensity Ultrasound.** Jiwon Lee\* and Silvana Martini, *Utah State University, USA*
- 4:20 **Formation of Phytosterol Nanoparticles Using Novel Nanoporous Bioaerogels.** Ali Ubeyitogullari and Ozan N. Ciftci\*, *University of Nebraska-Lincoln, USA*

## Edible Applications Technology

**EAT 3.1: Saturated Fat Reduction**

**This session is sponsored in part by Cargill, Inc.**

Chairs: Paul Smith, Cargill Global Foods Research, Belgium; and Silvana Martini, Utah State University, USA

**Smalley 2**

- 1:55 **Introduction.**
- 2:00 **Impacts of TAG-TAG Molecular Interactions for the Formation of Functional Fats.** Kiyotaka Sato\*<sup>1</sup>, Laura Bayes-Garcia<sup>2</sup>, and Shimpei Watanabe<sup>3</sup>, <sup>1</sup>*Hiroshima University, Japan*; <sup>2</sup>*University of Barcelona, Spain*; <sup>3</sup>*Fuji Oil Co. Ltd., Japan*
- 2:40 **Influence of the Addition of Phytosterol Esters on the Crystallization of Palm Oil.** Eva Daels\*<sup>1</sup>, Bart Goderis<sup>1</sup>, and Imogen Foubert<sup>2</sup>, <sup>1</sup>*Katholieke Universiteit Leuven, Belgium*; <sup>2</sup>*Katholieke Universiteit Leuven Kulak, Belgium*
- 3:00 **Wax Crystallization in Emulsion-templated Oleogelation.** Iris Tavernier\*<sup>1</sup>, Tom Rimaux<sup>2</sup>, and Koen Dewettinck<sup>1</sup>, <sup>1</sup>*Ghent University, Belgium*; <sup>2</sup>*Vandemoortele R&D Centre, Belgium*
- 3:20 **Emulsion Droplets as Rheological Modifiers in a Fat-crystal Network Stabilized Emulsion.** Ruby R. Rafanan\* and Dérick Rousseau, *Ryerson University, Canada*
- 3:40 **Interesterified trans-free Fats Rich in sn-2 Nervonic Acid Prepared Using Acer Truncatum Oil and Palm Oil.** Peng Hu\*<sup>1</sup>, Liangli Yu<sup>2</sup>, and Xuebing Xu<sup>3</sup>, <sup>1</sup>*Wilmar Biotechnology R&D Center (Shanghai) Co., Ltd., China*; <sup>2</sup>*Dept. of Nutrition and Food Science, University of Maryland, USA*; <sup>3</sup>*Wilmar Global Research and Development Center, China*
- 4:00 **Soybean Oil Partial Hydrogenation Using High Voltage Atmospheric Cold Plasma Treatment without Trans Fatty Acids.** Ximena Yepez\*<sup>1</sup>, Hanna S. Gracz<sup>2</sup>, and Kevin M. Keener<sup>3</sup>, <sup>1</sup>*Purdue University, USA*; <sup>2</sup>*North Carolina State University, USA*; <sup>3</sup>*Iowa State University, USA*
- 4:20 **The Impact of Cooling Rate and Sugar Volume Fraction on Palm Oil Crystallization.** Kyle Vollett, Ryan West, and Dérick Rousseau\*, *Ryerson University, Canada*
- 4:40 **Innovation Focused on Health and Nutrition: Oxidative Stability and Functional Performance of Low Saturate High Oleic Canola Oil.** Diliara Ilassonova\* and Amir Saberi, *Cargill Inc., USA*

## Health and Nutrition

**H&N 3: Brain, Behavior, and Omega-3s**

**This session organized jointly by AOCs and ISSFAL**

**This session is sponsored in part by Australian Oilseeds Federation, FMC/Epax Norway AS, GOED Omega-3, Sanmark LLC, and Young Living Essential Oils.**

Chairs: Alex Kitson, Pepsico Foods, Canada; and Richard Bazinet, University of Toronto, Canada

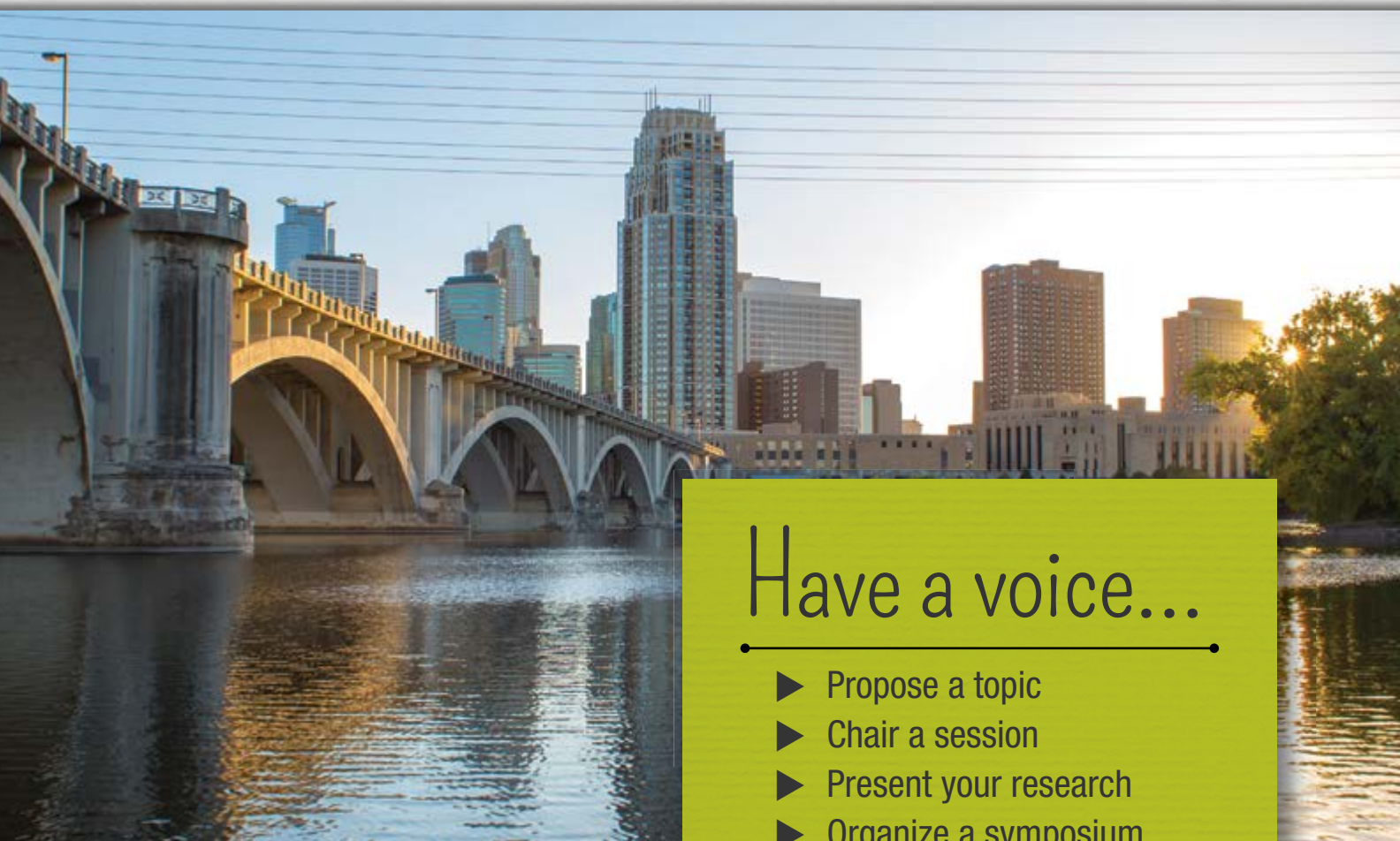
**Smalley 6**

- 1:55 **Introduction.**
- 2:00 **Long-chain Polyunsaturated Fatty Acids and Infant Formula: A Case Study in Bench to Cradle Translation.** J. Thomas Brenna\*, *Cornell University, USA*
- 2:40 **How Does Docosahexaenoic Acid Enter the Brain? Updates and Implications for Adults and Infants.** Richard P. Bazinet\*, *University of Toronto, Canada*
- 3:20 **Break. \***
- 3:40 **Linoleic Acid Regulates Neurotransmission Through its Oxidized Metabolites.** Ameer Taha\* (*Health and Nutrition Division New Investigator Research Award Winner*), *University of California, Davis, USA*
- 4:20 **Omega-3 Fatty Acids Decrease the Neuroinflammatory Response to Amyloid- $\beta$  in a Mouse Model of Alzheimer's Disease.** Kathryn E. Hopperton, *University of Toronto, Canada*

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**IOP 3: Green Chemistry**

Chairs: Long Yu, South China University of Technology, China; and Andrew Myers, USA

**Wesson 2**

- 1:55 **Introduction.**
- 2:00 **Lipid Profile of Oklahoma Native Microalgae Strains and Chemical Composition of the Bio-oil Produced by Pyrolysis of the Algal Biomass.** Nurhan Dunford\*, Oklahoma State University, USA
- 2:20 **New Development of Starch-based Materials.** Long Yu\*, Xioayan Ge, and Ying Chen, South China University of Technology, China
- 2:40 **Tung Oil Based Epoxidized Dicarboxylic Acid Dimethyl Ester as Green Primary Plasticizer and Auxiliary Thermal Stabilizer for Poly(vinyl chloride).** Kun Huang\*, Chinese Academy of Forestry, China
- 3:00 **Synthesis and Characterization of Cardanol Based Epoxy/Amine System for Corrosion Prevention.** John J. La Scala<sup>1</sup>, Giuseppe R. Palmese<sup>2</sup>, and Emre Kinaci<sup>2</sup>, <sup>1</sup>Army Research Laboratory, USA; <sup>2</sup>Drexel University, USA
- 3:20 **Integrated Methyl Esters Synthesis Technology for Multiple Feedstock Oils via Hydrodynamic Cavitation Pilot Scale System.** Syed Awais Ali Shah Bokhari\* (**Honored Student Award Winner** and **Manuchehr (Manny) Eijadi Award Winner**), Suzana Yusup, and Lai Fatt Chuah, Universiti Teknologi PETRONAS, Malaysia

Lipid Oxidation and Quality

**LOQ 3a: Lipid Oxidation and Antioxidants—Fundamentals and Applications**

Chairs: David Johnson, University of Massachusetts Amherst, USA; and Fereidoon Shahidi, Memorial University of Newfoundland, Canada

**Smalley 7**

- 1:55 **Introduction.**
- 2:00 **Lipid Oxidation and Antioxidants: Fundamentals and Applications.** Fereidoon Shahidi\*, Memorial University of Newfoundland, Canada
- 2:20 **Protein-polysaccharide Mixtures as Wall Material in Fish Oil-loaded Nano-microcapsules Obtained by Electro spraying.** Pedro J. Garcia-Moreno\*, Andres Pelayo, Ramona V. Mateiu, Ioannis S. Chronakis, and Charlotte Jacobsen, Technical University of Denmark, Denmark
- 2:40 **Vectorization of Antioxidants in Natural Deep Eutectics Solvents and Evaluation of Their Resulting Efficiencies.** Erwann Durand<sup>1</sup>, Eric A. Decker<sup>2</sup>, Jérôme Lecomte<sup>3</sup>, Pierre Villeneuve<sup>4</sup>, Béatrice Chabi<sup>5</sup>, Chantal Wrutniak-Cabello<sup>5</sup>, Virginie Charton<sup>6</sup>, Jean-David Rodier<sup>6</sup>, and Frédéric Demarne<sup>6</sup>, <sup>1</sup>CIRAD, France; <sup>2</sup>University of Massachusetts Amherst, USA; <sup>3</sup>CIRAD, Greece; <sup>4</sup>CIRAD/INRA, UMR 1208 IATE, France; <sup>5</sup>UMR DMEM, France; <sup>6</sup>Gattefossé, France
- 3:00 **Impact and Parameters of Active Oxygen Scavenging Packaging on the Oxidative Stability of Oil-in-Water Emulsions.** David Johnson\* and Eric A. Decker, University of Massachusetts Amherst, USA

Lipid Oxidation and Quality

**LOQ 3b: New Antioxidants from Agricultural By-products, Food Processing Waste, and New Sources**

Chairs: Xin Tian, Kalsec, Inc., USA; and Min Hu, DuPont Nutrition & Health, USA

**Smalley 7**

- 3:35 **Introduction.**
- 3:40 **Food Processing and Agriculture By-products as Natural Sources of Antioxidants: Reviews and Challenges.** Xin Tian\*, Kalsec, Inc., USA
- 4:00 **Application of Antioxidants from New Sources in Foods Rich in Omega-3 Fatty Acids.** Charlotte Jacobsen\*<sup>1</sup>, Ditte B. Hermund<sup>1</sup>, Sabeena Farvin Koduvayur Habeebullah<sup>2</sup>, Ann-Dorit M. Sørensen<sup>1</sup>, and Pedro J. Garcia-Moreno<sup>1</sup>, <sup>1</sup>Technical University of Denmark,

Denmark; <sup>2</sup>Environmental and Life Science Research Center, Kuwait Institute for Scientific Research, Kuwait

- 4:20 **Impact of Processing on n-3 Long Chain Poly-unsaturated Fatty Acids Derived from Microalgae.** Lore Gheysen<sup>1</sup>, Tom Bernaerts<sup>2</sup>, Charlotte Bruneel<sup>1</sup>, Koen Goiris<sup>3</sup>, Jim Van Durme<sup>3</sup>, Ann Van Loey<sup>2</sup>, Luc De Cooman<sup>3</sup>, and Imogen Foubert\*<sup>1</sup>, <sup>1</sup>Katholieke Universiteit Leuven Kulak, Belgium; <sup>2</sup>Katholieke Universiteit Leuven, Belgium; <sup>3</sup>Katholieke Universiteit Leuven, Technology Campus Ghent, Belgium
- 4:40 **Antioxidant Effect of Water and Acetone Extracts of Fucus Vesiculosus on Oxidative Stability of Skin Care-emulsions.** Candelaria Poyato<sup>1</sup>, Birgitte R. Thomsen\*<sup>2</sup>, Ditte B. Hermund<sup>2</sup>, Diana Ansorena<sup>1</sup>, Iciar Astiasarán<sup>1</sup>, Rosa Jónsdóttir<sup>3</sup>, Hordur G. Kristinnsson<sup>3</sup>, and Charlotte Jacobsen<sup>2</sup>, <sup>1</sup>University of Navarra, Spain; <sup>2</sup>Technical University of Denmark, Denmark; <sup>3</sup>Matis, Iceland

Phospholipid

**PHO 3: Bioactive Phospholipids and Lipids for Drug Delivery**

Chair: Ernesto Hernandez, Advanced Lipid Consultants, USA

**Paquin 2**

- 1:55 **Introduction.**
- 2:00 **Effects of A Purified, Omega-3 Rich Krill Oil Phospholipid on Cardiovascular Disease Risk Factors and Fatty Acid Composition of Erythrocyte Membranes.** Nils Hoem\*, Aker Biomarine Antarctic AS, Norway
- 2:20 **"L3, Lipids-based Sponge Phases"—Characteristics and Uses as Drug Carriers.** Yosef Brody and Nissim Garti\*, Hebrew University, Israel
- 2:40 **Fucoxanthin Improves HbA1c in G/G Allele Carriers of UCP1 Polymorphism in Japanese: Rumoi Fucoxanthin Study.** Nana Mikami\*<sup>1</sup>, Masashi Hosokawa<sup>2</sup>, Kazuo Miyashita<sup>2</sup>, Hitoshi Sohma<sup>1,3</sup>, Yoichi M. Ito<sup>4</sup> and Yasuo Kokai<sup>1</sup>, <sup>1</sup>Dept. of Biomedical Engineering, Sapporo Medical University School of Medicine, Japan, <sup>2</sup>Graduate School of Fisheries Sciences, Hokkaido University, Japan, <sup>3</sup>Dept. of Educational Development, Sapporo Medical University Center for Medical Education, Japan, <sup>4</sup>Dept. of Biostatistics, Hokkaido University Graduate School of Medicine, Japan
- 3:00 **Synthesis a Novel Biopolymer for Drug Delivery.** Nisarg K. Prajapati\*<sup>1</sup> and Nirmal K. Patel<sup>2</sup>, <sup>1</sup>V. P. & R. P. T. P. Science College, India; <sup>2</sup>Institute of Science & Technology for Advanced Studies & Research, India
- 3:20 **Excipient Emulsions Design: Enhancing Nutraceutical Bioavailability from Natural Foods.** Ruojie Zhang\* (**Hans Kaunitz Award Winner**), Zipei Zhang, and David J. McClements, University of Massachusetts Amherst, USA
- 3:40 **Role of Phospholipids in Delivery and Stabilization of Omega-3 Fatty acids in Nanoemulsions.** Ernesto Hernandez\*, Advanced Lipid Consultants, USA

Processing

**PRO 3: Refining—Basic and New Technologies**

Chairs: Jim Willits, Desmet Ballestra, USA; and William Younggreen, Alfa Laval Inc., USA

**Wesson 3**

- 1:55 **Introduction.**
- 2:00 **AquaHy—An Aqueous Extraction of Oil Crops.** Stefan Kirchner\* and Jörg Heidhues, GEA Westfalia Separator Group GmbH, Germany
- 2:20 **Expanding the Enzymatic Degumming Toolbox with a New Phospholipase C.** Hanna M. Lilbæk\* and Per Munk Nielsen, Novozymes, Denmark
- 2:40 **Oil Modification: Solution or Problem for 3-MCPD/GE Mitigation.** Marc J. Kellens, Wim De Greyt\*, Véronique Gibon, and Jeroen Maes, Desmet Ballestra Group, Belgium
- 3:00 **Concentration of Micronutrients form the Deodorization Process – Technology Comparison.** William Younggreen, Alfa Laval Inc., USA



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### Presentation Showcase

*"Reduction of Toxins, in a Specialized Passive Stripper, at Micron-Level Vacuum "*

- Wednesday, May 3rd at 10:40-11am
- Session: TECH 1
- Technology Showcase
- Room: Paquin 4

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- 3:20 **How Silica Can Improve Quality and Reduce Operating Cost for Enzymatic Interesterification.** Jim Williits\*, *Desmet Ballestra, USA*
- 3:40 **3-MCPD/GE—Current and Future Technologies for Mitigation.** L. Harild\*, *Alfa Laval Inc., USA*
- 4:00 **New Developments in the Enzyme Processing of Oilseeds.** Steve Gregory\*, *DSM, USA*

## Processing

**BIO 3.1/PRO 3.1: Biodiesel from Low-quality Feed Stocks**

*Chairs: Casimir Akoh, University of Georgia, USA; and Per Munk Nielsen, Novozymes, Denmark*

**Paquin 1**

Joint session: For details, see **BIO 3.1/PRO 3.1**, on page 42.

## Protein and Co-Products

**PCP 3: Canola Proteins and Co-Products: Science and Utilization**

*Chairs: Curtis Rempel, Canola Council of Canada, Canada; Lisa Campbell, Canola Council of Canada, Canada; and Janitha Wanasundara, Agriculture and Agri-Food Canada, Canada*

**Wesson 4**

- 1:55 **Introduction.**
- 2:00 **Production, Functional Properties, and Applications of Canola Protein Cruciferin.** Frank Pudel, Steffi Bäcker\*, Jesus Palomino, and Ralf-Peter Tressel, *Pilot Pflanzenöltechnologie Magdeburg e.V., Germany*
- 2:20 **White Flake Desolventization, Feedback from the Field.** Richard W. Ozer\*, *Crown Iron Works, USA*
- 2:40 **Development of Protein-related Traits in *Brassica napus*.** Danica L. Swaenepoel<sup>1</sup>, Kenny So<sup>1</sup>, Ashley Ammeter<sup>1</sup>, Erin E. Higgins<sup>2</sup>, Isobel I.A. Parkin<sup>2</sup>, Curt McCartney<sup>2</sup>, Dwayne Hegedus<sup>2</sup>, Janitha Wanasundara<sup>2</sup>, Sally Vail<sup>2</sup>, and Robert W. Duncan\*<sup>1</sup>, <sup>1</sup>*University of Manitoba, Canada; 2Agriculture and Agri-Food Canada, Canada*
- 3:00 **Production of Food-grade Canola Proteins by Membrane Based Processes.** Bih King Chen\* and Levente L. Diosady, *Dept. of Chemical Engineering, University of Toronto, Canada*
- 3:20 **Dehulling High Protein Canola Seed to Produce >58% Protein Meal.** Matthew A. Robinson\*<sup>1</sup>, Thomas G. Patterson<sup>1</sup>, Patrick J. Nelson<sup>1</sup>, and S. Patrick Adu-Peasah<sup>2</sup>, <sup>1</sup>*Dow AgroSciences, USA; 2USA*
- 3:40 **Combined Effect of Pretreatment and Fungal Bioprocessing for Upgrading the Nutritional Value of Canola Meal.** B. Karki<sup>1</sup>, J.R. Croat<sup>1</sup>, W.R. Gibbons<sup>1</sup>, M.A. Berhow<sup>2</sup>, and K. Muthukumarappan<sup>3</sup>, <sup>1</sup>*Dept. of Biology and Microbiology, South Dakota State University, USA; 2Ag and Biosystems Engineering, South Dakota State University, USA; 3USDA, ARS, NCAUR, USA*

## Surfactants and Detergents

**S&D 3: Journal of Surfactants and Detergents—20th Volume Celebration Honoring Milton Rosen**

*This session is sponsored in part by Springer.*

*Chairs: Dennis Murphy, Stepan Company, USA; and Arun Ramchandran, University of Toronto, Canada*

**Paquin 3**

- 1:55 **Introduction.**
- 2:00 **Gemini Surfactants Based on Linear Alkylbenzene Sulfonate for Use in Liquid Laundry Detergents.** George A. Smith\*, *Huntsman Corporation, USA*
- 2:20 **Silicone Surfactants in Oil Based Systems.** Tony O'Lenick\*, *Siltech LLC, USA*
- 2:40 **Synergism and Interaction of Surfactants in Enhancing Performance in Personal Care and Industrial Formulations.** Manilal Dahanayake\*, *Surfactant Solution Experts LLC, USA*
- 3:00 **Surfactant Mixtures: Synergism in Solubilization, Microemulsions, and Detergency.** David A. Sabatini\*, *University of Oklahoma, USA*

- 3:20 **Surfactant-polymer Interaction.** Yun-Peng Zhu\*, *Lubrizol Advanced Materials, Inc., USA*
- 3:40 **Improve Low Tension Formulation Robustness in Enhanced Oil Recovery with Properly Optimized Surfactant Mixture.** Jean-Louis Salager\* and Ana M. Forgiarini, *Universidad de Los Andes, Venezuela*
- 4:00 **Accounting for Ion Specific Effects in the Hydrophilic/Lipophilic Difference (HLD) Equation.** Brock A. Trotter, Mohannad Kadhum, Ben Shiau, and Jeffrey Harwell\*, *University of Oklahoma, USA*
- 4:20 **Use of High Throughput Technologies to Accelerate Formulation Development.** Christopher J. Tucker\*, Michael Tate, and John Ell, *The Dow Chemical Company, USA*
- 4:40 **Samuel Rosen, Milton Rosen, and Visions of a Future Honoring a Legacy.** Charles E. Hammond\*, *Flotek Chemistry, USA*

## Surfactants and Detergents

**S&D 3.1: New Encapsulation and Delivery Systems**

*Chairs: Sam Adamy, Church & Dwight Co. Inc., USA; and Michael Miguez, Shell Global Solutions, Inc., USA*

**Paquin 4**

- 1:55 **Introduction.**
- 2:00 **HLD-based Method to Customize Lecithin-linker SMEDS Delivery Systems.** Mehdi Nouraei\* and Edgar Acosta, *University of Toronto, Canada*
- 2:20 **Study of Fragrance Bloom, Release, and Retention on Substrate from Surfactant-rich Cosmetics.** Martin S. Vethamuthu\*, Sergio Lira, Edward DiAntonio, and Hani Fares, *Ashland Specialty Ingredients G.P., USA*
- 2:40 **Microencapsulation.** Robert S. Bobnock\*, *Encapsys, USA*
- 3:00 **Waterborne Silicone Delivery.** Brett L. Zimmerman\*<sup>1</sup> and Leon Marteaux<sup>2</sup>, <sup>1</sup>*Dow Performance Silicones, USA; 2Dow Performance Silicones, Belgium*
- 3:20 **Delivery Systems in Detergent Products.** Johan Smets\*, *The Procter & Gamble Co., USA*
- 3:40 **Dual Action Malodor Benefit Capsules for Enhanced Freshness.** Evan Beach\*, Ron Gabbard, Yabin Lei, Sean Wetterer, and Li Xu, *International Flavors & Fragrances Inc., USA*
- 4:00 **Bicontinuous Microemulsions: Potentially Robust Delivery Systems for Melittin and Other Biomembrane-associated Peptides and Proteins.** Douglas G. Hayes\*<sup>1</sup>, Ran Ye<sup>1</sup>, Rachel N. Dunlap<sup>1</sup>, Divina B. Anunciado<sup>2</sup>, S. Venkatesh Pingali<sup>2</sup>, Hugh M. O'Neill<sup>2</sup>, and Volker S. Urban<sup>2</sup>, <sup>1</sup>*University of Tennessee, USA; 2Oak Ridge National Laboratory, USA*

## Technology Showcase

**TECH 2: Technology Showcase II**

*Chair: Bob Schavey, VTA GmbH & Co., KG, USA*

**Smalley 3**

- 1:55 **Introduction.**
- 2:00 **Unlock your Surfactant Space.** Steffen Eller\*, *Chemspeed Technologies AG, Switzerland*
- 2:20 **New Polymeric Co-builder to Improve Stain Removal and Whiteness in Liquid Laundry Detergents.** Fabio Costinitti\* and Diego Boscardin, *Italmatch Chemicals S.p.A., Italy*
- 2:40 **An Independent State-of-the-Art Pilot and Demonstration Facility for Bio-Based Products and Processes.** Sophie L.K.W. Roelants\*<sup>1</sup>, Brecht Vanlerberghe<sup>1</sup>, Lieve Hofflack<sup>1</sup>, Katrien Molders<sup>1</sup>, Frederik De Bruyn<sup>1</sup>, Hendrik Waegeman<sup>1</sup>, and Wim Soetaert<sup>2</sup>, <sup>1</sup>*Bio Base Europe Pilot Plant, Belgium; 2Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium*
- 3:00 **Proposing: C10-P.** Shin Arimoto\*, *The Nisshin Oillio Group, Ltd., Japan*
- 3:20 **Direct Carbohydrate Analysis in Beverages and Foods Using Pulsed Amperometric Detection or Charged Aerosol Detection.** Lori A. Dolata\*, *Thermo Fisher Scientific, USA*





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## Wednesday Morning

Analytical

### ANA 4: Minor Components in Specialty Oils—Analytical and Application Aspects

*Chairs: Rakesh Kapoor, Bioriginal Food & Science Corporation, Canada; Sara Shinn, California State University, Fresno, USA; and Fereidoon Shahidi, Memorial University of Newfoundland, Canada*

#### Smalley 5

- 7:55 **Introduction.**
- 8:00 **Minor Components of Edible Oils Affect Their Stability Characteristics.** Fereidoon Shahidi\*, *Memorial University of Newfoundland, Canada*
- 8:20 **Regression Analysis to Predict Impact of Confectioner's Sugar and Processing Conditions on Palm Oil Behavior.** Ryan West\* (*Honored Student Award Winner*) and Dérick Rousseau, *Ryerson University, Canada*
- 8:40 **AOCS Method Ce 12-16 for the Determination of Plant Sterols/Stanol in Foods and Dietary Supplements Containing Added Phytosterols: Collaborative Study Results.** Cynthia Srigley\*<sup>1</sup>, Steven L. Hansen<sup>2</sup>, Sean A. Smith<sup>2</sup>, and Richard Cantrill<sup>3</sup>, <sup>1</sup>*US Food and Drug Administration, USA*; <sup>2</sup>*Cargill Minneapolis R&D Center, USA*; <sup>3</sup>*AOCS, USA*
- 9:00 **GC-MS Analysis of the Volatile Constituents of Ocimum Tenuiflorum.** Noelle J. Fuller\*, Ronald B. Pegg, and David Berle, *University of Georgia, USA*
- 9:20 **A Streamlined Method for Quick Determination of Total and Individual Glucosinolates in Rapeseed.** Chuan Zhou\*<sup>1</sup>, Hai Ming Shi<sup>2</sup>, Dian Ping Ma<sup>2</sup>, Wen Ming Cao<sup>2</sup>, and Yuan Rong Jiang<sup>2</sup>, <sup>1</sup>*Wilmar, China*; <sup>2</sup>*Wilmar Biotechnology R&D Center (Shanghai) Co., Ltd., China*
- 9:40 **Networking Break.**
- 10:20 **Detecting Adulteration of Goat Cheeses with Cow Milk by Analysing the Triglyceride Profile.** Ignacio Vieitez\*, Bruno Irigaray, Nicolas Callejas, Verónica González, Sofia Jimenez, Añez Arechavaleta, Maria Grompone, and Adriana Gámbaro, *UdelaR, Uruguay*
- 10:40 **Partially Hydrogenated Oils (PHO) are No Longer GRAS—A Method of Their Detection.** Sneha Bhandari\* and Ming Gao, *Merieux NutriSciences, USA*
- 11:00 **Performance Assessment in Quantitative NMR Analyses of Edible Oils.** Elina Zailer\*, Bernd W.K. Diehl, and Yulia Monakhova, *Spectral Service AG, Germany*
- 11:20 **Asarinin as a Specific Marker for Differentiating Pressed Sesame Oil from Refined Sesame Oil.** Wen Ming Cao\*<sup>1</sup>, Bin Xue<sup>1</sup>, Chuan Zhou<sup>2</sup>, and Yuan-Rong Jiang<sup>1</sup>, <sup>1</sup>*Wilmar Biotechnology R&D Center (Shanghai) Co., Ltd., China*; <sup>2</sup>*Wilmar, China*

Biotechnology

### BIO 4: Plant Lipid Biotechnology and Genomics

*This session is sponsored in part by Oilseeds & Biosciences Consulting.*

*Chairs: Richard Wilson, Oilseeds & Bioscience Consulting, USA; and Thomas A. McKeon, USDA, ARS, WRRRC, USA*

#### Wesson 1

- 7:55 **Introduction.**
- 8:00 **Introduction of Reduced Total Saturated Fats High Oleic Canola Hybrids in North America.** Xinmin Deng\*, *Cargill Inc., USA*
- 8:20 **Investigation of Exotic Fatty Acid Biosynthesis: Transcript Profiling and Biochemical Characterization of Lipid Metabolic Genes from *Litchi chinensis* Seeds.** Jay Shockey\*<sup>1</sup>, David Kuhn<sup>2</sup>, Tao Chen<sup>3</sup>, Catherine Mason<sup>4</sup>, and Barbara Freeman<sup>2</sup>, <sup>1</sup>*SRRC-ARS-USA, USA*; <sup>2</sup>*USDA-ARS Subtropical Horticultural Research Station, USA*; <sup>3</sup>*Shenzhen Fairy Lake Botanical Garden, The Chinese Academy of Sciences, China*; <sup>4</sup>*SCCR-ARS-USA, USA*

- 8:40 **Plant Acyl-CoA-Binding Proteins Function in Stress Protection of Transgenic Plants.** Mee Len Chye\*, *School of Biological Sciences, University of Hong Kong, China*
- 9:40 **Networking Break.**
- 9:00 **Synthetic Biology to Engineer Novel Oils with Enhanced Properties.** Timothy P. Durrett\*, *Kansas State University, USA*
- 9:20 **The Genome Sequences of the Ancestors of Cultivated Peanut.** David J. Bertoli\*, *University of Georgia, USA; University of Brasília, Brazil*
- 10:20 **Re-Introducing the Castor Plant for Domestic Production of Castor Oil.** Tom McKeon\*, *USDA, ARS, WRRRC, USA*
- 10:40 **Biosynthetic Mechanisms of Very Long Chain Polyunsaturated Fatty Acids in Microorganisms.** Xiao Qiu\*, *University of Saskatchewan, Canada*
- 11:00 **Metabolically Engineered Plant Oils.** Surinder P. Singh\*, *CSIRO, Australia*

