

Featuring the
ISF Lectureship Series

2018 AOCS Annual Meeting & Expo PROGRAM

May 6–9

Minneapolis Convention Center | Minneapolis, Minnesota, USA

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A glass bottle is tilted, pouring a thick, golden-yellow liquid (likely oil) onto a white plate. A single, ripe red apple sits on the plate, partially submerged in the liquid. The background is a soft, warm gradient of yellow and orange, creating a clean and professional aesthetic.

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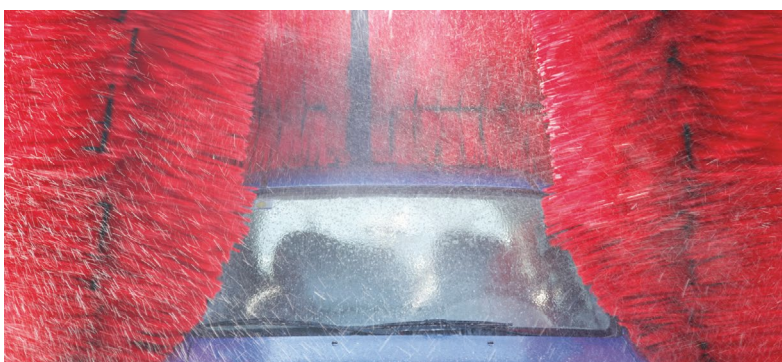
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DON'T MISS CONNECTING WITH EVONIK AT AOCS!

Monday 5-7 * S&D1	Home Care and Laundry Performance Boosters and New Benefits Mike Williams , Alkoxylation Technology Manager, Session Chair
Monday 5-7 * S&D 1.1a	New Technologies in Industry Eric "Rick" Theiner , Application Technology Manager, Session Chair
Wednesday 5-9 * S&D 4	Glycolipid Biosurfactants: Characteristic Curvature and Applications in Microemulsions and Emulsions Zheng Xue , Oil, Gas, and Geotech Chemist

*Please see AOCS Show Schedule for Presentation Times

 **EVONIK**
POWER TO CREATE

Welcome!



Welcome to Minneapolis and the 109th occurrence of the AOCS Annual Meeting & Expo! This year's event promises to deliver something for everyone — hundreds of oral and poster presentations in our world-renowned technical program, 95+ global companies spotlighted in the Expo, 13 special sessions, and plentiful networking opportunities and special events, including a 5K Fun Run/Walk at scenic Loring Park!

AOCS is honored to host the ISF Lectureship Series at the 2018 AOCS Annual Meeting. Lectures have been scheduled during the Welcome Plenary on Sunday, and Award Session on Monday. Since 1974, the International Society for Fat Research (ISF) has honored its founder, Hans P. Kaufmann, by holding the Kaufmann Memorial Lecture every two years. The lecturers include some of the world's most renowned names in the field of fat research, including this year's winner, Dr. Kazuo Miyashita.

Be sure to make the most of your time at the AOCS Annual Meeting — attend sessions, peruse the exhibit, 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 roundtable discussion and offer a topic for next year's Annual 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 2018 AOCS Annual Meeting!

Best regards,

LEONARD M. SIDISKY
Annual Meeting General Chair
MilliporeSigma, USA



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Share your Annual Meeting experience!



#AOCS2018

ISF Lectureship Series

AOCS is honored to host the International Society for Fat Research (ISF) Lectureship Series at the 2018 AOCS Annual Meeting.



Founded in 1954, The International Society for Fat Research is a federation of 23 regional and national scientific organizations active in the areas of fats, oils, and lipid research. The ISF mission is to stimulate the exchange of high-quality scientific information and technology pertaining to fats, oils, and related materials through global cooperation with fats and oils organizations by enhancing meetings through excellent, thought-provoking programming and attracting a larger, more international delegate base to meetings. To accomplish its mission, the ISF provides keynote lectures for presentation at a meeting of one of the member societies. Lecture information begins on page 32.

MEETING INFORMATION

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@home

Want to learn more about the Society or find out how you can be more involved? Visit with staff in the @home section of the Expo Hall to discuss all things AOCS! This area of the Expo Hall houses the popular souvenir photos, AOCS Press bookstore and a drawing for US \$500! See page 6 for details. @home is open Sunday from 10 a.m.–5:30 p.m., Monday from 7 a.m.–6 p.m., Tuesday from 7 a.m.–6:45 p.m. and Wednesday from 7 a.m.–3 p.m.

Abstracts

Abstracts are published as submitted. Search and print abstracts from the computer lab in M 100 J. Abstracts are also available online at AnnualMeeting.aocs.org/2018Resources or on **The App** through May 31, 2018.

The App



Sponsored by

The official app of the 2018 AOCS Annual Meeting & Expo is provided by CrowdCompass. See page 8 for download instructions.

Career Services

Searching for a new career or the perfect employee? Stop by the AOCS Career Center across from registration to browse the open positions and attendee CVs. If you have a job posting to share, or wish to post your résumé, feel free to place copies in an open bin. Career services are available throughout the year on www.aocs.org/careers. AOCS members receive discounts up to 50% on job postings and all job seeker services are free.

Computer Lab



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Work areas with computers and printer access are available in room M 100 J on the mezzanine level of the Convention Center for you to check email, print abstracts, and finalize presentations. The lab is open Sunday from 10 a.m.–5 p.m., Monday and Tuesday from 7 a.m.–5 p.m., and Wednesday from 7 a.m.–2 p.m.

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 of your My Account page, 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
Guest	White

- Only registrants that have a badge with a color stripe are allowed to attend sessions.
- If you are not a full registrant, but would like to upgrade, please see the Registration Desk.

The Power Lounge

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Recharge your mobile device batteries in the Expo Hall.

Presentations

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.

Presentations will be available to AOCS members in the AOCS Premium Content Library. Visit www.informconnect.org/JoinAOCS for details. Many of the papers presented during the meeting may also appear in AOCS Press publications.

Program Changes

Changes that came about after the printing of the Annual Meeting Program can be found on **The App**. See page 8 for download instructions.

Publish your Research with AOCS

Showcase your best work! AOCS encourages speakers to submit their work for publication. Speakers who wish to publish their paper in the *Journal of the American Oil Chemists'*

Society (JAOCS), Lipids, or Journal of Surfactants and Detergents (JSD) should visit www.aocs.org/journals for more details. AOCS members now enjoy free online access to current and archived AOCS journals. To submit a magazine article based on your paper to *INFORM*, contact Kathy Heine, Managing Editor, at kathy.heine@aocs.org.

Registration

The Annual Meeting registration list is available online at AnnualMeeting.aocs.org/2018Resources or on **The App** through May 24, 2018. See page 8 for download instructions.

The registration desk in Hall B is open Sunday from 10 a.m.–7 p.m., Monday from 7 a.m.–6 p.m., Tuesday from 7 a.m.–6:45 p.m. and Wednesday from 7 a.m.–3 p.m.

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.

Social Media

Share your Annual Meeting experience online! Use **#AOCS2018** to join the conversation.



Souvenir Photos

Sponsored by **Cargill**

Back by popular demand are the complimentary souvenir photos — the perfect Annual Meeting souvenir! Join your colleagues in front of the greenscreen in the @home section of the Expo Hall on Sunday from 10 a.m.–6 p.m., Monday from 7 a.m.–6 p.m., Tuesday from 7 a.m.–6 p.m. and Wednesday from 7 a.m.–3 p.m.



Look for your photo on the @AOCSfan Facebook wall!

Wi-Fi



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Introducing AOCS @home

AOCS Information Services has undergone a renovation. When you enter the Exhibit Hall this year, you will find AOCS @home instead — your home away from home during the 2018 Annual Meeting & Expo.

Take a break from visiting with exhibitors by relaxing in the living room, where you can catch up with colleagues after another busy year. You can also join your colleagues in front of the greenscreen for an *INFORM* magazine “Scientist of the Year” photo or a fun “family” photo with photobooth props, sponsored by Cargill. AOCS staff will be @home to answer your questions throughout the meeting.

“For many of our members, AOCS membership is not only a professional affiliation but a community of colleagues, and the Annual Meeting is a time to bring everyone ‘home.’ We wanted a way to represent that feeling during the meeting,” according to Len Sidisky, incoming AOCS President.

Copies of all AOCS Academic Press titles will be on display throughout AOCS @home. The display will include two brand new 2018 titles: “Lipid Modification by Enzymes and Engineering Microbes” and “Polyunsaturated Fatty Acid Metabolism.” Stop by to learn more about the contributions these and all AOCS titles have made to advancing the science and technology of oils, fats, lipids, proteins and surfactants. You can order a copy of a title on-site or take an order form with you.



Even if you don't have time to stay, please visit AOCS @home to “mail” your demographics form in the mailbox. You should have received the form in your registration packet. If not, you can pick up a new form at the registration desk. Everyone who “mails” their form will be entered into a drawing to win US \$500. For all members, the form will better help AOCS serve your needs during the year by maintaining current contact information and technical interest areas.

**We hope to see you @home.
Stop by and say, “hi!”**



Help AOCS better serve your needs

“Mail” your demographics form at AOCS @home and be entered into a drawing to win US \$500.

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.



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as of March 27, 2018



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President's Welcome
Reception



Walk the Halls
Pedometer Challenge



k a l s e c

Highlighters



Badges and Tuesday Happy
Hour Reception



5K Fun Run/Walk



Notepads
and Pens



Monday Happy Hour
Reception

PATTYN

Power Lounge



Water Bottles/Stations and
Dessert Break



Program Support



Program Support



Program Support



Program Support

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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, proteins, surfactants and related materials, enriching the lives of people everywhere.

Volunteer Opportunities

Want to get more involved in the planning of the AOCS Annual Meeting? View volunteer opportunities at annualmeeting.aocs.org/2019.

Join us in saying thank you for a great 2018 Annual Meeting!



#AOCS2018

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With *The App*, you can:

- ▶ Build your meeting schedule
- ▶ Search presentations and abstracts
- ▶ View exhibitor and sponsor profiles
- ▶ Receive meeting alerts
- ▶ 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 **2018 AOCS Annual Meeting & Expo** to open *The App*.



Need assistance? Stop by @home in Hall B.

Need wi-fi in the convention center? Connect to the network **desmet** and enter password **ballestra**.



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Oral Presentation

**Filterable Adsorbents for Edible Oil
Pre-treatment: Dosage, Optimization
Tips, and the Benefits of Hybrid
Systems**

Sunday May 6, 11:30-Noon
Speaker: Nathan Dias

Oral Presentation

**Improving pre-treatment efficiency of
oil feedstock using adsorbent filter aids**

Tuesday May 8
Speaker: Nathan Dias

Poster

**Composite Adsorbent- Filter Aid for
High Performance Oil Purification**

Throughtout conference
Author: Li-Chih Lu



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As of April 5, 2018

Is your company missing from this list?

Learn about the corporate advantage at the Corporate Lounge in the exhibit hall or contact Doreen Berning (doreenb@aocs.org).

NETWORKING EVENTS | SPECIAL ACTIVITIES

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 8 for download instructions.

Walk the Halls Pedometer Challenge

Sunday, May 6 at 10 a.m.–Wednesday, May 9 at 1:30 p.m.
Hall B — Registration

We walk miles and miles while attending the AOCS Annual Meeting. Ever wonder how far? Learn the answer and participate in some friendly competition! Don't delay; the competition is limited to the first 500 participants who pick up a pedometer.

To begin, pick up a pedometer at registration and start walking! Check-in at registration during Expo hours to post your steps on the leaderboard, Monday–Wednesday. Each day you check-in, you'll be automatically entered to win US \$50! One winner will be chosen at random each day.



Keep your eye on the leaderboard — the three attendees with the most cumulative steps recorded as of 1:30 p.m. on Wednesday will each win prizes! Second and third place finishers each receive US \$100 and the top finisher wins a Fitbit Ionic Smartwatch!



Are you crushing the competition? Tweet @AOCS with #AOCS2018 to let others know you are the one to beat!

Newcomer Speed Networking

Sunday, May 6 | 3 p.m.–4 p.m. | Hall B — Fast Track

New to the AOCS Annual Meeting? Want to connect with people on the first day? Then participate in the Newcomer Speed Networking session! In this fast-paced activity, you will meet many new attendees in addition to getting to know AOCS member leaders. Stick around until the end to ask questions about how to get the most out of your time at Annual Meeting.



Joining us? Tweet @AOCS with #AOCS2018 to spread the word about this great event!

President's Welcome Reception

Sunday, May 6 | 5:30 p.m.–7 p.m. | Plaza Lawn

Reconnect with colleagues and network with new business contacts during this reception on the beautiful Minneapolis Convention Center Plaza Lawn.

Share your Annual Meeting experience!



#AOCS2018

Lunch

Monday, May 7 | 12:15 p.m.–2 p.m. | Hall B
Wednesday, May 9 | Noon–1:55 p.m. | Hall B

Take this time to enjoy a complimentary lunch, network with your colleagues, explore the Expo hall and meet with our various exhibitors.

5K Fun Run/Walk

Tuesday, May 8 | 6 a.m.–7 a.m. | Loring Park

Kick off day three of the Annual Meeting with a leisurely stroll or quick run around scenic Loring Park, a fixture on the Grand Rounds National Scenic Byway. Pre-registration is required; the event is limited to 200 participants. Check-in at the park begins at 5:30 a.m. We'll see you there!



Running with us? Tweet @AOCS with #AOCS2018 to encourage others to sign up!

Dessert break

Tuesday, May 8 | 1:30 p.m.–2:30 p.m. | Hall B

After lunch, grab a sweet treat, visit exhibitors throughout the hall and network with like-minded peers.

Happy Hour receptions

Monday, May 7 | 5 p.m.–6 p.m. | Hall B
Tuesday, May 8 | 5:45 p.m.–6:45 p.m. | Hall B

Develop important connections with other industry professionals from around the world. A variety of beverages will be served.



Did we take your picture at the reception? We'll post it on the @AOCSfan Facebook wall!

SPONSORS



President's Welcome Reception



Walk the Halls Pedometer Challenge



Tuesday Happy Hour Reception



5K Fun Run/Walk



Monday Happy Hour Reception



Dessert Break

COMMON INTEREST GROUP EVENTS

AOCS Common Interest Groups (CIGs) foster communication between members who are at the same point in their careers: Students, Young Professionals, and Professional Educators. Connect with your peers to share experiences, insights, concerns, and solutions.

Add these events to your meeting itinerary on **The App**! See page 8 for download instructions.

Share your Annual Meeting experience!



#AOCS2018

Joint CIG Luncheon

Wednesday, May 9 | Noon–2 p.m. | Hall B

Members of all three CIGs are invited to collect their lunch from the Exhibit Hall and come network with other CIG members and industry leaders. Learn how to get involved with these active groups and AOCS.



Joining us? Tweet @AOCS with #AOCS2018 to encourage others to come, too!

Students

Student members are the future of AOCS and the oils, fats, proteins, and related materials industry. Discover the free resources AOCS provides to enhance your education. The Student CIG provides networking opportunities and ways to become more involved with AOCS and industry leaders.

Speed Networking

Sunday, May 6 | 3–4 p.m. | Hall B — Fast Track

Meet and Greet at President's Welcome Reception

Sunday, May 6 | 5:30 p.m.–7 p.m. | Plaza Lawn

Look for the Student CIG flag!

Business Meeting

Monday, May 7 | 4–5 p.m. | L 100 B

Young Professionals

Through the Annual Meeting, Young Professionals have the opportunity to expand their professional network, which is vital to career growth. Meet your fellow peers and experienced industry leaders through the various networking opportunities. This CIG is for members who are less than 35 years of age and have been an AOCS member for less than ten years.

Speed Networking

Sunday, May 6 | 3–4 p.m. | Hall B — Fast Track

Meet and Greet at President's Welcome Reception

NEW

Sunday, May 6 | 5:30 p.m.–7 p.m. | Plaza Lawn

Look for the Young Professional CIG flag!

Reception

Sunday, May 6 | 7–8 p.m. | 101 B



Stopping by? Tweet @AOCS with #AOCS2018 to encourage other young professionals to come, too!

Hot Topic Session: Bridging the Gaps in a Diverse Workplace

Monday, May 7 | 7:55 a.m.–10 a.m. | 200 H

See page 28 for details.

Business Meeting

Tuesday, May 8 | 5–6 p.m. | L 100 B

Professional Educators

The Professional Educator CIG supports educators in the lipid science and oil technology fields by providing a network of peers which leads to collaboration, the sharing of teaching solutions, and resources throughout the year.

Meet and Greet at President's Welcome Reception

NEW

Sunday, May 6 | 5:30 p.m.–7 p.m. | Plaza Lawn

Look for the Professional Educator CIG flag!

Hot Topic Session: Research and Technology Priorities for Fats and Oils from U.S. Government and Industrial Perspectives

Monday, May 7 | 10:05 a.m.–12:10 p.m. | 200 C

See page 30 for details.

Business Meeting

Tuesday, May 8 | 4–5 p.m. | L 100 A



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DIVISION EVENTS

Affiliate with colleagues who have similar scientific and technological interests by attending a Division function and spending time in the Expo Hall within the areas identified by flags. Divisions develop meeting programming, fund student awards and travel grants and offer numerous leadership opportunities. AOCS members have discovered that through Divisions, connections are made that last a lifetime. Make plans to attend the following events.

Add these events to your meeting itinerary on **The App!** See page 8 for download instructions.

Leadership Meetings

Division Executive Steering Committees

Sunday, May 6 | 9:30 a.m.–11:00 a.m.
101 G

Division Council

Sunday, May 6 | 11:15 a.m.–12:15 p.m.
101 G

2019 Session Planning Roundtables

All meeting attendees are invited to attend roundtable discussions and assist in developing the technical program for the 2019 AOCS Annual Meeting. AOCS and the Annual Meeting Program Committee greatly value your input! Division membership is not required to participate.

Analytical

Monday, May 7 | 5 p.m.–6 p.m.
101 G

Biotechnology

Tuesday, May 8 | 12:45 p.m.–1:45 p.m.
200 I

Edible Applications Technology

Tuesday, May 8 | 12:20 p.m.–1:30 p.m.
101 A

Health and Nutrition

Monday, May 7 | 12:45 p.m.–1:45 p.m.
L 100 A
Will include the Business Meeting

Industrial Oil Products

Monday, May 7 | 12:45 p.m.–1:45 p.m.
200 H

Lipid Oxidation and Quality

Tuesday, May 8 | 1:40 p.m.–2:30 p.m.
Hall B — Fast Track

Phospholipid

Tuesday, May 8 | 12:45 p.m.–1:45 p.m.
L 100 B

Processing

Monday, May 7 | 1:15 p.m.–2 p.m.
Hall B — Fast Track

Protein and Co-Products

Tuesday, May 8 | 12:45 p.m.–1:45 p.m.
101 C

Surfactants and Detergents

Monday, May 7 | 12:45 p.m.–1:45 p.m.
200 C

Networking Events

Attending Division events is the best way to meet colleagues in your interest area(s). Division events are open to all delegates, but some require a ticket.

Add these events to your meeting itinerary and view event presentations on **The App!** See page 8 for download instructions.

Analytical Luncheon

Wednesday, May 9 | Noon–1:45 p.m.
M 101 C

Biotechnology Poster Oral Presentations

Monday, May 7 | 5:15 p.m.–6:15 p.m.
Hall B — Fast Track

Biotechnology Dinner

Tuesday, May 8 | 7 p.m.–9 p.m.
M 100 H

Share your Annual Meeting experience!