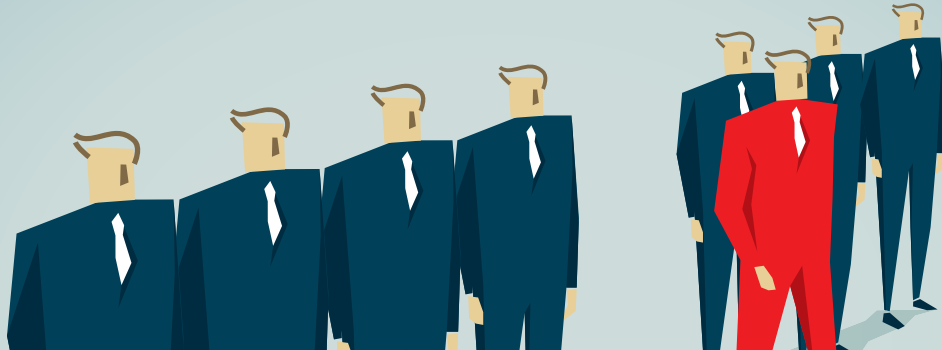
Biotechnology

### BIO 4.1/S&D 4.1: Biosurfactants, Bio-derived Surfactants, and Biodetergents

*Chairs: Heather Byrne, Huntsman Performance Products, USA; Douglas G. Hayes, University of Tennessee, USA; and Daniel Solaiman, USDA, ARS, ERRC, USA*

#### Paquin 1

- 7:55 **Introduction.**
- 8:00 **Tailoring of Mannosylerythritol Lipids by *Pseudozyma* Species Using Different Renewable Feedstocks.** Susanne Zibek\*, *Fraunhofer IGB Institute for Interfacial Engineering and Biotechnology, Germany*
- 8:20 **Integrated Bioprocess Design for the Production of Tailor-made Glycolipids Using *Starmarella bombicola*: Promising Results from Application Testing.** Lisa Van Renterghem\*<sup>1</sup> (*European Section Travel Grant Recipient*), Sophie L.K.W. Roelants<sup>1</sup>, Niki Baccelle<sup>2</sup>, Karel De Schampelaere<sup>3</sup>, Quinten Christiaens<sup>4</sup>, Stijn Verweire<sup>4</sup>, and Wim Soetaert<sup>4</sup>, <sup>1</sup>*Ghent University, Belgium*; <sup>2</sup>*Chimie de la Matière Condensée de Paris, Université Pierre et Marie Curie, France*; <sup>3</sup>*Environmental Toxicology Unit, Ghent University, Belgium*; <sup>4</sup>*Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium*
- 8:40 **Microbial Biosurfactants, from Lab to Market: Hurdles and How to Take Them.** Sophie L.K.W. Roelants\*<sup>1</sup>, Bernd Everaert<sup>1</sup>, Emile Redant<sup>1</sup>, Brecht Vanlerberghe<sup>1</sup>, and Wim Soetaert<sup>2</sup>, <sup>1</sup>*Bio Base Europe Pilot Plant, Belgium*; <sup>2</sup>*Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium*
- 9:00 **Sophorolipids in Hard Surface Cleaning Applications.** Zheng Xue\*, Dennis Parrish, Jeff Davidson, Samuel Christy, Andras Nagy, Miyako Hisamoto, and Terrence Everson, *Evonik Corporation, USA*
- 9:20 **Sophorolipid Biosurfactant Against Bacteria Relevant to Tooth Caries and Skin Hygiene.** Daniel K.Y. Solaiman\*<sup>1</sup>, Richard D. Ashby<sup>1</sup>, Joseph Uknalis<sup>2</sup>, Aixing Fan<sup>3</sup>, and Laurence Du-Thumm<sup>3</sup>, <sup>1</sup>*USDA, ARS, ERRC, USA*; <sup>2</sup>*USDA, ARS, ERRCA, USA*; <sup>3</sup>*Colgate Palmolive Co., USA*
- 9:40 **Networking Break.**
- 10:20 **A Journey to Standardisation of Bio-based Surfactants in Europe.** Juergen G. Tropsch\*<sup>1</sup>, Christophe Sené<sup>2</sup>, Thierry Beaudouin<sup>2</sup>, Stephen Mudge<sup>3</sup>, and Horacio Hormazabal<sup>4</sup>, <sup>1</sup>*BASF SE, Germany*; <sup>2</sup>*Stepan, France*; <sup>3</sup>*BSI, UK*; <sup>4</sup>*AFNOR, France*
- 10:40 **Oil Seed-extracted Oleosome Emulsifiers for Sun Protection Products.** Soo In Yang\*<sup>1</sup>, Shuanghui Liu<sup>1</sup>, Geoffrey Brooks<sup>1</sup>, Yves Lanctot<sup>1</sup>, and James V. Gruber<sup>2</sup>, <sup>1</sup>*Botaneco Inc., Canada*; <sup>2</sup>*Botaneco Inc., USA*
- 11:00 **The Antibacterial Property of Fatty Acyl Glutamic Acid and Proposed Mechanism.** Buddhi Lamsal and Kangzi Ren\*, *Iowa State University, USA*



**April 30–  
May 3,  
2017**

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- 11:20 **Triglyceride Derived Surfactants and Interesterification: Synthesis and Performance Properties.** Heather E. Byrne<sup>\*1</sup>, George A. Smith<sup>2</sup>, and Angela Garibay-Lewis<sup>3</sup>, <sup>1</sup>Huntsman Performance Products, USA; <sup>2</sup>Huntsman Corporation, USA; <sup>3</sup>Huntsman Corporation, USA

Edible Applications Technology

### EAT 4/H&N 4.1: Lipid Structure and Health

Chairs: Ignacio Vieitez, UdelaR, Uruguay; and Amanda Wright, University of Guelph, Canada

#### Smalley 1

- 7:55 **Introduction.**
- 8:00 **The Role of Food Structure in Lipid Digestibility and Bioavailability.** Harjinder Singh<sup>\*</sup>, Massey University, New Zealand
- 8:40 **Effect of the Interactions Between Sorbitan Monostearate and Candelilla Wax on Soybean Oil Gelation.** Carolina M. Teixeira<sup>1</sup>, Thais V. Sarau<sup>1</sup>, Roberta C. Silva<sup>2</sup>, Luiz A. Gioielli<sup>1</sup>, and Juliana N.R. Ract<sup>\*1</sup>, <sup>1</sup>University of Sao Paulo, Brazil; <sup>2</sup>Utah State University, USA
- 9:00 **Effect of Palmitic Acid's sn-position and Solid Fat Content on Fasting Lipid Profile in Mice.** Tong Wang<sup>\*</sup>, Iowa State University, USA
- 9:20 **Effects of Liquid Coconut Oil vs. Oleogel on Human Blood Triglycerides, Glucose, Insulin, and Appetite.** Sze-Yen Tan<sup>1</sup>, Elaine W.Y. Peh<sup>1</sup>, Alejandro G. Marangoni<sup>\*2</sup> (**Alton E. Bailey Award Winner**), and Christiani J. Henry<sup>1</sup>, <sup>1</sup>Singapore Institute for Clinical Sciences, Singapore; <sup>2</sup>University of Guelph, Canada
- 9:40 **Networking Break.**
- 10:20 **Structuring Lipids for Possible Infant and Prenatal Maternal Nutrition.** Casimir C. Akoh<sup>\*</sup>, University of Georgia, USA
- 10:40 **Knowns and Unknowns of Polar Phytosteryl Conjugates.** Laura Nyström (**Young Scientist Research Award Winner**), Laboratory of Food Biochemistry, Institute of Food, Nutrition and Health, Switzerland
- 11:00 **Sequential Crystallization of High and Low Melting Waxes to Improve Oil Structuring in Wax-based Oleogels.** Iris Tavernier<sup>\*1</sup>, Chi Diem Doan<sup>2</sup>, and Koen Dewettinck<sup>1</sup>, <sup>1</sup>Ghent University, Belgium; <sup>2</sup>Laboratory of Food Technology & Engineering, Ghent University, Belgium
- 11:20 **Antioxidant Capacity of Different Bioactives in an Oil-like-Structured Heterogeneous Medium Designed for Food Applications.** Maria Chatzidaki<sup>\*1</sup>, Maria Zoumpanti<sup>1</sup>, Giorgos Sotiropoulos<sup>1</sup>, Erwann Durand<sup>2</sup>, Jérôme Lecomte<sup>3</sup>, Claire Bourlieu<sup>4</sup>, Aristotelis Xenakis<sup>1</sup>, and Pierre Villeneuve<sup>5</sup>, <sup>1</sup>NHRF, Greece; <sup>2</sup>CIRAD, France; <sup>3</sup>CIRAD, Greece; <sup>4</sup>UMR IATE - INRA/CIRAD/UM2/SupAgro, France; <sup>5</sup>CIRAD/INRA, UMR 1208 IATE, France
- 11:40 **Sonocrystallization of Interesterified and Physical Blends of High Oleic Sunflower Oil (HOSO) and Tristearin.** Jeta V. Kadamne<sup>\*1</sup>, Ebenezer A. Ifeduba<sup>2</sup>, Casimir C. Akoh<sup>2</sup>, and Silvana Martini<sup>1</sup>, <sup>1</sup>Utah State University, USA; <sup>2</sup>University of Georgia, USA

Health and Nutrition

### H&N 4: Infant Formula Optimization

This session organized jointly by AOCS and ISSFAL

This session is sponsored in part by Australian Oilseeds Federation, DSM Nutritional Products, FMC/Epax Norway AS, GOED Omega-3, Sanmark LLC, and Young Living Essential Oils.

Chairs: Merritt Drewery, Louisiana State University, USA; and Carol Lammi-Keefe, Louisiana State University, USA

#### Smalley 6

- 7:55 **Introduction.**
- 8:00 **Evolution of the Infant Formula Industry: A Historical Perspective.** Carol Lammi-Keefe and Merritt Drewery<sup>\*</sup>, Louisiana State University, USA

- 8:20 **Importance of the Regiospecific Distribution of Long Chain Saturated Fatty Acids on Gut Comfort, Fat, and Calcium Absorption in Infants.** Valerie Petit<sup>\*</sup>, Laurence Sandoz, and Clara Lucia Garcia-Rodenas, Nestlé, Switzerland
- 8:40 **Protein Source as a Way to Optimize Sphingomyelin Levels in Infant Formula Closer to Breastmilk.** Gisella Mutungi<sup>\*1</sup>, Nora Schneider<sup>2</sup>, and Cian Moloney<sup>3</sup>, <sup>1</sup>Nestlé, USA; <sup>2</sup>Nestlé, Switzerland; <sup>3</sup>Nestlé, Ireland
- 9:00 **Long Chain Polyunsaturated Fatty Acids in Infant Formula: Essential Nutrients for Optimal Development.** Eric L. Lien<sup>\*</sup>, University of Illinois, USA
- 9:40 **Networking Break.**
- 10:20 **Structured Triglycerides in Infant Formula: Development of Fat Blends with Numerous Benefits.** Eric L. Lien<sup>\*</sup>, University of Illinois, USA
- 11:00 **Lipid Characterization in Breast Milk.** Francesca Giuffrida<sup>\*</sup>, Nestlé, Switzerland
- 11:20 **4-D(x, y, z, t) Imaging of Lipases During Simulated Neonatal Digestion of Milk Fat Globules Using Synchrotron SOLEIL DISCO Beamline.** Claire Bourlieu<sup>\*1</sup>, Amélie Deglaire<sup>2</sup>, Stéphane Pezennec<sup>2</sup>, Juliane Floury<sup>2</sup>, Steven Le Fuenten<sup>3</sup>, Pierre Villeneuve<sup>4</sup>, Frédéric Carrière<sup>5</sup>, Didier Dupont<sup>2</sup>, Said Bouhallab<sup>2</sup>, Frédéric Jamme<sup>6</sup>, and Véronique Vié<sup>7</sup>, <sup>1</sup>UMR IATE - INRA/CIRAD/UM2/SupAgro, France; <sup>2</sup>INRA-Agrocampus Ouest UMR 1253 STLO, France; <sup>3</sup>UMR 782 INRA-AgroParisTech GMPA, France; <sup>4</sup>CIRAD/INRA, UMR 1208 IATE, France; <sup>5</sup>CNRS, Aix Marseille University, UMR 7282 Interfacial Enzymology and Physiology of Lipolysis, France; <sup>6</sup>Synchrotron SOLEIL, France; <sup>7</sup>Institute of Physics Rennes, University of Rennes 1, France

Health and Nutrition

### EAT 4/H&N 4.1: Lipid Structure and Health

Chairs: Ignacio Vieitez, UdelaR, Uruguay; and Amanda Wright, University of Guelph, Canada

#### Smalley 1

Joint session: For details, see EAT 4/H&N 4.1, on this page.

Industrial Oil Products

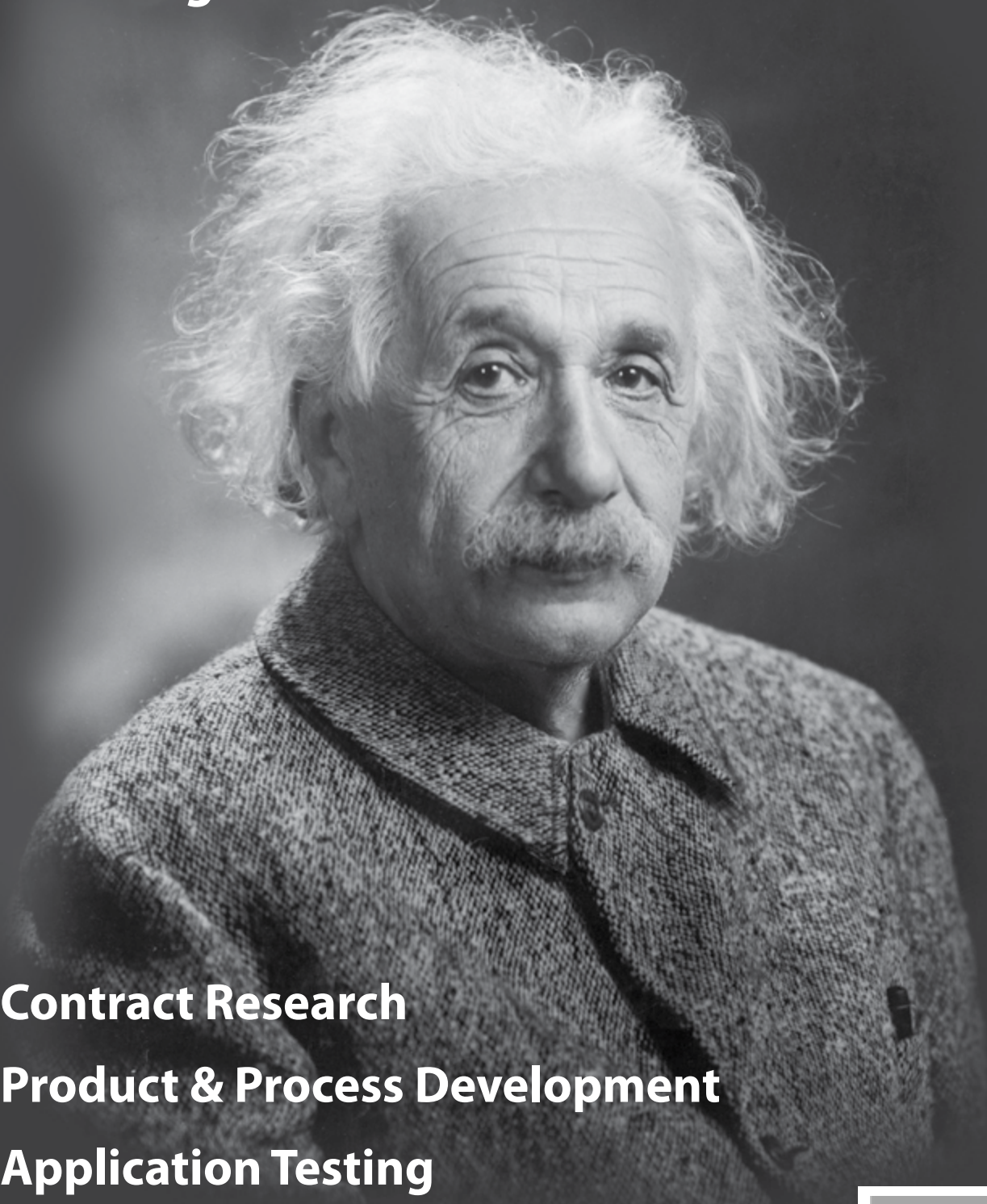
### IOP 4: New Uses of Glycerine

Chairs: Franck Dumeignil, Université de Lille, France; and Xiaofei Ye, University of Tennessee, USA

#### Wesson 2

- 7:55 **Introduction.**
- 8:00 **Glycerol: A C3 Bio-based Platform Intermediates for Value-added Products.** Christophe Len<sup>\*</sup> (**ACI/NBB Glycerine Innovation Award Winner**), Université de Technologie de Compiègne, France
- 8:40 **Overcoming Catalyst Deactivation in Glycerol Dehydration to Enable Sustainable Production of Acrolein and Acrylic Acid.** Shoujie Ren<sup>1</sup>, Bin Zou<sup>1</sup>, and Xiaofei P. Ye<sup>\*2</sup>, <sup>1</sup>Biosystems Engineering, University of Tennessee, USA; <sup>2</sup>University of Tennessee, USA
- 9:00 **New Catalytic Process for Highly Efficient Conversion of Glycerol to Allyl Alcohol.** Yoshihiro Kon<sup>1</sup>, Marcia Araque<sup>2</sup>, Benjamin Katryniok<sup>2</sup>, Takuya Nakashima<sup>1</sup>, Joëlle Thuriot<sup>2</sup>, Sébastien Paul<sup>2</sup>, and Franck Dumeignil<sup>\*3</sup>, <sup>1</sup>AIST, Japan; <sup>2</sup>Unite de Catalyse et Chimie du Solide, Université de Lille, France; <sup>3</sup>Université de Lille, France
- 9:20 **Reactive Distillation: Exploring Process Intensification Routes for the Oil Products Industry.** Tracy Benson<sup>\*</sup> and Obakore Agbroko, Lamar University, USA
- 9:40 **Networking Break.**

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## Lipid Oxidation and Quality

**LOQ 4a: Novel Strategies to Stabilize Foods with and without Antioxidants**

Chairs: Vishal Jain, Mondelez International Inc., USA; and Will Schroeder, Kemin Food Technologies, USA

**Smalley 7**

- 7:55 **Introduction.**
- 8:00 **Synthesis and Characterization of a Novel Array of Phenolic-containing Emulsifiers: A Physicochemical Study.** Sampson Anankanbil<sup>1</sup>, Zheng Guo<sup>2</sup>, and Bianca Perez<sup>1</sup>, <sup>1</sup>Dept. of Engineering, Aarhus University, Denmark; <sup>2</sup>Aarhus University, Denmark
- 8:20 **Strategy to Develop Natural Antioxidant Solutions in Complex Food Systems.** Denis Xie\*, Kalsec, Inc., USA
- 8:40 **Impact of Storage Conditions on Lipid Oxidation and Effect of Ingredients with Antioxidant Properties.** Lan Ban\*, Marie Shen, Joan Randall, and Will Schroeder, Kemin Food Technologies, USA
- 9:00 **Oxidative Stability Impact of Various Interesterification Methods on Edible Oils.** Alex M. Milligan\*, Joshua Tuinstra, Roger Daniels, and Matthew Ulmer, Stratas Foods, USA
- 9:20 **A Continuous Oil Treatment Device to Improve Fryer Oil Quality and Fry Life.** Monoj K. Gupta\*, MG Edible Oil Consulting International, Inc., USA

## Lipid Oxidation and Quality

**LOQ 4b/PHO 4: Phospholipids as Antioxidants and the Analysis of Their Oxidation in Industrial Applications and Complex Matrices**

Chairs: Nora Yang, Kalsec, Inc., USA; and Matthias Rebmann, Perimondo, USA

**Smalley 7**

- 10:15 **Introduction.**
- 10:20 **Impact of Phospholipids on Lipid Oxidation.** Eric A. Decker<sup>1</sup>, Anuj G. Shanbhag<sup>1</sup>, Gautam Samdani<sup>1</sup> and Leqi Cui<sup>2</sup>, <sup>1</sup>University of Massachusetts Amherst, USA; <sup>2</sup>Fuli School of Food Equipment Engineering and Science, Xi'an Jiaotong University, China
- 10:40 **Marine Phospholipids: Oxidation Mechanisms and Analysis of Quality Deterioration.** Charlotte Jacobsen\*, Technical University of Denmark, Denmark
- 11:00 **Incorporation of High-oleic and High-linoleic Lecithin Can Improve the Oxidative Stability of Vegetable Oils.** Solmaz Alborzi<sup>1</sup>, Matthias Rebmann<sup>2</sup>, and Rohan V. Tikekar<sup>1</sup>, <sup>1</sup>University of Maryland-College Park, USA; <sup>2</sup>Perimondo, USA
- 11:20 **Controlled Singlet Oxygen Oxidation of Soybean Phospholipids.** Jean-Francois Fabre<sup>1</sup>, Audrey Cassen<sup>1</sup>, Romain Valentin<sup>2</sup>, and Zéphirin Mouloungui<sup>3</sup>, <sup>1</sup>LCA UMR1010 INRA-INP/ENSIACET, France; <sup>2</sup>INRA, France; <sup>3</sup>Laboratoire de Chimie Agro-Industrielle, France

## Phospholipid

**LOQ 4b/PHO 4: Phospholipids as Antioxidants and the Analysis of Their Oxidation in Industrial Applications and Complex Matrices**

Chairs: Nora Yang, Kalsec, Inc., USA; and Matthias Rebmann, Perimondo, USA

**Smalley 7**

Joint session: For details, see LOQ 4b/PHO 4, above.

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## Processing

**PRO 4: Environment and Regulatory**

Chairs: David Selig, Louis Dreyfus Co., USA; and Eduardo Mualem, Bunge Southern Cone, Argentina

**Wesson 3**

- 7:55 **Introduction.**
- 8:00 **Valorizing Waste Streams by Integrated Biorefining Process.** Jingbo Li\* (*Honored Student Award Winner* and *Processing Division Student Award Winner*) and Zheng Guo, Aarhus University, Denmark
- 8:20 **Waste Heat Recovery in Soybean Processing.** Mohamed Abid\*, Solex Thermal Science Inc., Canada
- 8:40 **Impact of New NFPA 652 Combustible Dust Standard on Oilseeds Crush Plants.** Matthew Williamson\*, ADF Engineering, USA
- 9:00 **100% Contact Extractor: Thicker Flakes and Low Residual Oil.** Adolfo T. Subieta\*, Desmet Ballestra North America Inc., USA
- 9:40 **Networking Break.**

## Protein and Co-Products

**PCP 4a: Proteins from New and Minor Sources: Physicochemical, Nutritional, and Functional Properties**

Chairs: Lamia L'Hocine, University of Nebraska, Canada; and Jane Whittinghill, ICL Food Specialties, USA

**Wesson 4**

- 7:55 **Introduction.**
- 8:00 **Protein Extraction and Characterization from Microalgae.** Halime Idakiev, Steffi Bäcker\*, and Ralf-Peter Tressel, Pilot Pflanzenöltechnologie Magdeburg e.V., Germany
- 8:20 **Functional and Proteomic Characterization of Protein Products from Defatted Cold Press Meals.** Özgenur Özdemir, Bilal Çakir, and Ibrahim Gülseren\*, Istanbul S. Zaim University, Turkey
- 8:40 **Extraction and Evaluation of Rice Bran Protein Concentrates.** Cecilia Abirached<sup>1</sup>, Carla Bonifacino<sup>2</sup>, Eugenia Franco Fraguas<sup>2</sup>, Darío Cabezas<sup>3</sup>, Jorge Wagner<sup>3</sup>, Luis Panizzolo<sup>4</sup>, and Gonzalo Palazolo<sup>3</sup>, <sup>1</sup>PEDECIBA Química, Dept. de Ciencia y tecnología de los Alimentos, Universidad de la República, Uruguay; <sup>2</sup>Facultad de Química, Universidad de la República, Uruguay; <sup>3</sup>Laboratorio de Investigación en Funcionalidad y Tecnología de Alimentos, Dept. de Ciencia y Tecnología, Universidad Nacional de Quilmes, Argentina; <sup>4</sup>Dept. de Ciencia y Tecnología de los Alimentos, Universidad de la República, Uruguay
- 9:00 **The Impact of Thermal Processing Methods on the Protein Quality of Pulses, as Determined by *in vivo* and *in vitro* Methodologies.** James D. House\*, Adam Franczyk, and Matthew G. Nosworthy, University of Manitoba, Canada
- 9:20 **Potato by-Products as a Source of Functional Protein Ingredients: Innovative Biocatalytic and Green Approaches.** Salwa Karboune\*, Dept. of Food Science and Agricultural Chemistry, Faculty of Agricultural and Environmental Sciences, McGill University, Canada

## Protein and Co-Products

**PCP 4b: New Protein Sources and Technology Advances for Protein Processing and Utilization**

Chairs: Hui Wang, Iowa State University, USA; and Keshun Liu, USDA, ARS, USA

**Wesson 4**

- 10:15 **Introduction.**
- 10:20 **An Overview of the Advances in Protein Processing Technologies.** Jing Zhao\*, California State University, Los Angeles, USA

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- 10:40 **Wheat Gluten: Properties and Value-added Utilization.** Michael Tilley\*<sup>1</sup> and Bruna Mattioni<sup>2</sup>, <sup>1</sup>USDA, ARS, CGAHR, USA; <sup>2</sup>Federal University of Santa Catarina, Brazil
- 11:00 **Edible Insects as a New Dietary Protein Source.** Changqi Liu\*, San Diego State University, USA
- 11:20 **Leaf Protein Extraction from Oat Forage: Investigation into Factors Involved and Optimization.** Keshun Liu\*<sup>1</sup>, Qian Liu<sup>2</sup>, and Mike Woolman<sup>3</sup>, <sup>1</sup>USDA, ARS, USA; <sup>2</sup>Northeast Agricultural University, China; <sup>3</sup>US Department of Agriculture, Agricultural Research Service, USA
- 11:40 **Pennycress Protein Isolate: Pilot Plant Production and Application in Films and Polymeric Composites.** Mila P. Hojilla-Evangelista\*, Gordon W. Selling, Victoria L. Finkenstadt, and Roque L. Evangelista, USDA, ARS, NCAUR, USA

## Surfactants and Detergents

**S&D 4: Chemicals and Surfactants in Enhanced Oil Recovery**

*This session is sponsored in part by **Harcros Chemicals.***

*Chairs: Upali Weerasooriya, University of Texas, Harcros Chemicals & Ultimate EOR Services, USA; and Ben Shiau, University of Oklahoma, USA*

**Paquin 3**

- 7:55 **Introduction.**
- 8:00 **Enhanced Oil Recovery via Targeted Emulsified Solvent Injection (TESI).** Aurelio Stammitti\* and Edgar Acosta, University of Toronto, Canada
- 8:20 **Synergistic Effect of Mixed Alkoxyolate Sulfates for Crude Oil Interfacial Tension Reduction and Solubilization.** Thu Nguyen\*<sup>1</sup>, Christian Jones<sup>1</sup>, and Greg Trahan<sup>2</sup>, <sup>1</sup>Sasol Performance Chemicals, USA; <sup>2</sup>Sasol North America, USA
- 8:40 **A Novel Approach to Determine HLD Parameters Demonstrated with Internal Olefin Sulfonates.** Chien-Yuan Su\*<sup>1</sup>, Ben Shiau<sup>2</sup>, and Jeffrey Harwell<sup>2</sup>, <sup>1</sup>Institute of Applied Surfactant Research, University of Oklahoma, USA; <sup>2</sup>University of Oklahoma, USA
- 9:00 **Oil-induced Formation of Wormlike Micelles and Their Use in Nanoparticle Stabilization.** Francis Choi\* and Edgar Acosta, University of Toronto, Canada
- 9:20 **Interaction of Alkalis with Acidic Crude Oils.** Himanshu Sharma\*<sup>1</sup>, Krishna Panthi<sup>1</sup>, Jun Lu<sup>2</sup>, Upali Weerasooriya<sup>3</sup>, Gary A. Pope<sup>1</sup>, and Kishore K. Mohanty<sup>1</sup>, <sup>1</sup>University of Texas, Austin, USA; <sup>2</sup>University of Tulsa, USA; <sup>3</sup>University of Texas, Harcros Chemicals & Ultimate EOR Services, USA
- 9:40 **Networking Break.**
- 10:20 **Enhancing Foam Stability in Porous Media by Applying Nanoparticles.** Shengbo Wang\*, Changlong Chen, Mohannad Kadhum, Ben Shiau, and Jeffrey Harwell, University of Oklahoma, USA
- 10:40 **Synthesis and Surface Properties of Surfactants for Oilfield Applications.** Syed S. Hussain\*, Muhammad Shahzad Kamal, and Abdullah S. Sultan, King Fahd University of Petroleum and Minerals, Saudi Arabia
- 11:00 **Solid-Liquid-Liquid Wettability and Its Prediction with Surface Free Energy Models.** Aurelio Stammitti\* and Edgar Acosta, University of Toronto, Canada
- 11:20 **Static Adsorption Study of Alcohol Propoxy Sulfate Surfactants onto Crushed Berea Sandstone.** Daniel F. Wilson\*, Laurie A. Poindexter, and Greg Trahan, Sasol North America, USA
- 11:40 **A Novel Microfluidic Platform to Measure the Dissolution Rate of Drops Emulsified in an Immiscible, Surfactant-containing Suspending Medium.** Sachin Goel\*<sup>1</sup> (**Ralph H. Potts Memorial Fellowship Award Winner and Surfactants and Detergents Division Student Travel Award Winner**), Samson Ng<sup>2</sup>, and Arun Ramchandran<sup>3</sup>, <sup>1</sup>Dept. of Chemical Engineering and Applied Chemistry, University of Toronto, Canada; <sup>2</sup>Syncrude Canada Limited, Canada; <sup>3</sup>University of Toronto, Canada

## Surfactants and Detergents

**BIO 4.1/S&D 4.1: Biosurfactants, Bio-derived Surfactants, and Biodetergents**

*Chairs: Heather Byrne, Huntsman Performance Products, USA; Douglas G. Hayes, University of Tennessee, USA; and Daniel Solaiman, USDA, ARS, ERRC, USA*

**Paquin 1**

Joint session: For details, see BIO 4.1/S&D 4.1, on page 48.