#AOCS2018

Edible Applications Technology Dinner

Monday, May 7 | 6:30 p.m.–8:30 p.m.
M 100 D

Health and Nutrition Dinner

Tuesday, May 8 | 7:30 p.m.–9 p.m.
The Long Room at Brit's Pub, 1110 Nicollet Mall, Minneapolis, MN

Industrial Oil Products Luncheon

Tuesday, May 8 | Noon–1:30 p.m.
M 100 C

Lipid Oxidation and Quality Luncheon

Tuesday, May 8 | Noon–1:30 p.m.
M 100 H

Phospholipid Dinner

Monday, May 7 | 7 p.m.–9 p.m.
M 100 E

Processing Luncheon

Tuesday, May 8 | Noon–1:30 p.m.
M 100 E

Protein and Co-Products Dinner

Tuesday, May 8 | 7 p.m.–9 p.m.
M 100 G

Surfactants and Detergents Networking Reception

Monday, May 7 | 6:30 p.m.–8:00 p.m.
M 101 C

Surfactants and Detergents Luncheon

Tuesday, May 8 | Noon–1:45 p.m.
M 101 C

SECTION EVENTS

AOCS Sections bring members together based on geographical location. Sections organize regional meetings, fund student travel grants, sponsor awards and provide leadership opportunities. Sections facilitate friendships, conversations and connections that often lead to new research collaborations.

Get involved with a Section — there are seven in all — by attending one of the events listed below. Most are open to all attendees, but some may require a ticket.

Add these events to your meeting itinerary on **The App!** See page 8 for download instructions.

Leadership Meetings

Section Council

Monday, May 7 | 3 p.m.–4 p.m.
L 100 C

Asian

Monday, May 7 | 12:45 p.m.–1:45 p.m.
L 100 E

China

Monday, May 7 | 4 p.m.–5 p.m.
L 100 C

Networking Events

Canadian Luncheon

Monday, May 7 | 12:15 p.m.–1:45 p.m.
M 100 F

China Luncheon

Tuesday, May 8 | 12:15 p.m.–1:30 p.m.
M 100 F

European Networking Reception

Monday, May 7 | 5 p.m.–6 p.m.
Hall B
No ticket required.

Latin American Luncheon

Tuesday, May 8 | Noon–1:30 p.m.
M 100 G

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High Oleic
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Soy-based PHO replacements perform similarly to PHOs and oils high in saturated fat — without contributing trans fat or sacrificing functionality. They are an excellent option for applications that require high stability oils, such as baking, frying, snack foods and dressings.

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COMMITTEE MEETINGS

All committee meetings listed below are open, although full agendas may limit participation to committee members only.

Algal Products Expert Panel

Tuesday, May 8 | 4–5 p.m. | L 100 F

AOCS Editors' Reception

Tuesday, May 8 | 7–8 p.m. | The Clubhouse Room at Brit's Pub, 1110 Nicollet Mall, Minneapolis, MN

Asian Section Leadership Team

Monday, May 7 | 12:45–1:45 p.m. | L 100 E

Books and Special Publications Committee

Tuesday, May 8 | 3–4 p.m. | L 100 C

China Section

Monday, May 7 | 4–5 p.m. | L 100 C

Division Council

Sunday, May 6 | 11:15 a.m.–12:15 p.m. | 101 G

Division Executive Steering Committees

Sunday, May 6 | 9:30–11 a.m. | 101 G

Foundation Board

Wednesday, May 9 | 7–8 a.m. | L 100 D

Governing Board

Wednesday, May 9 | 2–5 p.m. | L 100 B

ISF Executive Board

Tuesday, May 8 | 3–4 p.m. | L 100 D

JAOCS Associate Editors Breakfast

Monday, May 7 | 7–9 a.m. | L 100 B

JAOCS Senior Associate Editors

Sunday, May 6 | 2:30–4 p.m. | 101 A

JSD Committee

Tuesday, May 8 | 11 a.m.–Noon | L 100 D

Laboratory Proficiency Program Committee

Sunday, May 6 | 11 a.m.–Noon | 101 C

Lipid Library Committee

Wednesday, May 9 | 7–8 a.m. | L 100 C

Lipids Luncheon

Tuesday, May 8 | 12:15–2 p.m. | L 100 C

Methods Roundtable

Sunday, May 6 | 1–3 p.m. | 101 E

Networking Value Center

Wednesday, May 9 | 7–8:45 a.m. | M 101 A

Olive Oil Expert Panel

Wednesday, May 9 | 9–11 a.m. | L 100 B

Process Contaminants Expert Panel

Monday, May 7 | 4–5 p.m. | L 100 A

Program Committee

Wednesday, May 9 | 9–11 a.m. | L 100 A

Recognition Program Committee

Sunday, May 6 | 2–3 p.m. | 101 C

Section Council

Monday, May 7 | 3–4 p.m. | L 100 C

Technical Leadership Meeting

Sunday, May 6 | 9–10:30 a.m. | 101 C

Uniform Methods Committee

Sunday, May 6 | 3–4 p.m. | 101 E

Add these meetings to your itinerary on **The App!** See page 8 for download instructions.



Share a picture of your committee in action!

Tweet @AOCS with #AOCS2018 to inspire others to help drive the future of our Society.



ScienceDirect

Polyunsaturated Fatty Acid Metabolism

Edited by Graham C. Burdge

List: \$125 | Member: \$88*

Polyunsaturated Fatty Acid Metabolism

Edited by Graham C. Burdge

May 2018 | 272 pages | ISBN: 9780128112304

Available in softcover and eBook

Polyunsaturated Fatty Acid Metabolism explores major roles of PUFA in the body, including its role as a component of cell membranes where it provides substrates for the synthesis of lipid second messengers. Recent studies are unraveling the effect of interactions between diet and endocrine factors and genetic and epigenetic variation on the regulation of PUFA biosynthesis in animals. Together, these recent findings provide novel insight into the impact differences in PUFA supply have on health. This book captures these findings in a state-of-the-art manner that places them in the wider context of PUFA metabolism and nutritional science.

Users will find a comprehensive discussion on the topic that presents the contributions of leading researchers whose combined knowledge creates a cohesive academic resource for researchers, those involved in production of PUFA, and health policy makers.

Key Features

- Provides a comprehensive view of polyunsaturated fatty acid metabolism
- Describes the underlying metabolism of lipids, including polyunsaturated fatty acids
- Includes discussions about recent findings related to the genetic and epigenetic regulation of polyunsaturated fatty acid metabolism

Available for purchase at store.elsevier.com/aocs

*AOCS Members use code **AOCS30** at checkout to receive 30% discount and free shipping.



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2018 EXPO

Hall B

18

Make the Expo your business solutions center. Connect with more than 95 companies about the latest products and services available to help your business. See page 74 for the Exhibitor Directory.

View an interactive expo floor plan on **The App**. See page 8 for download instructions.

Join the conversation!



#AOCS2018

Featured Exhibitors



as of March 27, 2018

Company (Booth Number)

AGI USA, Inc. (808)
Alfa Laval Inc. (706)
BUSS ChemTech AG (503)
Caldic USA, Inc. (101)
Clariant (409)
Croll-Reynolds Co., Inc. (502)

Crown Iron Works Company (806)
Desmet Ballestra (702)
Evonik Corporation (408)
Farmet A.S. (712)
Formulation Inc. (202)
French Oil Mill Machinery Co. (403)
Galaxy Scientific, Inc. (200)
GEA North America (400)
HF Press+LipidTech (800)
ICOF America, Inc. (A member of Musim Mas Group) (402)
Kalsec (701)
Kemin Industries (103)
Larodan AB (203)

Louisville Dryer Company (709)
Myande Group Co., Ltd. (805)
Nisshin Oillio Group, Ltd., The (704)
Oil-Dri Corporation of America (900)
optek-Danulat, Inc. (300)
Pattyn North America, Inc. (600)
Qualisoy (404)
Rotex Global (711)
Siemens Industry, Inc. (108)
Solex Thermal Science Inc. (802)
Thermo Fisher Scientific (102)
Vacuubrand Inc. (803)
VUV Analytics, Inc. (603)
Waters Corporation (112)

All Exhibitors

as of March 27, 2018

Company (Booth Number)

ADF Engineering, Inc. (801)
AGI USA, Inc. (808)
Agilent Technologies (306)
Alegre Science, Inc. (307)
Alfa Laval Inc. (706)
amafilter LFC Lochem – Filtration Group Process Systems (609)
Amano Enzyme USA (305)
Anderson International Corp (700)
ANKOM Technology (205)
AOCS 2018 — Explore St. Louis (109)
Arisdyne Systems, Inc. (405)
Artisan Industries Inc. (411)
ATC Scientific (207)
Australian Oilseeds Federation (907)
Bruker Corporation (104)
BUCHI Corporation (308)
Buhler Inc. (906)
BUSS ChemTech AG (503)
Caldic USA, Inc. (101)
Camlin Fine Sciences (504)
Center for Testmaterials BV (507)
Clariant (409)
COSA Xentaur Corporation (301)
Croll-Reynolds Co., Inc. (502)
Crown Iron Works Company (806)
Desmet Ballestra (702)
DSM Food Specialties B.V. (607)
DuPont Nutrition & Health (111)
DVC Process Technologists (911)
Enzyme Innovation (611)

EP Minerals (406)
Euro Fed Lipid (904)
Evonik Corporation (408)
Farmet A.S. (712)
Filtration Group Process, Inc. (610)
Formulation Inc. (202)
French Oil Mill Machinery Co. (403)
Galaxy Scientific, Inc. (200)
GEA North America (400)
Gerstenberg Services A/S (612)
GRACE (107)
Graham Corporation (508)
Guangzhou TICUN Technology Development Co., Ltd. (606)
Hanna Instruments (304)
HF Press+LipidTech (800)
Hollbras Industrial Filtration (410)
ICOF America, Inc. (a member of Musim Mas Group) (402)
Imerys Filtration (708)
Incon Process Systems/GIG Karasek (804)
Inventure Renewables, Inc. (910)
Itaconix Corporation (401)
JEOL USA, Inc. (206)
Kalsec (701)
Keit Spectrometers (106)
Kemin Industries (103)
Larodan AB (203)
Leem Filtration (407)
Louisville Dryer Company (709)
Lovibond Tintometer (500)
Malaysian Palm Oil Board (100)
Metabolan (605)
Metrohm (501)
Myande Group Co., Ltd. (805)

Nisshin Oillio Group, Ltd., The (704)
Nu-Chek Prep, Inc. (608)
Oil-Dri Corporation of America (900)
Oils & Fats International / Quartz Business Media (705)
optek-Danulat, Inc. (300)
Pattyn North America, Inc. (600)
PerkinElmer (303)
Phenomenex (208)
Phillips 66 (602)
PMI-Technology Sdn Bhd (601)
PQ Corporation (201)
Protein Highway Initiative (204)
Qualisoy (404)
Rotex Global (711)
Sasol Performance Chemicals (905)
Siemens Industry, Inc. (108)
SIWACO GmbH — IRLE Group (902)
Society of Cosmetic Chemists (604)
Solex Thermal Science Inc. (802)
Solutions 4 Manufacturing (912)
SPEX CertiPrep (908)
SPX FLOW Technology (707)
Steri Technologies, Inc. (710)
Technochem International, Inc. (903)
Testfabrics, Inc. (506)
Thermo Fisher Scientific (102)
United Soybean Board (505)
Vacuubrand Inc. (803)
VELP Scientific, Inc. (412)
VTA GmbH & Co., Kg (901)
VUV Analytics, Inc. (603)
Waters Corporation (112)
Wenck (302)
Wiley (110)
Wood (909)

FLOOR PLAN

Expo Hours

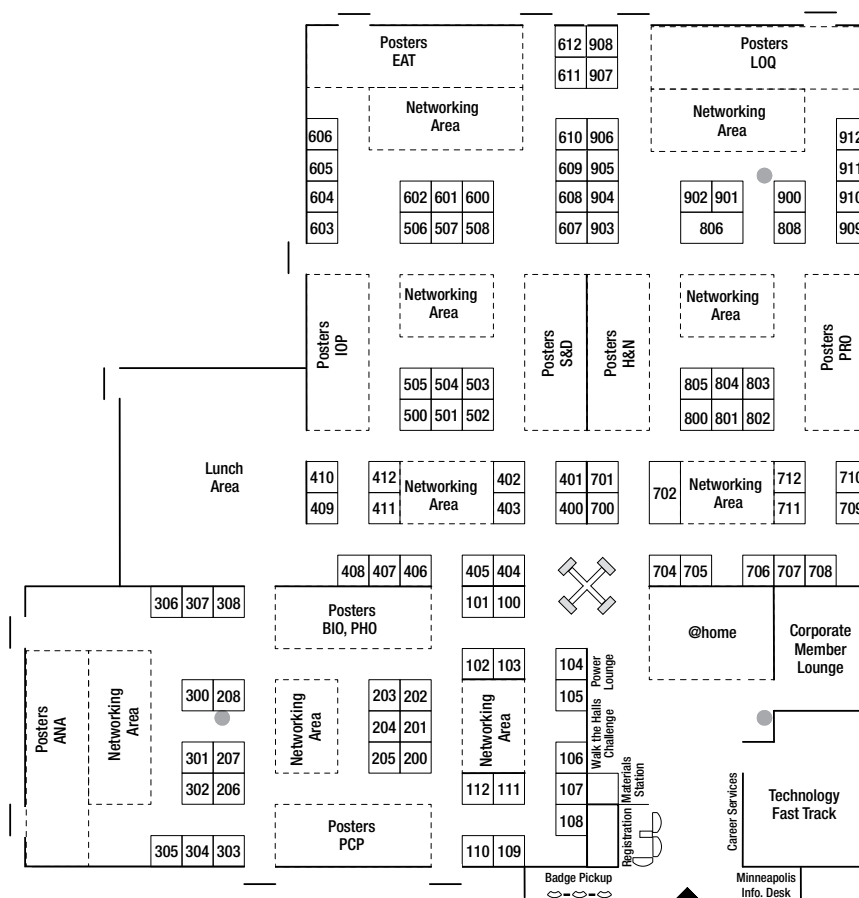
Monday, May 7 Noon–6:00 pm

Tuesday, May 8 Noon–6:45 pm

Wednesday, May 9 . . . 11:00 am–2 pm

Colorful flags throughout the expo hall feature the names of AOCS' 10 interest areas. Gather near a particular flag to connect with colleagues who share your scientific and technological interests!

NEW



FT1	Monday May 7 4–4:50 p.m.	The New Generation of Deep Bed Extractors. Desmet Ballestra North America, Adolfo Subieta The Impact of High Performance Adsorbents in the Development of Health Oils. EP Minerals, Jorge Bello OMNIS: Titration for Increasing Throughput and Consolidating Applications. Metrohm, Carrie James Mitigation of GE and 3MCPD. Alfa Laval Inc., William Younggreen MCT= Nisshin Oillio = MCT The Invincible Equation. Nisshin Oillio Group, Ltd., Kaori Nakajima Hexane Free Oil and Feed Processing Technologies. Farmet A.S., Jan Utratil
FT2	Tuesday May 8 11–11:50 a.m.	Now for Something Completely Different – an in situ Process FTIR, the IRmadillo. Keit Spectrometers, Jim Rutherford Know What's in Your Food with Confidence. Thermo Fisher Scientific, Theresa Riley Natural Antioxidant Solutions for Frying. Kalsec, Inc., Cindy Tian Expelling the Past and Expanding the Future. Anderson International Corp, Amanda Cresanto Ultraperformance Convergence Chromatography for Food Analysis. Waters Corporation, Jinchuan Yang Two-Step Pressing for Multi-Seed Plants. HF Press+LipidTech, Jon Hanft
FT3	Tuesday May 8 5–5:50 p.m.	Light Energy for Real-Time Process Monitoring. optek-Danulat, Inc., Jeff Lukas SORBSIL® Silica for Oil Purification. PQ Corporation, Neil Miller Advancement in Column Selectivity for efficient separation of Cis/Trans FAMES. Phenomenex, Ramkumar Dhandapani Latest Developments in Roll Metallurgy for Added Value in Roll Exchange Programs for Flaker and Cracker Rolls. SIWACO GmbH-IRLE Group, Thorsten Muenker Plate Technology for Efficient Heat Recovery. Solex Thermal Science Inc., Farah Skold New Developments in Alkoxylation. BUSS ChemTech, Thomas Blocher
FT4	Wednesday May 9 11:00 a.m.–Noon	Quality Analysis of Palm Oil Prodcuts with FT-NIR. Bruker Optics Inc., Mitch Chilton Emulsifiers that Keep You in the Mix. ICOF America, Inc., James Jasko Consumer Friendly Ingredients to Delay Lipid Oxidation. Kemin Industries, Will Schroeder May the Cavitation Force Be With You. Arisdyn Systems, Darren Little SPXFLOW Innovation Centers. SPXFLOW Technology, Alf Sievers GEA: Equipment That Supplies Solutions. GEA North America, Greg Waranica

AOCS AWARD WINNERS

AOCS honors those individuals and institutions who have taken the research and technology 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 2017–2018 award recipients! For information on award lecture schedules, please refer to **The App**. See page 8 for download instructions.

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

Join us in congratulating our AOCS award winners!



#AOCS2018

Society Awards

Presented at the Welcome Plenary Session.

Sunday, May 6 | 4 p.m.–5:30 p.m. | 200 C

Fellow Award

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



Rotimi Aluko, Professor in the Department of Food and Human Nutritional Sciences at the University of Manitoba, Winnipeg. He is also the Assistant Director of the Richardson Centre for Functional Foods and Nutraceuticals, Winnipeg. He obtained a PhD (Food Science) degree in 1996 from the University of Guelph, Ontario, Canada. His work focuses on the structure-function properties of food proteins and peptides with special focus on oilseeds and pulses. In addition to over 160 journal article publications, he also has 4 patents. Dr. Aluko has trained 12 PhD, 8 MSc and 9 postdoctoral fellows in addition to several undergraduate summer research interns. The excellence of his research program was recently acknowledged when he was named a “Highly Cited Researcher” in the Agricultural Sciences category, which is recognition given to researchers with peer-reviewed journal citations in the top 1% in the world. Dr. Aluko has been involved with AOCS as a regular conference attendee as well as a technical session organizer and oral paper presenter in the Protein and Co-Products (PCP) Division for the past 13 years. During this period, he has regularly sponsored his staff and students to enable them to attend the AOCS conference and make oral or poster presentations at both the PCP and Nutrition Divisions. His students have won several poster awards during the AOCS conferences and 3 of them are past recipients of the AOCS Honored Student Award. Dr. Aluko also served as Chair of the PCP Division from 2008 to 2010.

During this period, he has regularly sponsored his staff and students to enable them to attend the AOCS conference and make oral or poster presentations at both the PCP and Nutrition Divisions. His students have won several poster awards during the AOCS conferences and 3 of them are past recipients of the AOCS Honored Student Award. Dr. Aluko also served as Chair of the PCP Division from 2008 to 2010.



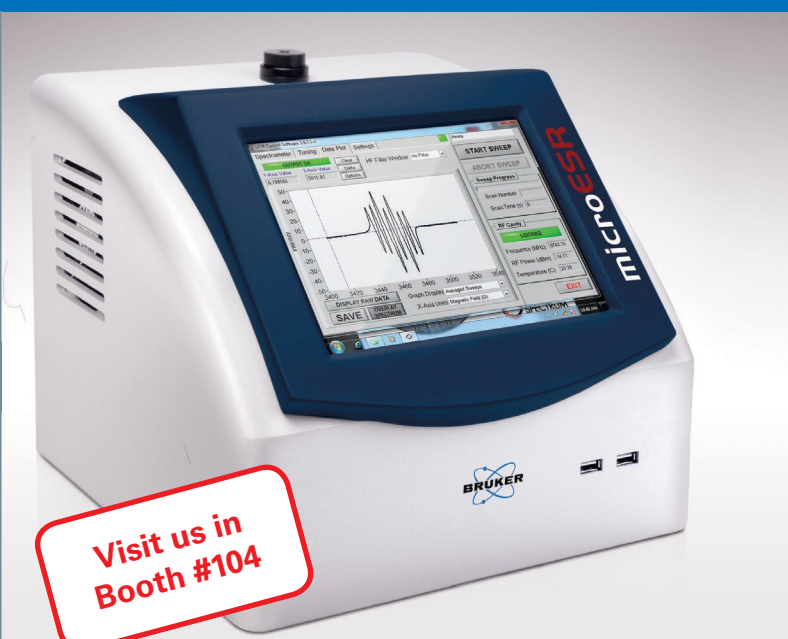
Nurhan Dunford, Professor in Oklahoma State University, Biosystems and Agricultural Engineering Department and has a joint appointment with the Robert M. Kerr Food and Agricultural Product Center as an oil and oilseed specialist. She contributes to all three missions of the university, teaching, research, and extension. Dr. Dunford's experience as an engineer and scientist encompasses over twenty-five years in

positions in Turkey, Canada and U.S.A. Her research focuses on optimization of sustainable processing technologies and advancing utilization of industrial by-products and waste streams for value-added product development including bio-fuels, functional foods and other industrial bioproducts. She is a two-time U.S. Fulbright Scholar, and mentored and hosted many students and scientists from Canada, Turkey, Mexico, China, Sweden, Columbia, South Korea, India, Iran, Iraq, Indonesia, and U.S.A. in her research group. Dr. Dunford has been very active in several professional organizations in the U.S., including the American Oil Chemists' Society (AOCS). She served on many leadership positions on Division and Society level committees; member-at-large, secretary/treasurer, and chair of the AOCS Processing Division, AOCS Division Council Chair, and 2012 AOCS Annual Meeting and Expo General Chairperson. She chaired many award committees, organized and chaired numerous annual meeting technical sessions, edited two books for the AOCS Press, and contributed scientific articles to the Society journals. In recognition of her contribution to the science and service to professional societies, she received many national and international awards including AOCS Edible Applications Division Timothy L. Mounts Award (2011) and the Merit Award (2015).