**Wednesday Afternoon**

## Analytical

**ANA 5/H&N 5: Impact of Oil Processing on Health Outcomes**

*This session organized jointly by **AOCS and ISSFAL***

*This session is sponsored in part by **Australian Oilseeds Federation, FMC/Epax Norway AS, GOED Omega-3, Sanmark LLC, and Young Living Essential Oils.***

*Chairs: J. Thomas Brenna, Cornell University, USA; and Sean Liu, USDA, ARS, USA*

**Smalley 5**

- 1:55 **Introduction: Oil Processing or Fatty Acid Composition, What's More Important?** J. Thomas Brenna\*, Cornell University, USA
- 2:05 **Impact of Industrial Processing and Mitigation on MCPD/Glycidyl Ester Concentrations in Oils and Foods.** Jessica K. Leigh\* and Shaun MacMahon, US Food and Drug Administration, USA
- 2:35 **A Novel Method to Assess Health Effects of Oils: Virgin and Refined Coconut Oil.** Ruijie Liu\*<sup>1</sup>, Can Shi<sup>2</sup>, Elizabeth Mendralla<sup>3</sup>, Kumar S.D. Kothapalli<sup>3</sup>, Xingguo Wang<sup>2</sup>, and J. Thomas Brenna<sup>3</sup>, <sup>1</sup>Jiangnan University/Cornell University, China; <sup>2</sup>Jiangnan University, China; <sup>3</sup>Cornell University, USA
- 3:00 **Plasticiser Residues in Edible Oils and Fats—Relevance and Analysis.** Jan Kuhlmann\*, SGS Germany GmbH, Germany
- 3:30 **Analysis of Heavy Metals in Rice Bran Oil by Inductively Coupled Plasma (ICP) Spectrometry.** Robert O. Dunn\*<sup>1</sup>, Erica L. Bakota<sup>2</sup>, and Sean Liu<sup>3</sup>, <sup>1</sup>USDA, ARS, NCAUR, USA; <sup>2</sup>Harris County Institute of Forensic Sciences, USA; <sup>3</sup>USDA, ARS, USA
- 4:00 **Quantifying Trans Fat in Foods: How Low Can We Really Go?** Cynthia Srigley\*, Sanjeewa R. Karunathilaka, and Magdi Mossoba, US Food and Drug Administration, USA
- 4:30 **2016 Monitoring of MCPD Derivatives and Glycidyl Esters in German Foods—Outcome and Applied Methods.** Jan Kuhlmann\*, SGS Germany GmbH, Germany

## Analytical

**ANA 5.1/PRO 5.1: Process Control Utilizing NIR and Similar Online Analytical Tools**

*Chairs: Chris Dayton, Bunge Limited, USA; and John Glenski, Automation Plus, USA*

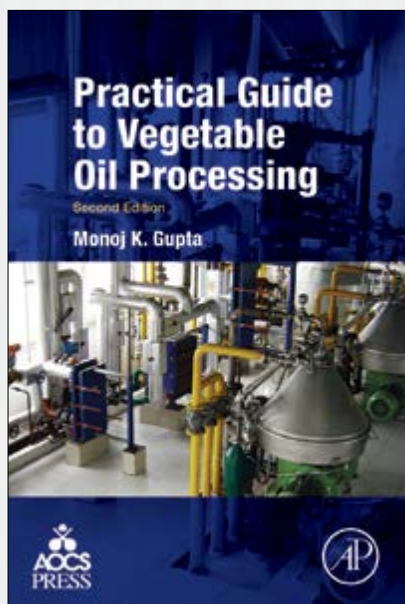
**Paquin 1**

- 1:55 **Introduction.**
- 2:00 **Process Optimization in the Edible Oil Industry with NIR-Online Measurements.** Dominik Margraf\*, Yosra Allouche, and Michael Eckert, BUCHI NIR-Online GmbH, Germany
- 2:20 **Implementing Alarm Management (ISA 18.2)—Improving Efficiency and Limiting Risk.** Monte Vander Velde\*, Interstates, USA
- 2:40 **FT-IR Analysis for Process Control.** Chris Dayton\*, Bunge Limited, USA
- 3:00 **Level Measurement of Industrial Oils.** Philip H. McCain<sup>1</sup>, Brent Frizzel<sup>2</sup>, and Tim Thomas<sup>2</sup>, <sup>1</sup>Automation Plus, USA; <sup>2</sup>Endress+Hauser, USA



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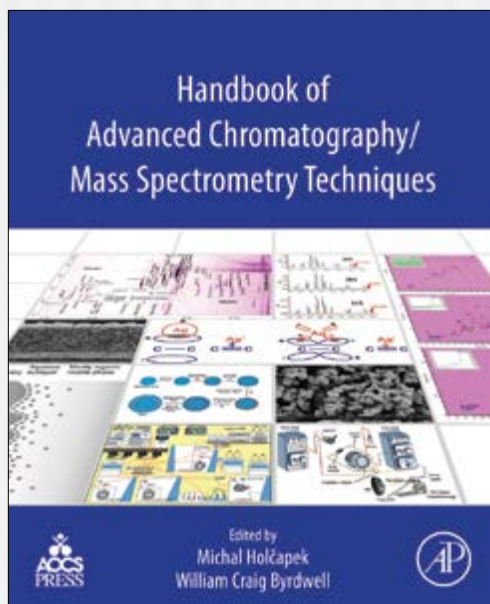
# NEW RELEASES



## ***Practical Guide to Vegetable Oil Processing, Second Edition***

Monoj K. Gupta  
February 2017  
ISBN: 9781630670504

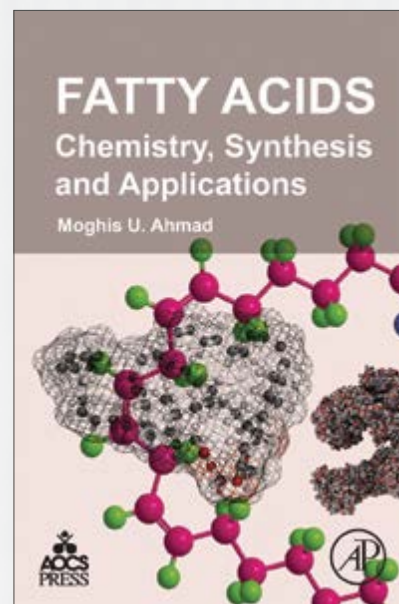
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## ***Handbook of Advanced Chromatography/Mass Spectrometry Techniques***

Edited by Michal Holcápek and W. Craig Byrdwell  
June 2017  
ISBN: 9780128117323

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## ***Fatty Acids Chemistry, Synthesis, and Applications***

Edited by Moghis U. Ahmad  
July 2017  
ISBN: 9780128095218

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Monoj Gupta



Michael Holcápek



W. Craig Byrdwell



Moghis Ahmad



ScienceDirect

- 3:20 **At-line Near-Infrared Spectroscopy Monitoring Algal Fermentation Process.** Yao Lu\*, *DSM Nutritional Products, USA*

#### Biotechnology

### BIO 5: General Biotechnology

*Chairs: Long Zou, Bunge Oils, USA; and Lu-Kwang Ju, University of Akron, USA*

#### Wesson 1

- 1:55 **Introduction.**
- 2:00 **Incorporation of Rosemary Extract into Alkylglycerol-based Delivery Systems to Obtain Formulations Highly Bioaccessible and Bioactive.** Marta C. Corzo-Martinez\*<sup>1</sup>, Luis C. Vazquez<sup>1</sup>, Guillermo Reglero<sup>1</sup>, Ana Ramirez<sup>2</sup>, and Carlos Torres<sup>1</sup>, <sup>1</sup>*University Autonoma of Madrid, Spain; <sup>2</sup>Imdea Food Institute, Spain*
- 2:20 **Enrichment of  $\gamma$ -Linolenic Acid from Evening Primrose Oil Using a Self-immobilized *Candida rugosa* Lipase.** Glory Chidi Chijioke\*<sup>1</sup>, Heejin Kim<sup>2</sup>, and In-Hwan Kim<sup>3</sup>, <sup>1</sup>*Korea University, Republic of Korea; <sup>2</sup>Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea; <sup>3</sup>Korea University, Republic of Korea*
- 2:40 **Preparation of High Purity 2-Monopalmitin from Lard by Solvent Fractionation and Enzymatic Ethanolysis.** Son Woo Kim\*<sup>1</sup>, Hye Ryung Park<sup>2</sup>, Nakyung Choi<sup>2</sup>, and In-Hwan Kim<sup>3</sup>, <sup>1</sup>*Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea; <sup>2</sup>Korea University, Republic of Korea; <sup>3</sup>Korea University, Republic of Korea*
- 3:00 **Enzymatic Modification of Menhaden Oil to Incorporate Capric Acid.** Sarah A. Willett\* (*Biotechnology Division Student Best Paper Award Winner*), and Casimir C. Akoh, *University of Georgia, USA*
- 3:20 **Soybean Flour Lipoxigenase: Activity on Both Free and Esterified Fatty Acids for Bioactive Compound Synthesis.** Hoang-Anh T. Tu\*, Eleanor P. Dobson, Colin J. Barrow, and Jacqui L. Adcock, *Deakin University, Australia*

#### Edible Applications Technology

### EAT 5/S&D 5.2: Interfacial Phenomena in Complex Food Systems

*Chairs: Nitin Nitin, University of California, Davis, USA; and Ozan Ciftci, University of Nebraska-Lincoln, USA*

#### Smalley 1

- 1:55 **Introduction.**
- 2:00 **Effect of Membrane-associated Peptide on the Dynamics of Bicontinuous Microemulsions via Quasi-elastic Neutron Scattering and Neutron Spin-echo.** Douglas G. Hayes\*<sup>1</sup>, Veerendra K. Sharma<sup>2</sup>, Volker S. Urban<sup>2</sup>, Hugh M. O'Neill<sup>2</sup>, S. Venkatesh Pingali<sup>2</sup>, Michael E. Ohl<sup>2</sup>, Eugene Mamatov<sup>2</sup>, and Madhusudan Tyagi<sup>3</sup>, <sup>1</sup>*University of Tennessee, USA; <sup>2</sup>Oak Ridge National Laboratory, USA; <sup>3</sup>National Institute of Standards and Technology, USA*
- 2:20 **Structuring Food Emulsions Through Lipid Crystallization at the Oil-Water Interface.** Dérick Rousseau, *Ryerson University, Canada*
- 2:40 **The Effect of Interfaces in Nanodroplets Loaded with Nutraceuticals on Their Release from Drinks to Human System.** Nissim Garti\*, *Hebrew University, Israel*
- 3:00 **In situ Observation of Template Effects of Emulsifiers with Different Fatty Acid Moieties.** Chinami Ishibashi\*<sup>1</sup>, Hondoh Hironori<sup>2</sup>, and Satoru Ueno<sup>2</sup>, <sup>1</sup>*Hiroshima University, Japan; <sup>2</sup>Graduate School of Biosphere Science, Hiroshima University, Japan*
- 3:20 **Thermodynamics and Adsorption Mechanisms for Hydrophobic Food Surfactants at Interfaces.** Stephanie R. Dungan\*, *University of California, Davis, USA*

- 3:40 **An In-depth Look at Bakery Applications of a Structured Monoglyceride Gel.** Alejandro G. Marangoni<sup>1</sup>, and Kaustuv Bhattacharya\*<sup>2</sup>, <sup>1</sup>*University of Guelph, Canada; <sup>2</sup>DuPont Nutrition & Biosciences ApS, Denmark*
- 4:00 **Improve Foam Properties—Multifunctional Cellulose Polymer.** Terry Crutcher\*<sup>1</sup> and Bert Kroon<sup>2</sup>, <sup>1</sup>*Ashland Specialty Ingredients G.P., USA; <sup>2</sup>Ashland Specialty Ingredients, The Netherlands*
- 4:20 **Interfacial Interaction and Emulsification Behaviour of Lentil Protein Isolate and Fenugreek Gum Complexes.** Supratim Ghosh\* and Natalie Longmore, *University of Saskatchewan, Canada*

#### Health and Nutrition

### H&N 5.1: General Health and Nutrition

*Chairs: Susan Raatz, USDA, ARS, Grand Forks Human Nutrition Research Center, USA; and Mathilde Fleith, Nestec Ltd., Switzerland*

#### Smalley 6

- 1:55 **Introduction.**
- 2:00 **Association of Fatty Acid Intake with Weight Status in the US Population.** Susan K. Raatz\*, LuAnn K. Johnson, Matthew J. Picklo, and Lisa Jahns, *USDA, ARS, Grand Forks Human Nutrition Research Center, USA*
- 2:20 **Bioactive Lipids from Novel Medicinal Plants of the Tropical Rainforests of East Africa.** Fabien Schultz\*<sup>1</sup>, Godwin Anywar<sup>2</sup>, and Leif-Alexander Garbe<sup>3</sup>, <sup>1</sup>*Technical University of Berlin, Neubrandenburg University of Applied Sciences, Germany; <sup>2</sup>Makerere University, Uganda; <sup>3</sup>Neubrandenburg University of Applied Sciences, Germany*
- 2:40 **Effects of Stearic Acid on Blood Lipid Levels.** Mathilde Fleith\*, *Nestec Ltd., Switzerland*
- 3:00 **Dietary Trans-vaccenic Acid Reduces Arthritic Severity in the Collagen-induced Arthritis Model.** Mark E. Cook, Jake M. Olson\*, Joni C. Baker, Sarah E. Clifford, and Jennifer Lor, *University of Wisconsin-Madison, USA*
- 3:20 **Encapsulation and Delivery Pancreatic Lipase in Hydrogel Beads with Self-regulating Internal pH Microenvironments.** Zipei Zhang\* (*Honored Student Award Winner* and *Peter and Clare Kalustian Award Winner*), Ruojie Zhang, and David J. McClements, *University of Massachusetts Amherst, USA*
- 3:40 **Novel Nano Delivery Vehicles for Solubilization and Enhanced Delivery of Cannabinoids.** Nissim Garti\*, Sharon Garti-Levy, and Rotem Edri, *Hebrew University, Israel*
- 4:00 **Whey Protein Can Modulate Body Fat-reducing Potential of Conjugated Linoleic Acid in Rats.** Kazunori Koba\*<sup>1</sup>, Yoshimi Arimoto<sup>1</sup>, Koji Kawabeta<sup>2</sup>, Nozomi Tateiwa<sup>1</sup>, Shun-ichi Matsuda<sup>3</sup>, Toshio Iwata<sup>4</sup>, and Michihiro Sugano<sup>5</sup>, <sup>1</sup>*University of Nagasaki, Japan; <sup>2</sup>Graduate School of Human Health Science, University of Nagasaki Siebold, Japan; <sup>3</sup>Fonterra (Japan) Limited, Japan; <sup>4</sup>The Nisshin OilIIO Group, Ltd., Japan; <sup>5</sup>Professor Emeritus, Kyushu University, Japan*
- 4:20 **Whole Blood, Plasma, and Erythrocyte Acyl-lipids are Remodeled at Different Rates with Fish Oil Supplementation.** Juan J. Aristizabal Henao\*<sup>1</sup>, Ashley C. Patterson<sup>2</sup>, Richard W. Smith<sup>1</sup>, and Ken D. Stark<sup>1</sup>, <sup>1</sup>*University of Waterloo, Canada; <sup>2</sup>Mead Johnson Nutrition, USA*
- 4:40 **Effect of Positional Saturated Fatty Acids of Triacylglycerols on Fat Accretion in C57BL/6 Mice.** Shiou Wah Gouk\*<sup>1</sup>, Soek Sin Teh<sup>1</sup>, Phooi Tee Voon<sup>1</sup>, Tony Kock Wai Ng<sup>2</sup>, Augustine Soon Hock Ong<sup>3</sup>, and Yuen May Choo<sup>1</sup>, <sup>1</sup>*Malaysian Palm Oil Board, Malaysia; <sup>2</sup>International Medical University, Malaysia; <sup>3</sup>Academy Science of Malaysia, Malaysia*

**IOP 5: Oleochemicals**

Chairs: Eric Cochran, Iowa State University, USA; and Liu Guoqin, South China University of Technology, China

**Wesson 2**

- 1:55 **Introduction.**
- 2:00 **Oleosomes: Isolation and Commercial Use of Nature's Oil-storage Vesicles.** James V. Gruber\*, *Botaneco Inc., USA*
- 2:20 **Toughening Thermoset Resins Using Grafted Epoxidized Soybean Oil.** Santosh K. Yadav<sup>1</sup>, John J. La Scala<sup>2</sup>, and Giuseppe R. Palmese<sup>3</sup>, <sup>1</sup>Dept. of Chemical Engineering, Drexel University, USA; <sup>2</sup>Army Research Laboratory, USA; <sup>3</sup>Drexel University, USA
- 2:40 **Structure Function Correlation of Bioplasticizers in PVC.** Dharma R. Kodali\* and Lucas J. Stolp, *University of Minnesota, USA*
- 3:00 **Extraction, Fractionation, and Characterization of Waxes from Sorghum.** Megan E. Hums\*<sup>1</sup>, Jonathan L. Hoyt<sup>1</sup>, Michael J. Powell<sup>1</sup>, and Robert A. Moreau<sup>2</sup>, <sup>1</sup>US Department of Agriculture, USA; <sup>2</sup>USDA, ARS, ERRC, USA
- 3:20 **Animal Fats as Oleochemicals: Nitrogen Containing Contaminants.** Martin Mittelbach\*, Sigurd Schober, and Tamara Ruprecht, *Institute of Chemistry, University of Graz, Austria*
- 3:40 **Application of Low Cost Ionic Liquids Analogues for Removal of Free Fatty Acid from Sludge Palm Oil.** Adeeb Hayyan\*<sup>1</sup> (*Industrial Oil Products Division Junior Researcher Travel Grant Recipient*), Shahidah N. Rashid<sup>2</sup>, Maan Hayyan<sup>3</sup>, M. Y. Zulkifli<sup>3</sup>, and Mohd A. Hashim<sup>2</sup>, <sup>1</sup>University of Malaya, Malaysia; <sup>2</sup>University of Malaya Centre for Ionic Liquids (UMCiL), Kuala Lumpur, Malaysia; <sup>3</sup>Institute of Halal Research University of Malaya, Malaysia
- 4:00 **Solid Acid Catalysts for Esterification Reactions.** Federica Zaccheria, Nicola Scotti, Rinaldo Psaro, and Nicoletta Ravasio\*, *CNR ISTM, Italy*
- 4:20 **An Investigation to Achieve Physical Consistency of Oleogels During Scale up.** Sai S. Sagiri\*<sup>1</sup>, Malick Samateh<sup>2</sup>, and George John<sup>3</sup>, <sup>1</sup>Center for Discovery and Innovation, Dept. of Chemistry, The City College of New York, USA; <sup>2</sup>The City College of New York & Ph.D. Program in Chemistry at Graduate Center, City University of New York, USA; <sup>3</sup>The City College of New York, USA

## Lipid Oxidation and Quality

**LOQ 5a: Frying Oils—Applications, Quality, and Chemistry**

Chairs: Rick Della Porta, *Pepsico/Frito-Lay, USA*; and Jill Moser, *USDA, ARS, NCAUR, USA*

**Smalley 7**

- 1:55 **Introduction.**
- 2:00 **The Advantage of Frying Foods in High Oleic Oils: Bridging the Intersection of Health and Functionality.** Susan Knowlton\*, *DuPont Company, Pioneer, USA*
- 2:20 **The NMR Analysis of Frying Oil: A Very Reliable Method for Assessment of Lipid Oxidation.** Hong-Sik Hwang\*<sup>1</sup>, Jill Moser<sup>1</sup>, and Sean Liu<sup>2</sup>, <sup>1</sup>USDA, ARS, NCAUR, USA; <sup>2</sup>USDA, ARS, USA
- 2:40 **Formation of 4-Hydroxy-2-trans-nonenal (HNE), a Toxic Aldehyde, in Thermally Treated Olive and Sunflower Oils.** Jieyao Yuan\* and A.S. Csallany, *University of Minnesota, USA*
- 3:00 **Quantitative Determination of Epoxy- and Hydroxy Fatty Acids in Edible Oils.** Wei Xia\* and Suzanne M. Budge, *Dalhousie University, Canada*

**LOQ 5b: Trans Fats Replacements and Low Saturated Fats: Impact on Shelf-life, Oxidative Stability, and Application**

Chairs: Michelle Peitz, *Archer Daniels Midland Co., USA*; and Bingcan Chen, *North Dakota State University, USA*

**Smalley 7**

- 3:35 **Introduction.**
- 3:40 **Substitution of Vegetable Shortening with Mixtures of more Unsaturated Oils in Pie Crust and Its Effect on Sensory and Oxidative Stability.** Denis Xie\*, Anna Cheely, and Robin Boyle, *Kalsec, Inc., USA*
- 4:00 **Role of Solid Fat on Lipid Oxidation in a Model Cracker System.** Thanh P. Vu\*, Lili He, David J. McClements, and Eric A. Decker, *University of Massachusetts Amherst, USA*
- 4:20 **Comparison of Thermal Stability and Nutritional Quality of Palm Oil and Other Frying Oil.** Yin Mee Thang\*, Nur Azwani Ab Karim, Kawsalyavathi Kuppan, Haniza Ahmad, Maslia Manja Badrul Zaman, Sue Hern Haw, Mohd Fadly Jumadi, and Ahmadilfitri Md Noor, *Sime Darby Research Sdn Bhd, Malaysia*
- 4:40 **Oxidative Stability Impact of Nitrogen Addition Approach on Edible Oils.** Jacob E. Maynard\*, Joshua Tuinstra, and Roger Daniels, *Stratas Foods, USA*

## Processing

**PRO 5: General Processing**

Chairs: Kerry Staller, *BSI Engineering, USA*; and Nurhan Dunford, *Oklahoma State University, USA*

**Wesson 3**

- 1:55 **Introduction.**
- 2:00 **Immersion and Percolation Extraction for Solvent Plants and Specialty Applications.** Richard W. Ozer\*, *Crown Iron Works, USA*
- 2:20 **Lipolytic Stability During Wet Storage of Autotrophic Microalgae.** Lieselot Balduyck\*<sup>1</sup>, Sebastiaan Bijttebier<sup>2</sup>, Charlotte Bruneel<sup>1</sup>, Griet Jacobs<sup>2</sup>, Stefan Voorspoels<sup>2</sup>, Koenraad Muylaert<sup>1</sup>, and Imogen Foubert<sup>1</sup>, <sup>1</sup>Katholieke Universiteit Leuven Kulak, Belgium; <sup>2</sup>VITO, Belgium
- 2:40 **Effect of Extraction Method on the Composition and Oxidative Stability of Omega-3-rich Camelina sativa Seed Oil.** Henok D. Belayneh\* (*Processing Division Student Award Winner*), Ozan N. Ciftci, Randy L. Wehling, and Ed Cahoon, *University of Nebraska-Lincoln, USA*
- 3:00 **Effect of Ultrasound on Extraction Yield and Quality Characteristics of Extra Virgin Olive Oil.** Alev Y. Aydar\*, *Manisa Celal Bayar University, Turkey*
- 3:20 **Influence of Adsorption Parameters on Physical Refining of Sunflower Oil Using a New Mesoporous Silica Based Adsorbent.** Ecem Tiryaki\*, Tulay Merve Temel, Burcu Karakuzu, and Sevil Yucel, *Yildiz Technical University, Turkey*
- 3:40 **The Effects of Oilseed Processing on Bioactive Compounds in Edible Canola Oil: A Case Study Involving Australian Processing Plants.** Clare L. Flakelar\*<sup>1</sup> (*Processing Division Student Award Winner*), David J. Lockett<sup>2</sup>, Julia A. Howitt<sup>3</sup>, Gregory Doran<sup>3</sup>, and Paul D. Prenzler<sup>3</sup>, <sup>1</sup>Charles Sturt University, Australia; <sup>2</sup>Graham Centre for Agricultural Innovation, Australia; <sup>3</sup>School of Agricultural and Wine Sciences, Charles Sturt University, Australia
- 4:00 **Applying Different Filtration Parameters on Crude Canola Oil with Metal Doped Nanoporous Silica Adsorbent.** Tulay Merve Temel\*<sup>1</sup>, Burcu Karakuzu<sup>1</sup>, Pinar Terzioglu<sup>2</sup>, and Sevil Yucel<sup>1</sup>, <sup>1</sup>Yildiz Technical University, Turkey; <sup>2</sup>Muğla Sıtkı Koçman University, Turkey

4:20 **Development of an Up-grading Process to Produce MLM Structured Lipids from Sardine Discards.** Rocio Morales-Medina\* (*European Section Travel Grant Recipient*), M. Munio, A.M. Guadix and E.M. Guadix, *University of Granada, Spain*

Processing

### ANA 5.1/PRO 5.1: Process Control Utilizing NIR and Similar Online Analytical Tools

*Chairs: Chris Dayton, Bunge Limited, USA; and John Glenski, Automation Plus, USA*

#### Paquin 1

Joint session: For details, see ANA 5.1/PRO 5.1, on page 54.

Protein and Co-Products

### PCP 5: General Protein and Co-Products

*Chairs: Buddhi Lamsal, Iowa State University, USA; and Nandika Bandara, University of Alberta, Canada*

#### Wesson 4

1:55 **Introduction.**

2:00 **A Review of Plant Proteins from Pseudocereals, Legumes, and Minor Crops and Their Use in Food Applications.** Jane Whittinghill\*, *ICL Food Specialties, USA*

2:20 **Influence of Bioprocessing Approaches on the Recovery and Physicochemical Properties of Salmon By-product Hydrolysates.** Subin R. C. K. Rajendran\*1 (*Honored Student Award Winner*), Zied Khiari<sup>2</sup>, Chibuikwe C. Udenigwe<sup>3</sup>, and Beth Mason<sup>2</sup>, <sup>1</sup>*Dalhousie University, Canada;* <sup>2</sup>*Verschuren Centre for Sustainability in Energy and the Environment, Canada;* <sup>3</sup>*University of Ottawa, Canada*

2:40 **Structural and Functional Characterization of Enzyme-derived Antioxidant and Antihypertensive Flaxseed Protein Hydrolysates and Membrane-filtered Fractions.** Rotimi Aluko and Ifeanyi D. Nwachukwu\* (*Thomas H. Smouse Memorial Fellowship Award Winner*), *University of Manitoba, Canada*

3:00 **Greening-induced Oxidation of Sunflower Butter Cookies as a Function of Different Sweeteners and Storage Conditions.** Sihui Liang\* and Lilian M. Were, *Chapman University, USA*

3:20 **Adding Hydrolyzing Enzymes During Fermentation Step of Dry Grind Ethanol Process Affects the Process Favorably.** Lei Fang, Tong Wang, and Buddhi Lamsal\*, *Iowa State University, USA*

3:40 **Palm Kernel Cake as a Valuable Source of Antihypertensive Proteolysate and Bioactive Peptides: An *in vitro* and *in vivo* Study.** Mohammad Zarei\*<sup>1</sup>, Nazamid Saari<sup>1</sup>, and Azizah Abdul-Hamid<sup>2</sup>, <sup>1</sup>*Faculty of Food Science and Technology, Universiti Putra Malaysia, Malaysia;* <sup>2</sup>*Universiti Putra Malaysia, Malaysia*

Surfactants and Detergents

### S&D 5: Foam Boosting and Control

*Chairs: Warren Schmidt, Consultant, USA; and Martin Severance, Dow Corning Corporation, USA*

#### Paquin 3

1:55 **Introduction.**

2:00 **Mechanism of Action of Silicone-based Foam Control Agents.** Jacqueline L'hostis\*, Chamee Chao, and Stéphanie Lobry, *Dow Corning, Belgium*

2:20 **Nonionic Surfactant Foam Control Technology for HE Laundry.** Michael D. Capracotta\*, Shakera Thamanna, Kevin M. Salmon, and Stephen F. Gross, *BASF Corporation, USA*

2:40 **High Performance Surfactant Blends with High Bio-based Content.** Scott Jaynes\*, *Croda, Inc., USA*

3:00 **Driving Foam Performance with Surfactant Interactions.** Eric Theiner\* and Renae Bennett, *Evonik Corporation, USA*

3:20 **Foam Optimization Strategies in Various Consumer Relevant Applications.** Shui P. Zhu\* and Sangeeta Ganguly-Mink, *Stepan Company, USA*

Surfactants and Detergents

### S&D 5.1: Sustainability in Surfactants, Polymers, and Detergent Chemicals

*Chairs: Keith Genco, Arkema Inc., USA; and Troy Graham, LightBox Laboratories, LLC, USA*

#### Paquin 4

1:55 **Introduction.**

2:00 **The Unbeatable Beet: The Power of Microcellulosic Fibers Unrevealed.** Robert Nolles\*, *Cosun Biobased Products, USA*

2:20 **Co-valorisation of Palm Oil Processing By-products as Soaps.** Teerasak Punvichai\*, *Prince of Songkla University, Thailand*

2:40 **Sustainable Suds Manufacturing.** Kaj A. Johnson\*, *People Against Dirty (Method/Ecover), USA*

3:00 **Readily Biodegradable Builders—Selecting the Right One(s).** Patrick Kincaid\*, Butch Dery, James N. LePage, Kuntal Chatterjee, and Jeanne-Marie McVeigh, *AkzoNobel, USA*

3:20 **How to Improve the Long Term Performance of Autodish Washer Formulations.** Yvon G. Durant\*<sup>1</sup>, and David A. Pears<sup>2</sup>, <sup>1</sup>*Itaconix, USA;* <sup>2</sup>*Revolymex, UK*

3:40 **Dispersants for Reduction of Spotting in Automatic Dishwashing.** Paul P. Mercado<sup>1</sup>, Eric P. Wasserman<sup>1</sup>, Severine S. Ferrieux<sup>2</sup>, and Scott A. Backer\*<sup>1</sup>, <sup>1</sup>*The Dow Chemical Company, USA;* <sup>2</sup>*The Dow Chemical Company, France*

4:00 **Advancing Sustainable Chemistry: Chemical Footprint Reduction at GOJO.** Antonio Quinones\*, *GOJO Industries, USA*

4:20 **Formulation Challenges Faced in the Development of Products for the Natural Category.** Katrina J. Martin\*, *SC Johnson, USA*

Surfactants and Detergents

### EAT 5/S&D 5.2: Interfacial Phenomena in Complex Food Systems

*Chairs: Nitin Nitin, University of California, Davis, USA; and Ozan Ciftci, University of Nebraska-Lincoln, USA*

#### Smalley 1

Joint session: For details, see EAT 5 / S&D 5.2, on page 56.

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# POSTER PRESENTATIONS

- ▶ Presenters are identified with an asterisk (\*).
- ▶ Abstracts are available online at [AnnualMeeting.aocs.org/Orlando2017](http://AnnualMeeting.aocs.org/Orlando2017) or on **The App**. See page 6 for download instructions.
- ▶ Access and print abstracts at the computer stations located in the campuses.
- ▶ Award presentations are highlighted by a gray box.
- ▶ No video recording, tape recording, or still photography is allowed in the poster area, except by registered media.

## Poster Viewing

Monday, May 1 . . . . . 7:55 am–5:00 pm  
Tuesday, May 2 . . . . . 7:55 am–5:00 pm  
Wednesday, May 3 . . . . . 7:55 am–3:00 pm

## Dedicated Poster Viewing

*Authors will be present at their posters during this time.*

Paquin and Wesson Campuses: Monday, May 1, 5:00–6:30 pm  
Smalley Campus: Tuesday, May 2, 5:00–6:30 pm

### ANA-P: Analytical Poster Session

Chair: Kangming Ma, Eurofins QTA Inc., USA

#### Smalley Campus

1. **Authentication of Andean Flours Using a Portable Mid-infrared Fourier Transform Infrared System Spectrometer.** Mei-Ling Shotts\*, and Luis E. Rodriguez-Saona, *The Ohio State University, USA*
2. **Evaluation of Color Adulteration of Green Table Olives with Copper Salts.** Pierluigi Delmonte\*, Bhakti Petigara Harp, Patrick Gray, Peter Scholl, and Todor Todorov, *US Food and Drug Administration, USA*
3. **Gas Chromatographic Separation of Common Vegetable Oils with Highly Polar Capillary Columns.** Andrea Milani\*, Shivani Bhangley, and Pierluigi Delmonte, *US Food and Drug Administration, USA*
4. **Glycidyl Esters, 2-monochloropropanediol and 3-monochloropropanediol Content in Refined Olive Oil: Preliminary Results.** Angelo Cichelli\*, Lorenzo Cerretani<sup>2</sup>, and Nicola d'Alessandro<sup>3</sup>, <sup>1</sup>University G.D'Annunzio, Chieti-Pescara, Italy; <sup>2</sup>Pizzoli SpA, Italy; <sup>3</sup>Dept. of Engineering and Geology, University G.D'Annunzio, Chieti-Pescara, Italy
5. **Immobilization of *Candida rugose* Lipase on Celite-545, Sephadex G-25, and Chitosan Using Physical Adsorption.** Samuel A. Besong<sup>1</sup>, Stephen E. Lumor<sup>1</sup>, and Bhagya Sri Kaja\*<sup>2</sup>, <sup>1</sup>Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA; <sup>2</sup>Delaware State University, USA
6. **The Effects of Emulsifiers on the Crystallization of Palm Oil and Palm Oil-sugar Blends.** Ayse Ece Turan\* and Dérick Rousseau, *Ryerson University, Canada*
7. **Chemical Components of Sumac (*Rhus typhina* L.) Seed Oil from Different Cultivars of China.** Tao Zhang\*, Ruijie Liu<sup>2</sup>, Ming Chang<sup>1</sup>, Qingzhe Jin<sup>1</sup>, and Xingguo Wang<sup>1</sup>, <sup>1</sup>Jiangnan University, China; <sup>2</sup>Jiangnan University/Cornell University, China
8. **Quantitation of Trans-fatty Acids in Human Plasma from the National Health and Nutrition Examination Survey.** Dickson M. Wambua\*, Heather C. Kuiper<sup>2</sup>, Na Wei<sup>2</sup>, Samantha L. McGunigale<sup>2</sup>, Samuel P. Caudill<sup>2</sup>, and Hubert W. Vesper<sup>2</sup>, <sup>1</sup>Centers for Disease Control and Prevention, USA; <sup>2</sup>CDC, USA
9. **Similarity Evaluation of sn-2 Fatty Acid Composition Between Commercial Infant Formulas and Human Milk.** Cong Sun\*, Xiaoqiang Zou<sup>2</sup>, Qingzhe Jin<sup>1</sup>, and Xingguo Wang<sup>1</sup>, <sup>1</sup>Jiangnan University, China; <sup>2</sup>School of Food Science and Technology, Jiangnan University, China
10. **Determination of Iodine Value (IV) in Fully Hydrogenated Oils.** Shaun P. Kotoski<sup>1</sup>, and Cynthia Srigley\*<sup>2</sup>, <sup>1</sup>University of Maryland, USA; <sup>2</sup>US Food and Drug Administration, USA

11. **Rosin Crystallinity Measured by Modulated DSC.** Kun Cheng\*, Lien Phun, Ellen Nagy, and Phillip W. Hurd, *Georgia-Pacific Chemicals, USA*
12. **Simple, Successful High-temperature Analysis of Triglycerides by GC.** Kristen Parnell, Timothy Anderson, and Ramkumar Dhandapani\*, *Phenomenex, USA*
13. **FAMEs Analysis in Less Than 12 Minutes! Reducing Analysis Time Using The Magic of GC Column Parameters.** Kristen Parnell, Matthew Trass, Timothy Anderson, and Ramkumar Dhandapani\*, *Phenomenex, USA*
14. **Improved Methods for Fast and Efficient Separation of Simple and Complex FAMEs.** Kristen Parnell, Timothy Anderson, and Ramkumar Dhandapani\*, *Phenomenex, USA*
15. **Optimized Column Selectivity for Orthogonal Separation of Fatty Acid Methyl Esters Using GCxGC.** Kristen Parnell<sup>1</sup>, Timothy Anderson<sup>1</sup>, Ramkumar Dhandapani\*<sup>1</sup>, Anumeha P. Muthal<sup>2</sup>, and Nicholas Snow<sup>2</sup>, <sup>1</sup>Phenomenex, USA; <sup>2</sup>Seton Hall University, USA
16. **AOCS Method Ce 6-86 Antioxidants: Interfering Peak in the Analysis of TBHQ in Crude Canola / Rapeseed Oil.** Mark W. Collison\*, Michael R. Blumhorst, Travis A. Mahan, Kathryn M. Stanley, and Aaron P. Griffith, *Archer Daniels Midland Co., USA*
17. **Quantitative Determination of Polyphenol Content in Olive Oil by HPLC-MS.** Dana E. Walkenhorst\*, John Reuther, and Cheryl D. Stephenson, *Eurofins Central Analytical Laboratories, USA*
18. **Identification of Sulfur Species in Lightweight Fractions of Biodiesel Distillate.** Michael D. Hughes\*, *Delaware State University, USA*
19. **Total Lipid Contents and Fatty Acid Composition of Some Marine and Freshwater Fish in Turkey.** Ilkay Turhan Kara\*<sup>1</sup>, Ugurcan Bashan<sup>1</sup>, Mehmet Bashan<sup>2</sup>, Veysi Kizmaz<sup>3</sup>, and Sevil Yucel<sup>4</sup>, <sup>1</sup>Istanbul Arel University, Turkey; <sup>2</sup>Dicle University, Turkey; <sup>3</sup>Artuklu University, Turkey; <sup>4</sup>Yildiz Technical University, Turkey
20. **Quality Characteristics of Olive Oils Extracted from "Hurma" Olives.** Dilek Kaçar<sup>1</sup>, Esmaeil Ghanberi Shendi<sup>2</sup>, Didar Ucuuncuoglu<sup>3</sup>, and Dilek Sivri Özyay\*<sup>2</sup>, <sup>1</sup>Çaycuma Vocational School, Bülent Ecevit University, Turkey; <sup>2</sup>Hacettepe University, Turkey; <sup>3</sup>Cankiri Karatekin University, Turkey
21. **Gas Chromatography of Non-conjugated Cis/Trans 18:2 Isomers Using 100 m Biscyanopropyl-polysiloxane and SLB-IL111 Columns.** Payam Vahmani\*<sup>1</sup>, David C. Rolland<sup>1</sup>, Katherine K.E. Gzyl<sup>2</sup>, and Michael E.R. Dugan<sup>1</sup>, <sup>1</sup>Lacombe R&D Centre, Agriculture and Agri-Food Canada, Canada; <sup>2</sup>University of Lethbridge, Canada
22. **Novel, Rapid FTNIR, and PLS1 Proposed Procedure for Predicting Authenticity of Extra Virgin Olive Oils.** Magdi Mossoba\*<sup>1</sup>, Hormoz Azizian<sup>2</sup>, Ali Reza Fardin-Kia<sup>1</sup>, Sanjeeva R. Karunathilaka<sup>1</sup>, and John K.G. Kramer<sup>3</sup>, <sup>1</sup>US Food and Drug Administration, USA; <sup>2</sup>NIR Technologies, Canada; <sup>3</sup>Guelph Food Research Center, Canada
23. **Rapid Screening of Extra Virgin Olive Oil Products for Authenticity Using Near-infrared Spectroscopy in Combination with Chemometrics.** Sanjeeva R. Karunathilaka\*, Ali Reza Fardin-Kia, Cynthia Srigley, Jin Kyu Chung, and Magdi Mossoba, *US Food and Drug Administration, USA*
24. **Fast GC Analysis of trans Fatty Acids in Food Products.** Marc Gregerson\*, and A. Carl Sanchez, *Phenomenex, USA*
25. **Verification of Perilla Oil Authenticity Using Carbon Stable Isotope and Fatty Acid Analyses.** Byung Hee Kim\*<sup>1</sup>, Jinyeong Kim<sup>2</sup>, and Hyang Sook Chun<sup>2</sup>, <sup>1</sup>Sookmyung Women's University, Korea; <sup>2</sup>Chung-Ang University, South Korea



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### ACCREDITATIONS/MEMBERSHIPS

GAFTA Analyst | GAFTA Superintendent | GEAPS | TGFA | AOCS | AFOA | ISO | NIOP | AACC | FOSFA | IFIA

## BIO-P: Biotechnology Poster Session

Chairs: Byung Hee Kim, Sookmyung Women's University, Korea; and Shigenobu Kishino, Kyoto University, Japan

### Wesson Campus

- Enzymatic Approaches for Manufacture of EPA-and-DHA-Enriched Triglyceride Fish Oil.** Jiazi Chen<sup>\*1</sup>, Guanghui Li<sup>1</sup>, Yinglai Teng<sup>2</sup>, Ying Li<sup>3</sup>, and Yong Wang<sup>4</sup>, <sup>1</sup>Dept. of Food Science and Engineering, Jinan University, Guangzhou, China; <sup>2</sup>Guangdong Saskatchewan Oilseed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, Guangzhou, China; <sup>3</sup>Guangdong Saskatchewan Oilseed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, China; <sup>4</sup>Jinan University, China
- Comparison of Stereoselective Hydrolysis of Triacylglycerols by Free Lipases from *Thermomyces Lanuginosus* and *Rhizomucor Miehei* and the Determination of Final Products by H-NMR and GC-FID.** Ali Reza Fardin-Kia<sup>\*1</sup>, Clark Ridge<sup>1</sup>, and Francisco J. Bueso<sup>2</sup>, <sup>1</sup>US Food and Drug Administration, USA; <sup>2</sup>Associated Professor, Honduras
- Preparation of Arachidonoyl Ethanolamide by Enzymatic Amidation of Arachidonic Acid Purified from a Microbial Oil.** Xiaosan Wang<sup>\*</sup>, Yingying Wang, Qingzhe Jin, and Xingguo Wang, Jiangnan University, China
- Relationship Investigation Between Lipid Accumulation and Nitrogen Consumption of *C. minutissima* Using Special Designed Nitrate Sensor.** Nihat E. Balkanlı, Ibrahim Ilıdak, Didem Özçimen, Vildan Erci, and Benan Inan<sup>\*</sup>, Yildiz Technical University, Turkey
- Statistical Analysis of the Parameters Affecting the Amount of Bioactive Substances of *B. Braunii* Microalgae.** Benan Inan<sup>\*</sup>, and Didem Özçimen, Yildiz Technical University, Turkey
- Identification and Functional Analysis of a Mutant Allele of *Gossypium barbadense* Fatty Acid Desaturase-2.** Jay Shockey<sup>1</sup>, Michael K. Dowd<sup>\*1</sup>, Brian Mack<sup>1</sup>, Matthew Gilbert<sup>1</sup>, Brian Scheffler<sup>2</sup>, Linda Ballard<sup>2</sup>, James Frelichowski<sup>3</sup>, and Catherine Mason<sup>4</sup>, <sup>1</sup>SRRC-ARS-USDA, USA; <sup>2</sup>ARS-USDA, USA; <sup>3</sup>SPARC-ARS-USDA, USA; <sup>4</sup>SCCR-ARS-USDA, USA
- Comparative Lipidomic Analysis of *Schizochytrium Limacinum* SR31 Cells Using Different Carbon Sources.** Ming Chang<sup>\*</sup>, Tao Zhang, Leilei Li, Qingzhe Jin, and Xingguo Wang, Jiangnan University, China
- Hypolipidemic Activity of Structured Pinolenic Triacylglycerols in Diet-induced Obese Mice.** Min-Yu Chung<sup>\*1</sup>, Hyo-Kyoung Choi<sup>1</sup>, Jin-Taek Hwang<sup>1</sup>, Hee-Don Choi<sup>1</sup>, and Byung Hee Kim<sup>2</sup>, <sup>1</sup>Korea Food Research Institute, South Korea; <sup>2</sup>Sookmyung Women's University, Korea
- Pigment Products Derived from Algae.** Deniz Ismik<sup>\*</sup>, Muharrem Bogoclu, and Sevil Yucel, Yildiz Technical University, Turkey
- Production of Omega-3 Fatty Acids EPA and DHA from Microalgae.** Ali can C. Ozarslan<sup>\*</sup>, Sevil Yucel, and Yeliz Elalmis, Yildiz Technical University, Turkey
- Enzyme-assisted Extraction of Njangsa (*Ricinodendron heudelottii*) Seed Oil.** Stephen E. Lumor<sup>1</sup>, Samuel A. Besong<sup>1</sup>, Alberta Aryee<sup>2</sup>, and Immaculate T. Arrey<sup>\*2</sup>, <sup>1</sup>Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA; <sup>2</sup>Delaware State University, USA
- Enzymatic Interesterification of Coconut and High Oleic Sunflower Oils for Edible Film Application.** Casimir C. Akoh, and Maria A. Moore<sup>\*</sup>, University of Georgia, USA
- Pinolenic Acid in Structured Triacylglycerols Exhibits Superior Intestinal Lymphatic Absorption Compared to Pinolenic Acid in Pine Nut Oil.** Byung Hee Kim<sup>\*1</sup>, Min-Yu Chung<sup>2</sup>, Hyunjoon Woo<sup>3</sup>, Juyeon Kim<sup>4</sup>, Daechol Kong<sup>4</sup>, Hee-Don Choi<sup>2</sup>, Inwook Choi<sup>2</sup>, In-Hwan Kim<sup>5</sup>, and Sang K. Noh<sup>4</sup>, <sup>1</sup>Sookmyung Women's University, Korea; <sup>2</sup>Korea Food Research Institute, South Korea; <sup>3</sup>Chung-Ang University, South Korea; <sup>4</sup>Changwon National University, South Korea; <sup>5</sup>Korea University, Republic of Korea

- Lipid Production by Oleaginous Yeasts.** Alma Ayala<sup>\*</sup>, Marcos Vargas, Xochitl Niehus, Leticia Casas-Godoy, and Georgina Sandoval, *CIATEJ*, Mexico

### Biotechnology Division Poster Oral Presentations

Monday, May 1, 5:15–6:15 pm | Wesson 1  
Presentation details are located in *The App*.

## CAN-P: Cannabinoid Analytics Poster Session

### Paquin Campus

- Endogenous Solvents in Cannabis Extracts.** David W. Egerton<sup>\*</sup>, *CW Analytical, USA*

## EAT-P: Edible Applications Technology Poster Session

Chair: Michael Rogers, University of Guelph, Canada

### Smalley Campus

- Structural and Mechanical Properties of Palm Oil in the Presence of Air and Sugar.** Hardeep Devgan<sup>\*</sup> and Dérick Rousseau, *Ryerson University, Canada*
- Impact of pH, Temperature, and Molecular Environment on Curcumin Stability: Aqueous Solutions vs. Emulsions.** Mahesh M. Kharat<sup>\*</sup>, and David J. McClements, *University of Massachusetts Amherst, USA*
- Enhance the Color and Physical Stability of Curcumin Using Emulsion-based Delivery System.** Bingjing Zheng<sup>\*</sup>, *University of Massachusetts Amherst, Food Biopolymers and Colloids Lab, USA*
- In vitro Digestion of a DHA-enriched Emulsion: Pectin's Effects on Digestibility and Bioaccessibility.** Xinjie Lin, and Amanda Wright<sup>\*</sup>, *University of Guelph, Canada*
- Chemical Synthesis of Pure Docosapentaenoic and Its Derivatives from Icosapentaenoic Acid.** Hiroshi Tabata<sup>\*</sup>, Tadahiro Tsushima, Jun Fujii, Kazuhiro Miyake, Yoshihisa Misawa, Masashi Otani, and Naomichi Baba, *Bizen Chemical C. Co. Ltd., Japan*
- Effect of Essential Oils on the Crystallization Behavior of Cocoa Butter.** Zachary Cooper<sup>\*</sup>, and Silvana Martini, *Utah State University, USA*
- Sonocrystallization of Interesterified Soybean Oil in High Oleic Sunflower Oil: Effects of Chemical Composition, Sonication Power, and Duration.** Juhee Lee<sup>\*</sup>, Roberta C. Silva, and Silvana Martini, *Utah State University, USA*
- Temperature Effect on Foamability, Foam Stability, and Foam Structure of Milk.** Raymond Sanedrin<sup>\*1</sup>, Katrin Oetjen<sup>2</sup>, Christine Bilke-Krause<sup>2</sup>, Mania Madani<sup>2</sup>, and Thomas Willers<sup>2</sup>, <sup>1</sup>KRUSS USA, USA; <sup>2</sup>KRUSS GmbH, Germany
- Physical Properties of Sodium Caseinate-stabilized Nano-emulsions Prepared by a Combination of a High-energy Homogenization and Evaporative Ripening Methods.** Juan M. Montes de Oca-Avalos<sup>1</sup>, Roberto J. Candal<sup>2</sup>, and Maria L. Herrera<sup>\*3</sup>, <sup>1</sup>ITPN- UBA- CONICET, Argentina; <sup>2</sup>3IA- UNSAM, Argentina; <sup>3</sup>University of Buenos Aires, Argentina
- Thermal and Oxidative Stability of Oleogel Margarine.** Thais L.T Silva<sup>\*</sup>, Kamila F. Chaves, and Daniel B. Arellano, *Unicamp, Brazil*
- Oil/Water Interfacial Tension and Transport Kinetics of Lipid-based Amphiphiles to the Interfaces.** Tong Xu<sup>\*</sup>, and Stephanie R. Dungan, *University of California, Davis, USA*
- In vitro Digestion of Organogel Based Nanoemulsion with Candelilla Wax.** Kubra Sislioglu<sup>\*1</sup>, Ihsan Karabulut<sup>2</sup>, and D. Julian McClements<sup>3</sup>, <sup>1</sup>University of Massachusetts, Amherst, USA; <sup>2</sup>Inonu University, Turkey; <sup>3</sup>University of Massachusetts, Amherst, USA
- Ultrasound as a Tool to Enhance Physical Properties in Binary Mixtures of Cocoa Butter-CB Equivalents.** Nayma I. Murillo Hernandez<sup>1</sup>, Elena Dibildox Alvarado<sup>\*1</sup>, and Silvana Martini<sup>2</sup>, <sup>1</sup>Universidad Autónoma de San Luis Potosí, Mexico; <sup>2</sup>Utah State University, USA
- Organogels Developed Through Mixtures of Monoglycerides and Phosphatidylcholine at Low Concentrations.** Jorge F. Toro-Vazquez<sup>\*1</sup>,



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- Effect of Different Formulations and Heat Treatment on the Physicochemical Properties of Freeze-dried Microencapsulated Chia Oil.** Claudia N. Copado, Vanesa Y. Ixtaina, and Mabel Tomás\*, CIDCA (CONICET-UNLP), Argentina
  - Formulation of an Edible Oleogel to be Used as a Marinade of a Seafood Dish.** Cecilia B. Arnaud<sup>1</sup>, Laurence J. Pottier<sup>1</sup>, Marie I. de Lamballerie<sup>1</sup>, and Nuria C. Acevedo\*<sup>2</sup>, <sup>1</sup>Oniris Nantes Atlantic National College of Veterinary Medicine, Food Science and Engineering, France; <sup>2</sup>Iowa State University, USA
  - Formulation and Characterization Food Grade Microemulsions: Sunflower Oil/Kolliphor RH40: Ethanol/Water.** Noelia Mori Cortés<sup>1</sup>, Alicia N. Califano\*<sup>2</sup>, and Gabriel Lorenzo<sup>1</sup>, <sup>1</sup>CIDCA, UNLP-Conicet-CICPBA, Argentina; <sup>2</sup>CIDCA, Argentina
  - Rheological and Microstructural Characteristic of Low-oil Food Emulsions Formulated with Hydrocolloid Mixtures.** Gabriel Lorenzo<sup>1</sup>, Noelia Mori Cortés<sup>1</sup>, Noemí E. Zaritzky<sup>1</sup>, and Alicia N. Califano\*<sup>2</sup>, <sup>1</sup>CIDCA, UNLP-Conicet-CICPBA, Argentina; <sup>2</sup>CIDCA, Argentina
  - Replacement of Saturated Fatty Acids in Dulce de Leche.** Natalia Ranali<sup>1</sup>, Silvina C. Andrés<sup>1</sup>, and Alicia N. Califano\*<sup>2</sup>, <sup>1</sup>CIDCA, UNLP-Conicet-CICPBA, Argentina; <sup>2</sup>CIDCA, Argentina
  - Effect of the Addition of Pecan Nut (*Caria linoensis*) Meal to Enrich Sweet Bakery Products with Unsaturated Fatty Acids.** Lucas Marchetti<sup>1</sup>, Silvina C. Andrés<sup>1</sup>, and Alicia N. Califano\*<sup>2</sup>, <sup>1</sup>CIDCA, UNLP-Conicet-CICPBA, Argentina; <sup>2</sup>CIDCA, Argentina
  - Determination the Chemical and Sensorial Characteristics of Different Type of Flavored Butters.** Alev Y. Aydar\*<sup>1</sup>, and Fatma Süeda Atsi<sup>2</sup>, <sup>1</sup>Manisa Celal Bayar University, Turkey; <sup>2</sup>Celal Bayar University, Faculty of Engineering, Department of Food Engineering, Turkey
  - Kinetic Phase Behavior of Tripalmitin and 1,3-dipalmitoyl-2-stearoyl-sn-glycerol; Effect of Cooling and Melting Rate.** Krish Bhaggan\*, IOI Loders Croklaan, The Netherlands
  - Supercritical CO<sub>2</sub> Promoted Efficient Solvent-free Lipase-catalyzed Production of Mono- and Diacylglycerols from Soybean Oil.** Nazanin Vafaei\*, The Richardson Centre for Functional Foods & Nutraceuticals, Canada
  - A Bakery Application Review of Partially Hydrogenated Shortening Alternatives.** Alison Gladness<sup>1</sup>, Joshua Tuinstra<sup>1</sup>, and Frank Flider<sup>2</sup>, <sup>1</sup>Stratas Foods, USA; <sup>2</sup>QUALISOY, USA
  - Development of CBIs with High Stearic Contents via Canola and Sunflower Oils Processing.** Sabrina S. de Andrade<sup>1</sup>, Glazieli M. de Oliveira\*<sup>2</sup>, and Theo G. Kieckbusch<sup>1</sup>, <sup>1</sup>ICT-Institute of Science and Technology, UNIFAL, Brazil; <sup>2</sup>University of Campinas, Brazil
  - Stereospecific Analysis of Fatty Acids in Triacylglycerols of Marine Fish Oils with Lipase DF Hydrolysis.** Ming Chang<sup>1</sup>, Qingzhe Jin<sup>1</sup>, Ruijie Liu<sup>1</sup>, Xingguo Wang<sup>1</sup>, Huijun Zhang<sup>1</sup>, and Jianhua Huang<sup>1</sup>, Jiangnan University, China
  - High Oleic Palm Olein.** Noor Lida Habi Mat Dian\*<sup>1</sup>, Miskandar Mat Sahri<sup>1</sup>, Tan Chin Ping<sup>2</sup>, and Lai Oi Ming<sup>2</sup>, <sup>1</sup>Malaysian Palm Oil Board, Malaysia; <sup>2</sup>Universiti Putra Malaysia, Malaysia
  - Selection of Soybean Cultivar Registered in Australia with Regard to Yield and Quality in Pakistan.** Muhammad Usman, Agricultural Research System, Pakistan
  - Walisundera M.N Ratnayake<sup>1</sup>, <sup>1</sup>Nutrition Research Division, Bureau of Nutritional Sciences, Health Canada, Canada; <sup>2</sup>Biostatistics and Modelling Division, Bureau of Food Surveillance and Science Integration, Health Canada, Canada; <sup>3</sup>Food Chemistry and Functional Nutrition, Dept. of Food Science and Technology, Graduate School of Marine Science and Technology, Japan**
  - Effects of Oil Prepared from a Scallop By-product on Liver Lipid Peroxidation in Mice.** Ryota Hosomi\*<sup>1</sup>, Toshifumi Tanizaki<sup>2</sup>, Kenji Fukunaga<sup>2</sup>, Syohei Mori<sup>3</sup>, Shingo Inoue<sup>3</sup>, Takuma Kawanami<sup>3</sup>, Koretaro Takahashi<sup>3</sup>, and Takeya Yoshioka<sup>4</sup>, <sup>1</sup>Kansai University, Japan; <sup>2</sup>Faculty of Chemistry, Materials and Bioengineering, Kansai University, Japan; <sup>3</sup>Faculty of Fisheries Sciences, Hokkaido University, Japan; <sup>4</sup>Hokkaido Industrial Technology Center, Japan
  - Enhancing Omega-3 Fatty Acids and Alpha-tocopherols in Caprine Milk by Feeding Rumen-protected Fish Oil Supplements.** Jung Hoon Lee\*, Beruk Lemma, and Christina Alfred, Fort Valley State University, USA
  - Maternal Fatty Acid and Inflammatory Status Affects Infant Heart Rate and Heart Rate Variability.** Merritt Drewery\*<sup>1</sup>, Adriana V. Gaitán<sup>1</sup>, Derek Miketinas<sup>1</sup>, Steve B. Spedale<sup>2</sup>, Ericka Seidemann<sup>3</sup>, Karen Elkind-Hirsch<sup>3</sup>, and Carol Lammi-Keefe<sup>1</sup>, <sup>1</sup>Louisiana State University, USA; <sup>2</sup>Infamedics, Woman's Hospital, USA; <sup>3</sup>Woman's Hospital, USA
  - Cardiometabolic Risk Markers, Red Blood Cell Fatty Acids, and Their Associations Differ in White vs. South Asian Canadian Children and Adolescents Living in Ottawa.** Isabelle Demonty\*<sup>1</sup>, Rong Huang<sup>1</sup>, Eleonora Swist<sup>1</sup>, Isabelle Massarelli<sup>2</sup>, Isabelle Rondeau<sup>2</sup>, Winnie Cheung<sup>1</sup>, Lois Fernandez<sup>1</sup>, and Walisundera M.N Ratnayake<sup>1</sup>, <sup>1</sup>Nutrition Research Division, Bureau of Nutritional Sciences, Health Canada, Canada; <sup>2</sup>Food Surveillance Integration Division, Bureau of Food Surveillance and Science Integration, Health Canada, Canada
  - Dietary Exposure to Conjugated Linoleic Acid *cis*-9, *trans*-11 Prevents Collagen-Induced Arthritis.** Jessica A. Muhlenbeck\*, Daniel E. Bütz, Jake M. Olson, Daniela Uribe-Cano, and Mark E. Cook, University of Wisconsin-Madison, USA
  - Effects of Dietary  $\beta$ -conglycinin on Insulin Sensitivity and Liver Lipid Concentration in OLETF Rats.** Koji Kawabeta\*<sup>1</sup>, Shizuka Hase-Tamaru<sup>1</sup>, Kazuhito Suruga<sup>1</sup>, and Kazunori Koba<sup>2</sup>, <sup>1</sup>Graduate School of Human Health Science, University of Nagasaki Siebold, Japan; <sup>2</sup>University of Nagasaki, Japan
  - Nanovehicles for Inhibition of the Formation of Advanced Glycation End Products (AGEs).** Karina Latorre<sup>1</sup>, and Alejandra Medrano\*<sup>2</sup>, <sup>1</sup>Udelar, Uruguay; <sup>2</sup>Udelar, Uruguay
  - Bioactivity Assessment of Novel Non-conjugated Non-methylene Interrupted Dienoic Acids Isolated from Beef Fat.** Payam Vahmani\*<sup>1</sup>, William J. Meadus<sup>2</sup>, Pascale Duff<sup>1</sup>, David C. Rolland<sup>1</sup>, and Michael E.R Dugan<sup>1</sup>, <sup>1</sup>Lacombe R&D Centre, Agriculture and Agri-Food Canada, Canada; <sup>2</sup>Agriculture and Agri-Food Canada, Canada
  - Incorporation and Stability of Vitamin A as a Functional Component in Self-assembled Supramolecular Oleogels.** Cecilia B. Arnaud<sup>1</sup>, and Nuria C. Acevedo\*<sup>2</sup>, <sup>1</sup>Oniris Nantes Atlantic National College of Veterinary Medicine, Food Science and Engineering, France; <sup>2</sup>Iowa State University, USA
  - Effect of Resveratrol or Red Wine on Oxidative Stress Biomarkers Associated with Atherosclerosis in LDLr-KO Mice.** Livia N. Chassot, Gabriela G. Roschel, and Inar A. Castro\*, University of Sao Paulo, Brazil
  - Microbial Lipase for Reducing Serum Triglycerides.** Kelly Gregory\*<sup>1</sup>, Duc Tran Do<sup>2</sup>, Caroline Best<sup>1</sup>, Fanbin Kong<sup>2</sup>, Deborah Winetzky<sup>1</sup>, and Chris Penet<sup>1</sup>, <sup>1</sup>BIO-CAT, USA; <sup>2</sup>University of Georgia, USA
  - Low Dietary Linoleate/Linolenate Ratio Attenuated Inflammatory Mediators in Mouse Liver in Response to LPS Administration.** Hang Su<sup>1</sup>, Haji Akbar<sup>2</sup>, Rodney Johnson<sup>3</sup>, Xingguo Wang<sup>4</sup>, and Manabu Nakamura<sup>3</sup>, <sup>1</sup>School of Food Science and Technology, Jiangnan University, China, <sup>2</sup>Dept. of Food Science and Human Nutrition, University of Illinois at Urbana-Champaign, USA, <sup>3</sup>Dept. of Animal Sciences, University of Illinois at Urbana-Champaign, USA, <sup>4</sup>Jiangnan University, China

## H&N-P: Health and Nutrition Poster Session

Chairs: Mathilde Fleith, Nestec Ltd., Switzerland; and Michelle Judge, University of Connecticut, USA

### Smalley Campus

- Associations Between Red Blood Cell Fatty Acids and Cardiometabolic Risk Markers Differ in White vs. South Asian Canadian Adults Living in Ottawa.** Isabelle Demonty\*<sup>1</sup>, Cunye Qiao<sup>2</sup>, Chao-Wu Xiao<sup>1</sup>, Eleonora Swist<sup>1</sup>, Reiko Nagasaka<sup>3</sup>, Carla Wood<sup>1</sup>, and

14. **The Production and Antifungal Testing of Hydroxy Unsaturated Fatty Acids from Seed Oils and Fermentation.** Nuanyi Liang<sup>1</sup>, Pengfei Cai<sup>2</sup>, Datong Wu<sup>2</sup>, Yuanjiang Pan<sup>2</sup>, Jonathan Curtis<sup>1</sup>, and Michael Gänzle<sup>1</sup>, <sup>1</sup>Dept. of Agricultural, Food and Nutritional Science, University of Alberta, Canada, <sup>2</sup>Dept. of Chemistry, Zhejiang University, China
15. **In vitro Lipid Digestion and Carotenoid Bioaccessibility Kinetics in Emulsified Oils with Different Unsaturation Degree.** Sarah Verkempinck, Laura Salvia-Trujillo, Lucie Moens, Marc Hendrickx, and Tara Grauwet, Laboratory of Food Technology, KU Leuven, Belgium
16. **Lipolysis and Carotenoid Bioaccessibility Kinetics During *in vitro* Digestion: Influence of Emulsifier and Particle Size.** Laura Salvia-Trujillo<sup>1</sup>, Sarah Verkempinck<sup>1</sup>, Celia, Carrillo-Pérez<sup>2</sup>, Tara Grauwet<sup>1</sup>, and Marc, Hendrickx<sup>1</sup>, <sup>1</sup>Laboratory of Food Technology, KU Leuven, Belgium, <sup>2</sup>University of Burgos, Spain
17. **Greening-induced Oxidation of Sunflower Butter Cookies as a Function of Temperature and Vegan Egg Replacers.** Amanda Rogers (*Health and Nutrition Division Student Award Winner*) and Lilian Were, Chapman University, USA
- Ethanolysis and Crystallization.** Yu Zhang<sup>\*1</sup>, Xiaosan Wang<sup>1</sup>, Ruijie Liu<sup>2</sup>, Qingzhe Jin<sup>1</sup>, and Xingguo Wang<sup>1</sup>, <sup>1</sup>Jiangnan University, China; <sup>2</sup>Jiangnan University/Cornell University, China
11. **A Sustainable Process for the Synergy Between Petroleum and Biofuels Industries in Nigeria.** Chika S. Ezeanyanaso\*, Gloria N. Elemo, Viola A. Nwachukwu, Segun Munir, and Chima C. Igwe, *Federal Institute of Industrial Research Oshodi, Nigeria*
12. **The Benefits, Uses, and Future of Pine Chemistry for Lubricant Applications.** Monica A. Ford\*, Eric J. Olivier, Nicholas Kob, and Aaron Engel, *Ingevity, USA*
13. **Synthesis and Characterization of Phosphonates from Methyl Linoleate and Vegetable Oils.** Grigor Bantchev\*, *Biooils Research Unit, NCAUR, ARS, USDA, USA*
14. **Designing Multifunctional Sugar Alcohol-based Oleogels as Solid Fat Substitutes.** Malick Samateh<sup>1</sup>, Sai Sagiri<sup>2</sup>, and George John<sup>1</sup>, <sup>1</sup>The City College of New York & Ph.D. Program in Chemistry at Graduate Center, City University of New York, USA, <sup>2</sup>Center for Discovery and Innovation, Dept. of Chemistry, The City College of New York, USA, <sup>1</sup>The City College of New York, USA
15. **Analysis of Phorbol Ester of *Jatropha Curcas L.* by HPLC with UV-VIS and ToF-MS Detection.** Philipp Neu<sup>1</sup>, Sigurd Schober<sup>2</sup>, and Martin Mittelbach<sup>2</sup>, <sup>1</sup>University of Graz, Austria; <sup>2</sup>Institute of Chemistry, University of Graz, Austria