Daniel K.Y. Solaiman, Research Molecular Biologist/Lead Scientist at the Eastern Regional Research Center of ARS, USDA, has made significant scientific contribution to the field of microbially-produced lipid-based polymers and surfactants. He has authored or co-authored many publications and holds several patents as a result of his personal and team research on the characterization and applications of the genetic systems of the biosynthesis of polyhydroxyalkanoate biopolymers and the sophoro-/rhamno-lipid biosurfactants, and on the utilization of agricultural and industrial byproduct waste-streams as low-cost fermentation feedstocks to produce these biobased products. His research team received AOCS' venerable ACI/NBB Glycerine Innovation Research Award in 2008, and the Philadelphia Federal Executive Board's Excellence in Government Gold Medal Award in 2016, in recognition of their outstanding accomplishment in their field. Since joining AOCS in 2000, Solaiman has actively involved

Since joining AOCS in 2000, Solaiman has actively involved



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and served the Society in many capacities. He is most active in the BIO Division, serving in its Executive Steering Committee (2008–2012) as Secretary/Treasurer, Vice Chair, and Chair. Dan was also active in the Publication Steering Committee (2003–2012), serving as its first Vice Chair, and was assigned to chair a few important search committees. When invited, Dan always willingly serves to chair or as a member in many awards, canvassing, and other selection committees. He also contributed to the Society's book publication efforts by co-editing "Biobased Surfactants and Detergents: Synthesis, Properties, and Applications" in 2010. Dan is grateful to be a part of the AOCS family that provides him the opportunities to grow and serve in his profession.



Xuebing Xu, General Manager of Wilmar Global Research and Development Center, Shanghai, China. He received his Ph.D. degree from the Technical University of Denmark and had been a professor in Aarhus University, Denmark. Dr. Xu's areas of research include lipid technology, food/lipid/ingredients functionality, and enzyme technology. He has published more than 270 papers as author or co-author, (co-) edited 3

books, and is inventor/co-inventor of 33 patents. Dr. Xu is the president of the International Sunflower Oil Association (ISOA) (2015–present). He is on the board of the International Association of Rice Bran Oil (2014–present). He is the recipient of the European Lipid Technology Award (2017) and a list of other awards. He is senior advisor to UNOPS (2015–present).

Dr. Xu has been involved in a number of activities in AOCS. He is the associate editor of JAOCS (2005–present), was member of student paper award evaluation committees (2003–2006), member of evaluation committees for Chang Award (2009–2010, 2013) and Young Scientist Award (2016–2017). He is currently chairman of the Phospholipids Division and deputy chairman of the AOCS China Section (2017–present). Dr. Xu was in the organizing committee or co-organizer for a few AOCS associated conferences, such as the AOCS-CCOA Joint Symposium on Functional Lipids (2014), and the first AOCS China Section Congress (2017). He was session chair or co-chair numerous times in Annual AOCS Meetings.

Scientific Awards

Award lectures, listed in order of presentation, will be given at the Awards Session.

Monday, May 7 | 10:05 a.m.–12:10 p.m. | 200 F

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.

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



N. A. Michael Eskin, Professor in the Department of Food and Human Nutritional Sciences at the University of Manitoba, Canada, has done extensive research on edible oils and was involved in the early development of canola oil. In 2016, he received the Order of Canada, the highest civilian honor, for his scientific contributions that led to the success of the Canadian canola oil industry. Michael has published over 130 research

papers and 60 chapters and is the author, co-author, and editor of 15 books, a number of which were translated into German, Japanese, Malay, and Portuguese. His current research focuses on the production and antioxidant properties of canolol from canola as well as improving the stability of hemp oil. He has been a member of AOCS for over 40 years, having served as Chair of the Lipid Oxidation and Quality Division, the first Chair of the newly formed Division Council, Associate Editor of JAOCS, as well as Chair of the Flavor Quality and Stability Committee. Michael has also been active on the Education Committee and is currently Associate Editor of Education for the AOCS Lipid Library. He is the recipient of many awards and was made a Fellow of AOCS in 2004. This year marks his fiftieth year at the University of Manitoba, where he has served as Department Chair and Associate Dean. Last year, Michael was voted the Outstanding Professor by the students of his faculty. He is also known for his lipid rap songs, which are used in universities across North America as well as shown in a Nutrition Centre in Moscow.

Alton E. Bailey Award

Recognizes: Outstanding research and exceptional service in the field of lipids and associated products.

Sponsored by: Archer Daniels Midland Company



Dharma R. Kodali, Research Professor in Bioproducts and Biosystems Engineering at the University of Minnesota, and previously a professor at Boston University. He is a world-recognized expert in lipids and new product development and has over 35 years of research experience in academia and industry. His industrial experience includes working as a R&D Manager at Cargill for 13 years and as a Senior

Principal Scientist at General Mills for one year, developing several new products from concept to commercialization. His current areas of research continue to be developing value added products from fats and oils for industrial applications.

Dr. Kodali authored or co-authored over 75 publications and book chapters and edited two books on *trans* fats. He is an inventor/co-inventor on 30 patents. His accomplishments include Cargill's Chairman's Innovation Award (2001), the American Chemical Society's Industrial Innovation Award (2002), and the American Oil Chemists' Society's T.L. Mounts Award (2003). He is an elected Fellow of AOCS (2010) and the American Institute of Chemists. He has served in the American Oil Chemists' Society in various capacities, including chairing the Industrial Oil Products Division; teaching short courses; serving as an Associate Editor and peer reviewer of JAOCS; serving as Session Chair at National meetings and on Books and Publications and Recognition Program committees.

Supelco AOCS Research Award

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

Sponsored by: MilliporeSigma, a subsidiary of Sigma-Aldrich Corp.



Alice H. Lichtenstein, the Stanley N. Gershoff Professor of Nutrition Science and Policy at the Friedman School, and Director of the Cardiovascular Nutrition Laboratory and Senior Scientist at the Jean Mayer USDA Human Nutrition Research Center on Aging, at Tufts University. She holds secondary appointments as Professor of Medicine at Tufts Medical Center, and an honorary doctoral degree from the University of Eastern

Finland. Dr. Lichtenstein's research group focuses on assessing the interplay between diet and heart disease risk factors. Past and current work includes addressing issues related to *trans* fatty acids, soy protein and isoflavones, sterol/stanol esters, and novel vegetable oils differing in fatty acid profile and glycemic index. Additional work focuses on population-based studies to assess the relationship between nutrient biomarkers and cardiovascular disease risk, and application of systematic review methodology to the field of nutrition. Dr. Lichtenstein serves as an Associate Editor of the *Journal of Lipid Research* and Executive Editor of the Tufts Health and Nutrition Letter. She served on the 2000 (member) and 2015 (vice-chair) Dietary Guidelines Advisory Committee, and is member of the American Heart Association's (AHA) Nutrition Committee, and Food and Nutrition Board of the National Academies of Sciences. She received the 2006 Robert H. Herman Memorial Award in Clinical Nutrition (ASN), 2008 Women's Mentoring Award (AHA), and 2010 Excellence in Dietary Guidance Award (American Public Health Association). In 2016 she received the David Kritchevsky Career Achievement Award in Nutrition (ASN) and in 2017 the Ralph Holman Lifetime Achievement Award (American Oil Chemists' Society).

AOCS Young Scientist Research Award

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



Chibuike Udenigwe, Associate Professor in Nutrition Sciences, with cross-appointment in Chemistry and Biomolecular Sciences, University of Ottawa, Canada. He obtained a Ph.D. in Food and Nutritional Sciences from the University of Manitoba, Canada, and then joined the University of Guelph as a Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellow (2011–2012). He then moved to

Dalhousie University, first as an Assistant Professor (2012–2014) and was later promoted to Associate Professor (2014–2016), prior to joining the University of Ottawa in 2016. His major areas of focus include chemistry, role and mechanisms of food peptides in nutrition and health, molecular behavior in food and biological matrices, food protein allergens, and functionality of emerging (e.g., edible insect) proteins.

Chibuike joined AOCS as a student member and received the Honored Student Award during the centennial meeting in 2009. Since becoming a professional member, he has served as the PCP Division Secretary-Treasurer (2016–2018), Co-chair of Technical Sessions (2013–present), ADM Best Paper Award Committee Chair (2016–2018), Student Poster Award Judge, PCP Newsletter Editor (2013–2016), Mentor–Student Common Interest Group events, and Vice Chair–Canadian Section of AOCS (2017–present). He has published more than 95 articles in peer-reviewed journals and books and presented invited papers at international conferences. In 2016, he was a visiting scientist at Wageningen University and Research, The Netherlands. He was a recipient of the International Union of Food Science and Technology Young Scientist Award (2012), and was elected into the Early Career Scientists Section of the International Academy of Food Science and Technology (2016).

We would like to congratulate the most accomplished members of the AOCS Laboratory Proficiency Program (LPP) from 2016–2017. Awards and Approved Chemist status are attained by superior performance in the program over the course of the entire year.

Thank you to all for your participation.

LPP Award winners
www.aocs.org/series

Approved Chemist list
www.aocs.org/approvedchemists

Congratulations

TECHNICAL
SERVICES



Division Awards

Analytical

Herbert J. Dutton Award



Walter Vetter, University of Hohenheim, Germany
Lecture: ANA Luncheon
Wednesday, May 9 | Noon
M 101 C

Student Award



Subin R. C. K. Rajendran, Dalhousie University, Canada
Poster: ANA-P
Tuesday, May 8 | 5:45 p.m.–6:45 p.m.
Hall B

Biotechnology

Ching Hou Biotechnology Award



Thomas McKeon, USDA-ARS, WRRRC, USA
Lecture: BIO Dinner
Tuesday, May 8 | 7 p.m.
M 100 H

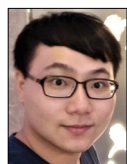
Student Award



First place: S.M. Mahfuzul Islam, The University of Akron, USA
Lecture: BIO 2
Tuesday, May 8 | 8 a.m.
200 I



Second place: Sarah A. Willett, University of Georgia, USA
Lecture: BIO 2.2/PRO 2
Tuesday, May 8 | 9:40 a.m.
101 D



Third place: Chen Hsu, National Taiwan University, Taiwan
Lecture: BIO-P
Tuesday, May 8 | 5:45 p.m.–6:45 p.m.
Hall B

Edible Applications Technology

Student Award



Iris Tavernier, Ghent University, Belgium
Lecture: EAT 5/IOP 5
Wednesday, May 9 | 2:20 p.m.
200 H

Health and Nutrition

Ralph Holman Lifetime Achievement Award



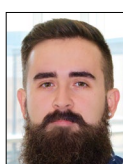
Susan K. Raatz, USDA-ARS, USA
Lecture: H&N 4b
Wednesday, May 9 | 11 a.m.
101 J

New Investigator Research Award



Zhi-Hong Yang, CPB-NHLBI-NHI, USA
Lecture: H&N 3
Tuesday, May 8 | 3:20 p.m.
101 J

Student Award



Juan J. Aristizabal Henao, University of Waterloo, Canada
Lecture: H&N 3
Tuesday, May 8 | 5 p.m.
101 J

Industrial Oil Products

Student Award



Lucas J. Stolp, University of Minnesota, USA
Lecture: IOP 4
Wednesday, May 9 | 9 a.m.
200 H

Processing

Distinguished Service Award



Timothy G. Kemper, Desmet Ballestra Group, USA
Lecture: PRO Luncheon
Tuesday, May 8 | Noon
M 100 E

Student Award



Andrés F. Aldana Rico, Universidad del Norte, Columbia
Lecture: PRO 3
Tuesday, May 8 | 3:20 p.m.
200 F

Surfactants and Detergents

Distinguished Service Award



Jan Shulman, Retired, USA
Recognition: S&D Luncheon
Tuesday, May 8 | Noon
M 101 C

Samuel Rosen Memorial Award



David Scheuing, Clorox Services Co., USA
Lecture: S&D Luncheon
Tuesday, May 8 | Noon
M 101 C

Student Award



Lisa Van Renterghem, Ghent University, Belgium

Student Awards

Hans Kaunitz Award



Zipei Zhang, University of Massachusetts-Amherst, USA
Lecture: EAT 2.1
Tuesday, May 8 | 10:20 a.m.
101 E

Ralph H. Potts Memorial Fellowship Award



Thomas A. Kwan, Yale University, USA
Lecture: PRO 5.1
Wednesday, May 9 | 2 p.m.
200 A

Lipid Chemistry and Nutrition Award



Ruojie Zhang, University of Massachusetts-Amherst, USA
Lecture: ANA 4
Wednesday, May 9 | 11:40 a.m.
101 G

Lipid Processing and Biotechnology Award



Jun Jin, Jiangnan University, China
Lecture: BIO 5
Wednesday, May 9 | 2:00 p.m.
200 I

AOCS Foundation

Manuchehr (Manny) Eijadi Award



Ali Ubeyitogullari, University of Nebraska-Lincoln, USA
Lecture: H&N 5
Wednesday, May 9 | 3:20 p.m.
101 J

How AOCS volunteer roles helped one member to connect, innovate and grow

Even in an organization filled with scientists, finding and connecting with new colleagues who share your discipline can be a daunting task. At AOCS, volunteering with a Division is a good way to start.

When Jill Moser, Research Chemist and Lead Scientist at the US Department of Agriculture's Agricultural Research Service (ARS), joined AOCS, she was both a new member of the Society and a new scientist at ARS. According to Moser, she wanted to get to know people and make connections. Her colleagues encouraged her to volunteer for the Lipid Oxidation and Quality (LOQ) Division because the interests of the Division most closely aligned with her research project.



Moser first volunteered as a Member-at-Large for the LOQ Division. Since then, she has held the positions of Division Council Representative, Annual Meeting Program Division Representative and Secretary/Treasurer. In addition, Moser has volunteered on the Editorial Advisory Board of *INFORM* magazine and as the George Schroeffer Medal Canvassing Chair. She currently serves as a Senior Associate Editor for the *Journal of the American Oil Chemists' Society (JAOCS)*.

"Volunteering for AOCS has helped me to develop professional contacts and collaborations and has enabled me to develop and hone leadership and organizational skills. Most importantly, as a scientist, the opportunity to share

my research and learn about new research, technologies, ideas and perspectives from other members in academics and industry has been one of the most enriching experiences," according to Moser.

However, volunteering does bring challenges. For Moser, the most challenging aspect has been juggling work time with volunteering, but she has found both the experience and results of volunteering to be rewarding. Moreover, she has found plenty of support and willingness to help from other members of her Division, including some very active student members, and AOCS in general.

As far as choosing the most positive aspect of volunteering — that is also a challenge.

"I have enjoyed making contributions to JAOCS and the LOQ Division, and my professional career and my knowledge in the field have benefitted immensely."

Most of all, the LOQ Division and other volunteering opportunities have given her a sense of community with fellow scientists.

"I think what I have enjoyed most are the friendships and comradeships that have developed with people near and far. I definitely feel that volunteering has helped enable me to experience that aspect of membership."

How to get involved?

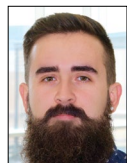
- Join a Division, Section or Common Interest Group — apply for leadership roles
- Organize a session for Annual Meeting
- Host a webinar about trending topics or professional development
- Apply to be a reviewer or content editor for an AOCS journal

Where to get involved?

- **11 Divisions:** Analytical • Biotechnology • Edible Applications Technology • Health and Nutrition • Industrial Oil Products • Lipid Oxidation and Quality • Phospholipid • Processing • Protein and Co-Products • Surfactants and Detergents
- **7 Sections:** Asian • Australasian • Canadian • China • European • India • Latin American
- **3 Common Interest Groups:** Young Professional • Professional Educator • Student
- **3 AOCS journals:** *Journal of the American Oil Chemists' Society* • *Lipids* • *Journal of Surfactants and Detergents*
- **Working Committees for awards, *INFORM* magazine and Lipid Library**



Want to get involved? Email janet.brown@aocs.org or visit AOCS @home, near the Expo Hall entrance, to talk with an AOCS staff member.

Honored Student Award

Juan J. Aristizabal Henao,
University of Waterloo,
Canada

Lecture: H&N 3
Tuesday, May 8 | 5 p.m.
101 J



Thais L. T. da Silva,
University of Campinas,
Brazil

Lecture: EAT 4
Wednesday, May 9 | 10 a.m.
101 A



Jun Jin, Jiangnan University,
China

Lecture: IOP 4
Wednesday, May 9 | 10:40 a.m.
200 H



Nan Shang, University of
Alberta, Canada

Poster: PCP-P
Monday, May 7 | 5 p.m.–6 p.m.
Hall B



Ali Ubeyitogullari, University
of Nebraska-Lincoln, USA

Lecture: H&N 5
Wednesday, May 9 | 3:20 p.m.
101 J



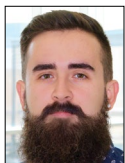
Ruojie Zhang, University of
Massachusetts-Amherst,
USA

Lecture: ANA 4
Wednesday, May 9 | 11:40 a.m.
101 G



JuDong Yeo, Memorial
University of Newfoundland,
Canada

Poster: H&N-P
Monday, May 7 | 5 p.m.–6 p.m.
Hall B

Peter and Clare Kalustian Award

Juan J. Aristizabal Henao,
University of Waterloo,
Canada

Lecture: H&N 3
Tuesday, May 8 | 5 p.m.
101 J

Thomas H. Smouse Memorial Fellowship Award

Ruojie Zhang, University of
Massachusetts-Amherst,
USA

Lecture: PCP 2a
Tuesday, May 8 | 8:50 a.m.
101 C

Best Paper Awards**ACI Distinguished Paper**

Optimized Microemulsion Systems for Detergency of Vegetable Oils at Low Surfactant Concentration and Bath Temperature (JSD 20(4):805–813).

Chodchanok Attaphong and David A. Sabatini

Recognition: S&D Luncheon | Tuesday,
May 8 | Noon | M 101 C

Archer Daniels Midland Award for Best Paper in Protein and Co-Products**Chemistry/Nutrition Category**

Biologically Active Digests from Pumpkin Oil Cake Protein: Effect of Cross-linking by Transglutaminase (JAOCS 94(10):1245–1251).

Ljiljana Popović, Žužana Stolić, Jelena Čakarević, Aleksandra Torbica, Jelena Tomić and Mirjana Šijački

Recognition: PCP Dinner | Tuesday, May
8 | 7 p.m. | M 100 G

Engineering/Technology Category

Effects of Steam Distillation and Screw-Pressing on Extraction, Composition and Functional Properties of Protein in Dehulled Coriander (Coriandrum sativum L.) (JAOCS 94(2):315–324).

Mila P. Hojilla-Evangelista and Roque L. Evangelista

Recognition: PCP Dinner | Tuesday, May
8 | 7 p.m. | M 100 G

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

Application of Differential Pulse Voltammetry to Determine the Efficiency of Stripping Tocopherols from Commercial Fish Oil (JAOCS 94(4):527–536).

Rachele A. Lubeckyj, Jill K. Winkler-Moser and Matthew J. Phaner

Lecture: LOQ 1a | Monday, May 7 | 3
p.m. | 101 H

Phospholipid Best Paper Award

Food grade liposome systems: Effect of solvent, homogenization types and storage conditions on oxidative and physical stability (Colloids and Surfaces A: Physicochem. Eng. Aspects 513(2017):468–478).

Mecit Halil Oztop and Selen Guner

Recognition: PHO Dinner | Monday, May
7 | 7 p.m. | M 100 E

Other Awards**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 is available on aocs.org/series.

2018 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.

AkzoNobel, Inc.
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Archer Daniels Midland Foundation
Bunge Oils, Inc.
Stephen S. and Lucy D. Chang
Manuchehr (Manny) Eijadi

International Food Science Centre
A/S
International Lecithin and
Phospholipid Society (ILPS)
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Myande Group Co., Inc.
Peter and Clare Kalustian Estate
MilliporeSigma

National Biodiesel Board (NBB)
Nitto Pharmaceutical Industries, Ltd.
Milton J. Rosen
Seawit Co., Inc.
Vijai K.S. Shukla
Thomas H. Smouse and Family

Support the Society.

Get free coffee (or tea).

Did you know that meeting attendees wearing black lanyards are not yet members of AOCs? Current members can earn FREE coffee certificates and a President's Club mug when they start a conversation with these peers and invite them to join our community.

Nonmembers who join onsite save 40% on their Active membership dues for the rest of 2018. And if they mention your name while joining, you will be eligible for the mug and coffee certificates on the spot. So, start spreading the word about why you love AOCs!

PLUS! As a special grand prize, every onsite recruiter will be entered in a drawing for a free registration to the 2019 AOCs Annual Meeting & Expo!

Tip!

Take the short walk with your recruit to the AOCs Registration desk to claim your coffee certificates and mug on the spot.



Thank you for growing your AOCs community!

During 2017, 39 AOCs members encouraged more than 50 of their peers to join the Society. You can recognize them as the attendees already enjoying their complimentary coffee out of their AOCs President's Club mug and wearing a President's Club ribbon.

Congratulations to our top recruiter Xingguo Wang, who recruited **eight** members!

Recruited five student members:

Tong Wang

Recruited between two and four members:

Eddie Baldwin
Douglas Bibus
Supratim Ghosh
Ramanathan Narayanan

Recruited one member:

Edgar J. Acosta
Jamie G. Ayton
Gerard M. Baillely
James R. Bell
Helen Booker
Bill Boyd
Clement Burnett

Thomas Burns
Vladimir Chernin
James Dailey
Dominic D'Amours
Dr. Marvin B. DeTar
Nathan Dias
Dr. Timothy P. Durrett
Glenn S. Elliott
Maria Garzon

Ching T. Hou
Jens Jacobsen
Jian Kong
James LePage
Darren J. Little
Jack N. Losso
Magdi M. Mossoba
Peter D. Nichols
Jun Ogawa

Brian D. Reid
Derick Rousseau
Sara E. Shinn
Chibuike C. Udenigwe
Manuel Venegas
Gordon L. Whitbeck
Michael J. Wint
Ms. Sue Witeof

HOT TOPIC SYMPOSIA

Monday, May 7

28

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.

What session has people talking?



#AOCS2018

Add these sessions to your meeting itinerary and connect with presenters on **The App!** See page 8 for download instructions.

HT 1: Healthy Oils: The New Functional Ingredient?

7:55 a.m.–10 a.m. | 200 C

Organizer: Patricia Kearney, PMK Associates, Inc., USA

This session will provide a comprehensive look at how the latest changes in the scientific, consumer, regulatory, and business landscapes will impact the oilseed supply chain. The FDA has postponed the labeling regulation timetable to sync with USDA on GMO labeling regulations, and the National Academies of Science has recommended a newly designed framework for the 2020 Dietary Guidelines for Americans that will determine how oil consumption is positioned in the American diet. New nutrition research is showing that healthy oils, and specific fatty acids, provide multiple benefits beyond heart health and now can help in the management of obesity and diabetes. The American Heart Association has also issued new Guidelines for Fats and Oils. In addition, consumers are also demanding clean labels, transparency, and sustainability in the foods they buy, and the food chain and manufacturers are responding. This session will examine the evolving landscape for ingredient innovation, product development, and brand messaging, and explore how major food companies can meet the growing demand for healthier, functional products.

7:55 **Opening Remarks.**

8 **How New Food Policies and Label Regulations Could Reset Consumer Perception of Oils.** Patricia Kearney, PMK Associates, Inc., USA.

8:25 **The Latest Nutrition Science Suggests a New Role for Fats and Oils.** Cyril Kendall, Department of Nutritional Sciences, University of Toronto, Canada.

8:50 **Food Chain Innovations that Address the Latest Consumer and Food Manufacturing Trends.** David Dzisiak, Corteva Agriscience, Agriculture Division of DowDuPont, USA.

9:15 **Meeting the Challenge of New Consumer Demands.** Naina Shah, Global R&D, PepsiCo, USA.

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

HT 2: Advancing Plant Proteins Along the Value-Chain: Challenges and Opportunities

7:55 a.m.–10 a.m. | 200 E

Organizers: Janitha Wanasundara, Agriculture and Agri-Food, Canada; James D. House, University of Manitoba, Canada; Curtis Rempel, Canola Council of Canada, Canada; and Lisa Campbell, Canola Council of Canada, Canada

Consumers are demanding foods with higher contents of quality protein, particularly plant-based proteins. For decades, soy has been positioned as the primary plant-based protein. However consumers, and therefore industry, are seeking additional options. This Hot Topic Symposium will provide an opportunity to discuss the processes whereby soy established the primary market position for plant-based proteins and the lessons learned, followed by 3 presentations on the challenges and opportunities for the introduction of alternative proteins, including those derived from canola, pulses, and cereals. The session will conclude with a discussion of how changing consumer habits have affected the demand and acceptance of plant protein-based food.

7:55 **Opening Remarks.**

8 **Opportunities and Challenges for Plant Protein-Based Foods: Lessons from the Soy Industry.** Phillip Kerr, SERIO Nutrition Solutions, LLC, USA.

8:20 **Exploring Pulse Proteins — An Overview of Technology, Applications, Opportunities and Challenges.** Mehmet Tulbek, AGT Foods, Canada.

8:40 **Opportunities and Challenges for Advancing Canola Proteins.** Martin Schweizer, Burcon NutraScience (MB) Corp., Canada.

9:00 **Opportunities and Challenges for Advancing Oat Proteins.** Nancy Ames, Agriculture and Agri-Food Canada, Canada.

9:20 **Changing Consumer Preference and Habits for Plant-Based Foods.** Evan Fraser, University of Guelph, Canada.

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

HT 3: Bridging the Gaps in a Diverse Workplace

7:55 a.m.–10 a.m. | 200 H

Organizer: Leann Barden, RXBAR, USA

Sponsored by the AOCS Young Professional Common Interest Group

Session is sponsored in part by Clasen Quality Chocolate and DSM

Each speaker will address an aspect of diversity and inclusion, whether it's breaking barriers in a new role, promoting change from the top-down or bottom-up, and/or finding work/life balance in two-income households, particularly as young professionals struggle to launch both their careers and their families. This session recognizes the changes in AOCS membership/

leadership composition since its inception in 1909, and the unique challenges facing this more diverse group; AOCS member companies are facing the same changes.

7:55 **Opening Remarks.**

8 **Strategies to Create an Equitable Workplace through Ethnic and Gender Diversity.** Pam White, Past AOCS President; College of Human Sciences, Iowa State University, USA.

8:20 **"Lean In": How Organizations Can Take Diversity from Theory to Practice.** Dawn Siler, International Services, Inc., USA.

8:40 **Seeing and Seizing Opportunities to Learn, Lead and Succeed.** Su Rankin, Land O'Lakes, USA.

9 **Diversity and Inclusion: Succeeding in a Foreign Culture.** Anand Rao, Agropur, USA.

9:20 **How Employers and Employees Can Support Young Professionals Starting their Careers and Families at the Same Time.** Jennifer Chiao, The Procter & Gamble Company, USA.

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

HT 4: 3-MCPD and Glycidol Esters — What Now?

7:55 a.m.–10 a.m. | 200 I

Organizers: Hans Christian Holm, Novozymes, Denmark; and Fabiola Dionisi, Nestlé, Switzerland

New legislation on 3-MCPD and Glycidol esters is under development in Europe. As a result, palm oil processors must seek new technologies to minimize formation of these by-products.

7:55 **Opening Remarks.**

8 **A Reflection on Ten Years of Research around 3-MCPD and Glycidyl Esters in Fats and Oils.** Karel Hrnčirik, Unilever, The Netherlands.

8:20 **Palm Oil Sustainability and 3-MCPD Esters and Glycidyl Esters Mitigation.** Ahmad Parveez Ghulam Kadir, Malaysian Palm Oil Board, Malaysia.

8:40 **Approaches for the Mitigation of 3-MCPD Esters and Glycidyl Esters in Baby Food.** Constantin Bertoli, Nestlé, Switzerland.

9 **Mitigation Strategies for 3-MCPD Esters and Glycidol Esters during Vegetable Oil Refining.** Nils Hinrichsen, ADM, Germany.

9:20 **3-MCPD Mitigation from a Process Perspective.** Antonios Papastergiadis, R&D Center, Desmet Ballestra, Belgium.

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

HT 5: Safety Aspects of Frying Oils: Academia and Industry Perspectives

7:55 a.m.–10 a.m. | 200 A

Organizer: Diliara Iassonova, Cargill, Inc., USA

Recent global regulatory changes in requirements and recommendations regarding frying oil and fried food necessitates this symposium, which will address global views on frying oils and different approaches to managing safety of the oils during frying. Presenters will summarize solutions to address new global regulatory requirements, and consumer focus of fried food safety.

7:55 **Opening Remarks.**

8 **Safety Aspects of Frying Oils — Global Overview.** Diliara Iassonova, Cargill, Inc., USA.

8:20 **Special Heat Capacity Measurements of Frying Oil Using Modulated DSC.** Fangfang Chen, Wilmar Global R&D Center, China.

8:40 **Methods to Improve Frying Oil Quality in Restaurants.** Peter L. Bordi, Penn State University, USA.

9 **Advanced Methods of Monitoring Oil Degradation in Restaurants.** Daniel Baier, Testo, Germany.

9:20 **New Ways for Reduction of 3-MCPD Esters in Frying Oil.** Christina Luo, Cargill, Inc., USA.

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

HT 6: State of the Industry: Navigating a Post-PHO Landscape

10:05 a.m.–12:10 p.m. | 200 E

Organizers: Richard Galloway, QUALISOY, USA

Session is sponsored in part by QUALISOY

Presenters in this session will discuss the state of the baking and frying industries in a post-partially hydrogenated oil (PHO) world. Discover current challenges facing these industries, as well as consumer research on labeling products made with fully hydrogenated oil. Hear from experts in the field about the functionality testing results of various PHO alternatives. Finally, learn from a USDA research leader about the health impacts of high stability oils, including results from a recent clinical study.

10:05 **Opening Remarks.**

10:10 **Overview of PHO Alternatives.** Robert Collette, Institute of Shortening and Edible Oils, USA.

10:30 **State of the Baking Industry.** Joshua Tuinstra, Stratas Foods, LLC, USA.

10:50 **State of the Foodservice Industry.** Michael Seidel, Performance Food Group, USA.

11:10 **Effect of Trait-enhanced Oils on the Risk Factors Used to Define Metabolic Syndrome.** David Baer, USDA, ARS, Beltsville Human Nutrition Research Center, USA.

11:30 **Panel Discussion, Q & A.**

HT 7: Olive Oil: Innovative Analytical Strategies to Guarantee Quality and Fight Fraud; Focus on the Advancements of the EU H2020 Project OLEUM

10:05 a.m.–12:10 p.m. | 200 H

Organizers: Tullia Gallina Toschi, Università di Bologna, Italy; and Luisito Cercaci, Pompeian Inc., USA

Session is sponsored in part by Pompeian, Inc.

Olive oils, especially extra virgin, represent a healthy source of diets, and possess unique sensory attributes, making them high-value products. This fact, together with the lack of harmonized and efficient analytical methods for detecting some types of frauds, make olive oil one of the most popular targets for food adulteration.

The EU H2020 OLEUM project runs from 2016 to 2020 and

aims to better guarantee olive oil (OO) quality and authenticity by improving detection and prevention of olive oil fraud. To solve these gaps, thus enhancing the competitiveness of the OO market both within and outside the EU, the project will develop innovative and revise existing analytical methods, share relevant results, and establish a wide community of institutions involved in the olive oil sector.

- 10:05 **Opening Remarks.**
- 10:10 **The OLEUM Project: Analytical Solutions Addressing Olive Oil Quality and Authenticity Issues.** Tullia Gallina Toschi, Università di Bologna, Italy.
- 10:30 **Olive Oil Regulatory Framework Analysis, Update and Implementation.** Alessandra Bendini, Università di Bologna, Italy.
- 10:50 **Analytical Solutions Addressing Olive Oil Quality Issues.** Diego Luis García González, Instituto de la Grasa, Spain.
- 11:10 **The Development of an OLEUM Databank.** Alain Maquet, Joint Research Centre, Belgium.
- 11:30 **Networking and Technology Transfer of the OLEUM Project; a Focus on the OLEUM Network.** Tassos Koidis, Queen's University Belfast, UK.
- 11:50 **How to Communicate and Implement the Results of the OLEUM Project in the U.S.** Selina C. Wang, UC Davis Olive Center, USA.
- Noon **Closing Remarks and Discussion.** Tullia Gallina Toschi, Università di Bologna, Italy.

HT 8: The Role of Medium-Chain Triglycerides and Ketones throughout the Lifespan

10:05 a.m.–12:10 p.m. | 200 I

Organizers: Kaori Nakajima and Kinya Tsuchiya, The Nisshin OilliO Group, Ltd., Japan

Session is sponsored in part by The Nisshin OilliO Group, Ltd.

There is growing awareness of the importance of medium-chain triglycerides (MCTs) and their usefulness throughout the lifespan in health and disease. MCT oil is added to infant and follow-on formulas, nutritional foods for athletes, foods for surgical patients; foods for the elderly, for children and adults with malabsorption syndromes; foods for weight control and even for Alzheimer's disease (AD). This session will review the use of MCTs by focusing on how they help prevent and benefit AD, and coconut oil will be discussed regarding its properties that could ameliorate the effects of AD.

- 10:05 **Opening Remarks.**
- 10:10 **MCTs and Coconut Oil: Ketones as Alternative Fuel for the Brain.** Mary T. Newport, Springhill Neonatology, Inc., USA.
- 10:45 **MCT and Ketones: Important Roles in Brain Development and Aging.** Stephen Cunnane, Département de médecine, Université de Sherbrooke, Canada.
- 11:20 **The Role of Dietary MCT/Coconut Oil in the Prevention of Alzheimer's Disease.** Ralph Martins, Centre of Excellence for Alzheimer's Disease Research and Care, Edith Cowan University, and Department of Biomedical Sciences, Macquarie University, Australia.
- 11:55 **Panel Discussion, Q & A.**

HT 9: Fat and Oils for Generations

10:05 a.m.–12:10 p.m. | 200 A

Organizers: Serpil Metin, April Parker, Paul Smith and Jeff Fine, Cargill, Inc., USA

This session is aimed to discuss the consumer's fat and oil choices in different geographies and their knowledge on health effects of fats and oils, nutritional needs of fats and oils during life span, offerings as well as approaches of food manufacturing companies to the customer needs.

- 10:05 **Opening Remarks.**
- 10:10 **FATitudes: Consumer Perceptions of Fats and Oils from the View of Millennials, Gen-Xers and Baby Boomers.** Jamie Mavec, Cargill Inc., USA.
- 10:40 **A View from Europe: Oils and Fats Consumption Driven by Nutrition, Health and Sustainability Opportunities and Concerns.** Ignace Debruyne, Ignace Debruyne & Associates, Belgium.
- 11:10 **Fats and Oils Needs During the Lifespan and their Effects on Health and Well-Being.** Penny M. Kris-Etherton, Department of Nutritional Sciences, Penn State University, USA.
- 11:40 **Emerging Opportunities to Solve Food Industry Challenges.** Fabiola Dionisi, Nestlé, Switzerland.

HT 10: Research and Technology Priorities for Fats and Oils from U.S. Government and Industrial Perspectives

10:05 a.m.–12:10 p.m. | 200 C

Organizers: Doug Hayes, Biosystems Engineering, University of Tennessee, USA; Deland Myers, Agriculture, Nutrition and Human Ecology, Prairie View A&M University, USA; and Sara Shinn, Food Science and Nutrition, California State University-Fresno, USA

Sponsored by the AOCS Professional Educator Common Interest Group

Program officers from U.S. funding agencies will discuss research priorities of their respective agencies related to fats and oils science and technology and upcoming opportunities for extramural funding. Emerging grand challenges in lipids from an industrial perspective, including areas that may bridge collaborative research between academia, government laboratories, and industrial sectors, will also be discussed.

- 10:05 **Opening Remarks.**
- 10:10 **Funding Priorities and Emerging Areas of Science and Technology from the USDA Perspective.** Timothy W. Conner, USDA-NIFA, USA.
- 10:40 **Funding Priorities and Emerging Areas of Science and Technology Pertaining to Health and Nutrition.** Sharon Ross, NIH–National Cancer Institute, USA.
- 11:10 **Emerging Areas of Science and Technology from an Industrial Perspective.** Phillip Kerr, SERIO Nutrition Solutions, LLC, USA.
- 11:40 **Panel Discussion, Q & A.**



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SPECIAL SESSIONS

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SS 1: Welcome Plenary

Sunday, May 6 | 4 p.m.–5:30 p.m. | 200 C

Attend this must-see opening session to learn what the Society is planning for the year ahead and to recognize the achievements of our members. AOCS President Neil Widlak and AOCS President-elect Len Sidisky will each deliver a brief address as part of our Business Meeting and Society and Scientific Award winners will be recognized.

ISF Kaufmann Memorial Lecture

Fish Oil Oxidation: What is the Problem? Kazuo Miyashita, Department of Bio-resources Chemistry, Hokkaido University, Japan.



Dr. Miyashita is a world-leading scientist with more than 30 years of research and education experience in lipid chemistry. His academic achievements in the fields of food and nutritional chemistry of lipids, oils and fats are well known. Dr. Miyashita has extensive publications: 173 research papers, 3 book editions, 92 book chapters and reviews and

18 patents. His ISF Kaufmann Memorial lecture will address fish oil, which is well known to be easily oxidized. What is the impact of the oxidation on foods and biological systems?

Plenary Lecture

Positioning Plant Proteins to Consumers: What Innovations are Needed Along the Value Chain? James D. House, Department of Food and Human Nutritional Sciences, University of Manitoba, Canada.

Consumers are increasingly seeking foods identified as sources of protein, particularly plant-based proteins. Innovations in breeding, agronomy, food processing, and protein quality evaluation will lead to new opportunities to position plant proteins to consumers. This session will provide an overview of key innovations, both realized and required, along the value chain, with particular reference to factors influencing the protein quality of pulses.



Dr. House has authored or co-authored 275 publications, book chapters and conference abstracts/proceedings, in areas related to nutrition and metabolism, including those linked to the study of factors influencing plant protein quality.

SS 2: Awards Session/ISF Lectureship Series

Monday, May 7 | 10:05 a.m.–12:10 p.m. | 200 F

Get inspired and gain new knowledge from the following AOCS Society and Scientific Award winners. Award lectures are listed in the order of presentation. View pages 22–23 to read a short biography of each presenter.

What session cannot be missed?



#AOCS2018



Stephen S. Chang Award

From Canola to Hempseed Oil: A Long Fat Journey. N. A. Michael Eskin, University of Manitoba, Canada.