### IOP-P: Industrial Oil Products Poster Session

Chair: Tracy Benson, Lamar University, USA

#### Wesson Campus

1. **Edible Oleogels: Viable Alternative toward Healthier Solid Fat Food Products.** D. Pulido<sup>\*1</sup>, Malick Samateh<sup>2</sup>, Sai S. Sagiri<sup>3</sup>, Nannette Hernandez<sup>1</sup>, Riliwan Sanni<sup>1</sup>, and George John<sup>4</sup>, <sup>1</sup>Dept. of Chemistry & Center for Discovery and Innovation (CDI), The City College of New York, USA; <sup>2</sup>The City College of New York & Ph.D. Program in Chemistry at Graduate Center, City University of New York, USA; <sup>3</sup>Center for Discovery and Innovation, Dept. of Chemistry, The City College of New York, USA; <sup>4</sup>The City College of New York, USA
2. **Starch Inclusion Complex to Emulsify Cedarwood Oil and Pressure Treat Wood.** Fred J. Eller<sup>\*1</sup>, William Hay<sup>1</sup>, Grant Kirker<sup>2</sup>, and Mark Mankowski<sup>2</sup>, <sup>1</sup>USDA, ARS, NCAUR, USA; <sup>2</sup>USDA, FS, FPL, USA
3. **Waste Eggshell Catalyzed Conversion of *Jatropha* Oil to Biodiesel Under an Ultrasonication.** Jitenkumar C. Patel\*, Gaurav K. Patel, and Hasmmukh S. Patel, *Dept. of Chemistry, Sardar Patel University, India*
4. **Palm-based Mung Bean Cakes: Production via Blending Three Different Palm Fractions with Soybean Oil.** Jun Jin<sup>\*1</sup>, Yinhui Ma<sup>2</sup>, Liyou Zheng<sup>3</sup>, Cheng Keat Ooi<sup>2</sup>, Xingguo Wang<sup>1</sup>, and Qingzhe Jin<sup>1</sup>, <sup>1</sup>Jiangnan University, China; <sup>2</sup>Palm Oil Research and Technical Service Institute of Malaysian Palm Oil Board, China; <sup>3</sup>CAAS, China
5. **New Bis (Alkylthio) Fatty Acid Methyl Esters.** Gerhard Knothe\*, *USDA, ARS, NCAUR, USA*
6. **Studies on Modulating Aesthetic and Mechanical Properties of Molecular Gels.** Riliwan Sanni<sup>\*1</sup>, Malick Samateh<sup>2</sup>, Sai S. Sagiri<sup>3</sup>, Raul Rivas<sup>1</sup>, and George John<sup>4</sup>, <sup>1</sup>Dept. of Chemistry & Center for Discovery and Innovation (CDI), The City College of New York, USA; <sup>2</sup>The City College of New York & Ph.D. Program in Chemistry at Graduate Center, City University of New York, USA; <sup>3</sup>Center for Discovery and Innovation, Dept. of Chemistry, The City College of New York, USA; <sup>4</sup>The City College of New York, USA
7. **High Oleic Algal Oil Polyurethanes.** Olivera Bilic<sup>\*1</sup>, Zoran Petrovic<sup>2</sup>, Jian Hong<sup>1</sup>, and Scott Franklin<sup>3</sup>, <sup>1</sup>Kansas Polymer Research Center/PSU, USA; <sup>2</sup>Pittsburg State University, USA; <sup>3</sup>Checkerspot, Inc., USA
8. **Evaluation of Octane Number Property of Renewable Hydrocarbons Synthesized from *Camelina sativa*.** Randy L. Maglinao<sup>1</sup>, Chazley J. Hulett<sup>\*2</sup>, Eleazer P. Resurreccion<sup>2</sup>, and Alexandra K. Jones<sup>1</sup>, <sup>1</sup>Advanced Fuel Center, Montana State University-Northern, USA; <sup>2</sup>Montana State University Northern, USA
9. **Starch-lipid Complexes for Aerogel Formation.** Jim A. Kenar\*, Fred J. Eller, Frederick C. Felker, George F. Fanta, Michael A. Jackson, and Jeffrey A. Byars, *USDA, ARS, NCAUR, USA*
10. **Preparation of 2-Monoacylglycerol Rich in DHA by Enzymatic**

### LOQ-P: Lipid Oxidation and Quality Poster Session

Chairs: Shawn Pan, Bunge North America, USA; and Hans-Jürgen Wille, Consultant, Switzerland

#### Smalley Campus

1. **Assessment of Extra Virgin Olive Oil Quality Using Portable Mid-infrared Spectroscopy and Multivariate Analysis.** Didem P. Aykas\*, and Luis E. Rodriguez-Saona, *The Ohio State University, USA*
2. **Effect of Crushing Speed on Extraction Efficiency and Quality of Olive Oil Obtained from Super-high-density Arbosana Cultivar.** Juan J. Polari<sup>\*1</sup>, David Garci-Aguirre Garci-Aguirre<sup>2</sup>, and Selina Wang<sup>3</sup>, <sup>1</sup>University of California, Davis, USA; <sup>2</sup>Corto Olive Co., USA; <sup>3</sup>UC Davis Olive Center, USA
3. **Protection of Beta-carotene in Emulsion-based Delivery Systems Using Antioxidant Interfacial Complexes: Gcatechin-egg White Protein Conjugates.** Luping Gu\*, and David J. McClements, *University of Massachusetts Amherst, USA*
4. **The Impact of Diacylglycerols on Lipid Oxidation in Oils Containing Association Colloids.** Mizue Ouchi<sup>\*1</sup>, David J. McClements<sup>2</sup>, and Eric A. Decker<sup>2</sup>, <sup>1</sup>Kao Corporation/University of Massachusetts Amherst, Japan; <sup>2</sup>University of Massachusetts Amherst, USA
5. **Characterization and Determination of Walnut Oils from China.** Pan Gao\*, Xingguo Wang, and Qingzhe Jin, *Jiangnan University, China*
6. **Relationship Between Malondialdehyde Formation and Reduction of Polyunsaturated Fatty Acids in Vegetable Oil.** Ma Lukai\*, and Liu Guoqin, *School of Food Science and Engineering, South China University of Technology, China*
7. **Effect of Oil Oxidation on Glycidyl Ester Formation Involved in Radical-mediated Mechanisms in Refined Oil.** Weiwei Cheng<sup>\*1</sup>, and Liu Guoqin<sup>2</sup>, <sup>1</sup>South China University of Technology, China; <sup>2</sup>School of Food Science and Engineering, South China University of Technology, China
8. **A Mathematical Method for Determining the Appropriate Amount of Stigmasterol Added in Soybean Oil.** Li Xu<sup>\*1</sup>, Li Yongru<sup>2</sup>, Ruijie Liu<sup>3</sup>, Zhao Chenwei<sup>2</sup>, Qingzhe Jin<sup>4</sup>, and Xingguo Wang<sup>4</sup>, <sup>1</sup>School of Food Science and Technology, Jiangnan University, China; <sup>2</sup>State Key Laboratory of Food Science and Technology, School of Food Science and Technology, Jiangnan University, China; <sup>3</sup>Jiangnan University/Cornell University, China; <sup>4</sup>Jiangnan University, China
9. **Physicochemical Stability of Flaxseed Oil-in-Water Emulsions Fabricated from Sunflower Lecithins: Impact of Varying**

- Phospholipid Type.** Li Liang<sup>1</sup>, Fang Chen<sup>2</sup>, Xingguo Wang<sup>3</sup>, Qingzhe Jin<sup>3</sup>, Eric A. Decker<sup>4</sup>, and David J. McClements<sup>4</sup>, <sup>1</sup>State Key Laboratory of Food Science and Technology, School of Food Science and Technology, Jiangnan University, China; <sup>2</sup>School of Public Health, Nanchang University, China; <sup>3</sup>Jiangnan University, China; <sup>4</sup>University of Massachusetts Amherst, USA
10. **Oxidative Stability of Edible Oils Containing Different Types of Omega-3 Fatty Acids.** Marina S. Nogueira<sup>1</sup>, and Inar A. Castro<sup>2</sup>, <sup>1</sup>Dept. of Food and Experimental Nutrition, Faculty of Pharmaceutical Sciences, University of São Paulo, Brazil; <sup>2</sup>University of Sao Paulo, Brazil
  11. **Use of Oxitest for Testing Food Quality of Tuna Fish Fillet in Olive Oil During Storage.** Paola Ornaghi<sup>1</sup>, Monia Scarsi<sup>2</sup>, Stefano Casiraghi<sup>2</sup>, Antonella Cavazza<sup>3</sup>, Chiari Bignardi<sup>3</sup>, Carmen Lagana<sup>4</sup>, Paola Salvadeo<sup>3</sup>, Claudio Corradini<sup>3</sup>, and Stefani Corti<sup>4</sup>, <sup>1</sup>VELP Scientifica S.r.l., Italy; <sup>2</sup>VELP Scientific, Inc., USA; <sup>3</sup>Universita degli Studi di Parma, Italy; <sup>4</sup>VELP Scientifica, Italy
  12. **Effects of Filtration on Chemical Properties and Oxidative Stability of Turkish Monovarietal Olive Oils.** Esmail Ghanberi Shendi<sup>1</sup>, Dilek Sivri Özyay<sup>1</sup>, Mücahit Özkaya<sup>2</sup>, and Feyza Üstünel<sup>3</sup>, <sup>1</sup>Hacettepe University, Turkey; <sup>2</sup>Dept. of Horticulture, Ankara University, Turkey; <sup>3</sup>Doğal Ürünler Tur. Tic. San. A.Ş., Turkey
  13. **Value Utilization of Discarded Fish Livers for Production of Omega-3 Rich Oil.** Ann-Dorit M. Sørensen<sup>1</sup>, Nina Skall Nielsen<sup>2</sup>, and Charlotte Jacobsen<sup>1</sup>, <sup>1</sup>Technical University of Denmark, Denmark; <sup>2</sup>National Food Institute, Technical University of Denmark, Denmark
  14. **Natural Antioxidants Derived from Seaweed Material.** Ditte B. Hermund<sup>1</sup>, Randi Neerup<sup>2</sup>, Susan Holdt<sup>3</sup>, and Charlotte Jacobsen<sup>1</sup>, <sup>1</sup>Technical University of Denmark, Denmark; <sup>2</sup>Danish Technological Institute, Denmark; <sup>3</sup>National Food Institute, Technical University of Denmark, Denmark
  15. **Oxidative and Physical Stability of Fish Oil-in-Water Emulsions Stabilized with Sodium Caseinate and DATEM.** Betül Yesiltas<sup>1</sup>, Pedro J. Garcia-Moreno<sup>2</sup>, Ann-Dorit M. Sørensen<sup>2</sup>, and Charlotte Jacobsen<sup>2</sup>, <sup>1</sup>National Food Institute, Technical University of Denmark, Denmark; <sup>2</sup>Technical University of Denmark, Denmark
  16. **Comparison of Antioxidant Activities of Fucoïdan Isolated from Four Species of Brown Algae from Danish Coast.** Sabeena Farvin Koduvayur Habeebullah<sup>1</sup>, Surendraraj Alagarsamy<sup>2</sup>, and Charlotte Jacobsen<sup>3</sup>, <sup>1</sup>Environmental and Life Science Research Center, Kuwait Institute for Scientific Research, Kuwait; <sup>2</sup>Kuwait Institute for Scientific Research, Kuwait; <sup>3</sup>Technical University of Denmark, Denmark
  17. **Antioxidant Potential of Ajwain (Trachyspermum ammi) to Enhance Shelf Life of Sunflower Oil During Frying Process.** Vikas Kardam<sup>\*</sup>, Santosh Satya, K.K. Pant, and S.N. Naik, *Indian Institute of Technology, Delhi, India*
  18. **The Role of Phenolic Compounds Extracted from Germinated Pulse Crops on the Oxidative Stability of Oil-in-Water Emulsions.** Minwei Xu<sup>\*</sup>, and Bingcan Chen, *North Dakota State University, USA*
  19. **Influence of Food Additives and pH on the Oxidative Stability of Crackers.** Thanh P. Vu<sup>\*</sup>, Lili He, David J. McClements, and Eric A. Decker, *University of Massachusetts Amherst, USA*
  20. **Pecan Nut (Caria ilinoensis) Meal: Characterization and Storage.** Lucas Marchetti<sup>1</sup>, Silvina C. Andrés<sup>1</sup>, and Alicia N. Califano<sup>2</sup>, <sup>1</sup>CIDCA, UNLP-Conicet-CICPBA, Argentina; <sup>2</sup>CIDCA, Argentina
  21. **The Effect of Storage Time and Extraction Parameters on Extra Virgin Olive Oils.** Alev Y. Aydar<sup>1</sup>, and Neriman Bagdatlioglu<sup>2</sup>, <sup>1</sup>Manisa Celal Bayar University, Turkey; <sup>2</sup>Celal Bayar University, Faculty of Engineering, Dept. of Food Engineering, Turkey
  22. **Novel Method for Fast and Straightforward Determination of the Oxidation Stability of Fats and Oils.** Carolin Edinger<sup>\*</sup>, Anton Paar ProveTec GmbH, Germany
  23. **Effects of Polar Compounds from Oxidized Palm Oil on Lipid Metabolism and Glucose Tolerance in Kunming Mice.** Peirang Cao, Xiaodan Li, Xiaoyan Yu, Yuanpeng Wang, and Yuanfa Liu, *Jiangnan University, China*
  24. **Decoding the Rancid Off-flavor of Olive Oil Using the Sensomics Approach.** Anja Neugebauer, Michael Granvogl, and Peter Schieberle, *Technical University of Munich, Germany*
  25. **An Investigation into the Stability of Flavour Compounds in Flavoured Fish Oil During Oxidation.** Emily Harris<sup>1</sup>, Suzanne Budge<sup>1</sup>, and Jenna Sullivan Ritter<sup>2</sup>, <sup>1</sup>Dalhousie University, Canada, <sup>2</sup>Nature's Way of Canada, Canada
  26. **Effect of Antioxidants on Changes in Edible Oils During Frying.** S.P.J. Namal Senanayake<sup>\*</sup>, *CFS North America, USA*
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- PCP-P: Protein and Co-Products Poster Session**  
*Chairs: Mila Hojilla-Evangelista, USDA, ARS, NCAUR, USA; and Navam Hettiarachchy, University of Arkansas, USA*
- Wesson Campus**
1. **Egg-Derived Tri-Peptide IRW Promotes Differentiation of Mouse Osteoblastic Cell MC3T3-E1.** Nan Shang<sup>\*</sup>, and Jianping Wu, *University of Alberta, Canada*
  2. **Evaluation of Barley Protein based Nanoparticles for Vitamin B12 Delivery.** Guangyu Liu<sup>\*</sup>, and Lingyun Chen, *University of Alberta, Canada*
  3. **Surface Pressure Affects B-hordein Network Formation at the Air-water Interface in Relation to Gastric Digestibility.** Jingqi Yang<sup>\*</sup>, and Lingyun Chen, *University of Alberta, Canada*
  4. **Influence of Structural Properties of Whey-derived Peptides on Zinc-chelating Capacity, and Simulated Gastric Stability/Bioaccessibility of Their Zinc Complexes.** Chinonye M. Udechukwu<sup>1</sup>, Brianna Downey<sup>1</sup>, and Chibuike C. Udenigwe<sup>2</sup>, <sup>1</sup>Dalhousie University, Canada; <sup>2</sup>University of Ottawa, Canada
  5. **Cholesterol-lowering Effect of Indigestible Proteins Isolated from Pulses.** Hongyi Wu<sup>1</sup>, and Rotimi Aluko<sup>2</sup>, <sup>1</sup>Dept. of Human Nutritional Sciences, University of Manitoba, Canada; <sup>2</sup>University of Manitoba, Canada
  6. **Chemically Modified Canola Protein-nanomaterial Hybrid Wood Adhesive Shows Improved Adhesion and Water Resistance.** Nandika Bandara<sup>1</sup> and Jianping Wu<sup>2</sup>, <sup>1</sup>Dept. of Agricultural, Food and Nutritional Science, University of Alberta, Canada; <sup>2</sup>University of Alberta, Canada
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- PHO-P: Phospholipid Poster Session**  
**Paquin Campus**
1. **Hydrolysis of Epoxyeicosatrienoic and Epoxydocosapentaenoic Acid Esters of Glycerophospholipids by Group IIA, V, and X Secretory Phospholipases A2.** Arnis Kuksis<sup>\*</sup>, and Waldemar Pruzanski, *University of Toronto, Canada*
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- PRO-P: Processing Poster Session**  
*Chairs: Ozan Ciftci, University of Nebraska-Lincoln, USA; and Junsu Yang, University of Nebraska-Lincoln, USA*
- Wesson Campus**
1. **Comparison of Different Solvents for Extraction of Krill Oil from Krill Meal: Lipid Yield, Phospholipids Content, Fatty Acid Composition, and Minor Components.** Dan Xie<sup>1</sup>, Jun Jin<sup>1</sup>, Jiang Sun<sup>2</sup>, Xingguo Wang<sup>1</sup>, and Qingzhe Jin<sup>1</sup>, <sup>1</sup>Jiangnan University, China; <sup>2</sup>Zhonghai Ocean (Wuxi) Marine Equipment Engineering Co., Ltd., China
  2. **Development of a Cocoa Butter Improver by Chemical Interesterification and Thermal Fractionation.** Glazieli M. de Oliveira<sup>1</sup>, Ana Paula B. Ribeiro<sup>1</sup>, and Theo G. Kieckbusch<sup>2</sup>, <sup>1</sup>University of Campinas, Brazil; <sup>2</sup>ICT-Institute of Science and Technology, UNIFAL, Brazil

3. **Application of Imidazolium-based Ionic Liquids as Co-solvent for Extraction of Oil from Nahar Seeds Using Sonoreactor.** Adeeb Hayyan<sup>\*1</sup>, Mohamed E.S Mirghani<sup>2</sup>, Shahidah N. Rashid<sup>3</sup>, Maan Hayyan<sup>4</sup>, M. Y. Zulkifli<sup>4</sup>, and Fazrizatul S. Sani<sup>3</sup>, <sup>1</sup>University of Malaya, Malaysia; <sup>2</sup>Dept. of Biotechnology Engineering, Faculty of Engineering and International Institute for Halal Research and Training, International Is, Malaysia; <sup>3</sup>University of Malaya Centre for Ionic Liquids (UMCIL), Kuala Lumpur, Malaysia; <sup>4</sup>Institute of Halal Research University of Malaya, Malaysia
4. **Lowering the Temperature Improves Enzymatic Prefractionation of EPA and DHA.** Ryosuke Hoshina<sup>\*1</sup>, Yomi Watanabe<sup>2</sup>, Kazumi Katagiri<sup>1</sup>, and Hideaki Kobayashi<sup>1</sup>, <sup>1</sup>Kewpie Corporation, Japan; <sup>2</sup>Osaka Municipal Technical Research Institute, Japan
5. **Heterogeneous Interesterification Catalyst as Alternative to Enzymatic and Chemical Processes.** Gary Evans<sup>1</sup>, Natalie Herring<sup>2</sup>, Shingo Watanabe<sup>2</sup>, and Aalbert Zwijnenburg<sup>3</sup>, <sup>1</sup>Johnson Matthey, UK, <sup>2</sup>Johnson Matthey, USA; <sup>3</sup>Johnson Matthey, Germany
6. **Influence of Active Carbon in Bleaching Process in Coconut Oil.** Jin Sup Shin<sup>\*1</sup>, Minyoung Kim<sup>2</sup>, Dongjin Yu<sup>2</sup>, Eunseok Jang<sup>2</sup>, Yoonchang Kang<sup>2</sup>, and Bongchan Kim<sup>2</sup>, <sup>1</sup>Samyang Corporation, Korea; <sup>2</sup>Samyang Co., South Korea
7. **Impact of Roasting on Specific Phytochemicals in Perilla Seed Oil Extracted Using Supercritical Carbon Dioxide.** Hyo Jung Cho<sup>\*1</sup>, Nakyung Choi<sup>1</sup>, and In-Hwan Kim<sup>2</sup>, <sup>1</sup>Korea University, South Korea; <sup>2</sup>Korea University, Republic of Korea
8. **Novel Technology to Produce High Quality Ester and High Purity Vitamin E from Deodorizer Distillate.** Kousuke Hiromori<sup>\*1</sup>, Tomoya Watanabe<sup>1</sup>, and Naomi Shibasaki-Kitakawa<sup>2</sup>, <sup>1</sup>Dept. of Chemical Engineering, Tohoku University, Japan; <sup>2</sup>Graduate School of Engineering, Tohoku University, Japan
9. **Comparison of the Newly Formulated Silica Adsorbent Bleaching Capacity with Traditional Adsorbents.** Burcu Karakuzu<sup>\*</sup>, Sevil Yucel, and Tulay Merve Temel, *Yildiz Technical University, Turkey*
10. **Determination of Pore Size and Lignin Distribution in Coconut Shells Residue by Using Stain Technology.** Prashant Katiyar<sup>\*1</sup>, Shailendra K. Srivastava<sup>1</sup>, and Vinod K. Tyagi<sup>2</sup>, <sup>1</sup>Sam Higginbottom Institute of Agriculture, Technology and Sciences, India; <sup>2</sup>Harcourt Butler Technological Institute, India
11. **Ricinodendron heudelotii Oil: An Original Source of  $\alpha$ -eleostearic Acid,  $\beta$ -eleostearic Acid, and Linoleic Acid.** Diakaridja Nikiema, Muriel Cerny, Eric Lacroux, and Zéphirin, Mouloungui, Laboratoire de Chimie Agro-Industrielle, France
12. **Stabilization of Meat Products Using Functionalized Pork Fat Produced by Enzymatic Glycerolysis and Short Path Distillation.** Eleonora Miquel Becker<sup>\*</sup>, Bjørn Alexander S. Hansen, Maria Barmar Larsen, and Mia Fiilsøe Falkeborg, *Danish Technological Institute, Denmark*

13. **Valorization of Animal By-products Using Short Path Distillation.** Mia Fiilsøe Falkeborg<sup>1</sup>, Bjørn Alexander Hansen, Maria Barmar Larsen, and Eleonora Miquel Becker, *Danish Technological Institute, Denmark*

## S&D-P: Surfactants and Detergents Poster Session

Chair: Mike Wint, Amway Corporation, USA

### Paquin Campus

1. **Studies on Dispersion of Various Size of Ethyl Cellulose in Colloidal Solution and Their Foam Ability.** Hongche Noh<sup>\*</sup>, *Hanyang University, South Korea*
2. **Chemocleavable Nonionic Surfactants Bearing Mono-dispersed Polyethylene Glycol Derived from Diethyl Tartrate.** Daisuke Ono<sup>\*1</sup>, Makoto Okumura<sup>2</sup>, Shintaro Kawano<sup>1</sup>, Hirofumi Sato<sup>1</sup>, Motohiro Shizuma<sup>1</sup>, and Araki Masuyama<sup>2</sup>, <sup>1</sup>Osaka Municipal Technical Research Institute, Japan; <sup>2</sup>Osaka Institute of Technology, Japan
3. **Thermogravimetric and Rheological Evaluation of Mucilage Flax with Potential Application in Microencapsulation of Bioactive Substances.** Jaime Reyes Hernandez<sup>\*</sup>, Concepción Lopez Padilla, Josefina Gallegos Martinez, and Paola Algara Suarez, *Universidad Autónoma de San Luis Potosí, Mexico*
4. **Micellization and Aggregation Properties of Sodium Perfluoropolyether Carboxylate in Aqueous Solution.** Guoyong Wang, and Tao Gen<sup>\*</sup>, *China Research Institute of Daily Chemical Industry, China*
5. **High Foaming, Bleach Stable Surfactant Alternative to Laurylamine Oxide.** Benjamin J. Markovitz, Ryan C. Vikan, Tenu A. Adeosun, William B. Hehemann, and Philip C. Benes<sup>\*</sup>, *Nease Co., USA*
6. **Application of Surfactants in Enhanced Oil Recovery.** Muhammad Shahzad Kamal<sup>\*</sup>, Syed S. Hussain, and Abdullah S. Sultan, *King Fahd University of Petroleum and Minerals, Saudi Arabia*
7. **Selective Synthesis of Sugar Mono Fatty Acid Ester Using Ion-exchange Resin as Catalyst.** Tomone Sasayama<sup>\*1</sup>, Yuto Kamikanda<sup>2</sup>, and Naomi Shibasaki-Kitakawa<sup>3</sup>, <sup>1</sup>Dept. of Chemical Engineering, Tohoku University, Japan; <sup>2</sup>Tohoku University, Japan; <sup>3</sup>Graduate School of Engineering, Tohoku University, Japan
8. **Synthesis of Mild Natural Micro Beads Face Scrubber.** Rohan S. Mestri<sup>\*</sup>, Harshada S. Patil, and Amit P. Pratap, *Institute of Chemical Technology, India*
9. **Manufacturing of Detergent Tablet.** Rohan S. Mestri<sup>\*</sup>, *Institute of Chemical Technology, India*
10. **Extraction of Essential Oils from Lemon Peels with Micellar Solutions of Food-grade Surfactants.** Li-Yi Huang, Alice P. Yang, and Bing-Hung Chen<sup>\*</sup>, *National Cheng Kung University, Taiwan*

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# INDUSTRY SHOWCASE PARTNERS

(as of March 10, 2017)

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## AB Enzymes (Wesson 313)

[www.abenzymes.com](http://www.abenzymes.com)

Let's boost your oil yield and reduce your cost with ROHALASE® PL XTRA phospholipase! AB Enzymes is an industrial biotech company specializing in enzymes. The company is part of AB Foods, and based in Darmstadt Germany. We are pleased to join the AOCS Annual Meeting & Industry Showcases, and look forward to meet you in our booth 313.



## ADF Engineering, Inc.

(Wesson 601)

[www.adfengineering.com](http://www.adfengineering.com)

ADF Engineering is a leading provider of process engineering solutions for the food, feed, biofuel, and bioscience industries. We offer process, structural, piping, electrical engineering, and project management services at three strategic US locations. ADF provides cost-effective engineering solutions for our clients, including many Fortune 500 companies. The ADF team of talented engineers uses cutting edge engineering tools for process modeling and design. We offer expertise in oilseeds processing, surfactants, fatty acids, and biodiesel.

## AGI USA, Inc. (Wesson 606)

[www.asahiglassplant.com](http://www.asahiglassplant.com)

AGI USA, Inc. is a state-of-the-art scientific glassware manufacturer. Our proprietary Ring Baffle Reactor technology is the most efficient system in the world. Products include rotary evaporators, thin film and short path evaporators, pressure reactors, filter reactors, Nutsche filter reactors, molecular distillation, liquid-to-liquid extraction columns, and mini plants.

## Agilent Technologies

(Smalley 803)

[www.agilent.com](http://www.agilent.com)

Agilent Technologies is a worldwide provider of GC, LC, MS and Spectroscopy instruments, technologies, related consumables, support, services, and workflow solutions that enable labs to analyze, confirm and quantify substances of interest with confidence while maintaining the most stringent laboratory practices, from sample preparation to final report.

## Alaskomega/Organic Technologies (Smalley 1006)

[www.alaskomega.com](http://www.alaskomega.com)

Organic Technologies is the manufacturer and marketer of AlaskOmega® Omega-3 and Omega-7 ingredients from sustainable Alaska Pollock. Headquartered in Coshocton, OH, Organic Technologies has provided custom manufacturing solutions to the nutritional and oleochemical industry for more than 35 years. Areas of expertise include large-scale distillation, fine vacuum distillation, separations, and esterification.



## Alfa Laval Inc. (Wesson 505)

[www.alfalaval.us](http://www.alfalaval.us)

Alfa Laval is a leading global fats and oils industry supplier. We provide engineering services and equipment for complete processing lines, including degumming, neutralization, bleaching, deodorization, interesterification, fractionation, hydrogenation and biofuels production. Our market-leading portfolio features SoftColumn continuous and SoftFlex semi-continuous deodorizers, PX centrifuges, decanters, heat exchangers, evaporators and condensers.



## Anderson International Corp (Wesson 506)

[www.andersonintl.net](http://www.andersonintl.net)

Anderson International Corp is a world leader in manufacturing and installing modern vegetable oil processing machinery and systems beginning in 1888. Anderson not only leads in continuous mechanical extraction for "green" oils, through our invented Expeller® presses, but also manufactures the most energy-efficient and productive expander machinery for the preparation of low- and high-oil-content seeds for solvent extraction.



## Arisdyne Systems, Inc.

(Wesson 511)

[www.arisdyn.com](http://www.arisdyn.com)

Arisdyne Systems, Inc.—Applying the Power of Controlled Cavitation. Arisdyn designs industrial-scale cavitation systems for multiple industries and applications where reducing ingredients/chemical inputs, increasing reaction rates,

mixing and/or reducing/standardizing particle size are valued process benefits. Our edible oil refining applications lead to significant reductions in acid, caustic, and oil losses.

## Arizona Instrument LLC

(Wesson 303)

[www.azic.com/aocs](http://www.azic.com/aocs)

The Vapor Pro® XL is the latest in water specific, chemical free moisture analysis technology from Computrac®. It is ideal for nearly any application in which Karl Fischer is used and features an upgraded heater and a redesigned user interface and touchscreen for improved repeatability and user-friendliness.

## Artisan Industries Inc.

(Wesson 613)

[www.artisanind.com](http://www.artisanind.com)

Involve Artisan in your process intensification effort. Eliminate multiple processing steps, reduce waste, increase product value and profitability. Artisan's team designs, pilot tests, and builds systems for exceptionally challenging separations processes. Our integrated JET-VAC® specialists design and manufacture steam jet vacuum systems capable of micron-level vacuum operation for large process loads.

## BASF Corporation (Paquin 201)



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[www.homecare-and-i-and-i.basf.com](http://www.homecare-and-i-and-i.basf.com)

BASF's Care Chemicals division is the leading global producer of ingredients for cosmetic, hygiene, and detergents and cleaners applications. Together with our customers, we create innovative, sustainable solutions to meet the current and future needs of the personal care, hygiene, home care and industrial & institutional cleaning industries. We contribute to the long-term success of our customers' brands with a broad range of products and concepts manufactured in our global production and development network.



## Bio Base Europe Pilot Plant

(Smalley 702)

[www.bbeu.org](http://www.bbeu.org)

BBEU is a flexible and diversified pilot plant for the development and scale up of bio-based processes (fermentation, biocatalysis, green chemistry, purification,...) from 5L to 50 m<sup>3</sup>. BBEU can perform the entire value chain, from the green resources up to the final product and intends to close the gap between science and industrial production.

## BIOINICIA (Paquin 209)

[www.bioinicia.com](http://www.bioinicia.com)

Bioinicia develops and manufactures micro/nanostructured materials for different applications by using electrospinning and electrospraying technologies. We are specialized on encapsulation of oils, natural essences and bioactives having an excellent efficiency through a process carried out at room temperature. We offer both CRO and CMO services.

## Bruker Corporation

(Smalley 1001)

[www.bruker.com](http://www.bruker.com)

Bruker Corporation manufactures a variety of instruments dedicated to Analytical Solutions for Food Quality and Safety. Testing includes trait, edible oil, frying fat, and biodiesel quality control recommended by AOCS standards. A wide number of quality parameters can be analyzed with only one measurement. Ready-to-use calibrations for edible fats and oils as well as for oil seeds enable a quick and efficient start. Bruker is supporting the industry to contribute to better nutrition and health around the world.



## BSI Engineering (Smalley 802)

[www.bsiengr.com](http://www.bsiengr.com)

Visit **The App** for company description.

## Buss ChemTech AG

(Paquin 207)

**BUSS ChemTech**

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[www.buss-ct.com](http://www.buss-ct.com)

Buss ChemTech (BCT) delivers innovative, reliable, and safe process design solutions for catalyzed gas/liquid reactions to oleochemical companies around the globe. Our wide ranging know-how and process development resources have been the key to success at over one hundred oleochemical plants. BCT will



provide the scope of supply that fits your particular needs.

## Camlin Fine Sciences

(Smalley 800)

[www.camlinfs.com](http://www.camlinfs.com)

Visit **The App** for company description.

## Center for Testmaterials BV

(Paquin 206)

[www.cftbv.nl](http://www.cftbv.nl)

Center for Testmaterials BV (CFT) is your one-stop-shop for all testmaterials for performance testing of all cleaning agents. We deliver our products worldwide directly from the Netherlands or via local distributors. We supply all testmaterials available in the industry, also from other suppliers!



## Chemspeed Technologies Inc.

(Smalley 801)

[www.chemspeed.com](http://www.chemspeed.com)

Chemspeed Technologies is a global leader in the development of innovative products and consumables for research and development laboratories. Chemspeed offers automated solutions for sample preparation, synthesis, reaction and formulation, process research, application and testing with its unique tools for automated substance handling and its flexible reactor technology.

## Chemtech International Ltd.

(Smalley 1102)

[www.tmcigroup.com](http://www.tmcigroup.com)

Chemtech International is a manufacturing and process engineering company supplying equipment to the butter, margarine, bakery, gelatin, cocoa and confectionary industries. With unique experience and expertise in food processing technology, backed by the technical and commercial resources of the TMCI Padovan Group, Chemtech International Limited offers an unrivalled, professional project management to the international market.

## COSA Xentaur Corporation

(Smalley 804)

[www.cosaxentaur.com](http://www.cosaxentaur.com)

Visit **The App** for company description.

## Croll-Reynolds Co., Inc.

(Wesson 607)

[www.croll.com](http://www.croll.com)

Croll Reynolds' steam ejectors play a vital role in the deodorization and bleaching phases of the edible oil refining process.