Alton E. Bailey Award

Transformation of a Synthetic Chemist into an Oil Alchemist. Dharma R. Kodali, University of Minnesota, USA.



Supelco AOCS Research Award

Dietary Fat Phobia — Dispelling the Myth that All Fats are Bad. Alice H. Lichtenstein, Tufts University, USA.



AOCS Young Scientist Research Award

Insight Into Processing-induced Modification of Food Peptide Structure and Behavior. Chibuike Udenigwe, University of Ottawa, Canada.

SS 3: Omega-3 Fatty Acids: Health Benefits and Dietary Recommendations

Tuesday, May 8 | 11 a.m.–Noon | 101 J

Organized by: The Council for Agricultural Science and Technology (CAST)

Much scientific and public attention has focused on a group of dietary fatty acids called the omega-3 polyunsaturated fatty acids. This attention has developed because of the many potential human health benefits that have been proposed for this class of dietary lipids. This presentation will emphasize the health benefits, food sources, and dietary recommendations of the omega-3 polyunsaturated fatty acids.

11 Omega-3 Fatty Acids: Health Benefits and Dietary Recommendations. Donald C. Beitz, Departments of Animal Science and of Biochemistry, Biophysics, and Molecular Biology, Iowa State University, USA.

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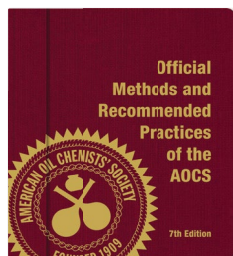
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Managing mycotoxin risk using AOCS methods and laboratory proficiency testing

Aflatoxins were among the top reasons for food-related recalls in the fourth quarter of 2017, according to a report by the European Recall Index (stericycleexpertsolutions.co.uk/recall-index/). The Index often places aflatoxins among the top causes for food-related recalls. For example, aflatoxins were among the top causes in every quarter of 2016. In the first quarter of 2015, aflatoxins were the top cause for 21% of food-related recalls, which was more than salmonella, listeria and E. coli.

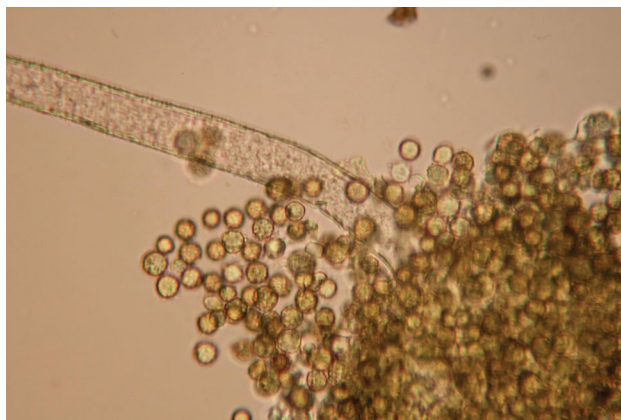
Aflatoxins are a type of mycotoxin, which is a metabolic product of fungal organisms that is harmful to humans and animals in high enough concentrations. Aflatoxins can contaminate agricultural commodities, leading to recalls. In addition, fumonisins are another type of mycotoxin that can contaminate agricultural commodities. To help producers mitigate the risk of these mycotoxins, AOCS provides standardized analytical methods and proficiency testing programs.

“AOCS has several methods, which are focused on aflatoxins and fumonisins,” said Scott Bloomer, Director of Technical Services at AOCS. “We also have several Laboratory Proficiency Program series so that labs can confirm their ability to detect and quantify mycotoxins.”



“AOCS has several methods, which are focused on aflatoxins and fumonisins”

The AOCS methods for detecting aflatoxin provide procedures to test cottonseed, corn and peanuts — the last of which is particularly susceptible to contamination. These methods mostly use thin-layer chromatography, but a few use post-column photochemical derivatization, high-performance liquid chromatography (HPLC) fluorescence,



Mycotoxins, such as aflatoxins produced by the fungus *Aspergillus flavus* (shown here), ruin millions of dollars of crops each year.

Credit: Swathi Sridharan. Reused via a Creative Commons License (<https://creativecommons.org/licenses/by-sa/2.0/legalcode>).

minicolumn or enzyme-linked immunosorbent assay (ELISA). The methods for detecting fumonisins provide procedures to test corn and corn-based food using liquid chromatography.

“We have plans to expand that by adding methods that test for more toxins because we think that the food supply chain needs to be able to test for more potentially toxic fungal metabolites,” Bloomer added.

In the AOCS Laboratory Proficiency Program (LPP), participating labs receive quarterly reports with a statistical analysis of results from all participants. These reports allow labs to compare their results against peers and build customer confidence (learn about the experience of two participants on page 66). The LPP series for aflatoxins are for commodities that include corn meal, peanut butter and paste, and pistachio and almond. The LPP series for fumonisin is for corn meal.



Learn more about specific AOCS methods and proficiency testing programs for aflatoxins at aocs.org/aflatoxin

TECHNICAL PROGRAM GRIDS

35

MONDAY AFTERNOON

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	38	ANA 1b: Lipidomic Analysis 101 G
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	39	BIO 1.1 / IOP 1: Biorenewable Polymers 200 H
EAT	39	EAT 1: Phase Transition in Edible Applications (A Session Dedicated to David Pink) 101 A
H&N	39	H&N 1 / PHO 1: Emerging Bioactives and Health Impacts 101 J
IOP	39	BIO 1.1 / IOP 1: Biorenewable Polymers 200 H
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	40	LOQ 1b: Optimal Application of Antioxidants in Food with Respect to their Protection Mechanism 101 H
PCP	40	PCP 1a: Protein Nutrition and Health 101 C
	40	PCP 1b: Advances in Bioactive Peptides 101 C
PHO	39	H&N 1 / PHO 1: Emerging Bioactives and Health Impacts 101 J
PRO	40	PRO 1: Processing ABC — Part I 200 F
S&D	40	S&D 1: Home Care and Laundry Performance Boosters and New Benefits 200 C
	41	S&D 1.1a: New Technologies in Industry 200 E
	41	S&D 1.1b: Manufacturing, Commercialization and Delivery of Raw Materials and Finished Products 200 E
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AOCS DIVISION/INTEREST AREA ABBREVIATION KEY

ANA	Analytical	LOQ	Lipid Oxidation and Quality
BIO	Biotechnology	PCP	Protein and Co-Products
EAT	Edible Applications Technology	PHO	Phospholipid
FT	Technology Fast Track	PRO	Processing
H&N	Health and Nutrition	S&D	Surfactants and Detergents
IOP	Industrial Oil Products		

TUESDAY MORNING

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	42	ANA 2b: Olive Oil, including Sensory Analysis 101 G
	42	ANA 2c/LOQ 2a: Evaluation and Prediction of Oxidative Stability and Shelf-life 101 H
	42	ANA 2d/LOQ 2b: Sensory Analytics and Analytical Methods for Assessing Lipid Oxidation and Shelf-life 101 H
BIO	44	BIO 2: Biocatalysis II 200 I
	44	BIO 2.1/H&N 2: Dietary Lipids and the Gut Microbiota 101 J
	44	BIO 2.2/PRO 2: Advances in Enzyme Processing Technologies 101 D
EAT	46	EAT 2: Confectionery Fats 101 A
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	46	SS 3: Omega-3 Fatty Acids: Health Benefits and Dietary Recommendations 101 J
IOP	46	IOP 2: Biofuels 200 H
LOQ	42	ANA 2c/LOQ 2a: Evaluation and Prediction of Oxidative Stability and Shelf-life 101 H
	42	ANA 2d/LOQ 2b: Sensory Analytics and Analytical Methods for Assessing Lipid Oxidation and Shelf-life 101 H
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	48	PCP 2b: Current Trends in New and Minor Proteins, New Methods and New Uses 101 C
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PRO	44	BIO 2.2/PRO 2: Advances in Enzyme Processing Technologies 101 D
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FT	19	Technology Fast Track 2 Hall B

TUESDAY AFTERNOON

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	49	ANA 3.1/PCP 3a: Bioprocessing for New/Value-added Protein Utilization: Digestibility Issues/Analytical Measurements 101 C
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	50	BIO 3.1/PRO 3.1: Biodiesel 101 D
EAT	50	EAT 3: Nano-, Micro- and Macrostructure 101 A
	52	EAT 3.1a/LOQ 3b: Manufacture and Stabilization of W/O and O/W Emulsions for Optimal Shelf-life 101 H
	52	EAT 3.2/H&N 3.1: Influence of Fat Composition and Structure in Foods on Metabolic Status 101 E
H&N	52	H&N 3: Lipids through the Lifespan 101 J
	52	EAT 3.2/H&N 3.1: Influence of Fat Composition and Structure in Foods on Metabolic Status 101 E
IOP	52	IOP 3: Green Chemistry 200 H
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	52	EAT 3.1a/LOQ 3b: Manufacture and Stabilization of W/O and O/W Emulsions for Optimal Shelf-life 101 H
PCP	49	ANA 3.1a/PCP 3a: Bioprocessing for New/Value-added Protein Utilization: Digestibility Issues/Analytical Measurements 101 C
	53	PCP 3b: Bioprocessing for New/Value-added Protein Utilization: Technologies 101 C
PRO	53	PRO 3: By-product Processing 200 F
	50	BIO 3.1/PRO 3.1: Biodiesel 101 D
	53	LOQ 3a/PRO 3.2a: Effect of New Processing Technologies on Lipid Oxidation 101 H
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	54	S&D 3b: General Surfactants 200 C
	54	S&D 3.1: Surfactants and Additives in Enhanced Oil Recovery and Oilfield Applications 200 A
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WEDNESDAY MORNING

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	56	BIO 4.1/S&D 4: Biosurfactants and Additives 200 C
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	57	EAT 4.1/LOQ 4b: Food Structuring to Reduce Lipid Oxidation 101 H
H&N	57	H&N 4a: Nutrigenetics and Nutrigenomics of Lipid Metabolism 101 J
	58	H&N 4b: Ralph Holman Lifetime Achievement Award Lecture 101 J
IOP	58	IOP 4: Oleochemicals 200 H
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	57	EAT 4.1/LOQ 4b: Food Structuring to Reduce Lipid Oxidation 101 H
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WEDNESDAY AFTERNOON

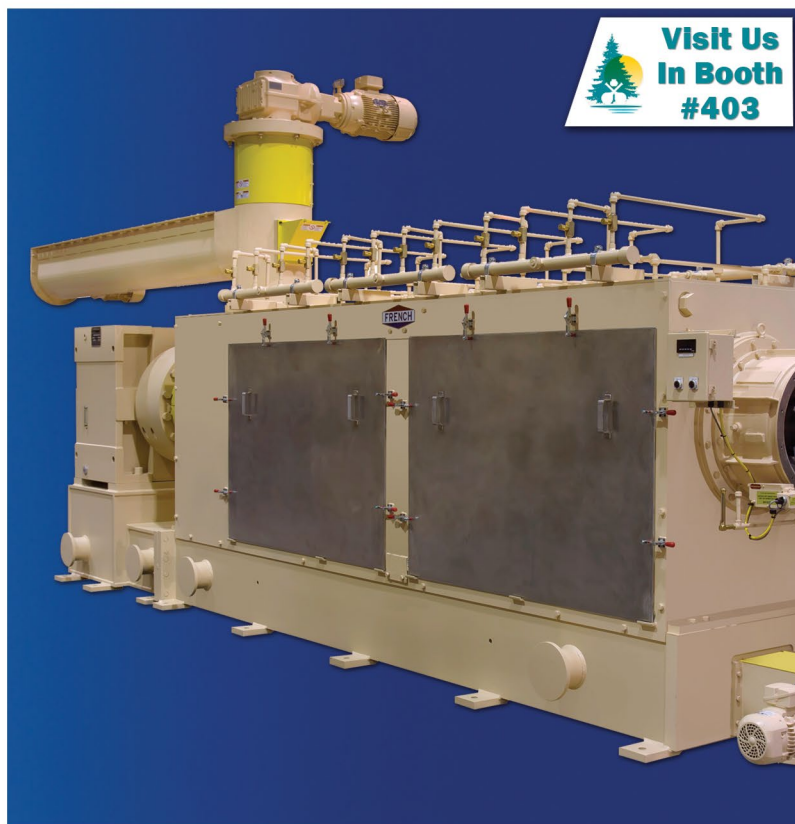
ANA	60	ANA 5: Marine Oils and Other Products 101 G
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	62	EAT 5.1/S&D 5.1: Complex Phenomena at Interfaces 101 A
H&N	62	H&N 5: General Health and Nutrition 101 J
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	63	LOQ 5b: Lipid Oxidation and Quality General Session 101 H
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	64	PRO 5.1: General Processing 200 A
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	62	EAT 5.1/S&D 5.1: Complex Phenomena at Interfaces 101 A

AOCS DIVISION/INTEREST AREA ABBREVIATION KEY

ANA	Analytical	LOQ	Lipid Oxidation and Quality
BIO	Biotechnology	PCP	Protein and Co-Products
EAT	Edible Applications Technology	PHO	Phospholipid
FT	Technology Fast Track	PRO	Processing
H&N	Health and Nutrition	S&D	Surfactants and Detergents
IOP	Industrial Oil Products		



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ORAL PRESENTATIONS

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Presentation Information

- ▶ The presenter is the first author or otherwise indicated with an asterisk (*).
- ▶ Abstracts are available online at AnnualMeeting.aocs.org/2018Resources or on **The App** through May 31, 2018. See page 8 for download instructions.
- ▶ Access and print abstracts in the computer lab located in room M 100 J on the mezzanine level of the Convention Center.
- ▶ Following the meeting, select presentations will be available to AOCS members in the AOCS Premium Content Library. Visit www.informconnect.org/JoinAOCS for details. Many of the papers presented during the meeting may also appear in AOCS Press publications.
- ▶ Award presentations are highlighted by a gray box.
- ▶ AOCS journal authors invited to present at Annual Meeting are indicated by a ♦

MONDAY AFTERNOON

Analytical

ANA 1a: Spectroscopic, Spectrometric and Chemometric Methods for Lipid Analysis

Chairs: Sanjeewa Karunathilaka, *US Food and Drug Administration, USA*; and Bernd W.K. Diehl, *Spectral Service AG, Germany*

101 G

- 1:55 Introduction.
- 2:00 **Portable Raman Spectroscopy and Chemometric Methods for the Analysis of Marine Oil Dietary Supplements.** Betsy J. Yakes, Sanjeewa R. Karunathilaka, Kyungeun Lee, Lea Brückner, and Magdi Mossoba, *US Food and Drug Administration, USA*
- 2:20 **Vibrational Spectroscopy and Chemometric Procedures for the Rapid Assessment of Olive Oil Authenticity.** Magdi Mossoba, Sanjeewa R. Karunathilaka, Cynthia Srigley, Kyungeun Lee, Lea Brückner, and Betsy J. Yakes, *US Food and Drug Administration, USA*
- 2:40 **Automated Multicomponent Phospholipid Analysis using ³¹P NMR Spectroscopy: Example of Vegetable Lecithin and Krill Oil.** Bernd W.K. Diehl and Yulia B. Monakhova, *Spectral Service AG, Germany*
- 3:00 **Analysis and Detection of Olive Oil Adulteration using Fourier Transform Near-Infrared Spectroscopy.** Ariel Bohman¹, Kathryn J. Lawson-Wood², and Robert Packer¹, ¹*PerkinElmer, USA*; ²*PerkinElmer, UK*

Analytical

ANA 1b: Lipidomic Analysis

Chairs: Francesca Giuffrida, *Nestec SA, Switzerland*; and J. David Pinkston, *Kellogg Co., USA*

101 G

- 3:35 Introduction.
- 3:40 **Lipidomic Profiling – An Integral Technology for Research and Development.** Elizaveta Freinkman, *Metabolon, Inc., USA*
- 4:00 **Non-targeted Analysis for Quality and Authenticity Determination of Olive Oil.** James A. Donarski¹, Victoria Bailey-Horne¹, Enrico Valli², Diego L. García González³, and Tullia G.T. Gallina Toschi⁴, ¹*Fera Science Ltd., UK*; ²*University of Bologna*; ³*Instituto de la Grasa (CSIC), Spain*; ⁴*Alma Mater Studiorum - University of Bologna, Italy*
- 4:20 **Supercritical Chromatography in Lipidomics Applications: “Finally Ready for Prime Time?”** Paolo Lecchi¹, Yao Lu¹, Erwin Kaal², Rob Van der Hoeven², and Dominik Burger¹, ¹*DSM Nutritional Products, USA*; ²*DSM Food Specialties, The Netherlands*

- 4:40 **A Rapid Non-destructive Method for Determining Quality Parameters of Edible Oils.** Kathryn J. Lawson-Wood¹, Ariel Bohman², and Robert Packer², ¹*PerkinElmer, UK*; ²*PerkinElmer, USA*

Biotechnology

BIO 1: Biocatalysis I

This session is sponsored in part by Malaysian Palm Oil Board, Nisshin Oil Group, Ltd. and Nitto Pharmaceutical Industries, Ltd.

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

200 I

- 1:55 Introduction.
- 2:00 **Identification of Molecular Species of Acylglycerols Containing Hydroxy Fatty Acids of Philippine Wild Edible Mushroom, *Ganoderma lucidum*.** Ching T. Hou¹, Jiann-Tsyh Lin², Rich M. Dulay³, and Karen Ray⁴, ¹*USDA, ARS, NCAUR, USA*; ²*WRRRC, USDA, USA*; ³*Center for R&D, Central Luzon State University, Philippines*; ⁴*NCAUR, USDA, USA*
- 2:20 **Expression of Cyclooxygenase in *Mortierella alpina* 1S-4 for the Production of a Prostaglandin, PGF2 α .** Jun Ogawa¹, Mohd Fazli Farida Asras¹, Hideaki Nagano¹, Yoshimi Shimada¹, Miho Takemura², Shigenobu Kishino³, and Akinori Ando¹, ¹*Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan*; ²*Res. Ins. Biore. Biotech., Ishikawa Prefectural University, Japan*; ³*Kyoto University, Japan*
- 2:40 **Biotechnological Research for the Development of Sustainable Oil Palm Industry.** Ahmad Parveez Ghulam Kadir, Rajinder Singh, Meilina Ong-Abdullah Ong-Abdullah, Umi Salamah Ramli, Omar Abdul Rasid, Mohamad Arif Abd Manaf, and Kushairi A, *Malaysian Palm Oil Board, Malaysia*
- 3:00 **Screening of Fatty Acids Showing Selective Antibacterial Activity Against Acne-associated *Propionibacterium acnes*.** Ayaka Uyama¹, Teizo Sugino¹, Shimemitsu Tanaka², and Toshihiro Nagao³, ¹*Momotani Juntentkan Ltd., Japan*; ²*Osaka Research Institute of Industrial Science and Technology, Japan*
- 3:20 **Metabolism of Soy Sugars by Genetically Engineered *Pseudomonas chlororaphis*.** Daniel K.Y. Solaiman, Richard D. Ashby, and Nicole V. Crocker, *USDA, ARS, ERRC, USA*

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#AOCS2018

- 3:40 **Xylose and Levulinic Acid: Two Inexpensive, Renewable Substrates for the Mixed-culture Biosynthesis of Unique poly(hydroxyalkanoate) Polymer Blends with Controllable Properties.** Richard D. Ashby, Daniel K.Y. Solaiman, and Gary Strahan, *USDA, ARS, ERRC, USA*
- 4:00 **Biorefinery Process for Valuable Lipid Production by Thraustochytrids.** Kenshi Watanabe, Kim H.V. Arafles, Yoshiko Okamura, Takahisa Tajima, Yukihiko Matsumura, Yutaka Nakashimada, and Tsunehiro Aki*, *Hiroshima University, Japan*
- 4:20 **Challenges to Develop Bioprocess for Lignin Paint.** Yomi Watanabe, *Osaka Research Institute of Industrial Science and Technology, Japan*
- 4:40 **Enzymatic Characterization of Metabolism of Food Derived Polyunsaturated Fatty acids by Gut Microorganisms Generating Bioactive Fatty Acids.** Michiki Takeuchi¹, Shigenobu Kishino¹, Si-Bum Park¹, Nahoko Kitamura¹, and Jun Ogawa², ¹*Kyoto University, Japan*; ²*Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan*

Biotechnology

BIO 1.1/IOP 1: Biorenewable Polymers

Chairs: Richard D. Ashby, USDA, ARS, ERRC, USA; and Baki Hazer, Kapadokya University and Bülent Ecevit University, Turkey

200 H

- 1:55 Introduction.
- 2:00 **Synthesis of Resinic Acid and Lignin Derivative Dimers for Copolymerization with Vegetable Oil-based Monomers.** Audrey Llevot, *LCPO, France*♦
- 2:20 **Dual Cure Alkyds.** Mark D. Soucek, *University of Akron, USA*
- 2:40 **Reflection of Structural Features of Oils on Properties of Polymeric Materials.** Zoran Petrovic, *Pittsburg State University, USA*
- 3:00 **Bio-based Oil Potential in Additive Manufacturing.** Ivan Javni¹, Olivera Bilic², Jian Hong², Vivek Sharma¹, Xianmei Wan¹, and Jamie M. Messman⁴, ¹*Pittsburg State University, USA*; ²*Kansas Polymer Research Center, Pittsburg State University, USA*; ³*Dept. of Energy's National Security Campus, managed by Honeywell FMT, LLC, USA*
- 3:20 **Multifunctional Fatty Acid Macroperoxide Initiators Obtained by the Autoxidation. Synthesis of Block/Graft Copolymers via Free Radical and Ring Opening Polymerization.** Baki Hazer, *Kapadokya University and Bülent Ecevit University, Turkey*
- 3:40 **Super Palm Stearin from Enzymatic Directed Interesterification of Palm Oil.** Noor Lida Habi Mat Dian¹, Miskandar Mat Sahri¹, Tan Chin Ping², and Lai Oi Ming², ¹*Malaysian Palm Oil Board, Malaysia*; ²*Universiti Putra Malaysia, Malaysia*
- 4:00 **Transesterification of Waste Vegetable Oil using Spent FCC Catalyst-based Solid Base Catalyst.** Zakir Hussain and Rakesh Kumar, *Rajiv Gandhi Institute of Petroleum Technology, India*

Edible Applications Technology

EAT 1: Phase Transition in Edible Applications (A Session Dedicated to David Pink)

Chairs: Gianfranco Mazzanti, Dalhousie University, Canada; and David A. Pink, St. Francis Xavier University, Canada

101 A

- 1:55 Introduction.
- 2:00 **An Alternative to the Avrami Model in Fat Crystallization: A Chemical Potential Approach (CPA).** Alejandro G. Marangoni, *University of Guelph, Canada*
- 2:20 **Phase Transitions in Edible Fats and Oils.** David A. Pink, *St. Francis Xavier University, Canada*
- 3:00 **Effect of Acoustic Power Level on Cavitation Events in Oil.** Silvana Martini¹, Peter Birkin², P. Martin², Jack Youngs², Tadd Truscott¹, and Andrew Merritt¹, ¹*Utah State University, USA*; ²*University of Southampton, UK*

- 3:20 **The Role of Mechanical Processing on Water Droplet Distribution in the Manufacture of Margarine.** Steven Robbins, *Richardson International, Canada*
- 3:40 **Influence of Droplet Size on Salt and pH-induced Attractive Gelation in Food-Protein Stabilized Nanoemulsions.** Aakash Patel, Natalie Longmore, and Supratim Ghosh*, *University of Saskatchewan, Canada*
- 4:00 **Impact of Margarine and Shortening on Puff Pastry Attributes.** Rachel E. Mertz, Dilip Nakhasi, and Roger Daniels, *Stratas Foods, USA*
- 4:20 **Evaluation of Stabilizer Type on Peanut Butter Physical Attributes.** Don Gifford, Rachel E. Mertz, Dilip Nakhasi, and Roger Daniels, *Stratas Foods, USA*
- 4:40 **Can Humans Detect if a Chocolate is in the α or β_v Form?** Fernanda Peyronel, *Dept. of Food Science, University of Guelph, Canada*

Health and Nutrition

H&N 1/PHO 1: Emerging Bioactives and Health Impacts

Chairs: Eileen Bailey Hall, DSM Nutritional Products, USA; and Xiaosan Wang, Jiangnan University, China

101 J

- 1:55 Introduction.
- 2:00 **Health Impact of the Newly Discovered Elovans: Stroke, Retinal Degenerations, Neurotrauma and Alzheimer's Disease.** Nicolas G. Bazan, *LSU Health New Orleans Neuroscience Center, USA*
- 2:40 **Evidence for the Use of Docosahexaenoic Acid in the Treatment of Breast Cancer.** Catherine J. Field, Newell Marnie, and Lynne M. Postovit, *University of Alberta, Canada*
- 3:00 **A Brief Overview of Palmitoleic Acid, the Forgotten MUFA.** Gretchen Vannice, *Organic Technologies, USA*
- 3:20 **Arachidonic Acid has Anti-diabetic Actions.** Gundala K. Naveen Kumar and Undurti Das*, *BioScience Research Centre, India*
- 3:40 **Effects of Sesamol on Lipid Metabolism and Neurodegeneration.** Xuebo Liu and Zhigang Liu, *Northwest A&F University, China*
- 4:00 **A Novel Method for Evaluating Anti-inflammatory Activity of Camellia Seed Oil.** Ruijie Liu¹, Niannian Lan², Ming Chang¹, Qingzhe Jin¹, and Xingguo Wang¹, ¹*Jiangnan University, China*; ²*School of Food Science and Technology, Jiangnan University, China*
- 4:20 **Dietary Krill Oil Enhances Neurocognitive Functions and Modulates Proteomic Changes in Brain Tissues of Aging Mice.** Ling Zhi Cheong, Tingting Sun, and Xiurong Su, *Ningbo University, China*
- 4:40 **Role of Oxidized Phospholipids in Myocardial Reperfusion Injury.** Amir Ravandi, *University of Manitoba, Canada*♦

Industrial Oil Products

BIO 1.1/IOP 1: Biorenewable Polymers

Chairs: Richard D. Ashby, USDA, ARS, ERRC, USA; and Baki Hazer, Kapadokya University and Bülent Ecevit University, Turkey

200 H

Joint session: for details, see BIO 1.1/IOP 1, above.

Lipid Oxidation and Quality

LOQ 1a: Lipid Oxidation Fundamentals

Chairs: Fereidoon Shahidi, Memorial University of Newfoundland, Canada; and Weerasinghe Indrasena, DSM Nutritional Products, Canada

101 H

- 1:55 Introduction.
- 2:00 **Role of Antioxidants and Stability of Frying Oils.** S.P.J. Namal Senanayake, *Camlin Fine Sciences, USA*
- 2:20 **Impact of Oxidized Proteins and Lipids and Suppression of Atherosclerosis Development by Functional Food Bioactives**

and Their Metabolites. Jack N. Losso, *Louisiana State University, USA*

2:40 **Antioxidant Evaluation: Why *in vitro* and *in vivo* Results do not Always Correspond?** Fereidoon Shahidi, *Memorial University of Newfoundland, Canada*

3:00 **Application of Differential Pulse Voltammetry to Determine the Efficiency of Stripping Tocopherols from Commercial Fish Oil.** Rachele A. Lubeckyj¹, Jill Moser², and Matthew Phaner³ (**Edwin N. Frankel Award for Best Paper in Lipid Oxidation and Quality; Lipid Oxidation and Quality Division Travel Grant Winner**), ¹Michigan State University, USA; ²USDA, ARS, NCAUR, USA; ³University of Michigan-Flint, USA

Lipid Oxidation and Quality

LOQ 1b: Optimal Application of Antioxidants in Food with Respect to their Protection Mechanism

Chairs: Xin Tian, Kalsec, Inc., USA; and Thanh P. Vu, University of Massachusetts Amherst, USA

101 H

3:35 Introduction.

3:40 **The Oxidative Stability of Fish Oil Enriched Cow and Soy Milk and the Effect of Adding Rosemary Extract.** Xujian Qiu, Charlotte Jacobsen, and Ann-Dorit Moltke Sørensen, *Technical University of Denmark, Denmark*

4:00 **Enzymatic Functionalization of Vinyl Phenols and Evaluation of their Resulting Antioxidant Properties in Cell Model Systems.** Jérôme Lecomte, Erwann Durand, and Pierre Villeneuve, *CIRAD, France*

4:20 **Impact of Modified Lecithin on the Antioxidant Activity of alpha-Tocopherol in Bulk Oils.** Eric A. Decker and Anuj G. Shanbhag*, *University of Massachusetts Amherst, USA*

4:40 **Controlling Oxidation in Skin Care Products with Novel Seaweed Antioxidants.** Ditte B. Hermund¹, Birgitte R. Thomsen¹, Niruja Sivasubramanian², Shuk Y. Heung³, Randi Neerup⁴, Louise M. Klinder⁵, Susan Holdt², and Charlotte Jacobsen¹, ¹Technical University of Denmark, Denmark; ²National Food Institute, Technical University of Denmark, Denmark; ³DTU Food, Denmark; ⁴Danish Technological Institute, Denmark; ⁵Mellisa Aps, Denmark

Phospholipid

H&N 1/PHO 1: Emerging Bioactives and Health Impacts

Chairs: Eileen Bailey Hall, DSM Nutritional Products, USA; and Xiaosan Wang, Jiangnan University, China

101 J

Joint session: for details, see H&N 1/PHO 1 on page 39.

Processing

PRO 1: Processing ABC — Part I

Chairs: Farah Sköld, Solex Thermal Science Inc., Canada; and Naudy Suarez, Richardson Oilseed Ltd., Canada

200 F

1:55 Introduction.

2:00 **Advancements in Vegetable Oil Extraction and Oil Processing.** Mohammad S. Alam, *Texas A&M University, USA*

2:20 **Screw Press Technology for Oil Extraction.** Eric D. Stibora, *Anderson International, USA*

2:40 **Pilot Plant Concept “EthaNa” for Ethanolic Extraction of Dehulled Canola Seeds.** Gunter Börner and Bernd Steinhauer, *B+B Engineering GmbH, Germany*

3:00 **Energy Optimization in Soybean Processing.** Mohamed Abid, *Solex Thermal Science Inc., Canada*

3:20 **Oilseed Conditioning and Effects on Extraction.** William C. Morphew, *Crown Iron Works, USA*

3:40 **Solvent Extraction Overview.** Timothy G. Kemper, *Desmet Ballestra, USA*

Protein and Co-Products

PCP 1a: Protein Nutrition and Health

Chairs: Janitha Wanasundara, Agriculture and Agri-Food Canada, Canada; Lamia L'Hocine, Agriculture and Agri-Food Canada, Canada; and Navam Hettiarachchy, University of Arkansas, USA

101 C

1:55 Introduction.

2:00 **Overview of the Protein Quality Assessment of Quinoa (*Chenopodium quinoa*).** Matthew G. Nosworthy and James D. House, *University of Manitoba, Canada*

2:20 **Effects of Soy Protein Isolate Hydrolysates on Cholecystokinin Released by Rat Intestinal Mucosal Cells and Food Intake in Rats.** Na Zhang and Yan-Guo Shi, *Harbin University of Commerce, China*

2:40 **Functional Properties and ACE Inhibitory Activity of Mealworm Protein Isolates and Hydrolysates.** Navam S. Hettiarachchy¹, Hongrui Jiang², and Ronny Horax¹, ¹University of Arkansas, USA; ²Institute of Light Industry and Food Engineering, Guangxi University, China

3:00 **Mushroom Phenolics as Inhibitors of Tryptophan Oxidation and Carbonyl Formation in Bovine Proteins with Salt.** Natalie G. Tom and Lilian M. Were, *Chapman University, USA*

Protein and Co-Products

PCP 1b: Advances in Bioactive Peptides

Chairs: Hitomi Kumagai, Nihon University, Japan; and Hisham Ibrahim, Kagoshima University, Japan

101 C

3:35 Introduction.

3:40 **Occurrence of Cyclic Peptides in Human Blood after Collagen Hydrolysate Ingestion.** Yasutaka Shigemura¹ and Kenji Sato², ¹Tokyo Kasei University, Japan; ²Kyoto University, Japan

4:00 **Bioactive Peptides for Brain Health and its Mechanistic Exploration.** Shigeru Katayama, Takakazu Mitani, and Soichiro Nakamura, *Shinshu University, Japan*

4:20 **Potential Bioactive Peptides from Hydrolyzed Tomato Seed Proteins.** Apollinaire Tsopmo and Nasim Meshginfar, *Carleton University, Canada*

4:40 **Suppression of Postprandial Hyperglycemia by Bioactive Peptides from Rice (*Oryza sativa*) Albumin.** Yusuke Yamaguchi¹, Shigenobu Ina², Aya Hamada³, Hanae Nakamura³, Nozomi Fujisawa³, Makoto Akao⁴, Hitoshi Kumagai⁵, and Hitomi Kumagai⁴, ¹Nihon University, Japan; ²College of Bioresource Sciences, Nihon University, Japan; ³College of Bioresource Sciences, Nihon University; ⁴Dept. of Chemistry and Life Science, College of Bioresource Sciences, Nihon University, Japan; ⁵Faculty of Home Economics, Kyoritsu Women's University, Japan

Surfactants and Detergents

S&D 1: Home Care and Laundry Performance Boosters and New Benefits

Chairs: Michael Williams, Evonik Industries, USA; and Stephen Gross, BASF Corporation, USA

200 C

1:55 Introduction.

2:00 **A Rapid Screen to a Dispersion Builder System.** Fred Holzhauer, *Univar USA, USA*

2:20 **Formulating Liquid Detergents with Improved Enzyme Stability.** Eric Dodge¹ and Arjen J. Hoekstra², ¹DuPont Industrial Biosciences, USA; ²DuPont Industrial Biosciences, The Netherlands

- 2:40 **Cationic Inulin, A Novel Biopolymer for Home and Fabric Care.** Robert Nolles, *Cosun Biobased Products, USA*
- 3:00 **Improving Color and Fabric Care in Fabric Softeners.** David Joiner¹ and Nathan Reese^{*2}, ¹*Novozymes North America, Inc., USA*; ²*Novozymes, USA*
- 3:20 **Study on the Comfort Created by Fabric Softener.** Sae Kumagami, Emiko Hashimoto, Eiji Ogura, Yoshiko Ito, and Takahiro Okamoto, *Lion Corporation, Japan*
- 3:40 **New ADW Formulation Opportunities with Improved Polyitaconate Polymers.** Jim W. Gordon, *Itaconix, USA*
- 4:00 **High Performing Rinse Aid Surfactant for Plastics.** Ashish Taneja, *BASF Corporation, USA*
- 4:20 **Re-thinking Value-tier Formulations – New Technologies to Boost Performance.** Ann Lee and David Joiner, *Novozymes North America, Inc., USA*

Surfactants and Detergents

S&D 1.1a: New Technologies in Industry

Chairs: Eric (Rick) Theiner, *Evonik Industries, USA*; and Hongwei Shen, *Colgate-Palmolive Co., USA*

200 E

Normal restrictions on the use of product trade names and logos are suspended; presenters can freely discuss commercial aspects and opportunities of their products.

1:55 Introduction.

- 2:00 **NINOL® CAA: A Novel Multifunctional Amide for Mass Efficient Formulation.** Ron A. Masters, Sarah Kovach, Anatoly Dameshek, Renata Butikas, and Scott Dillavou, *Stepan Company, USA*

- 2:20 **New and Unique Biorenewable Hydrophobes for Surfactants.** Risha Bond, *REG Life Sciences, USA*
- 2:40 **Rheology Modifiers in Personal Cleansing Applications: Recent Trends.** Martin S. Vethamuthu, *Ashland Specialty Ingredients G.P., USA*
- 3:00 **A Novel Amphoteric Surfactant for Personal and Home Care.** Marcie Anne Natale and Neil Boaz, *Eastman, USA*
- 3:20 **Structure-property Relationships of Co-solvents and Co-surfactants in Microemulsion Formation Using High Throughput Techniques.** Troy Knight, Neeraj Rohillia^{*1}, Pramod Patil¹, Carol Mohler¹, Christopher Nelson¹, Tom Kalantar¹, Pete Rozowski¹, and Quoc Nguyen², ¹*The Dow Chemical Company, USA*; ²*The University of Texas at Austin, USA*

Surfactants and Detergents

S&D 1.1b: Manufacturing, Commercialization and Delivery of Raw Materials and Finished Products

Chairs: Troy Graham, *LightBox Laboratories, LLC, USA*; and Sukhwan Soontravanich, *Ecolab, USA*

200 E

- 3:45 Introduction.
- 3:50 **Phase-stable Surfactant-thickened Formulations at High Caustic Levels.** Daniela Fritter, *The Clorox Company, USA*
- 4:10 **Preservation: Finished Goods and Manufacturing.** Vidya Ananth and Mrudula Srikanth², *Clorox, USA*
- 4:30 **Screening and Scaling Liquid-to-Solid Conversions for Efficient Process Development of Solid Products.** Steve D. Rowley, *Division by Zero Labs, USA*
- 4:50 **The Effect of Alcohol Ethoxylate Branching on Dry Mix Powder Flow – Chasing the Ghost.** Michael Wint, *Amway Corporation, USA*

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TUESDAY MORNING

Analytical

ANA 2a: Analysis of Fats and Oils Applying Advanced Lipid Analysis Techniques

Chairs: William C. Byrdwell, USDA, ARS, BHNRC, FCMDL, USA; and Walter Vetter, University of Hohenheim, Germany

101 G

- 7:55 Introduction.
- 8:00 **Use of Countercurrent Chromatography (CCC) for the Preparative Isolation of Lipid Compounds.** Walter Vetter, Marco Müller, Katharina Wasmer, Andrea Goncalves Peca, and Medisa Muric, *University of Hohenheim, Germany*
- 8:20 **Investigation of Olive Oil Substitution with Other Edible Oils by Ultra High-Performance Liquid Chromatography Separation of Triglycerides.** Pierluigi Delmonte and Andrea Milani, *US Food and Drug Administration, USA*
- 8:40 **Comprehensive Dual Liquid Chromatography with Quadruple Mass Spectrometry, LC2MS4, for *Jacaranda Mimosifolia* Triacylglycerols.** William C. Byrdwell, USDA, ARS, BHNRC, FCMDL, USA
- 9:00 **Development of Lipidomics-based Reference Materials and Reference Data for Oils.** John A. Bowden, *National Institute of Standards and Technology, Marine Biochemical Sciences Group, USA*
- 9:20 **Profiling Fatty Acids in Vegetable Oil Based on Photochemical Derivatization Reaction Coupled with Mass Spectrometry.** Shuling Xu, Fang Wei*, and Hong Chen, *Oil Crops Research Institute of the Chinese Academy of Agricultural Sciences, China*
- 9:40 **The Hybrid Search: A New Mass Spectral Library Search Approach for Compound Classification.** Arun S. Moorthy¹, Brian T. Cooper², William E. Wallace¹, and Stephen E. Stein¹, ¹*National Institute of Standards and Technology, USA*; ²*University of North Carolina at Charlotte, USA*

Analytical

ANA 2b: Olive Oil, including Sensory Analysis

Chairs: Selina C. Wang, University of California-Davis, Olive Center, USA; and Susan Seegers, Bunge North America, USA