With design, manufacturing, research and test facilities world-wide, Croll Reynolds is the leading supplier of low cost, high-performance vacuum systems to the edible oil industry.

## Crown Iron Works Company (Wesson 400)



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[www.crowniron.com](http://www.crowniron.com)

Crown Iron Works provides complete design and supply services for vegetable and specialty oils processing worldwide. Specializing in corn fractionation, preparation, extraction, refining, biodiesel, and oleochemical technology, we have worked to develop advanced processing technology to improve your bottom line. Our engineered approach to reliable system design makes life easier for processing professionals who desire increased capacity, lower steam/utility usage, and improved finished-product quality.



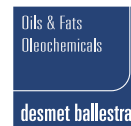
## Dalian Kailai Global Trading Co. Ltd. (Wesson 611)

[www.zhapei114.com](http://www.zhapei114.com)

Visit **The App** for company description.

## Desmet Ballestra NA

(Wesson 508)



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[www.desmetballestra.com](http://www.desmetballestra.com)

Desmet Ballestra is the global solution provider for the edible oils and fats, surfactants, detergents, oleochemicals, biodiesel, and glycerin industries. In the oils and fats sector, it has a full range of process equipment and services, including seed preparation equipment, mechanical and solvent extraction, oil processing, and fat modification. Recent innovations are in screw pressing, desolventizing, distillation, deodorization, fractionation, interesterification, dry-ice condensing, MES, and biodiesel.





## DSM Food Specialties B.V.

(Wesson 405)



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[www.purifine.com](http://www.purifine.com)

Royal DSM N.V. is a global science-based company active in health, nutrition, and materials. By connecting its unique competences in life sciences and materials sciences to create sustainable value for all stakeholders, DSM delivers innovative solutions that nourish, protect, and improve performance in global markets. DSM's Purifine® enzymes are degumming solutions designed for oilseed crushing and refining. Purifine® enzymes will increase your oil yields, providing you with a higher profit and a more sustainable process.



## DuPont Nutrition & Health

(Smalley 1008)

[www.food.dupont.com](http://www.food.dupont.com)

Antioxidants, emulsifiers, soy protein, and trans-free technology will be just a few of the ingredients and solutions being highlighted at the DuPont booth. DuPont offers an extensive range of lipid-soluble or water-dispersible antioxidant blends and newer technologies, such as trans-free quality solutions utilizing emulsifier technology. DuPont Nutrition & Health addresses the world's challenges in food by offering a wide range of sustainable, bio-based ingredients, and advanced microbial diagnostic solutions to provide safer, healthier, and more nutritious food. Through close collaboration with customers, DuPont combines knowledge and experience with a passion for innovation to deliver unparalleled customer value to the marketplace.



## Elevance Renewable Sciences, Inc.

(Smalley 909)

[www.elevance.com](http://www.elevance.com)

Visit *The App* for company description.

## Emerald Scientific

(Smalley 1003)

[www.emeraldscientific.com](http://www.emeraldscientific.com)

Emerald Scientific is a leading supplier of reagents, supplies, chemicals, equipment, and services to the cannabis industry for testing, extraction, genetics, and more. With decades of scientific expertise, we're here to help our customers grow while meeting the latest regulatory requirements and making the best decisions for quality and safety.

## Enzyme Innovation

(Paquin 211)

[www.enzymeinnovation.com](http://www.enzymeinnovation.com)

Enzyme Innovation is a subsidiary of Specialty Enzymes and Biotechnologies, USA focused on marketing and business development of animal feed, food and industrial enzymes in Americas. Enzyme Innovation is accredited with ISO, KOSHER, HALAL, GMP, GMP+ certifications and specializes in offering non GMO enzymes & customized solutions. The group was established in 1986 in Chino, California and is the leading fermenter of enzymes, globally.

## Evonik Corporation

(Paquin 212)



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[www.evonik.com](http://www.evonik.com)

Evonik is one of the world leaders in specialty chemicals. Evonik's Household Care business line is a global leader in the manufacture and supply of raw materials and additives to the fabric care, car care, industrial and institutional cleaning markets. Our unique product portfolio provides a wide range of system solutions and tailor-made products for our customer's needs.



## Feel Good, Inc.

(Smalley 1004)

[www.feelgoodinc.org](http://www.feelgoodinc.org)

Visit *The App* for company description.

## Filtration Group Process, Inc.

(Wesson 603)

[www.filtrationgroup.com](http://www.filtrationgroup.com)

Filtration Group products are known internationally for their superior quality, high efficiency, and value. Filtration Group products provide filtration solutions for industrial liquid, edible oil applications, biofuels, chemicals, petrochemicals, and water. Filtration Group brands include Amafilter, LFC, Nowata, and ProGuard, which provide a wide range of expertise in highly engineered and custom-designed pressure filter vessels in a variety of materials, which gives us the edge in designing the filter system that meets your exacting demands.

## Formulation Inc.

(Wesson 311)

[www.formulation.com](http://www.formulation.com)

Formulation manufactures two lines of instruments to include a microrheology system and the Turbiscan Stability Analyzer. The Rheolaser utilizes diffusing



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wave spectroscopy to measure the viscoelastic properties of a sample at rest. Turbiscan Stability Analyzer enables you to predict stability, measuring, creaming, sedimentation, flocculation, and particle size in high concentration solutions without dilution.

### French Oil Mill Machinery Co.

(Wesson 503)

www.frenchoil.com

French custom designs, manufactures, and supports oilseed processing equipment, full-press extraction, and preparation systems for food and industrial uses. Our long-lasting, durable equipment operates with maximum productivity and lower processing costs per ton. French's process solutions meet and exceed industry standards of high-quality crude oil, meal and oil-extraction efficiencies.



### GEA Group

(Wesson 502)

www.wsus.com

GEA provides process technology for the recovery and refining of nearly all vegetable and animal oils and fats, as well as oil refining for press oil clarification, degumming, neutralization, dewaxing, fractionation, and soapstock splitting. Our technologies are also used for the production of high-quality biodiesel. Equipment offered includes centrifuges, decanters, and dry condensing systems that provide superior efficiency with low energy consumption.

### Graham Corporation

(Wesson 408)

www.graham-mfg.com

Graham Corporation is a global business that designs, manufactures, and sells critical equipment for the energy, defense, and chemical/petrochemical industries. Graham's global brand is built upon world-renowned engineering expertise in vacuum and heat transfer technology. The company supplies custom engineered ejectors, vacuum pumping systems, surface condensers, and vacuum systems. Graham has built a reputation for top-quality, reliable products, and high standards of customer service.

### HF Press+LipidTech

(Wesson 402)

www.hf-press-lipidtech.com

HF Press+LipidTech (HF PLT) is a division of the Hamburg/Germany based HF GROUP.

The product portfolio of HF PLT ranges from individual machines up to complete systems for oilseed preparation, oilseed



pressing, and crude oil refining. HF PLT presses are also used in rendering plants and for special applications in the dewatering sector.

### ICOF America Inc., a Member of Musim Mas Group

(Smalley 700)

www.musimmas.com

Visit *The App* for company description.

### Incon Process Systems/ GIG Karasek

(Wesson 605)

www.gigkarasekusa.com

Toll processing, molecular distillation, and wiped film evaporation for specialty modular system molecular distillation are tolled in InCon's plant. Technology kernels around high vacuum distillation, wiped film, and short path evaporation. Our proprietary processes concentrate Omega-3 fish oil beyond 90%, continuously process to 98% GMS, concentrate Vitamin E and tocopherols.

### International Society for the Study of Fatty Acids and Lipids

(Smalley 907)

www.issfal.org

The International Society for the Study of Fatty



International Society for the Study of Fatty Acids and Lipids

Acids and Lipids (ISSFAL) is the leading society for academics and scientists working in the field of fatty acids, lipids and nutrition. The purpose of the Society is to increase understanding through research and education of the role of fatty acids and lipids in health and disease. It holds an international Congress every two years at which the latest research findings are presented to an international audience.

### Itaconix Corporation

(Paquin 102)

www.itaconix.com

Itaconix produces novel polymers with unique properties that improve the safety, performance, and sustainability of products essential to our everyday lives. From water conditioning and film formation to cleaning and fragrance delivery, we work closely with home and personal care customers to increase the value and reduce the cost of their products.

### Italmatch Chemicals

(Paquin 202)

www.italmatch.com

Italmatch is one of the world's largest producers of phosphonates under the brands Dequest® and Briquest® worldwide. Our

customers rely on our high-quality products for applications in markets such as household and industrial cleaning, hygiene, water treatment, and personal care with the brands Dapracare® and Turpinal®. For more information send an email to personalcare@italmatch.it. Italmatch also produces green and acrylic polymers for applications in cleaning, oil-field, pulp paper, and other industries.

### Kalsec

(Smalley 901)



kalsec®

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www.kalsec.com

Kalsec®, the leader in natural oxidation management, provides a wide range of natural antioxidants including Herbalox® XT, a low-flavor, low-aroma antioxidant ideal for oil and other flavor-sensitive applications. Herbalox® XT provides the ability to improve shelf life by increasing the amount of natural antioxidant used without flavor and aroma limitations.



### Kemin Industries

(Smalley 905)



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www.kemin.com

Kemin is committed to providing the food industry with only the highest quality, efficacious ingredients to help extend product shelf-life. Our extensive knowledge of oxidation processes and understanding of food products on a molecular level have made Kemin a leading choice for much needed preservation and food safety.



### KRÜSS USA

(Paquin 200)

www.krussusa.com

Advancing your Surface Science—As international experts in surface and interfacial chemistry, Krüss develops and manufactures highly precise solutions for contact angle measurement, tensiometry, and foam analysis. We also pride ourselves on providing unparalleled expertise through consultation, training and education in research, development and industrial quality control laboratories worldwide.

### Leem Filtration

(Wesson 509)

www.leemfiltration.com

LEEM Filtration is a diversified manufacturer of custom filtration products

including pressure leaf filters, filter leaves, underdrains, lateral systems, and wedge wire screens. We manufacture North American Hercules® filters, as well as our new LEEM VLD series filters which are designed specifically for oilseed, animal fat, and biodiesel applications. We have engineers and manufacturer's representatives available to our customers throughout the US, Canada, and Central and South America.

## Louisville Dryer Company

(Paquin 205)

www.louisvilledryer.com

Louisville Dryer Company is the world's leading provider of high-quality rotary processing equipment with over 100 years of experience in mechanical design, process design, manufacture, application, and service. Featured industry dryers include rotary steam tube dryers and conditioners.

## Lovibond Tintometer

(Wesson 513)

www.lovibond.com

Lovibond® Tintometer® supplies innovative color measurement systems for industries where accurate color measurement is important for the quality control of products. The instruments and certified reference materials comply with international test methods and standards such as AOCS, DIN, ASTM, and ISO. Our latest developments include the PFXi spectrophotometer for liquid-color analysis with the ability for remote calibration and maintenance service via internet (RCMSi).



## Lubrizol Corporation

(Paquin 208)

www.lubrizol.com

Lubrizol develops, manufactures, and markets specialty chemicals for personal care, home, and health care. Our innovative ingredients and additives modify physical properties, enhance functional performance, and deliver aesthetic benefits. Lubrizol's mission in home care is to deliver solutions that enhance the cleaning, care, and protection of fabrics, surfaces, and dishes.

## Malaysian Palm Oil Board

(Smalley 1106)

www.mpob.gov.my

The Technical Advisory Services office of the Malaysian Palm Oil Board in Washington, D.C., offers customer support and technical advisory services to users and potential users of Malaysian

palm and palm-kernel oil products in the US, Canada, and Latin America. The office also acts as a one-stop information center for Malaysian palm and palm-kernel oil products.

## Metrohm (Smalley 903)

www.metrohm.com

Metrohm offers a complete line of analytical laboratory and process systems for titration, ion chromatography, electrochemistry, and spectroscopy. From routine moisture analysis to sophisticated anion and cation quantification, we are ready to help you develop your method and configure the optimum system. At Metrohm, we provide systems that find solutions. Stop by our booth and meet Metrohm.

## Myande Group Co., Ltd.

(Wesson 406)

www.myandegroup.com

Myande Group (China) specializes in providing oils and fats processing machinery and its engineering services on turnkey basis, including process design, equipment manufacturing and supply, project management, installation, commissioning and training service, etc.



## Myers Vacuum (Wesson 412)

www.myers-vacuum.com

Myers Vacuum is the manufacturer of molecular short-path vacuum distillation equipment for processing heat sensitive, high-molecular-weight materials. These units are sized from laboratory use for process development to pilot production to full production. The use of centrifugal force to produce the film and precise temperature control allows for processing materials not capable with other similar technologies. Other products include vacuum measurement equipment and Celvaseal® vacuum leak sealant.

## Nisshin Oillio Group, Ltd., The

(Smalley 1005)

www.nisshin-oillio.com

The Nisshin Oillio Group, Ltd., a leading oils and fats company in Japan, embarked on a bold journey of Medium-Chain-Triglycerides R&D more than 40 years ago. Now, its MCT raw material/ingredients and food products are honed by its cutting edge nutritional assessment and lipid structuring technology.

## Oil-Dri Corporation of America (Wesson 504)

oil:dri  
fluids purification

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www.pure-flo.com

Oil-Dri Corporation of America offers a full spectrum of specialty adsorbents, including Pure-Flo®, Pure-Flo® Supreme, and Perform® bleaching clays for the purification of fats, oils, and oleochemicals. Oil-Dri's Select® products filter out impurities in conjunction with or in place of water-wash treatment. With a full line of innovative and highly effective bleaching products, Oil-Dri delivers product quality, cost effectiveness, and technical support to edible oil and biodiesel producers around the world.



## Oils & Fats International/ Quartz Business Media

(Wesson 410)

www.ofimagazine.com

The OFI portfolio comprises conferences, exhibitions, websites, and the industry-leading Oils & Fats International magazine. Targeting decision-makers, buyers, and influencers, OFI is committed to helping companies in the oils and fats industry run sustainable enterprises by supplying them with the latest news, features, and trends concerning all aspects of the supply chain, whether they concern prices, regulations, feedstocks, processing, refining, trading, or technology, or in specialist areas such as biofuels, biotechnology, renewable materials, and transport.

## optek-Danulat, Inc.

(Wesson 510)

www.optek.com

Optimize process performance while improving oil yields and quality by continuous inline monitoring with optek photometric analyzers. Common applications include filtration control, chlorophyll concentration, AOCS color measurements, nickel catalyst monitoring, raw incoming oil, and more. Drastically reduce operating costs by reducing losses and rework. In-line, real-time measurements minimize QA/QC sampling and time-consuming lab analysis. Also, reduce utility usage, water usage, waste-treatment costs, and municipal BOD levels.

## Paramount Minerals and Chemicals Limited (Paquin 305)

www.pmclindia.com

Paramount is manufacturer of specialty chemicals such as: optical brighteners for detergents, paper and textile industries; polymer/anti-redeposition agent for laundry detergents and cleaning products; glycerol monostearate for cosmetics and food industries; and cationic guar gum for the personal care industry. We are certified for ISO 9001, ISO 14001 & OHSAS 18001.

## Pattyn North America, Inc. (Paquin 210)

www.pattyn.com

Pattyn North America, Inc. offers project design, management, installation, and after-sales service. We guarantee the best handling, weigh filling, and packing of oils and fats into lined boxes, tins, drums, or pails. We are a subsidiary of Pattyn Packing Lines, who has over 35 years of experience in semi-liquid packaging.



## PerkinElmer (Smalley 701)

www.perkinelmer.com

Visit **The App** for company description.

## Phenomenex (Smalley 805)

www.phenomenex.com

Phenomenex is a global technology leader committed to developing novel analytical chemistry solutions that solve the separation and purification challenges of researchers in industrial, government and academic laboratories. Phenomenex's core technologies include products for liquid chromatography, gas chromatography, and sample preparation; bulk purification chromatographic media; and chromatography accessories and equipment.

## PMI-Technology Sdn Bhd (Paquin 108)

www.pmi-group.com

PMI offers technological solutions for edible oil and oleochemical industry processes. Our innovative and customized filters have been successfully utilized in an extensive range of applications.

## PQ Corporation (Paquin 203)

www.pqcorp.com

PQ's SORBSIL® silica improves oil quality and offers process cost savings to the refiner. The silica removes phospholipids, metals, and soaps via selective adsorption in edible oil and biodiesel



production. SORBSIL® oil purifiers meet all regulatory requirements for food-grade silica. PQ SORBSIL® oil purifiers: silica for enhanced oil quality.

## Qualisoy (Smalley 1002)

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www.qualisoy.com

Visit Qualisoy at the Smalley Campus for information about soy-based PHO replacements and how they can meet your frying and baking needs. Qualisoy promotes the development and adoption of the latest soybean traits. Keep an eye out for our logo on water stations and reusable water bottles throughout the show!

## Rotex Global (Wesson 301)

www.rotex.com

Over 170 years, Rotex has been a leading pioneer in the development of screening equipment and technology, providing innovative solutions for the process industries. ROTEX designs and manufactures a full line of leading-edge screening equipment, feeders, conveyors and automated analyzers serving a global market in such industries as chemical processing, food processing, mineral processing, plastic compounding, and agribusiness.

## SIWACO GmbH—IRLE Group (Wesson 512)

www.siwaco.com

SIWACO as member of the IRLE GROUP specializes in selling wear-resistant flaking and cracking rolls for the food and feed industry. The world-wide validation for ORT® Flaking rolls with life times of approximately 12 years and OCE® 600 Ultra Cracking rolls with guaranteed extension of life times are well-known.

## Solex Thermal Science Inc. (Wesson 304)

www.solexthermal.com

**SOLEX**  
THERMAL SCIENCE  
Sponsor of the Networking Break

www.solexthermal.com

Solex Thermal Science specializes in the science of heating, cooling, and drying bulk solids. This ultra-efficient technology operates with efficiencies of greater than 90%, and can utilize waste heat as the heat source for pre-heating and conditioning oilseeds and grains, making it one of the most efficient technologies available.



## Solutions 4 Manufacturing (Wesson 500)

www.solutions4mfg.com

Solutions 4 Manufacturing offers complete plants and used equipment for the oilseed and biofuels/biodiesel industries. We can handle any size project, with services including engineering consulting and asset/plant liquidation. With 40+ years of technical experience, we can put together a solution for you. We will buy your idle equipment and plants.

## Spectral Service AG (Paquin 104)

www.spectralservice.de

Spectral Service is an independent private laboratory and offers spectroscopy as a scientific service. Our team has more than 25 years long lasting experience in modern NMR spectroscopy, structure elucidation, quantification, method development and research. Spectral Service is GMP- and GLP-certified and is approved by the US FDA.



## SPEX SamplePrep (Paquin 100)

www.spexsampleprep.com

Visit **The App** for company description.

## Steri Technologies, Inc. (Smalley 1007)

www.steri.com

Steri Technologies, Inc. manufactures solid/liquid separation systems that serve the world over. Steri designs systems using Funda Pressure Leaf, Zwag Nutsche, and Candle technologies. Test and rental units are available through the Try-And-Buy program.

## Stratas Food—RDI Center (Smalley 1000)

www.stratasfoods.com

In addition to supporting the core research, development, and innovation areas of concentration for Stratas Foods LLC, the Stratas Foods—RDI Center offers pilot plant and analytical services to external customers. The Stratas Foods—RDI Center's edible oils pilot plant and analytical laboratories represents state-of-the-art product development and testing. In the 38,000 square-foot facility, our highly-trained technologists and scientists work to meet customer needs by developing customized samples on a cost-efficient outsource basis, and in quantities ranging from bench-top sizes to drum quantities. By outsourcing your company's testing and development needs, you reap



the benefits of our equipment and experiences: lower costs, faster turnaround, and the guaranteed highest standards in testing and production methodology.

## Surface Chemists of Florida

(Paquin 112)

[www.surfacechemists.com](http://www.surfacechemists.com)

SCF produces specialized surfactants and polymers for HI&I applications. An R&D laboratory with over 45 years of experience in product development and problem-solving in surface and polymer chemistry, SCF provides the real-world synthesis, process design, and applications testing capabilities required to turn an idea into a commercially-viable new product.

## Technochem International, Inc.

(Paquin 106)

[www.technocheminc.com](http://www.technocheminc.com)

Technochem specializes in oil refining (non-GMO, organic, and specialty oils), biodiesel plant and process supply, glycerin refining, biodiesel distillation, methanol rectification, cold filtration, dewaxing, degumming, corn-oil extraction, esterification, FFA stripping, fermentation, extrusion, expelling, and solvent extraction. We build skid-mounted plants for pilot and commercial scale. We help clients develop new technologies in lab and pilot plants.

## Testfabrics, Inc.

(Paquin 206)

[www.testfabrics.com](http://www.testfabrics.com)

The America's debut of the Multi-Area Color Measurement Hardware (MACH 5)! Testfabrics, Inc. and Center for Testmaterials (CFT), industry leaders for supplies of clean and pre-soiled test materials, as well as testing equipment, will demonstrate the latest in spectrophotometric equipment specifically suited for multiple evaluations at once, saving time,



labor, and energy. Personnel from four continents will be on hand to discuss your current needs.

## Thermo Fisher Scientific

(Smalley 1104)

[www.thermofisher.com](http://www.thermofisher.com)

Thermo Fisher Scientific™ is a leader in the food and beverage testing industry. Food quality and safety are two of the most challenging issues in the current regulatory environment. Whether you are testing for contaminants or developing a new product, we have the solutions to meet your need.

## Vacuubrand Inc.

(Wesson 309)

[www.vacuubrand.com](http://www.vacuubrand.com)

Vacuubrand offers exceptionally quiet, corrosion-resistant, oil-free vacuum pumps and vacuum systems with ultra-long service intervals. Applications include distillation, evaporators, reactors, concentrators, filtration and drying, OEM vacuum, and roughing pumps for high-vacuum systems. Use our rotary vane pumps, low-maintenance hybrid pumps, and new fine-vacuum controller for effective molecular distillation of oils.

## Veendeep Oiltek Exports Pvt. Ltd.

(Paquin 110)

[www.veendeep.com](http://www.veendeep.com)

Visit *The App* for company description.

## VELP Scientific, Inc.

(Paquin 213)

[www.velp.com](http://www.velp.com)

VELP Scientific is the American subsidiary of VELP Scientifica, established in Milan in 1983. The company is focused on providing solutions for food and feed analysis, environmental control, and sample preparation. VELP's range of products

includes Kjeldahl and Dumas analyzers, solvent, fiber extractors, instruments for shelf life investigation, BOD/COD analyzers, incubators, stirrers, and vortex.

## VTA GmbH & Co., Kg

(Wesson 306)

[www.vta-process.de](http://www.vta-process.de)

VTA manufactures thin film, wiped film, and short path evaporators and systems. Typical applications include lecithin drying, tocopherol concentration, omega-3 concentrations, deodorization, CBA, CBDA, cannabidiol, FFA removal, physical refining, MCT, sterols, hope oil, diary supplements, and monoglycerides.

## VUV Analytics, Inc.

(Smalley 1108)

[www.vuvanalytics.com](http://www.vuvanalytics.com)

VUV Analytics is the world leader in vacuum ultraviolet (VUV) absorption spectroscopy. VUV Analytics manufactures the VGA-100, VGA-101, & SVGA-100 universal gas chromatography (GC) and streaming gas detectors. VUV detectors provide unmatched selectivity of isomers and co-eluting analytes without the need for chromatographic baseline resolution.

## Waters Corporation

(Smalley 1009)

[www.waters.com](http://www.waters.com)

Waters Corporation creates business advantages for laboratory-dependent organizations by delivering scientific innovation to enable customers to make significant advancements. Waters helps customers make profound discoveries, optimize laboratory operations, deliver product performance, and ensure regulatory compliance with a connected portfolio of separations and analytical science, laboratory informatics, mass spectrometry, as well as thermal analysis.

### Antitrust Policy

The American Oil Chemists' Society (the "Society") intends to strictly comply with the antitrust laws of the United States, all state governments, and any other relevant governing authority (the "Antitrust Laws"), and in furtherance of this intention, proclaims the following Antitrust Policy:

I. The Society shall not be used in a manner which violates the Antitrust Laws, and members of the Society, in their capacity as representatives of the Society, shall not tolerate, encourage or participate in any activity which could reasonably be expected to result in a violation of the Antitrust Laws.

II. This policy shall apply to all membership, board, committee and other meetings of the Society, and all events attended by individual members of the Society in their capacity as representatives of the Society.

III. The Society recognizes that the Antitrust Laws make certain activities between industry participants unlawful, and the Society expressly prohibits participation in such activities at any event which the Society holds or sponsors, or by any member of the Society at any event in which such member participates as a representative of the Society. Such prohibited activities include the following:

- A. Non-competition, territorial division, or operationally restrictive agreements;
- B. Boycotting, blacklisting, or unfavorable reporting; or

C. Discussion of these and other prohibited matters, including the following:

- i. Price, price fixing, price calculation, or price changes;
- ii. Costs;
- iii. Terms or conditions of sales;
- iv. Quote decisions;
- v. Discounts;
- vi. Product or service offerings; or
- vii. Production or sales volume, capacity or plans.

IV. In the course of any event in which activities or discussion threatens to border on a prohibited matter, any member, officer, director, employee or representative of the Society present at such event in such capacity shall request that the activity or discussion be terminated immediately, and if such termination does not immediately occur, such person shall seek recordation of the problem if appropriate, shall cease all participation in the event, and shall report the matter to the Society at the earliest possible opportunity.

V. A copy of this Antitrust Policy shall be given at least annually to each officer, director, member, representative, or employee of the Society, or any other party participating in the Society, and the Antitrust Policy shall be readily available at all membership meetings.

# Congratulations to the winners of the 2015-

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## Aflatoxin in Corn Meal

### First Place

Dr. Jim Balthrop Jr.  
Office of the Texas State Chemist  
College Station, TX 77843 USA

### Honorable Mention

Kelley Renkemeyer  
Trilogy Analytical Laboratory  
Washington, MO 63090 USA

## Aflatoxin in Corn Meal Test Kit

### First Place

Stephanie Ellis  
NP Analytical Laboratories  
St. Louis, MO 63164 USA

### Honorable Mention

Dennis Hogan  
SDK Laboratories  
Hutchinson, KS 67501 USA

### Honorable Mention

George Holt  
Delight Products Co.  
Springfield, TN 37172 USA

## Aflatoxin in Peanut Butter

### First Place

Nathan Byers  
Golden Boy Foods  
Blaine, WA 98230 USA

## Aflatoxin in Peanut Paste

### First Place

Marisel Corelli Lab 1  
JLA Argentina SA  
General Cabrera, Cordoba 5809  
Argentina

### Honorable Mention

Edenton Lab Analytical Team  
JLA USA  
Edenton, NC 27932 USA

### Honorable Mention

Carolina C. Bedani  
JLA Brasil Laboratorio de Analises  
Marilia, Sao Paulo 17512 Brazil

### Honorable Mention

Marisel Corelli Lab 3  
JLA Argentina SA  
General Cabrera, Cordoba 5809  
Argentina

## Aflatoxin in Peanut Paste Test Kit

### First Place

Pam Cochran  
JLA Sylvester  
Sylvester, GA 31791 USA

### Honorable Mention

Deleon Lab Analytical Team  
DeLeon, TX 76444 USA

### Honorable Mention

Mason Locke  
Golden Peanut  
Dawson, GA 39842 USA

## Cholesterol

### First Place

Ann Lundgren  
Darcy Schroeder  
Paulette Mane Manemann  
Hormel Foods LLC  
Austin, MN 55912 USA  
**Honorable Mention**  
Jana Pogacnik  
Nutreco Canada, Inc.  
St. Hyacinthe, QB J2R 1S5 Canada

## Edible Fat

### First Place

Felicia Brewster (Tie)  
Ag Processing, Hastings  
Hastings, NE 68901 USA

### First Place

Jerry Buttell (Tie)  
Ag Processing Hastings  
Hastings, NE 68901 USA

### Honorable Mention

Wade Chase  
Ag Processing Hastings  
Hastings, NE 68901 USA

### Honorable Mention

Travis Patterson  
Ag Processing Hastings  
Hastings, NE 68901 USA

### Honorable Mention

Bill Zubrinic  
Bunge Canada  
Hamilton, ON L8N 3K Canada

## Feed Microscopy

### First Place

Piotr Czajkowski  
Cargill Poland  
Chelmnd 86-200 Poland

### Honorable Mention

Marion Smith  
Canadian Food Inspection Agency  
Ottawa ON K1A 0C6 Canada

### Honorable Mention

Sirithon Tubsangtong  
Charoen Pokphand Foods Public Co.  
Ltd.  
Samutsakhon 74000 Thailand

## Fish Meal

### First Place

Pete Cartwright  
NJ Feed Lab Inc.  
Trenton, NJ 08638 USA

### Honorable Mention

Carmen Catter de Bueno  
NSF INASSA SAC  
Lima 32 Peru

### Honorable Mention

Paul Thionville  
Boyce Butler  
Andre Thionville  
Kristopher Williams  
Thionville Labs, Inc.  
New Orleans, LA 70123 USA

## Gas Chromatography

### First Place

Pete Cartwright  
NJ Feed Lab Inc.  
Trenton, NJ 08638 USA

### Honorable Mention

Jamie Ayton  
NSW Dept. of Primary Industries  
Wagga Wagga NSW 2650 Australia

### Honorable Mention

Abdul Bath  
Adams Vegetable Oils Inc.  
Arbuckle, CA 95912 USA

### Honorable Mention

Jeremy Dehner  
ADM Clinton  
Clinton, IA 52732

### Honorable Mention

Adel Ghabour  
Richardson Oilseed Limited  
Lethbridge AB T1H 6P5 Canada

### Honorable Mention

Mumtaz Haider  
Kester Emefiena  
Inspectorate America Corp.  
Webster, TX 77598 USA

### Honorable Mention

Richard D. Smith  
ADM Quincy  
Quincy, IL 62306 USA

### Honorable Mention

Hiroshi Hirai  
Nissin Global Research Center Sdn  
Bh

Port Klang, Kuala Lumpur 42009  
Malaysia

### Honorable Mention

Putiha Adam Moskam  
IOI Loders Croklaan Oils Sdn Bhd  
Pasir Gudang, Johor 81700 Malaysia

### Honorable Mention

Hajar Musa  
Malaysian Palm Oil Board AOTD  
Kajang, Selangor 43000 Malaysia

### Honorable Mention

Oilseed Lab  
Canadian Grain Commission  
Winnipeg, MB R3C 3G7 Canada

### Honorable Mention

Nicole Silva  
Caloy  
Denair, CA 95316 USA

### Honorable Mention

Diane Simmons  
Rosalin Manalang  
California Oils Corp.  
Richmond, CA 94804 USA

## GOED/AOCS Nutraceutical Oils

### First Place

John Reuther  
Derek Yeardon  
Eurofins Central Analytical Labs  
New Orleans, LA 70122 USA

## Honorable Mention

Mark Arsenault  
DSM Nutritional Products  
Mulgrave, NS B0E 2G0 Canada  
**Honorable Mention**  
Maike Timm-Heinrich  
BASF A/S  
Ballerup DK – 2750 Denmark

## Marine Oil

### First Place

Otelia Robertson  
Omega Protein Inc.  
Reedville, VA 22539 USA

### Honorable Mention

Melissa V. Thrift  
Omega Protein Inc. Health Science  
Center  
Reedville, VA 22539 USA

## Marine Oil Fatty Acid Profile

### First Place

Pete Cartwright  
NJ Feed Lab Inc.  
Trenton, NJ 08638 USA

### Honorable Mention

Melanie Delvaux  
Olvea Fish Oils  
Saint Leonard 76400 France

### Honorable Mention

Angie Johnson  
POS Bio Sciences  
Saskatoon, SK S7N 2R4 Canada

### Honorable Mention

Paul Thionville  
Boyce Butler  
Andre Thionville  
Kristopher Williams  
Thionville Labs, Inc.  
New Orleans, LA 70123 USA

## NIOP Fats and Oils

### First Place

Mumtaz Haider  
Kester Emefiena  
Inspectorate America Corp.  
Webster, TX 77598 USA  
**Honorable Mention**  
Cipriano Cruz  
Certispec Services, Inc.  
Burnaby BC V3N 4A3 Canada

## Nutritional Labeling

### First Place

Mary Ann Baumgart  
MVTL  
New Ulm, MN 56073 USA

### Honorable Mention

Jana Pogacnik  
Nutreco Canada, Inc.  
St. Hyuacinte, QB J2R 1S5 Canada

# 2016 AOCS Laboratory Proficiency Program

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LPP Award Winners

2017 AOCS Annual Meeting and Industry Showcases | AnnualMeeting.aocs.org

## Oilseed Meal

### First Place

Mumtaz Haider  
Kester Emefiena  
Inspectorate America Corp  
Webster, TX 77598 USA