101 G

- 10:15 Introduction.
- 10:20 **Contribution of Flavor Compounds to Explain New Sensory Defects in Virgin Olive Oil: The Example of "Frostbitten Olives".** Diego L. García González¹, Inmaculada Romero¹, Ramón Aparicio-Ruiz¹, Noelia Tena¹, Ana Lobo¹, María Teresa Morales², and Aparicio Ramón¹, ¹*Instituto de la Grasa (CSIC), Spain*; ²*University of Seville, Spain*
- 10:40 **The Profitable Relation between Sensory and Analytics in Virgin Olive Oil Quality Detection.** Tullia Gallina Toschi¹, Sara Barbieri¹, Chiara Cevoli¹, Ole Winkelmann², Karolina Brkić Bubola³, Florence Lacoste⁴, Milena Bučar-Miklavčič⁵, Ummuhan Tibet⁶, Ramón Aparicio-Ruiz⁷, Diego L. García González⁷, and Alessandra Bendini¹, ¹*DISTAL University of Bologna, Italy*; ²*Eurofins Analytik GmbH, Germany*; ³*Institute of Agriculture and Tourism, Croatia*; ⁴*Institut des Corps Gras, France*; ⁵*Science and Research Centre Koper, Slovenia*; ⁶*Ulusal Zeytin ve Zeytinyağı Konseyi, Turkey*; ⁷*Instituto de la Grasa (CSIC), Spain*
- 11:00 **Deep Insight Into the Minor Fraction of Virgin Olive Oil by Using New LC-MS and GC-MS Multi-class Methodologies: Application to Discriminate Samples from Different Protected Designations of Origin.** Alegria Carrasco-Pancorbo, *University of Granada, Spain*

- 11:20 **¹H NMR—metabolic Profiles of Monocultivar EVOOs for PDO, PGI and 100% Italian Blend Production Assessment.** Chiara Roberta Girelli, Laura Del Coco¹, Federica Angilè², and Francesco Paolo Fanizzi^{*2}, ¹*Dept. of Biological and Environmental Sciences and Technologies (Di.S.Te.B.A.), University of Salento, Italy*; ²*Dipartimento di Scienze e Tecnologie Biologiche ed Ambientali Università del Salento, Italy*

- 11:40 **"Musty", "Fusty, Muddy Sediment", and "Rancid" Off-flavors in olive Oils are Well-known: but what is Behind on a Molecular Level?** Michael Granvogl, Anja Neugebauer, and Peter Schieberle, *Technical University of Munich, Germany*

Analytical

ANA 2c/LOQ 2a: Evaluation and Prediction of Oxidative Stability and Shelf-life

Chairs: Min Hu, DuPont Nutrition & Health, USA; and Richard Della Porta, Frito-Lay, USA

101 H

- 7:55 Introduction.
- 8:00 **The Combination of High Oleic Oils and Natural Antioxidants as a Powerful Tool for Shelf Life Extension.** Susan Knowlton, *DuPont Company, Pioneer, USA*
- 8:20 **The Antioxidative Activity of Soluble Bound Phenolic Compounds Fractions Extracted from Germinated Chickpea in Oil-in-Water Emulsions.** Minwei Xu (*Lipid Oxidation and Quality Division Travel Grant Winner*) and Bingcan Chen, *North Dakota State University, USA*
- 8:40 **Antioxidant Activities of Sugars and Protein in Low Moisture Cracker System.** Thanh P. Vu, Lili He, D. Julian McClements, and Eric A. Decker, *University of Massachusetts Amherst, USA*
- 9:00 **Oxidative Stability of Margarines, Shortenings and Spreads.** Min Hu, *DuPont Nutrition & Health, USA*
- 9:20 **Shelf-life Extension of Meat and Meat Products by Using Natural Antioxidants.** Henna F.S. Lu, *Kalsec Europe Ltd., UK*
- 9:40 am **Differential Stability of Linoleic Sun, Soy and Rapeseed Oils Using TBHQ and Rosemary in Fried Potatoes.** Richard Della Porta, *Frito-Lay, USA*

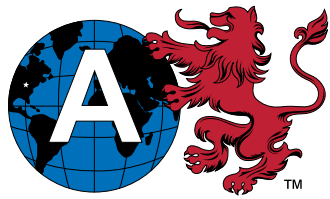
Analytical

ANA 2d/LOQ 2b: Sensory Analytics and Analytical Methods for Assessing Lipid Oxidation and Shelf-life

Chairs: Jian Kong, Abbott Nutrition, USA; and Richard Della Porta, Frito-Lay, USA

101 H

- 10:15 Introduction.
- 10:20 **Antioxidant Efficacy and Impact of Storage Conditions.** Marie Shen¹, Lan Ban¹, and Chandra Ankolekar^{*2}, ¹*Kemin Food Technologies, USA*; ²*Kemin Industries Inc., USA*
- 10:40 **Sensory Directed Chemical Analysis of Oxidized Marine Oils.** Roy D. Desrochers, *Tufts University Sensory and Science Center, USA*
- 11:00 **Developing a Sensory Oxidation Quality Scale.** Monica L. Godbout, *Abbott Nutrition, USA*
- 11:20 **Assessing Virgin Olive Oil Stability and Shelf Life at Moderate Conditions by FTIR Spectroscopy Endowed with a Mesh Cell Accessory.** Noelia Tena¹, Ramón Aparicio-Ruiz¹, Ana Lobo², María Teresa Morales³, Aparicio Ramón², and Diego L. García González^{*1}, ¹*Instituto de la Grasa (CSIC), Spain*; ²*Instituto de la Grasa (CSIC)*; ³*University of Seville, Spain*



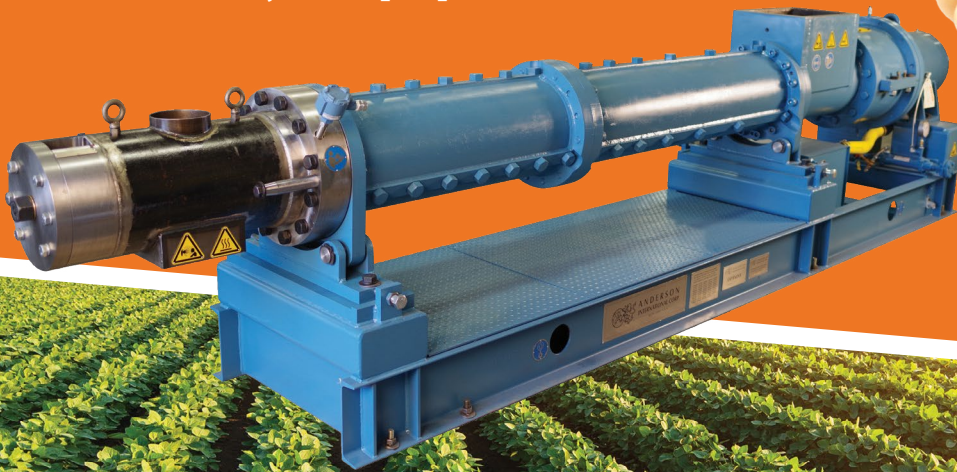
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Biotechnology

BIO 2: Biocatalysis II

This session is sponsored in part by Malaysian Palm Oil Board, Nisshin Oillio Group, Ltd. and Nitto Pharmaceutical Industries, Ltd.

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

200 I

- 7:55 Introduction.
- 8:00 **Better Understanding of Enzymatic Soy Processing through Modeling Monomeric Sugar Release.** S.M. Mahfuzul Islam (*Biotechnology Student Award Winner*) and Lu-Kwang Ju, ¹The University of Akron, USA
- 8:20 **Biosynthetic Pathways of Functional Carotenoids in Red Seaweed *Pyropia yezoensis*.** Masashi Hosokawa, Hokkaido University, Japan
- 8:40 **Production of Microbial Lipids using Crude Glycerol.** Eiji Sakuradani, Naomi Murakawa, and Takaiku Sakamoto, Tokushima University, Japan
- 9:00 **Alteration of Lipase Selectivity by Protein Engineering.** Katja Zorn¹, Isabel Oroz-Guinea¹, Henrike Brundiek², and Uwe T. Bornscheuer³, ¹Institute of Biochemistry, Germany; ²Enzymicals AG, Germany; ³University of Greiswald, Germany
- 9:20 **Efficient Production of MLCT Oils by Lipase Reactions.** Yutaro Kataoka, Yoshihiro Ueda, and Hidetaka Uehara, The Nisshin Oillio Group, Ltd., Japan
- 9:40 **Preparation of Diethylhexyl Adipate by Lipase-catalyzed Esterification.** In-Hwan Kim¹, TaeHoon Kim¹, Heejin Kim², and Nakyung Choi¹, ¹Korea University, Republic of Korea; ²Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea
- 10:00 **Enzymatic Preparation of Medium- and Long-chain Diacylglycerols of High Purity in Combination with Solvent Extraction.** Guanghui Li¹, Jiazi Chen¹, Zhen Zhang², Ying Li³, and Yong Wang⁴, ¹Dept. of Food Science and Engineering, Jinan University, China; ²South China University of Technology, China; ³Guangdong Saskatchewan Oilseed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, China; ⁴Jinan University, China
- 10:20 **Stearidonic Acid Soybean Oil – Concentration and Enzymatic Modification.** Casimir C. Akoh, University of Georgia, USA
- 10:40 **Enzymatic Preparation of Monogalactosyldiacylglycerols Containing Pinolenic Acid.** Byung Hee Kim, Sookmyung Women's University, Republic of Korea
- 11:00 **Ultrasound Promoted Enzymatic Synthesis of Monoglycerol Phenolic Acids and the Activities Study.** Mingming Zheng, Oil Crops Research Institute, CAAS, China
- 11:20 **ELOVL6 Catalyzes Elongation of n-13:0 and n-15:0 Odd Chain Saturated Fatty Acids in Human Cells.** Zhen Wang^{1,2}, Dong Hao Wang¹, Yuliya Goykhman¹, Yuanyuan Yan¹, Peter Lawrence¹, Kumar S. D. Kothapalli², and J. Thomas Brenna², ¹Cornell University, USA; ²University of Texas at Austin, USA

Biotechnology

BIO 2.1/H&N 2: Dietary Lipids and the Gut Microbiota

This session is sponsored in part by DuPont Nutrition & Health and Nitto Pharmaceutical Industries, Ltd.

Chairs: Barry Tulk, DuPont Nutrition & Health, USA; and Jun Ogawa, Kyoto University, Japan

101 J

- 7:55 Introduction.
- 8:00 **Effect of Diet on the Gut Microbiota.** Joanne Slavin, University of Minnesota, USA
- 8:20 **Interaction Between Diets and Gut Commensal Bacteria in the Regulation of Immunological Health and Diseases.** Jun Kunisawa, NIBIOHN, Japan

- 8:40 **Role of Bile Acid in Gut Microbiota Alterations in Rats Fed a High-fat Diet.** Atsushi Yokota, Masamichi Watanabe, Satoshi Ishizuka, and Satoru Fukiya, Research Faculty of Agriculture, Hokkaido University, Japan
- 9:00 **Correlation Between Dietary Lipid, Gut Microbiota and Health.** Jun Ogawa^{1,2}, ¹Div. Appl. Life Sci., Grad. Sch. Agric., Kyoto University, Japan; ²Res. Unit Physiol. Chem. Kyoto University, Japan
- 9:20 **Dietary Fatty Acid Metabolism in Gut Microbiota.** Shigenobu Kishino¹, Akiko Hirata, Michiki Takeuchi¹, and Jun Ogawa², ¹Kyoto University, Japan; ²Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan
- 9:40 **10-oxo-12(Z)-octadecenoic Acid, a Linoleic Acid Metabolite Produced by Gut Microbiota, Enhances Energy metabolism by Activation of TRPV1.** Tsuyoshi Goto¹, Minji Kim², Tomoya Furuzono², Kunitoshi Uchida³, Shigenobu Kishino¹, Haruya Takahashi², Hui-Fen Jheng², Jun Yamazaki⁴, Makoto Tominaga³, Jun Ogawa⁵, and Teruo Kawada², ¹Kyoto University, Japan; ²Division of Food Science and Biotechnology, Graduate School of Agriculture, Kyoto University, Japan; ³Okazaki Institute for Integrative Bioscience, National Institute for Physiological Sciences, Japan; ⁴Dept. of Physiological Science and Molecular Biology, Fukuoka Dental College, Japan; ⁵Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan
- 10:00 **Effects of Fatty Acid Metabolites by a Gut Lactic Acid Bacterium on Lipid Metabolism in NASH Model Mice.** Neng Tanty Sofyana¹, Jiawen Zheng¹, Yuki Manabe¹, Yuta Yamamoto², Shigenobu Kishino¹, Jun Ogawa³, and Tatsuya Sugawara⁴, ¹Kyoto University, Japan; ²Dept. of Anatomy and Cell Biology, Wakayama Medical University; ³Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan; ⁴Laboratory of Marine Bioproduct of Technology, Division of Applied Bioscience, Japan
- 10:20 **Gut Microbiota and Free Fatty Acids Receptors Mediated Host Energy Regulation.** Junki Miyamoto and Ikuo Kimura, Tokyo University of Agriculture and Technology, Japan
- 10:40 **Effects of the Intake of a Gut Microbial Linoleic Acid Metabolite, 10-hydroxy-cis-12-octadecenoic Acid (HYA), on Postprandial Hyperglycemia.** Yasunori Yonejima and Kohey Kitao, Nitto Pharmaceutical Industries, Ltd., Japan

Biotechnology

BIO 2.2/PRO 2: Advances in Enzyme Processing Technologies

Chairs: Xuebing Xu, Wilmar Global Research and Development Center, China; and Flavio Galhardo, Bunge Global Innovation, USA

101 D

- 7:55 Introduction.
- 8:00 **Overview and Recent Developments in Degumming, Interesterification and Biodiesel.** Hans Christian Holm, Novozymes A/S, Denmark
- 8:40 **Design and Synthesis of New Lipid Molecules by Assembling Nature Segments for Multi-functionalities. An Enzymatic Solution.** Zheng Guo Aarhus University, Denmark
- 9:00 **Value and Potential of Phospholipase C Assisted Enzymatic Degumming in Vegetable Oils.** Ying Zha¹, Arjen Sein², Steve Gregory³, Greg LeFebvre⁴, and Michael Jung³, ¹DSM, The Netherlands; ²DSM Biotechnology Center, The Netherlands; ³DSM, USA; ⁴DSM Food Specialties, Inc, USA
- 9:20 **Enzymatic Interesterification.** Chris Dayton, Bunge Limited, USA
- 9:40 **Enzymatic Modification of Menhaden Oil to Incorporate Caprylic and/or Stearic Acid.** Sarah A. Willett¹ (*Biotechnology Student Award Winner*), Casimir C. Akoh¹, and Silvana Martini², ¹University of Georgia, USA; ²Utah State University, USA
- 10:00 **Cold Enzymatic Degumming on Sunflower Seed Oil.** Ling Hua and Alexey Shevchenko, Alfa Laval Copenhagen A/S, Denmark
- 10:20 **How to Overcome the Barrier of Mucilage for Extraction of Omega 3 from Chia Oil?** Gwendoline Gravé¹, Sidrine Koumba¹, Jean-Francois



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Fabre², Eric Lacroux³, Muriel Cerny⁴, Romain Valentin⁵, Othmane Merah¹, and Zéphirin Mouloungui⁴, ¹INP - ENSIACET, France; ²LCA UMR1010 INRA-INP/ENSIACET, France; ³Chimie Agro-Industrielle, France; ⁴Laboratoire de Chimie Agro-Industrielle, France; ⁵INRA, France

- 10:40 **Pilot Enzymatic Production of Medium- and Long-Chain Triacylglycerols Using a Solvent-free Packed Bed Reactor.** Zhen Zhang¹, Siwen Zhang², Xiaodong Xie², Xiang Ma³, Huihua Huang¹, and Yong Wang^{2*}, ¹School of Food Science and Engineering, South China University of Technology, China; ²Guangdong Saskatchewan Oil Seed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, China; ³Research School of Chemistry, The Australian National University, Australia
- 11:00 **Lipid Modification by Enzymes and Engineered Microbes.** Uwe T. Bornscheuer, *University of Greiswald, Germany*
- 11:20 **Recent Progress of Enzymatic Synthesis of Polymers.** Douglas G. Hayes, *University of Tennessee, USA*

Edible Applications Technology

EAT 2: Confectionery Fats

This session is sponsored in part by IOI Loders Crocklaan.

Chairs: Farnaz Maleky, Ohio State University, USA; and Linsen Liu, IOI Loders Crocklaan, USA

101 A

- 7:55 Introduction.
- 8:00 **Fat Bloom and Anti-bloom in Confectionery Application.** Linsen Liu and Guang (Gil) Wang*, *IOI Loders Crocklaan, USA*
- 8:20 **Studies on the Effect of Thermal Pre-treatment on the Isothermal Crystallisation of Cocoa Butter.** Marjorie Ladd Parada¹, Josélio Vieira², Peng Siong Chong², Michael Ries¹, Michael Rappolt¹, and Malcolm J.W. Povey¹, ¹University of Leeds, UK; ²Nestlé Product Technology Centre, UK
- 8:40 **Functional Properties of Fats and Emulsifiers in Candy Application.** Linsen Liu, Guang (Gil) Wang, and Aliess Bedford*, *IOI Loders Crocklaan, USA*
- 9:00 **Shea-based Shortenings. How to Overcome the Post-hardening Effect.** Krish Bhagga, Raul F. Petrut*, and Jun Ma, *IOI Loders Crocklaan, The Netherlands*
- 9:20 **Confectionary Coating and Filling Fat: A Review.** Linsen Liu and Guang (Gil) Wang*, *IOI Loders Crocklaan, USA*
- 9:40 **The Solubilization-Recrystallization-Diffusion Model to Quantify Oil Migration Kinetics in Cocoa Butter.** Alejandro G. Marangoni, *University of Guelph, Canada*
- 10:00 Break
- 10:20 **Synthesis of Cocoa Butter Equivalent by Enzymatic Interesterification of Illipe Butter and Palm Mid-fraction.** Adiguna Bahari and Casimir C. Akoh, *University of Georgia, USA*
- 10:40 **Polymorphic Transition and Bloom in Cocoa Powder.** Paige Palmieri and Richard W. Hartel, *University of Wisconsin-Madison, USA*
- 11:00 **The Art and Science of Ganache.** Jade McGill¹ and Richard W. Hartel*, ¹Nassau Candy, USA; ²University of Wisconsin-Madison, USA

Edible Applications Technology

EAT 2.1: Delivery and Dispersed Systems

Chairs: Dérick Rousseau, Ryerson University, Canada; and Christopher Gregson, Ingredient, USA

101 E

- 7:55 Introduction.
- 8:00 **Modelling the Effect of Confectioner's Sugar on Processing Interactions in Palm Oils.** Ryan West and Dérick Rousseau, *Ryerson University, Canada*
- 8:20 **Flavor partitioning into short-chain phospholipids: Effects of self-assembled structure.** Andrew P. Karman, Stephanie R. Dungan, Susan E. Ebeler, and Nitin Nitin, *University of California, Davis, USA*
- 8:40 **Thermal Analysis of Cough Drops Using Microstructure**

Evolution Analysis. Matt Vanden Eynden¹, Roland Ramsch², Giovanni Brambilla², Pascal Bru², and Gerard Meunier², ¹Formulaction, Inc., USA; ²Formulaction, France

- 9:00 **Milk Fat Globules, A Novel Carrier for Delivery of Vitamin D₃.** Maha Alshehab¹, Mariza Gomes Reis², Li Day², and Nitin Nitin¹, ¹University of California, Davis, USA; ²AgResearch, Grasslands Research Centre, New Zealand
- 9:20 **Enhanced Antimicrobial and Mycotoxin Inhibitory Activity of Clove Oil in Water Nanoemulsion.** Jiajia Rao and Jing Wan*, *North Dakota State University, USA*
- 9:40 **Emulsified Lipid Crystallinity Affects Early *in vitro* Lipolysis and beta-carotene Bioaccessibility.** Samantha M. Hart, Xinjie Lin*, Surangi K.P.H. Thilakarathna, and Amanda Wright, *University of Guelph, Canada*
- 10:00 **Spray Drying Flavor Encapsulation Process at 25–100°C.** Charles Beetz, Daniel M. Schlipf, and Jason Z. Li, *ZoomEssence, USA*
- 10:20 **Encapsulation of Lactase (β-galactosidase) into Novel Hydrogel Beads for the Effective Treatment of Lactose Intolerance.** Zipei Zhang (*Hans Kaunitz Award Winner*), Ruojie Zhang, and D. Julian McClements, *University of Massachusetts Amherst, USA*
- 10:40 **Effect of Water Addition on Physical Properties of Emulsion Gels.** Thais L.T. da Silva¹, Daniel B. Arellano*, and Silvana Martini², ¹University of Campinas, Brazil; ²Utah State University, USA
- 11:00 **Insect Lipids as Food Ingredients: Oil Extraction, Characterization and Perspectives as Food Ingredient.** Daylan A. Tzompasosa¹, Liya Yi², Hein H.J. van Valenberg², Martinus A.J.S. van Boekel², and Catriona M.M. Lakemond², ¹Ghent University, Belgium; ²Wageningen University, The Netherlands

Health and Nutrition

BIO 2.1/H&N 2: Dietary Lipids and the Gut Microbiota

This session is sponsored in part by DuPont Nutrition & Health and Nitto Pharmaceutical Industries, Ltd.