### Honorable Mention

Joshua Bogan  
Barrow-Agee Labs LLC.  
Memphis, TN 38116 USA

### Honorable Mention

Pete Cartwright  
NJ Feed Lab, Inc.  
Trenton, NJ 08638 USA

### Honorable Mention

Michael Hawkins  
Barrow Agee Labs LLC  
Memphis, TN 38116 USA

### Honorable Mention

Renato M. Ramos  
Admiral Testing Services  
Luling, LA 70070 USA

### Honorable Mention

Edgar Tenent  
K-Testing Lab, Inc.  
Memphis, TN 38116 USA

## Olive Oil Part A

### First Place

Maria Garzon  
Pompeian, Inc.  
Baltimore, MD 21224 USA

### Honorable Mention

Valentina Cardone  
Chemiservice SRL  
Monopoli, Bari 70043 Italy

## Olive Oil Part B

### First Place

John Reuther  
Derek Yeadon  
Eurofins Central Analytical Labs  
New Orleans, LA 70122 USA

### Honorable Mention

Claudia Guillaume  
Modern Olives Laboratory Services  
Lara, VIC 3212 Italy

### Honorable Mention

Maria Garzon  
Pompeian Inc.  
Baltimore, MD 21224 USA

## Palm Oil

### First Place

Low Thing  
Southern Edible Oils Sdn Bhd  
Klang, Selangor 42200 Malaysia

## Peanut

### First Place

Edenton Lab Analytical Team  
JLA USA  
Edenton, NC 27932 USA

## Phosphorus in Oil

### First Place

Eric Sweeney  
LDC Yorkton Processing GP  
Yorkton, SK S3N 2V6 Canada

### Honorable Mention

QA Team  
Pacific Coast Canola  
Warden, WA 98857 USA

## Solid Fat Content by NMR

### First Place

Joseph Maher  
Barry Callebaut  
Pennsauken, NJ 08110 USA

### Honorable Mention

Specialty Fats Lab  
PT Musim Mas  
Medan N Sumatra 20371 Indonesia

### Honorable Mention

Mike Ford  
Bunge North America  
Council Bluffs, IA 51503 Iowa

### Honorable Mention

Low Thing  
Southern Edible Oils Sdn Bhd  
Klang, Selangor 72200 Malaysia

## Soybean Oil

### First Place

Paul Thionville  
Boyce Butler  
Andre Thionville  
Kristopher Williams  
Thionville Labs, Inc.  
New Orleans, LA 70123 USA

## Soybeans

### First Place

Lidieith Solera Carranza  
Laboratorio INOLASA  
Barranca, Puntarenas Costa Rica

### Honorable Mention

Mumtaz Haider  
Kester Emefiena  
Inspectorate America Corp  
Webster, TX 77598 USA

### Honorable Mention

Jesus Gomez Salgado  
Laboratorio INOLASA  
San Jose 6651-1000 Costa Rica

## Specialty Oils

### First Place

Anders Thomsen  
Ardin Backous  
Brian Gilchrist  
Keith Person  
Kent Karsjens  
Eurofins Scientific  
Des Moines, IA 50321 USA

## Tallow and Grease

### First Place

Adalberto Coronado  
National Beef Packing Company  
Liberal, KS 67901 USA

### Honorable Mention

Mumtaz Haider  
Kester Emefiena  
Inspectorate America Corp.  
Webster, TX 77598 USA

### Honorable Mention

Sherry Robertson  
National Beef Packing Co.  
Liberal, KS 67901 USA

### Honorable Mention

Paul Thionville  
Boyce Butler  
Andre Thionville  
Kristopher Williams  
Thionville Labs, Inc.  
New Orleans, LA 70123 USA

## Trace Metals

### First Place

Eric Sweeney  
LDC Yorkton Processing GP  
Yorkton SK S3N 2V6 Canada

### Honorable Mention

John Reuther  
Derek Yeadon  
Eurofins Central Analytical Labs  
New Orleans, LA 780122 USA

## trans by GC

### First Place

Jocelyn Alfieri  
Silliker Canada Co.  
Markham, ON L3R 5V5 Canada

**Honorable Mention**  
Specialty Fats Labs  
PT Musim Mas  
Medan N. Sumatra 20371 Indonesia

### Honorable Mention

Mark Hamnett  
ADM Lincoln  
Lincoln, NE 68507 USA

### Honorable Mention

Molly Harris  
Owensboro Grain Edible Oils  
Owensboro, KY 42303 USA

### Honorable Mention

Randall Hoffman  
ADM Valdosta  
Valdosta, GA 31601 USA

**Honorable Mention**  
Ms. Hajar Musa  
Malaysian Palm Oil Board AOTD  
Kajang, Selangor 43000 Malaysia

## trans by IR

### First Place

QA/QC Laboratory  
ADM Mankato Refinery  
Mankato, MN 56001 USA

**Honorable Mention**  
Eddie L. Baldwin, Helen Cianciolo, and  
Derek Gumm  
Stratas Foods RDI Center  
Bartlett, TN 18133

## Unground Soybean Meal

### First Place

QA/QC Laboratory  
Bunge Vietnam Limited  
Ba Ria Vung Tau 790000 Vietnam

### Honorable Mention

Joshua Bogan  
Barrow Agee Laboratories LLC  
Memphis, TN 38116 USA

### Honorable Mention

Frank Hahn  
Hahn Laboratories, Inc.  
Columbia, SC 29201 USA

### Honorable Mention

Michael Hawkins  
Barrow Agee Laboratories LLC  
Memphis, TN 38116 USA

### Honorable Mention

Anders Thomsen  
Ardin Backous  
Brian Gilchrist  
Keith Persons

### Honorable Mention

Kent Karsjens  
Eurofins Scientific  
Des Moines, IA 50321 USA

### Honorable Mention

Mike White  
Brian Eskridge  
ATC Scientific LLC  
N. Little Rock, AR 72114 USA

## Vegetable Oil for Color Only

### First Place

Bill Zubrinic  
Bunge Canada  
Hamilton, ON L8N 3K Canada

Session Chair	Session(s)	Session Chair	Session(s)	Author/Presenter	Session(s)	Author/Presenter	Session(s)
<b>Session Chairs</b>				<b>Author/Presenter</b>			
Adamy, S.	S&D 3.1	Moser, J.	LOQ 5a	Ab Karim, N.	LOQ 5b	Baba, N.	EAT-P
Ahmad, M.	PHO 2	Mossoba, M.	ANA 2b	Abang Masli, D.	BIO 1	Baccile, N.	BIO 4.1/S&D 4.1
Akoh, C.C.	BIO 3.1/PRO 3.1	Mualem, E.	PRO 4	Abbeduto, D.	S&D 1.1	Backer, S.A.	S&D 5.1
Aluko, R.	PCP 2a	Murphy, D.	S&D 3	Abd Hamid, R.	EAT 3	Bäcker, S.	PCP 3, PCP 4a
Ashby, R.D.	BIO 1.1/IOP 1	Myers, A.W.	IOP 3	Abdul Rahman, N.	BIO 1	Badrul Zaman, M.	LOQ 5b
Bandara, N.	PCP 5	Natali, S.	S&D 2.1	Abdul-Hamid, A.	PCP 5	Bagdattlioglu, N.	LOQ-P
Bazinet, R.P.	H&N 3	Nielsen, P.M.	BIO 3.1/PRO 3.1	Abid, M.	PRO 4	Baker, J.C.	H&N 5.1
Belury, M.	H&N 1	Nitin, N.	EAT 5/S&D 5.2	Abirached, C.	PCP 4a	Baker, P.R.S.	ANA 1
Bennett, S.P.	CAN 1, CAN 2	Ogawa, J.	BIO 1, BIO 2.1/IOP 2	Acevedo, N.C.	EAT 1, H&N-P, EAT-P	Bakota, E.L.	ANA 5/H&N 5
Benson, T.	IOP-P	Pan, S.	LOQ-P	Acosta, E.	EAT 1, S&D 3.1, S&D 4	Balasubramaniam, V.	EAT 1.1
Bhaggan, K.	PRO 2, PRO 2, EAT-P	Patel, A.	EAT 1	Adams, C.	S&D 1	Balchen, S.	PRO 2
Bhandari, S.	ANA 4	Peitz, M.	LOQ 5b	Adcock, J.L.	BIO-P	Balduyck, L.	PRO 5
Bot, A.	EAT 1	Picklo, M.J.	H&N	Adeosun, T.A.	S&D-P	Balkanli, N.E.	BIO-P
Brenna, J.T.	ANA 5/H&N 5	Raatz, S.K.	H&N 5.1	Adu-Peasah, S.	PCP 3	Ballard, L.	BIO-P
Byrdwell, W.C.	ANA 1	Ramchandran, A.	S&D 3	Agbroko, O.	IOP 4	Ban, L.	LOQ 2b, LOQ 4a
Byrne, H.E.	BIO 4.1/S&D 4.1	Ramel, P.R.	EAT 1.1	Aguilar-Zarate, M.	EAT-P	Bandara, N.	PCP-P
Campbell, L.	PCP 3	Rebmann, M.	LOQ 4b/PHO 4	Ahmad, A.	PHO 2	Bantchev, G.	IOP-P
Chen, B.	LOQ 5b	Rempel, C.	PCP 3	Ahmad, H.	LOQ 5b	Barbut, S.	EAT 1
Chen, L.	PCP 2b	Rennie, D.	CAN 1, CAN 2	Ahmad, I.	PHO 2	Barmar Larsen, M.	PRO-P
Ciftci, O.N.	EAT 5/S&D 5.2, PRO-P	Rogers, M.	EAT-P	Ahmad, M.	PHO 2, SS 1	Baron, B.	LOQ 1a
Cochran, E.	IOP 5	Rousseau, D.	EAT 2	Akao, M.	PCP 1	Barot, A.A.	BIO 1.1/IOP 1, BIO 2.1/IOP 2
Dayton, C.	ANA 5.1/PRO 5.1	Sanders, C.	LOQ 2b	Akbar, H.	H&N-P	Barrow, C.J.	BIO-P
Della Porta, R.	LOQ 5a	Schavey, B.	TECH 2	Aki, T.	BIO 2, BIO 1	Bashan, M.	ANA-P
Dewettinck, K.	EAT 2.1	Schmidt, W.	S&D 5	Akil, E.	BIO 3	Bashan, U.	ANA-P
Dionisi, F.	H&N 2	Schroeder, W.	LOQ 4a	Akoh, C.C.	EAT 4/H&N 4.1, BIO 2, BIO-P	Bayes-Garcia, L.	EAT 3.1
Diehl, B.W.K.	ANA 1	Seegers, S.	ANA 2a	Aksoy, N.	S&D 2	Bazin, M.	TECH 1
Drewery, M.	H&N 4	Selig, D.	PRO 4	Alagarsamy, S.	LOQ-P	Bazinet, R.P.	H&N 2, H&N 3
Dumeignil, F.	IOP 4	Severance, M.	S&D 5	Alasti, P.	TECH 1	Beach, E.	S&D 3.1
Dunford, N.	PRO 5	Shahidi, F.	LOQ 3a, ANA 4	Alborzi, S.	LOQ 4b/PHO 4	Beaudouin, T.	BIO 4.1/S&D 4.1
Fleith, M.	H&N 5.1	Sharko, P.	S&D 2	Alexandre, T.	BIO 3	Belayneh, H.D.	PRO 5
Fuglseth, E.	ANA 3	Shen, H.	S&D 1.1	Alfred, C.	H&N-P	Bellissimo, N.	EAT 2.1
Genco, K.	S&D 5.1	Shiau, B.	S&D 4	Algara Suarez, P.	S&D-P	Benes, P.C.	S&D-P
Glenski, J.	ANA 5.1/PRO 5.1	Shinn, S.	ANA 4	Ali, S.M.	PHO 2	Bennett, R.	S&D 5, S&D 2.1
Graham, T.	S&D 5.1	Skold, F.	PRO 1	Allen, D.R.	S&D 2.1	Benson, T.	IOP 4, IOP-P
Guoqin, L.	IOP 5	Smith, P.	EAT 3.1	Allouche, Y.	ANA 5.1/PRO 5.1	Berle, D.	ANA 4
Hayes, D.G.	BIO 4.1/S&D 4.1	Smith, T.	S&D 1	Altera, D.	BIO 3.1/PRO 3.1	Bernaerts, T.	LOQ 3b
Hayyan, A.	BIO 2.1/IOP 2	Solaiman, D.K.Y.	BIO 4.1/S&D 4.1	Aluko, R.	PCP 5, PCP-P	Bertioli, D.J.	BIO 4
Hernandez, E.	PHO 3	Strigley, C.	ANA 3	Alvarez-Mitre, F.	EAT 1, EAT-P	Berton-Carabin, C.C.	EAT 2.1, EAT 2.1
Hettiarachchy, N.S.	PCP 2a, PCP-P	Staller, K.P.	PRO 5	Amaral, P.	BIO 3	Besong, S.A.	ANA-P, BIO 1.1/IOP 1, BIO-P, ANA-P
Hojilla-Evangelista, M.P.	PCP-P	Stanton, K.	S&D 1	Ammeter, A.	PCP 3	Best, C.	H&N-P
Holm, H.	PRO 1	Tavernier, I.	EAT 2.1	Anankanbil, S.	LOQ 4a, LOQ 2b, PHO 2, PRO 2	Bhaggan, K.	PRO 2, EAT-P
Hosokawa, M.	BIO 2, BIO 3	Theiner, E.	S&D 1.1	Anderson, T.	TECH 1, ANA-P, PCP 1	Bhangle, S.	ANA 1, ANA-P
Hou, C.T.	BIO 1	Tian, X.	LOQ 3b	Ando, T.	EAT-P, LOQ-P	Bhattacharya, K.	EAT 5/S&D 5.2
Hu, M.	ANA 1.1/LOQ 1b, LOQ 3b	Tomas, M.	PHO 1	Andrés, S.C.	EAT-P, LOQ-P	Biamonte, Q.	TECH 1
Hwang, H.	ANA 1.1/LOQ 1b	Tsumadori, M.	S&D 2	Ansorena, D.	LOQ 3b	Bignardi, C.	LOQ-P
Ibrahim, H.	PCP 1	Udenigwe, C.C.	PCP 2b	Anunciado, D.B.	S&D 3.1	Bittebier, S.	PRO 5
Indrasena, W.	LOQ 2a	Vieitez, I.	EAT 4/H&N 4.1	Anywar, G.	H&N 5.1	Bilic, O.	IOP-P
Jadhav, S.	PHO 1	Vinson, P.K.	S&D 2.1	Appelqvist, I.	PCP 2a	Bilke-Krause, C.	EAT-P
Jain, V.	LOQ 4a	Wanasundara, J.	PCP 3	Arai, H.	BIO 3	Bisly, A.A.	PCP 2a
Jasko, J.	TECH 1	Wang, H.	PCP 4b	Araque, M.	IOP 4	Biswas, N.	EAT 3
Johnson, D.	LOQ 3a	Wang, R.	BIO 1.1/IOP 1	Arechavaleta, A.	ANA 4	Blach, C.	EAT 1
Ju, L.	BIO 2	Ward, R.E.	H&N 2	Arellano, D.B.	EAT-P	Blumhorst, M.R.	ANA-P
Judge, M.	H&N-P	Weerasooriya, U.	S&D 4	Arimoto, S.	TECH 2	Boakye, P.G.	BIO 1.1/IOP 1
Kapoor, R.	ANA 4	West, T.	ANA 2a	Arimoto, Y.	H&N 5.1	Bobnock, R.S.	S&D 3.1
Karunathilaka, S.R.	ANA 2b	Whittinghill, J.	PCP 4a	Aristizabal Henao, J.J.	H&N 5.1	Boeckh, D.	S&D 1
Kishino, S.	BIO-P	Wille, H.	LOQ-P	Arnaud, C.B.	EAT-P, H&N-P	Bogoclu, M.	BIO-P
Kitson, A.	H&N 3	Willits, J.	PRO 3	Arrey, I.T.	BIO-P	Bohari, B.	BIO 1
Kong, J.	LOQ 2a	Wilson, R.F.	BIO 4	Aryee, A.	BIO-P	Bokhari, S.	IOP 3
Kumagai, H.	PCP 1	Wint, M.	S&D-P	Aserin, A.	EAT 2.1	Bollinger, M.	BIO 3.1/PRO 3.1
Lammi-Keefe, C.	H&N 4	Wright, A.J.	EAT 4/H&N 4.1	Ashby, R.D.	BIO 1, BIO 4.1/S&D 4.1	Bonifacino, C.	PCP 4a
Lamsal, B.	PCP 5	Wu, J.	PCP 1	Askew, E.F.	CAN 2	Book, S.L.	PCP 2a
Laurens, L.	BIO 2.1/IOP 2	Xu, M.	LOQ 1a	Asomaning, J.	BIO 2.1/IOP 2	Boom, R.	PRO 5
L'Hocine, L.	PCP 4a	Xu, X.	PHO 2, PRO 2	Astiasarán, I.	LOQ 3b	Boscardin, D.	TECH 2
Liu, K.	PCP 4b	Yang, J.	PRO-P	Audino, S.	CAN 2	Bouhallab, S.	H&N 4
Liu, S.	ANA 5/H&N 5	Yang, N.	LOQ 4b/PHO 4	Augustyniak, A.	S&D 1	Bourliou, C.	H&N 4, EAT 4/H&N 4.1
Ma, K.	ANA-P	Ye, X.P.	IOP 4	Ayala, A.	BIO-P	Boyle, R.	LOQ 5b, ANA 1.1/LOQ 1b
Maleky, F.	EAT 1.1	Yoon, S.	BIO 3	Aydar, A.Y.	LOQ-P, PRO 5, EAT-P	Brambilla, G.	TECH 1
Marangoni, A.G.	EAT 2, EAT 3	Younggreen, W.	PRO 3	Aykas, D.P.	LOQ-P	Bravo Diaz, C.	ANA 1.1/LOQ 1b
Martini, S.	EAT 3.1	Yu, L.	IOP 3	Ayub, N.	BIO 1	Brenna, J.T.	H&N 2, H&N 3
McKeon, T.	BIO 4	Zou, L.	EAT 1.1	Azizian, H.	ANA-P, ANA 2b	Bressler, D.C.	BIO 2.1/IOP 2
Miguez, M.	S&D 3.1	Zulkurnain, M.	EAT 1.1				
Miyashita, K.	LOQ 2b						



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## RUDY FULAWKA

Seed Chemist, Bayer CropScience, Saskatoon, Saskatchewan, Canada

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Fulawka is a competitive person, but lab work doesn't offer many opportunities to compete. He says the status of LPP Approved Chemist not only looks good on his *curriculum vitae* and gives clients confidence in his results, but it also gives him a standard to shoot for and an outlet for his competitive nature.

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Author/Presenter	Session(s)	Author/Presenter	Session(s)	Author/Presenter	Session(s)	Author/Presenter	Session(s)
Brody, Y.	PHO 3	Chidi Chijioke, G.	BIO 5	Deng, L.	PRO 2	Fernandez, J.M.	S&D 2.1
Broening, H.W.	S&D 2.1	Chin Ping, T.	EAT 3, EAT-P	Deng, X.	BIO 4	Fernandez, L.	H&N-P
Brooks, G.	BIO 4.1/S&D 4.1	Cho, H.	PRO-P	Denkov, N.D.	S&D 2.1	Ferrieux, S.S.	S&D 5.1
Bruneel, C.	PRO 5, LOQ 3b	Choi, F.	S&D 4	Dery, B.	S&D 5.1	Finkenstadt, V.L.	PCP 4b
Buchek, K.	S&D 2.1	Choi, H.	BIO-P	Devgan, H.	EAT-P, EAT-P	Finkelar, C.L.	PRO 5
Budge, S.M.	LOQ 5a, LOQ-P	Choi, H.	BIO-P	Dewettinck, K.	EAT 4/H&N 4.1, ANA 1, EAT 3.1	Fleith, M.	H&N 5.1
Bueso, F.J.	BIO-P	Choi, I.	BIO-P	Dhandapani, R.	TECH 1, ANA-P	Fleury, M.	TECH 1
Bukowski, M.	H&N 2	Choi, N.	BIO 2, PRO-P, BIO 5	Di Bari, V.	PRO 5	Flider, F.	EAT-P
Bulsara, P.	PHO 2	Cholakova, D.P.	S&D 2.1	DiAntonio, E.	S&D 3.1	Floury, J.	H&N 4
Burns, T.J.	S&D 2, S&D 2	Choo, Y.	H&N 5.1	Dibildox Alvarado, E.	EAT-P	Fook Hwa, L.	BIO 1
Bütz, D.E.	H&N-P	Chrabas, B.	BIO 3.1/PRO 3.1	Dickens, J.	PHO 2	Ford, M.A.	IOP-P
Byars, J.A.	IOP-P	Christiaens, Q.	BIO 4.1/S&D 4.1	Diehl, B.W.K.	PHO 1, ANA 4, ANA 3, TECH 1, ANA 1	Forgiarini, A.M.	S&D 3
Byrdwell, W.C.	ANA 1	Christy, S.	BIO 4.1/S&D 4.1	Diosady, L.L.	PCP 3	Foubert, I.	PRO 5, LOQ 3b, EAT 3.1
Byrne, H.E.	BIO 4.1/S&D 4.1	Chronakis, I.S.	LOQ 3a	Doan, C.	EAT 4/H&N 4.1	Franco Fraguas, E.	PCP 4a
Cabezas, D.	PCP 4a	Chuah, L.	IOP 3	Dobson, E.P.	BIO-P	Franczyk, A.	PCP 4a
Cahoon, E.	PRO 5	Chun, H.	ANA-P	Dolata, L.	TECH 2	Franklin, S.	IOP-P
Çakir, B.	PCP 4a	Chung, J.	ANA 3, ANA-P	Dong, M.	PHO 2	Freeman, B.	BIO 4
Calder, P.	H&N 1	Chung, M.	BIO-P	Dong, X.	PCP 2b, ANA 1	Frelchowski, J.	BIO-P
Califano, A.N.	EAT-P, LOQ-P	Chye, M.	BIO 4	Doran, G.	PRO 5	Friel, J.	H&N 4
Callejas, N.	ANA 4	Cichelli, A.	ANA-P	Dorman, F.	CAN 2	Friesen, D.	S&D 2.1
Calliauw, G.	PRO 1, BIO 3.1/PRO 3.1	Ciftci, O.N.	EAT 5/S&D 5.2, EAT 3, PRO 5, EAT 2.1, PRO-P	Dowd, M.K.	BIO-P	Frizzel, B.	ANA 5.1/PRO 5.1
Callow, N.V.	BIO 2	Cizek, C.	CAN 2	Downey, B.	PCP-P	Fu, J.	BIO 1
Camire, M.E.	LOQ 2a	Clarke, M.	PHO 2	Dreja, M.	S&D 1.1	Fuglseth, E.	ANA 3
Candal, R.J.	EAT-P	Cleland, G.	ANA 1	Drewery, M.	H&N 4, H&N-P	Fujii, J.	EAT-P
Cantele, M.	BIO 3.1/PRO 3.1	Clifford, S.E.	H&N 5.1	Du, L.	BIO 3	Fukunaga, K.	H&N-P
Cantrill, R.	ANA 4	Cohrs, C.	S&D 2	Du, S.	PCP 2b	Fuller, N.J.	ANA 4
Cao, P.	LOQ-P	Collison, M.W.	ANA-P	Duchek, A.	PCP 2a	Gámbaro, A.	ANA 4
Cao, W.	ANA 4	Cong, F.	PRO 2	Duff, K.	BIO 2.1/IOP 2	Gülseren, I.	PCP 4a
Capracotta, M.D.	S&D 5	Cook, M.E.	H&N-P, H&N 5.1	Duff, P.	H&N-P	Gabbard, R.	S&D 3.1
Carr, G.J.	S&D 2.1	Cooper, Z.	EAT-P	Dugan, M.E.R.	H&N-P, ANA-P	Gachotte, D.	ANA 1
Carrière, F.	H&N 4	Coots, R.J.	S&D 1.1	Dulay, R.M.	BIO 1	Gaitán, A.V.	H&N-P
Carver, T.	S&D 1.1	Copado, C.N.	EAT-P, PHO 1	Dumaignil, F.	IOP 4	Galhardo, F.	EAT 1.1
Casas-Godoy, L.	BIO-P	Corradini, C.	LOQ-P	Duncan, R.W.	PCP 3	Gallegos Martinez, J.	S&D-P
Casiraghi, S.	LOQ-P	Corradini, M.G.	EAT 3	Dunford, N.	IOP 3	Galleguillos, R.	S&D 1.1
Cassen, A.	LOQ 4b/PHO 4	Corti, S.	LOQ-P	Dungan, S.R.	EAT 5/S&D 5.2, EAT-P	Ganguly-Mink, S.	S&D 5
Castro, I.A.	LOQ-P, H&N-P	Corzo-Martinez, M.C.	BIO 5	Dunlap, R.N.	S&D 3.1	Gao, M.	ANA 4
Caudill, S.P.	ANA-P	Costiniti, F.	TECH 2	Dunn, R.O.	ANA 5/H&N 5	Gao, P.	LOQ-P
Cavazza, A.	LOQ-P	Crocker, N.V.	BIO 1	Dupont, D.	H&N 4	Gao, Y.	PRO 2
Cerny, M.	BIO 2.1/IOP 2	Crossney, J.	CAN 1	Durand, E.	LOQ 3a, EAT 4/H&N 4.1	Garbe, L.	H&N 5.1
Cerretani, L.	ANA-P	Crutcher, T.	EAT 5/S&D 5.2	Durant, Y.G.	S&D 5.1, S&D 1	Garcia-Aguirre, D.	LOQ-P
Chabi, B.	LOQ 3a	Csallany, A.S.	LOQ 5a	Durrett, T.P.	BIO 4	Garcia-Moreno, P.J.	LOQ 2b, LOQ 3a, LOQ 3b, LOQ-P
Chang, M.	BIO-P, ANA-P	Cui, L.	ANA 3, LOQ 4b/PHO 4	Dus, C.A.	LOQ 1a	Garcia-Rodenas, C.	H&N 4
Chanwattanakit, J.	S&D 1	Cunneane, S.C.	H&N 2	Du-Thumm, L.	BIO 4.1/S&D 4.1	Garibay-Lewis, A.	BIO 4.1/S&D 4.1
Chao, C.	S&D 5	Curtis, J.M.	BIO 1.1/IOP 1	Eckert, M.	ANA 5.1/PRO 5.1	Garti, N.	CAN 1, PHO 3, EAT 2.1, EAT 5/S&D 5.2, H&N 5.1, EAT 3
Charo-Alonso, M.A.	EAT 1, EAT-P	Cypcar, C.	S&D 1.1	Edri, R.	H&N 5.1	Garti-Levy, S.	H&N 5.1
Charton, V.	LOQ 3a	Dávila-Martínez, M.	EAT-P	Eelco, B.	EAT 1.1	Gaudino, R.	CAN 2
Chassot, L.N.	H&N-P	Daels, E.	EAT 3.1	Egerton, D.W.	CAN-P	Ge, X.	IOP 3
Chatterjee, K.	S&D 5.1	Dahanayake, M.	S&D 3	Eggers, R.	CAN 2	Gen, T.	S&D-P
Chatzidakis, M.	EAT 4/H&N 4.1	d'Alessandro, N.	ANA-P	Elalmis, Y.	BIO-P	Ghanberi Shendi, E.	ANA-P, LOQ-P
Chavadej, S.	S&D 1	Damjanovic, J.	BIO 2	Elemo, G.N.	IOP-P	Gheysen, L.	LOQ 3b
Chaven, N.	LOQ-P	Daniels, R.	EAT 1.1, LOQ 5b, LOQ 4a	Elkind-Hirsch, K.	H&N-P	Ghosh, S.	EAT 2.1, EAT 5/S&D 5.2, PCP 2a
Chaves, K.F.	EAT-P	Daston, G.P.	S&D 2.1	Eller, F.J.	IOP-P	Ghulam Kadir, A.	BIO 1
Cheely, A.	LOQ 5b	Davidson, J.	BIO 4.1/S&D 4.1	Eller, S.	TECH 2	Gibon, V.	PRO 3
Chelikani, P.	PCP 1	Davis, C.A.	TECH 1	Engel, A.	IOP-P	Gilbert, M.	BIO-P
Chen, B.	LOQ-P	Dayton, C.	ANA 5.1/PRO 5.1	Erci, V.	BIO-P	Gildemaster, Y.	LOQ 2b
Chen, B.	PCP 3	de Andrade, S.S.	EAT-P	Evangelista, R.L.	PCP 4b	Gioielli, L.A.	EAT 4/H&N 4.1
Chen, B.	S&D-P	De Bruyn, F.	TECH 2	Evans, G.	PRO-P	Giuffrida, F.	H&N 4
Chen, C.	S&D 2.1, S&D 4	De Cooman, L.	LOQ 3b	Everaert, B.	BIO 4.1/S&D 4.1	Gladness, A.	EAT-P
Chen, F.	LOQ-P	De Greyt, W.	PRO 3, BIO 3.1/PRO 3.1	Everson, T.	BIO 4.1/S&D 4.1	Glasius, M.	PHO 2
Chen, G.	BIO-P	De la Peña-Gil, A.	EAT 1	Ezeanyanaso, C.S.	IOP-P	Glatter, O.	S&D 1.1
Chen, H.	ANA 1, PCP 2b	de Lamballerie, M.I.	EAT-P	Fabre, J.	LOQ 4b/PHO 4, EAT 2.1	Goderis, B.	EAT 3.1
Chen, J.	BIO-P, BIO 1	De Maesschalck, E.	S&D 1.1	Falkeborg, M.	PRO-P, S&D-P	Goel, S.	S&D 4
Chen, L.	PCP 2b, PCP-P	de Oliveira, G.M.	EAT-P, PRO-P	Fan, A.	BIO 4.1/S&D 4.1	Goiris, K.	LOQ 3b
Chen, P.	PHO 2	De Schampelaere, K.	BIO 4.1/S&D 4.1	Fan, Q.	PCP 2b	González, V.	ANA 4
Chen, Q.	BIO 1	Decker, E.A.	ANA 3, LOQ 2b, LOQ 3a, LOQ 5b, LOQ 4b/PHO 4, LOQ-P	Fang, L.	PCP 5	Gonzalez de Mejia, E.	PCP 1
Chen, T.	BIO 4	Deglaire, A.	H&N 4	Fang, Z.	PCP 2b	Goodwin, D.	S&D 2
Chen, Y.	IOP 3	Deller, R.	BIO 5	Fanta, G.F.	IOP-P	Gotoh, K.	S&D 2
Cheng, C.	S&D 2.1	Delmonte, P.	ANA-P, ANA 1, ANA-P	Fardin-Kia, A.	ANA 2b, ANA-P, BIO-P	Gouk, S.	H&N 5.1
Cheng, H.	PCP 2b	Demarne, F.	LOQ 3a	Fares, H.	S&D 3.1	Gracz, H.S.	EAT 3.1
Cheng, K.	ANA-P	Demchuk, Z.	BIO 1.1/IOP 1	Farris, S.	ANA 2b	Grady, B.P.	S&D 2.1
Cheng, W.	LOQ-P	Demonty, I.	H&N-P	Felker, F.C.	IOP-P	Granvogel, M.	ANA 2b, LOQ 1a
Chenwei, Z.	LOQ-P						
Cheung, W.	H&N-P						
Chi, K.	S&D 2.1						

Author/Presenter	Session(s)	Author/Presenter	Session(s)	Author/Presenter	Session(s)	Author/Presenter	Session(s)
Gravelle, A.J.	EAT 1	Holm, H.	BIO 3.1/PRO 3.1, BIO 2.1/IOP 2	Johnson, D.	LOQ 3a	Kohut, A.	BIO 1.1/IOP 1
Gray, D.	PRO 5	Hong, J.	IOP-P	Johnson, K.A.	S&D 5.1	Kojima, H.	S&D 1.1
Gray, P.	ANA-P	Horax, R.	PCP 2a	Johnson, L.K.	H&N 2, H&N 5.1	Kokai, Y.	PHO 3
Green, N.	EAT 2.1	Hormazabal, H.	BIO 4.1/S&D 4.1	Johnson, P.	TECH 1	Kokubun, Y.	BIO 3
Gregerson, M.	ANA-P, TECH 1	Hoshi, M.	S&D 1.1	Johnson, R.W.	H&N-P	Kon, Y.	IOP 4
Gregory, K.	H&N-P	Hoshina, R.	PRO-P	Jones, A.K.	BIO 2.1/IOP 2, IOP-P	Kong, D.	BIO-P
Gregory, S.	PRO 3	Hosokawa, M.	LOQ 2a, PHO 3, BIO 2, LOQ 2a, BIO 3	Jones, C.	S&D 2.1, S&D 4	Kong, F.	H&N-P
Griffith, A.P.	ANA-P	Hosomi, R.	H&N-P	Jones, K.C.	BIO 1.1/IOP 1	Kong, X.	BIO 1.1/IOP 1
Grompone, M.	ANA 4	Hossain, Z.	H&N 4	Ju, L.	BIO 2, BIO 5	Kothapalli, K.	ANA 5/H&N 5
Gross, S.F.	S&D 5, S&D 2	Hou, C.T.	BIO 1	Julio, L.M.	PHO 1	Kotoski, S.P.	ANA-P, ANA 3
Gruber, J.V.	BIO 4.1/S&D 4.1, IOP 5	House, J.D.	PCP 4a	Jumadi, M.	LOQ 5b	Kozuyuk, O.	TECH 1
Gu, L.	LOQ-P	Howitt, J.A.	PRO 5	Kaçar, D.	ANA-P	Kralovec, J.	PRO 2
Gumus, C.E.	LOQ 2b	Hoyt, J.L.	IOP 5	Kadamne, J.V.	EAT 4/H&N 4.1	Kramer, J.K.G.	ANA 2b, ANA-P
Guo, Q.	EAT 2.1	Hu, L.	BIO 1.1/IOP 1	Kadhun, M.	S&D 3, S&D 4	Kristinsson, H.G.	LOQ 3b
Guo, Z.	PRO 2, PRO 4, BIO 2.1/IOP 2, PHO 2, LOQ 2b, LOQ 4a, BIO 5	Hu, M.	ANA 1.1/LOQ 1b	Kagaya, M.	S&D 2	Kroener, K.	EAT 1.1
Guoqin, L.	LOQ-P	Hu, P.	EAT 3.1	Kāja, B.	ANA-P	Kroon, B.	EAT 5/S&D 5.2
Gupta, M.K.	LOQ 4a	Huang, F.	PCP 2b	Kamal, M.	S&D 4, S&D-P	Krouwer, A.	S&D 1
Gutowski, K.E.	S&D 2, S&D 1, TECH 1	Huang, K.	IOP 3	Kamikanda, Y.	S&D-P	Kuhlmann, J.	ANA 5/H&N 5, ANA 2a
Gzyl, K.K.E.	ANA-P	Huang, L.	S&D-P	Kanagaratnam, S.	EAT 3	Kuhn, D.	BIO 4
Habi Mat Dian, N.	EAT-P	Huang, R.	H&N-P	Kanasaki, Y.	S&D 2	Kuiper, H.C.	ANA-P
EAT 3		Hudalla, C.J.	CAN 1	Kandrac, M.	ANA 2a	Kuksis, A.	PHO-P
Hammond, C.E.	S&D 3	Hughes, M.D.	ANA-P	Kaneko, Y.	S&D 2	Kumagai, H.	PCP 1
Hamon, J.J.	S&D 2.1	Hulett, C.J.	BIO 2.1/IOP 2, IOP-P	Kang, Y.	PRO-P	Kuppan, K.	LOQ 5b
Hanft, J.	PRO 1	Hums, M.E.	IOP 5	Karakuzu, B.	PRO 5, PRO-P	La Du, J.K.	S&D 2.1
Hansen, B.S.	PRO-P	Hurd, P.W.	ANA-P	Karboune, S.	PCP 4a	La Scala, J.J.	BIO 1.1/IOP 1, IOP 3, IOP 5
Hansen, S.L.	ANA 4	Hussain, S.S.	S&D 4, S&D-P	Kardam, V.	LOQ-P	Lacroux, E.	BIO 2.1/IOP 2
Hara, H.	PCP 1	Hwang, H.	EAT 1, LOQ 5a	Karki, B.	PCP 3	Lagana, C.	LOQ-P
Hara, T.	S&D 1.1	Hwang, J.	BIO-P	Karunathilaka, S.R.	ANA 2b, ANA 3, ANA 5/H&N 5, ANA-P	Lagaron, J.M.	LOQ 2b
Harild, L.	PRO 2	lassonova, D.	EAT 3.1	Katagiri, K.	PRO-P	Laiho, S.	PCP 2a
Harris, E.	LOQ-P	Ibrahim, H.	PCP 1	Kataoka, Y.	BIO 2	Lamb, S.	BIO 3.1/PRO 3.1
Harris, W.S.	H&N 1	Idakiev, H.	PCP 4a	Katiyar, P.	PRO-P	Lammi-Keefe, C.	H&N 4, H&N-P
Harwell, J.	S&D 2.1, S&D 3, S&D 4	Idso, J.	H&N 2	Katryniok, B.	IOP 4	Lamsal, B.	BIO 4.1/S&D 4.1, PCP 5
Hase-Tamaru, S.	H&N-P	Ifeduba, E.A.	EAT 4/H&N 4.1	Katz, G.	LOQ 2a	Lan, Y.	EAT 3
Hashim, M.A.	IOP 5	Igarashi, T.	S&D 1.1	Kawabata, H.	BIO 1	Lanctot, Y.	BIO 4.1/S&D 4.1
Hatta, H.	PCP 1	Igwe, C.C.	IOP-P	Kawabeta, K.	H&N 5.1, H&N-P	Latona, N.P.	BIO 1.1/IOP 1
Haw, S.	LOQ 5b	Ikeda, R.	S&D 1.1	Kawanami, T.	H&N-P	Latorre, K.	H&N-P
Hay, W.	IOP-P	Inan, B.	BIO-P	Kawano, S.	S&D-P	Laurens, L.	BIO 2.1/IOP 2
Hayashi, T.	S&D 1	Inoue, R.	S&D 1.1	Kawasaki, A.	S&D 2	Lavery, D.	CAN 2
Hayes, D.G.	EAT 5/S&D 5.2, S&D 3.1	Inoue, S.	H&N-P	Keener, K.M.	EAT 3.1	Lay, J.O.	ANA 1
Hayyan, A.	IOP 5, PRO-P	Irigaray, B.	ANA 4	Kellens, M.J.	PRO 3, BIO 3.1/PRO 3.1	Le Fuentes, S.	H&N 4
Hayyan, M.	PRO-P, IOP 5	Ishibashi, C.	EAT 5/S&D 5.2	Kemper, T.G.	PRO 1	Leary, T.F.	BIO 2.1/IOP 2
Hazer, B.	BIO 1.1/IOP 1	Ishiguro, T.	EAT 1.1	Kenar, J.A.	IOP-P	Lecomte, J.	EAT 4/H&N 4.1, LOQ 3a, BIO 3
He, H.	EAT 3	Isildak, I.	BIO-P	Kharat, M.M.	EAT-P	Lee Fong, S.	EAT 3
He, L.	LOQ-P, LOQ 5b	Iskandar, N.	BIO 1	Kharraz, E.	BIO 1.1/IOP 1	Lee, J.	EAT 3
He, R.	PCP 2a	Ismik, D.	BIO-P	Khari, Z.	PCP 5	Lee, J.	EAT-P, EAT 1.1
Hegedus, D.	PCP 3	Ismik, D.	BIO-P	Kieckbusch, T.G.	EAT-P, PRO-P	Lee, J.	H&N-P
Hehemann, W.B.	S&D-P	Ito, Y.M.	PHO 3	Kim, B.	ANA-P, BIO-P	Lei, Y.	S&D 3.1
Heidhues, J.	PRO 3	Itou, M.	S&D 1.1	Kim, B.	PRO-P	Leigh, J.K.	ANA 5/H&N 5
Heldman, D.R.	EAT 1.1	Iwasaki, Y.	BIO 2	Kim, G.	EAT 3	Lemma, B.	H&N-P
Henry, C.J.	EAT 4/H&N 4.1	Iwasawa, A.	LOQ 2a	Kim, H.	BIO 3, BIO 5	Len, C.	IOP 4
Hermund, D.B.	LOQ 3b, LOQ 3b, LOQ-P	Iwashima-Suzuki, A.	LOQ 2a	Kim, I.	BIO 2, BIO 3, BIO 5, BIO-P, PRO-P	LePage, J.N.	S&D 5.1
Hernandez, N.	IOP-P	Iwata, T.	H&N 5.1	Kim, J.	ANA-P	Lesov, I.I.	S&D 2.1
Hernandez, E.	PHO 3	Ixtaina, V.Y.	PHO 1, PHO 1, EAT-P	Kim, J.	BIO-P	L'hostis, J.	S&D 5
Herrera, M.L.	EAT-P	Izzo, C.	ANA 2a	Kim, J.	PRO-P	Li, D.	ANA 3
Herring, N.	PRO-P	Jónsdóttir, R.	LOQ 3b	Kim, M.	BIO 5	Li, G.	BIO 1, BIO-P
Hettiarachchy, N.S.	PCP 2a	Jackson, M.A.	IOP-P	Kim, S.	IOP 3	Li, J.	BIO 2.1/IOP 2, PRO 4
Hibi, M.	BIO 1	Jacobs, G.	PRO 5	Kinaci, E.	S&D 5.1	Li, L.	BIO-P
Higgins, E.E.	PCP 3	Jacobsen, C.	LOQ 2b, LOQ 3a, LOQ 3b, LOQ 4b/PHO 4, LOQ-P	Kincaid, P.	BIO 1.1/IOP 1	Li, Q.	PCP 1
Hill, F.	CAN 2	Jahns, L.	H&N 5.1	Kingsley, K.	PRO 3	Li, X.	LOQ-P
Hilliard, P.R.	S&D 1.1	Jamme, F.	H&N 4	Kirchner, S.	BIO 1.1/IOP 1	Li, Y.	BIO 1, BIO-P
Hironori, K.	PRO-P	Jang, E.	PRO-P	Kirianchuk, V.	IOP-P	Li, Z.	ANA 3
Hironori, H.	EAT 5/S&D 5.2	Jaynes, S.	S&D 5	Kirker, G.	BIO 1	Liang, L.	LOQ-P
Hisamoto, M.	BIO 4.1/S&D 4.1	Jensen, M.M.	PHO 2	Kishimoto, N.	BIO 1	Liang, L.	PCP 2b
Ho, K.	EAT 2.1	Jensen-Holm, L.J.	S&D 2, S&D 2	Kishino, S.	BIO 2	Liang, S.	PCP 5
Hoekstra, A.J.	S&D 1	Jiang, Y.	ANA 4	Kizmaz, V.	ANA-P	Lien, E.L.	H&N 4, H&N 4
Hoem, N.	PHO 3	Jiang, Y.	ANA 4	Knothe, G.	IOP-P	Lilbæk, H.M.	PRO 3
Hofflack, L.	TECH 2	Jiménez, S.	ANA 4	Knowlton, S.	LOQ 5a	Lin, J.	BIO 1
Hogan, M.E.	CAN 2	Jimenez-Flores, R.	EAT 1	Kob, N.	IOP-P	Lin, X.	EAT-P
Hojilla-Evangelista, M.P.	PCP 4b	Jin, J.	PRO-P, IOP-P	Koba, K.	H&N-P, H&N 5.1	Lira, S.	S&D 3.1
Holdt, S.	LOQ-P	Jin, Q.	ANA-P, BIO-P, IOP-P, LOQ-P, PRO-P	Kobayashi, H.	PRO-P	Little, D.J.	TECH 1
Hollister, K.	ANA 2b	John, G.	EAT 1, IOP 5, IOP-P	Kobayashi, Y.	S&D 2	Liu, C.	BIO 1.1/IOP 1
				Kodali, D.R.	IOP 5	Liu, C.	BIO 1.1/IOP 1
				Koduvayur Habeebullah, S.	LOQ-P, LOQ 3b		

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Liu, C.	PCP 4b	Mattioni, B.	PCP 4b	Nagasaka, R.	H&N-P		BIO 1.1/IOP 1
Liu, D.	BIO 3.1/PRO 3.1	May, M.	CAN 2	Nagy, A.	BIO 4.1/S&D 4.1	Palomino, J.	PCP 3
Liu, G.	PCP-P	Mayfield, S.E.	ANA 1	Nagy, E.	ANA-P	Paluri, S.	EAT 1.1
Liu, M.	ANA 1	Maynard, J.E.	LOQ 5b	Naik, S.N.	LOQ-P	Panchal, T.M.	BIO 2.1/IOP 2
Liu, Q.	PCP 4b	Mazzanti, G.	EAT 2	Nakagawa, M.	S&D 1	Panizzolo, L.	PCP 4a
Liu, R.	ANA 5/H&N 5, ANA-P, IOP-P, LOQ-P	McCain, P.	ANA 5.1/PRO 5.1	Nakamura, K.	S&D 1.1	Pant, K.K.	LOQ-P
Liu, S.	ANA 5/H&N 5, LOQ 5a	McCall, D.	S&D 2	Nakamura, M.	H&N-P	Panthi, K.	S&D 4
Liu, S.	BIO 4.1/S&D 4.1	McCartney, C.	PCP 3	Nakanishi, K.	EAT 1.1	Park, C.	EAT 1
Liu, Y.	EAT 3, LOQ-P	McClements, D.J.	LOQ 2b, PHO 3, LOQ 5b, H&N 5.1, EAT-P, LOQ-P	Nakano, H.	BIO 2	Park, H.	BIO 5
Liu, Z.	BIO 1.1/IOP 1	McGunigale, S.L.	ANA-P	Nakashima, T.	IOP 4	Parkin, I.I.A.	PCP 3
Liu, Z.	PHO 1	McKeon, T.	BIO 4	Nakashimada, Y.	BIO 2	Parnell, K.	TECH 1, ANA-P
Liyanage, R.	ANA 1	McVeigh, J.	S&D 5.1	Nakhasi, D.	EAT 1.1	Parrish, D.	BIO 4.1/S&D 4.1
Liv, X.	ANA 1	Md Noor, A.	LOQ 5b	Nash, J.F.	S&D 2.1	Patel, A.	EAT 2.1
Lobry, S.	S&D 5	Meadus, W.J.	H&N-P	Neerup, R.	LOQ-P	Patel, C.M.	BIO 1.1/IOP 1, BIO 2.1/IOP 2
Logan, A.S.	PCP 2a	Medrano, A.	H&N-P	Nelson, P.J.	PCP 3	Patel, G.K.	IOP-P
Loman, A.A.	BIO 2	Meesapyodsuk, D.	BIO-P	Neugebauer, A.	LOQ 1a	Patel, H.S.	IOP-P
Longmore, N.	EAT 5/S&D 5.2	Mendrilla, E.	ANA 5/H&N 5	Ng, S.	S&D 4	Patel, J.C.	IOP-P
Lopez Padilla, C.	S&D-P	Meng, Z.	EAT 3	Ng, T.	H&N 5.1	Patel, J.R.	BIO 1.1/IOP 1
Lor, J.	H&N 5.1	Mercando, P.P.	S&D 5.1	Ngantung, F.	BIO 2.1/IOP 2	Patel, J.V.	BIO 2.1/IOP 2
Lorenzo, G.	EAT-P, EAT-P	Mertz, R.E.	EAT 1.1	Ngo Lew, H.	BIO 2.1/IOP 2	Patel, N.K.	PHO 3
Lu, J.	S&D 4	Mestri, R.S.	S&D-P	Nguyen, T.	S&D 4, S&D 2.1	Patil, H.S.	S&D-P
Lu, Y.	ANA 5.1/PRO 5.1	Mestri, R.S.	S&D-P	Nickerson, M.	PCP 2a	Patterson, A.C.	H&N 5.1
Luckett, D.J.	PRO 5	Meunier, G.	TECH 1	Nie, K.	PRO 2	Patterson, T.G.	PCP 3
Lukai, M.	LOQ-P	Meyers, L.	S&D 2.1	Niehus, X.	BIO-P	Paul, S.	IOP 4
Lumor, S.E.	BIO 1.1/IOP 1, ANA-P, BIO-P	Mihara, K.	BIO 2	Nielsen, N.	LOQ-P	Pears, D.A.	S&D 5.1
Lv, X.	PCP 2b	Mikami, N.	PHO 3	Nielsen, P.M.	BIO 2.1/IOP 2, PRO 3, BIO 3.1/PRO 3.1	Pedersen, J.S.	BIO 5
Ma, D.	ANA 4	Miketinas, D.	H&N-P	Nirmal, G.M.	BIO 2.1/IOP 2	Pederson, R.L.	S&D 2.1
Ma, D.W.L.	H&N 1	Milani, A.	ANA 1, ANA-P	Nishiyama, Y.	BIO 2	Pegg, R.B.	ANA 4
Ma, K.	BIO 3.1/PRO 3.1	Miller, P.	S&D 2	Nogueira, M.S.	LOQ-P	Peh, E.W.Y.	EAT 4/H&N 4.1
Ma, X.	BIO 1	Milligan, A.M.	LOQ 4a	Noh, H.	S&D-P	Pelayo, A.	LOQ 3a
Ma, Y.	IOP-P	Miquel Becker, E.	PRO-P	Noh, S.K.	BIO-P	Penet, C.	H&N-P
Müller, C.	S&D 2	Mirghani, M.E.S.	PRO-P	Nolasco, S.M.	PHO 1	Perez, B.	BIO 5, LOQ 4a, PHO 2, PRO 2
MacGillivray, T.F.	LOQ 1a	Mirzaee Ghazani, S.	EAT 3	Nolles, R.	S&D 5.1	Perriman, A.	BIO 5
Macias Rodriguez, B.A.	EAT 1	Misawa, Y.	EAT-P	Nosworthy, M.G.	PCP 4a	Petigara Harp, B.	ANA-P
Mack, B.	BIO-P	Mitchell, B.A.	ANA 2b	Nouraei, M.	EAT 1, S&D 3.1	Petit, V.	H&N 4
Mackay, D.	H&N 4	Mitchell, C.	PRO 1	Nwachukwu, I.D.	PCP 5	Petrovic, Z.	BIO 1.1/IOP 1, IOP-P
Mackay, J.A.	CAN 1	Mittelbach, M.	IOP 5	Nwachukwu, V.A.	IOP-P	Peyronel, F.	EAT 3
MacMahon, S.	ANA 5/H&N 5	Miyajima, A.	S&D 1.1	Nyame Mendendy Boussambe, G.	EAT 2.1	Pezenec, S.	H&N 4
Madani, M.	EAT-P	Miyake, K.	EAT-P	Nyström, L.	EAT 4/H&N 4.1	Phun, L.	ANA-P
Maes, J.	PRO 3	Miyake, R.	BIO 1	O'Brien, K.	CAN 2	Picklo, M.J.	H&N 2, H&N 5.1
Maglinao, R.L.	IOP-P, BIO 2.1/IOP 2	Miyashita, K.	LOQ 2a, BIO 3, PHO 3, BIO 2	Oetjen, K.	EAT-P	Pingali, S.	S&D 3.1, EAT 5/S&D 5.2
Mahan, T.A.	ANA-P	Mohanty, K.K.	S&D 4	Ogawa, J.	BIO 1, BIO 2, BIO 2.1/IOP 2	Pink, D.A.	EAT 3
Maleky, F.	EAT 1.1	Molders, K.	TECH 2	Ogura, T.	S&D 1.1	Poelman, A.	PCP 2a
Maloney, V.P.	S&D 2.1	Moloney, C.	H&N 4	Ohl, M.E.	EAT 5/S&D 5.2	Poindexter, L.A.	S&D 4
Mamatov, E.	EAT 5/S&D 5.2	Monakhova, Y.B.	ANA 3, PHO 1, ANA 4	Ohlendorf, G.	S&D 2	Polari, J.J.	LOQ-P
Mangan, S.	CAN 2	Montes de Oca-Avalos, J.M.	EAT-P	Oi Ming, L.	S&D 4	Pope, G.A.	S&D 4
Mankowski, M.	IOP-P	Moore, M.A.	BIO-P	Oishi, M.	S&D 1	Pottier, L.J.	EAT-P
Marangoni, A.G.	EAT 1, EAT 1.1, EAT 2, EAT 2.1, EAT 3, EAT 4/H&N 4.1, EAT 5/S&D 5.2	Moorthy, A.S.	EAT 2	Okamoto, T.	S&D 1	Powell, M.J.	IOP 5
Marchetti, L.	EAT-P, LOQ-P	Moreau, R.A.	IOP 5, BIO 2.1/IOP 2	Okamoto, Y.	S&D 1.1	Poyato, C.	LOQ 3b
Margraf, D.	ANA 5.1/PRO 5.1	Mori Cortés, N.	EAT-P	Okamura, Y.	BIO 2	Pradhan, S.	PRO 2
Markovitz, B.J.	S&D-P	Mori, K.	S&D 1	Okumura, M.	S&D-P	Prapat, A.P.	PHO 3
Marteaux, L.	S&D 3.1	Mori, R.	BIO 1	O'Lenick, T.	S&D 3	Prenzler, P.D.	PRO 5
Martin, K.J.	S&D 5.1	Mori, S.	H&N-P	Olivier, E.J.	IOP-P	Prigat, Y.	EAT 3
Martini, S.	EAT 1.1, EAT 4/H&N 4.1, EAT-P	Morimoto, K.	PCP 1	Olson, J.M.	H&N-P, H&N 5.1	Primozic, M.	PCP 2a
Mason, B.	PCP 5	Morphew, B.	PRO 1	Omonov, T.S.	BIO 1.1/IOP 1	Proctor, A.	ANA 1
Mason, C.	BIO 4, BIO-P	Moser, J.	LOQ 5a, EAT 1	O'Neill, H.M.	S&D 3.1, EAT 5/S&D 5.2	Pruzanski, W.	PHO-P
Massarelli, I.	H&N-P	Mossoba, M.	ANA 2b, ANA 3, ANA 5/H&N 5, ANA-P	Ong, A.	H&N 5.1	Psaro, R.	IOP 5
Masters, R.A.	S&D 1.1	Mouloungui, Z.	BIO 2.1/IOP 2, EAT 2.1, LOQ 4b/PHO 4	Ono, D.	S&D-P	Pudel, F.	PCP 3
Masui, H.	S&D 1	Mudge, S.	BIO 4.1/S&D 4.1	Ooi, C.	IOP-P	Pulido, D.	IOP-P
Masuyama, A.	BIO 1, S&D-P	Mugford, P.	PRO 2	Organtini, K.	ANA 1	Ornaghi, P.	LOQ-P
Mat Sahri, M.	EAT 3, EAT-P	Muhlenbeck, J.A.	H&N-P	Orr, M.	S&D 2	Otani, M.	EAT-P
Mat Yunus, A.	BIO 1	Munir, S.	IOP-P	Ouchi, M.	LOQ-P	Ozarslan, A.C.	BIO-P
Mateiu, R.V.	LOQ 3a	Muraki, M.	BIO 2	Ozarslan, A.C.	BIO-P	Özçimen, D.	BIO-P
Matheis, K.	ANA 2b	Murillo Hernandez, N.I.	EAT-P	Özdemir, Ö.	PCP 4a	Ozer, R.W.	PCP 3, PRO 5
Mathis, F.	BIO 3.1/PRO 3.1	Mustacchi, R.	S&D 2	Özkaya, M.	LOQ-P	Palardy, O.	BIO 2.1/IOP 2
Matsuda, S.	H&N 5.1	Muthal, A.P.	ANA-P	Palazolo, G.	PCP 4a	Palmese, G.R.	IOP 3, IOP 5, S&D 4
Matsui, T.	PCP 1	Mutung, G.	H&N 4				
Matsumura, Y.	BIO 2	Muylaert, K.	PRO 5				
Mattice, K.	EAT 2.1	Nagao, T.	BIO 1				
		Nagaoka, S.	PCP 1				

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Ramel, P.R.	EAT 3	Sasayama, T.	S&D-P	Smoukov, S.K.	S&D 2.1	Thuriot, J.	IOP 4
Ramirez, A.	BIO 5	Sato, A.	PCP 1	Smuts, J.	ANA 2b, TECH 1	Tian, X.	LOQ 3b
Ramsch, R.	TECH 1	Sato, H.	S&D-P	Snow, N.	ANA-P	Tian, Y.	BIO 1.1/IOP 1
Ranali, N.	EAT-P	Sato, K.	EAT 2, EAT 3.1	So, K.	PCP 3	Tian, Y.	EAT 1
Rancke-Madsen, A.	BIO 2.1/IOP 2, BIO 3.1/PRO 3.1	Satya, S.	LOQ-P	Soetaert, W.	BIO 4.1/S&D 4.1, TECH 2, BIO 4.1/S&D 4.1	Tikekar, R.V.	LOQ 4b/PHO 4
Randall, J.	LOQ 2b, LOQ 4a,	Scamehorn, J.	S&D 1	Sohling, U.	PRO 2	Tilley, M.	PCP 4b
Rashid, S.N.	IOP 5, PRO-P	Scarsi, M.	LOQ-P	Sohma, H.	PHO 3	Timms, R.E.	EAT 2
Rathi, C.L.	PRO 2	Schaich, K.M.	LOQ 2a, ANA 2a, ANA 1.1/LOQ 1b	Solaiman, D.K.Y.	BIO 1, BIO 4.1/S&D 4.1	Tiryaki, E.	PRO 5
Ratnayake, W.M.N.	H&N-P	Schavey, R.J.	TECH 1	Tobori, N.	BIO 1.1/S&D 1.1	Tisserat, B.H.	BIO 1.1/IOP 1
Ravasio, N.	IOP 5	Scheffler, B.	BIO-P	Todorov, T.	ANA-P	Tomas, M.	PHO 1, EAT-P
Rawlings, A.V.	PHO 2	Schieberle, P.	LOQ 1a	Tomás, M.	PHO 1, EAT-P	Toro-Vazquez, J.F.	EAT-P, EAT 1
Ray, K.	BIO 1	Schinle, F.	S&D 2	Torres, A.	CAN 2	Torres, C.	BIO 5
Real Hernandez, L.M.	PCP 1	Schneider, N.	H&N 4	Townsend, B.	EAT 3	Trahan, G.	S&D 4
Rebmann, M.	LOQ 4b/PHO 4	Schober, S.	IOP 5	Tran Do, D.	H&N-P	Trass, M.	ANA-P
Redant, E.	BIO 4.1/S&D 4.1	Scholl, P.	ANA-P	Tressel, R.	PCP 3, PCP 4a	Tropsch, J.G.	BIO 4.1/S&D 4.1
Reglero, G.	BIO 5	Schroën, K.	EAT 2.1, EAT 2.1	Trotter, B.A.	S&D 3	Truong, L.	S&D 2.1
Reinking, P.	TECH 1	Schroder, A.	EAT 2.1	Stark, K.D.	H&N 5.1	Tsopmo, A.	PCP 2a
Ren, K.	BIO 4.1/S&D 4.1	Schroeder, W.	LOQ 2b, LOQ 4a	Stephenson, C.D.	ANA-P	Tsushima, T.	BIO 2, EAT-P
Ren, S.	IOP 4	Schroegel-Truxius, N.	PRO 2	Stolp, L.J.	IOP 5	Tu, H.T.	BIO 5
Resurreccion, E.P.	IOP-P, BIO 2.1/IOP 2	Schug, K.A.	TECH 1	St-Onge, M.	H&N 2	Tucker, C.J.	S&D 3
Reuther, J.	ANA-P	Schultz, F.	H&N 5.1	Strahan, G.	BIO 1	Tuinstra, J.	LOQ 5b, EAT-P, LOQ 4a
Reyes Hernandez, J.	S&D-P	Schulz, A.	S&D 1.1	Su, C.	S&D 4	Turan, A.	ANA-P
Ribeiro, A.B.	PRO-P	Schuman, T.	BIO 1.1/IOP 1	Su, H.	H&N-P	Turhan Kara, I.	ANA-P
Richards, J.H.	S&D 1	Scotti, N.	IOP 5	Suarez, E.	PRO 2	Tyagi, M.	EAT 5/S&D 5.2
Ridge, C.	BIO-P	Segro, S.S.	ANA 2a	Subhi, S.	BIO 1	Tyagi, V.K.	PRO-P
Rigdon, A.	CAN 2	Seidemann, E.	H&N-P	Subieta, A.T.	PRO 4	Ubeyitogullari, A.	EAT 3
Rimoux, T.	EAT 3.1	Selling, G.W.	PCP 4b	Subramanyam, R.	S&D 2.1	Ucuncuoglu, D.	ANA-P
Rioux, V.	H&N 2	Senanayake, S.P.J.N.	LOQ-P	Suck, K.	PRO 2	Udechukwu, C.M.	PCP 2a, PCP-P
Rivas, R.	IOP-P	Sené, C.	BIO 4.1/S&D 4.1	Sudo, S.	LOQ 2a	Udenigwe, C.C.	PCP 2a, PCP 2b, PCP 5, PCP-P
Robinson, M.A.	PCP 3	Sendjarevic, I.	BIO 1.1/IOP 1	Sugano, M.	H&N 5.1	Ueda, Y.	BIO 2
Rodier, J.	LOQ 3a	Seng, Y.	PRO 2	Sullivan Ritter, J.	LOQ-P	Uehara, H.	BIO 2
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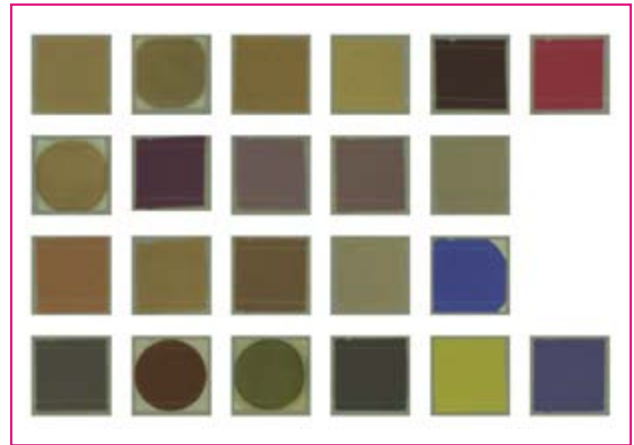
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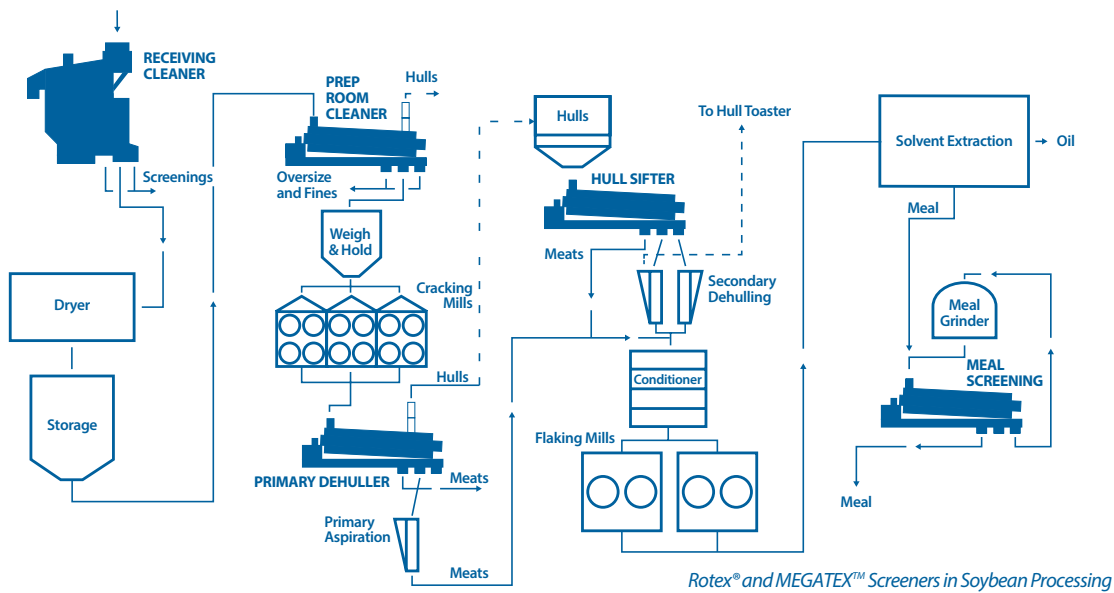
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