Chairs: Barry Tulk, DuPont Nutrition & Health, USA; and Jun Ogawa, Kyoto University, Japan

101 J

Joint session: for details, see BIO 2;1/H&N 2 on page 44.

Special Session

SS 3: Omega-3 Fatty Acids: Health Benefits and Dietary Recommendations

Organized by: The Council for Agricultural Science and Technology (CAST)

101 J

- 11:00 **Omega-3 Fatty Acids: Health Benefits and Dietary Recommendations.** Don Bietz, Iowa State University, USA

Industrial Oil Products

IOP 2: Biofuels

Chairs: Lieve Laurens, National Renewable Energy Laboratory, USA; and Steve Howell, M4 Consulting, Inc., USA

200 H

- 7:55 Introduction.
- 8:00 **Technical Needs for Biodiesel Blends Over B20.** Steve Howell, *M4 Consulting, Inc., USA*
- 8:20 **The Equilibrium Solubility Behavior of Glycerol in Biodiesel Fuels at Reduced Temperatures.** Richard W. Heiden¹ and Martin Mittelbach², ¹R.W. Heiden Associates, LLC, USA; ²Institute of Chemistry, University of Graz, Austria
- 8:40 **Green Diesel by Hydrotreatment of Vegetable Oils: Effect of Oil Quality on Hydrocarbon Yield and Composition.** Elisa Volonterio, Juan Bussi, Jorge Castiglioni, Ignacio Vieitez, and Iván Jachmanián*, *Facultad de Química, Universidad de la República, Uruguay*

- 9:00 **Biodiesel Production Using Agricultural Waste Derived Solid Acid Catalyst.** Zakir Hussain and Rakesh Kumar, *Rajiv Gandhi Institute of Petroleum Technology, India*
- 9:20 **Spent FCC Catalyst-based Solid Catalyst for Efficient Biodiesel Production.** Zakir Hussain and Rakesh Kumar, *Rajiv Gandhi Institute of Petroleum Technology, India*
- 9:40 **Extractability and Quality of Lipids in Algae, a Study of Species-specific Lipase Activation.** Ryan A. Herold and Lieve Laurens*, *National Renewable Energy Laboratory, USA*
- 10:00 **Correlating the Cold Flow and Melting Properties of Fatty Acid Methyl Ester (FAME) Mixtures.** Robert O. Dunn, *USDA, ARS, NCAUR, USA*
- 10:20 **Hydroprocessing Algal Lipids to Renewable Diesel Blend Stock.** Jake Kruger, Earl Christensen, Tao Dong, Gina Fioroni, Robert McCormick, and Philip Pienkos, *National Renewable Energy Laboratory, USA*

Lipid Oxidation and Quality

ANA 2c/LOQ 2a: Evaluation and Prediction of Oxidative Stability and Shelf-life

Chairs: Min Hu, *DuPont Nutrition & Health, USA*; and Richard Della Porta, *Frito-Lay, USA*

101 H

Joint session: for details, see ANA 2c/LOQ 2a on page 42.

Lipid Oxidation and Quality

ANA 2d/LOQ 2b: Sensory Analytics and Analytical Methods for Assessing Lipid Oxidation and Shelf-life

Chairs: Jian Kong, *Abbott Nutrition, USA*; and Richard Della Porta, *Frito-Lay, USA*

101 H

Joint session: for details, see ANA 2d/LOQ 2b on page 42.

Phospholipid

PHO 2: Chemical and Biochemical Advancements in the Phospholipid Field

Chairs: Moghis Ahmad, *Jina Pharmaceuticals Inc., USA*; and Swapnil Jadhav, *Archer Daniels Midland Co., USA*

200 A

7:55 Introduction.

- 8:00 **Phospholipids Modification with Enzymes: A Re-visit.** Xuebing Xu, *Wilmar Global Research and Development Center, China*
- 8:40 **Phenolipids for Delivery Systems: Synthesis and Characterization.** Sampson Anankanbil¹, Bianca Perez¹, Chiranjib Banerjee², Katarzyna Widzisz², and Zheng Guo², ¹Dept. of Engineering, *Aarhus University, Denmark*; ²Aarhus University, *Denmark*
- 9:00 **New Approaches in Non-aqueous Enzymology for Modification of Lipids and Phospholipids.** Douglas G. Hayes, *University of Tennessee, USA*
- 9:20 **Ability of Soy Lecithin Oleogel Emulsions to Protect Probiotics and Prevent Oxidation.** Nicole I. Gaudino, Stephanie Clark, and Nuria C. Acevedo, *Iowa State University, USA*
- 9:40 **Lipids as Mediators of Cardiomyocyte Cell Death During Ischemia/Reperfusion Injury.** Aleksandra Stamenkovic¹, Kimberley A. O'Hara², David C. Nelson², Andrea L. Edel², Grant N. Pierce², and Amir Ravandi¹, ¹University of Manitoba, *Canada*; ²Institute of Cardiovascular Sciences, *Canada*
- 10:00 **Sunflower and Soy Bean Lecithin: Interfacial Rheology and Kinetics at the Oil / Water Interface plus the Influence of Counter Ions.** Arnulf Schoeppe and Prashandh Sankarappan, *Cargill Texturizing Solutions Deutschland GmbH & Co.KG, Germany*
- 10:20 **Development of Phospholipid-Enriched Oleogels and Oleogel**



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Emulsions Edible Semisolid Applications. Nicole I. Gaudino¹, Saeed Mirzaee Ghazani², Alejandro G. Marangoni², Stephanie Clark¹, and Nuria C. Acevedo¹, ¹*Iowa State University, USA*; ²*University of Guelph, Canada*

- 10:40 **Achieving a Docosahexaenoic Acid Content of 7% Improved the Efficacy of Chemotherapy in Mice Bearing a Triple Negative Breast Cancer Human Xenograft.** Marnie Newell, Vera Mazurak, Lynne M. Postovit, and Catherine J. Field, *University of Alberta, Canada*

Processing

BIO 2.2/PRO 2: Advances in Enzyme Processing Technologies

Chairs: Xuebing Xu, Wilmar Global Research and Development Center, China; and Flavio Galhardo, Bunge Global Innovation, USA

101 D

Joint session: for details, see BIO 2.2/PRO 2 on page 44.

Processing

PRO 2.1: Environment, Health, Safety and Sustainability

Chair: Richard Barton, N. Hunt Moore & Associates, USA; and William S. Minor, CHS, USA

200 F

- 8:55 Introduction.
- 9:00 **Managing Environmental Challenges in Uncertain Times.** Michael J. Boyer, *AWTMS, USA*
- 9:40 **Creating Triple Win Sustainability Programs.** William S. Minor, *CHS, USA*
- 10:00 **Test Tube to Tanker: Stage Gate Engineering as a Guide to Process Development.** Cecil T. Massie, *Wood, USA*
- 10:20 **Challenges and Opportunities in Effluent Water Treatment for Oil Seed Processing Plants.** Rakesh Patel, *ADF Engineering, USA*
- 10:40 **Creating an Effective Dust Hazard Analysis for NFPA 652 Compliance.** Matthew Williamson, *ADF Engineering, USA*
- 11:00 **Towards Sustainable Production of Structured Lipids for the Food Industry.** Suzana Ferreira-Dias, *Universidade de Lisboa, Instituto Superior de Agronomia, Portugal*
- 11:20 **Challenges of the Palm Oil Industry.** Peter J. Clarke, *The Tintometer Ltd., UK*
- 11:40 **The Compliance Audit—A Challenge to Your Process Safety Management Program.** John Mulholland, *N. Hunt Moore & Associates, USA*

Protein and Co-Products

PCP 2a: Proteins for Delivery Functions

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

101 C

- 7:55 Introduction.
- 8:00 **Nature-inspired Protein Nanotechnology for Delivery of Nutraceuticals and Anti-cancer Drugs.** Yoav D. Livney, *Dept. of Biotechnology and Food Engineering, Technion, Israel Institute of Technology, Israel*
- 8:30 **Protein-lipid Complexes for Delivery of Nutraceutical Compounds.** Lingyun Chen, Guangyu Liu, and Zhigang Tian, *University of Alberta, Canada*
- 8:50 **Design of Alginate Based Microgels for Protein Encapsulation and Delivery: pH Triggered Release.** Ruojie Zhang (*Thomas H. Smouse Memorial Fellowship Award Winner*), Zipei Zhang, and D. Julian McClements, *University of Massachusetts Amherst, USA*

- 9:10 **Hemp Protein as an Encapsulating Agent to Produce Hemp Oil Powders.** Anusha Samaranyaka, Moumita Ray, and Udaya N. Wanasundara, *POS Bio-Sciences, Canada*
- 9:30 **Development of Protein-based Filled Hydrogels for Oral Delivery of Lipophilic Active Ingredients.** Zipei Zhang and D. Julian McClements, *University of Massachusetts Amherst, USA*

Protein and Co-Products

PCP 2b: Current Trends in New and Minor Proteins, New Methods and New Uses

Chairs: Keshun Liu, USDA, ARS, USA; Xiaonan Sui, Northeast Agricultural University, China; and Hui Wang, Iowa State University, USA

101 C

- 9:55 Introduction.
- 10:00 **Understanding Cohesive Strength from Plant and Animal Proteins.** Charles R. Frihart, *Forest Products Laboratory, USA*
- 10:40 **Enzyme-assisted Aqueous Extraction of Soybean Oil and Protein: Focus on Solving the Wastewater Problem.** Xiaonan Sui and Lianzhou Jiang, *Northeast Agricultural University, China*
- 11:00 **An Improved Wet Method to Process Oats into Fractions Enriched with Protein, Beta-Glucan, Starch or Other Carbohydrates.** Keshun Liu, *USDA, ARS, USA*
- 11:20 **Functional Properties of Mealworm Proteins.** Changqi Liu¹, Emily Woolf¹, Jing Zhao², Sarah Kim¹, and Shruti Shertukde¹, ¹*San Diego State University, USA*; ²*California State University, Los Angeles, USA*
- 11:40 **Emerging Camelina Protein: Extraction, Modification and Structural/Functional Characterization.** Baraem Ismail, *University of Minnesota, USA*

Surfactants and Detergents

S&D 2: New Technologies for Cold Water Laundry Detergency

Chairs: Rajan Panandiker, Procter and Gamble Company, USA; and Paul T. Sharko, Shell Global Solutions, Inc., USA

200 C

- 7:55 Introduction.
- 8:00 **The Fundamentals of Low-Temperature Laundry: Property Control of Grease.** Bernhard von Vacano¹, Matthias Kellermeier², Juergen G. Tropsch², and Keith E. Gutowski¹, ¹*BASF Corporation, USA*; ²*BASF SE, Germany*
- 8:20 **Detergent Compositions Containing a Branched Surfactant for Cleaning Laundry in Cold Water.** Phillip K. Vinson and Patrick Stenger, ¹*The Procter & Gamble Co., USA*
- 9:00 **Detergent Amylases for Cleaning at Low Temperature.** Rajendra Kulothungan Sainathan, *Novozymes South Asia Pvt. Ltd. India*
- 9:20 **Delivering Effective Bleaching under Low Wash Temperatures.** Jane Mathews¹, Jenny Wilkinson¹, and Smita Brijmohan², ¹*Lubrizol Corporation, UK*; ²*Lubrizol Corporation, USA*
- 9:40 **The Effect of Surfactant and Additives on Cold Water Detergency of Semi-solid Soil.** Parichat Phaodee and David A. Sabatini, *University of Oklahoma, USA*
- 10:00 **Laundry Detergency of Solid Non-Particulate Soil or Waxy Solids: Effect of Surfactant Type.** David A. Sabatini¹, Jarussri Chanwattanakit², John Scamehorn¹, and Sumaeth Chavadej², ¹*University of Oklahoma, USA*; ²*Chulalongkorn University, Thailand*
- 10:40 **Microbes in Your Laundry: Does Washing on "Cold" Make a Difference?** Darci L. Ferrer, *American Cleaning Institute, USA*
- 11:00 **Study on Bacteria Flora to Prevent Fabric Odors.** Keisuke Mori, Nanami Sasaki, Takahiro Hayashi, Hiroyuki Masui, and Takahiro Okamoto, *Lion Corporation, Japan*

TUESDAY AFTERNOON

Analytical

ANA 3: General Analytical

Chairs: Torben Küchler, Eurofins Analytik GmbH, Germany; and Pierluigi Delmonte, US Food and Drug Administration, USA

101 G

- 2:35 Introduction.
- 2:40 **Rapid Identification and Relative Quantification of the Phospholipid Composition in Commercial Lecithins by ³¹P-NMR.** Ying Yang, Richard Hiserodt, and Jing Li, *International Flavors & Fragrances Inc., USA*
- 3:00 **Applications for the LC-GC Technique in Routine Fat and Oil Analysis.** Torben Küchler, *Eurofins Analytik GmbH, Germany*
- 3:20 **Overcoming Issues and Challenges in the Analyses of Tocols in Oils.** Mei Han Ng and Ahmad Kushairi Din, *Malaysian Palm Oil Board, Malaysia*
- 3:40 **Tocopheryl Esters - Analysis of Novel Vitamin E Conjugates in Vegetable Foods: Occurrence, Concentrations and Digestibility.** Walter Vetter, Stephanie Krauß, and Vanessa Darwisch, *University of Hohenheim, Germany*
- 4:00 **A Method for Detection of Partially Hydrogenated Oils (PHO) in Food Matrices Containing Vegetable Oils.** Sneha Bhandari¹, Ming Gao¹, and Pierluigi Delmonte², ¹*Merieux Nutrisciences, USA*; ²*US Food and Drug Administration, USA*
- 4:20 **Supplementation Studies Involving Natural trans Fatty Acids: Real Technical Challenges, Actual Solutions.** Etienne Guillocheau, Daniel Catheline, Philippe Legrand, and Vincent Rioux, *Agrocampus-Ouest, France*
- 4:40 **Determination of sn2-position Fatty Acid in Long-chain Triglycerides(LCTs) and Medium- and Long-chain**

Triglycerides(MLCTs) with Enzymatic Alcoholysis by GC-FID. Wei Ting Ting, Wen Ming Cao, and Yuan Rong Jiang, *Wilmar (Shanghai) Biotechnology Research & Development Center Co., Ltd., China*

5:00 **Normal Phase UV Compatible HPLC Separation of Hydroxylated and Non-hydroxylated Lipids for Metabolic Flux Analysis.** Hari Kiran Kotapati and Philip D. Bates, *The University of Southern Mississippi, USA*

5:20 **Mitigating the Deteriorating Effect of Biofuel in Engine Oil.** Jerome D.A. Kpan¹, and Juergen Krahel², ¹*Technology Transfer Automotive Centre of Coburg University of Applied Sciences and Arts, Germany, Germany*; ²*Coburg University of Applied Sciences and Arts; Ostwestfalen-Lippe University of Applied Sciences, Germany*

Analytical

ANA 3.1/PCP 3a: Bioprocessing for New/Value-added Protein Utilization: Digestibility Issues/Analytical Measurements

Chairs: Sneha Bhandari, Merieux Nutrisciences, USA; Buddhi Lamsal, Iowa State University, USA; and Bishnu Karki, South Dakota State University, USA

101 C

- 2:35 Introduction
- 2:40 **Matrix Effect on the *in vitro* Immunodetection of Food Allergens.** Qinchun Rao, Xingyi Jiang, and Behnam Keshavarz, *Florida State University, USA*
- 3:00 **Protein Quality Evaluation in Protein Enhanced Formulations Including Those Based on Oilseed Based Proteins.** Sneha Bhandari, *Merieux Nutrisciences, USA*
- 3:20 **Simultaneous Quantification of Hydrolysis Degree, Protein and Mean Weight of Peptides Released during Enzymatic Proteolysis.** Sophie Beaubier¹, Irina Ioannou¹, Xavier Framboisier², Olivier Galet³, and Romain Kapel², ¹*LRGP - UMR CNRS 7274, France*;

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Tuesday | Oral Presentations

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²Reaction and Process Engineering Laboratory UMR-7274, France;
³Avril Group, France

- 3:40 **Nutritional Evaluation of Modified Carinata Meals in Finfish.** Tom Kasiga and Michael Brown, *Dept. of Natural Resource Management, South Dakota State University, USA*

Biotechnology

BIO 3: PUFA Biotechnology

Chairs: Suk-Hoo Yoon, Woosuk University, Republic of Korea; and Tsunehiro Aki, Hiroshima University, Japan

100 I

- 2:35 Introduction.
- 2:40 **Lipase-catalyzed Butanolysis of Echium Oil for the Selective Enrichment in Gamma-linolenic and Stearidonic Acids.** Marta C. Corzo-Martinez¹, Eduardo López², Luis C. Vazquez¹, Elena Ortego², Erika Olaya², Guillermo Reglero¹, and Carlos Torres^{*1}, ¹University Autonoma of Madrid, Spain; ²Dept. of Production and Characterization of Novel Foods, Institute of Food Science Research (CIAL, CSIC-UAM), Spain
- 3:00 **Efficiency Improvement in the Enzymatic Fractionation of PUFA.** Yomi Watanabe¹, Ryosuke Hoshina², Kazumi Katagiri², and Hideaki Kobayashi², ¹Osaka Research Institute of Industrial Science and Technology, Japan; ²Kewpie Corporation, Japan
- 3:20 **Engineering *Yarrowia lipolytica* for the Production of Fatty Alcohols from Sugars and Fats.** Michael Spagnuolo, Murtaza Shabbir Hussain, and Mark Blenner*, *Clemson University, USA*
- 3:40 **Production of Various PUFAs by Filamentous Fungus *Mortierella alpina*.** Eiji Sakuradani¹, Akinori Ando², Sakayu Shimizu³, and Jun Ogawa², ¹Tokushima University, Japan; ²Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan; ³Kyoto University, Japan
- 4:00 **Practical Eicosapentaenoic Acid (EPA) Production by *Mortierella alpina* Molecular Breeding under Ordinary Temperature.** Akinori Ando¹, Yuki Takemoto², Ryohei Nakatsuji³, Shigeru Hiramoto⁴, Eiji Sakuradani⁵, and Jun Ogawa¹, ¹Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan; ²Nisshin Pharma Inc., Japan; ³Kyoto University, Japan; ⁴Nisshin Pharma Inc. Japan; ⁵Tokushima University, Japan
- 4:20 **Metabolic Engineering for Rare PUFA Production by an Oil-producing Fungus *Mortierella alpina*.** Hiroshi Kikukawa¹, Eiji Sakuradani², Akinori Ando³, Sakayu Shimizu⁴, and Jun Ogawa³, ¹Gifu University, Japan; ²Tokushima University, Japan; ³Div. Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan; ⁴Kyoto University, Japan
- 4:40 **Lipase-polymer Nanoconjugates for Biosynthesis in Non-aqueous Media: Synthesis and Characterization.** Bianca Perez¹, Ana Moles², Jannik Pedersen², Steen V. Petersen², Jan Skov S. Pedersen³, Adam Perriman⁴, and Zheng Guo², ¹Dept. of Engineering,

Aarhus University, Denmark; ²Aarhus University, Denmark;
³Interdisciplinary Nanoscience Center, Aarhus University, Denmark;
⁴School of Cellular and Molecular Medicine, Bristol University, UK

5:00 **Extraction and Refining of Lipids Containing Arachidonic Acid from Single Cell Oil, *Mortierella* sp.** Suk-Hoo Yoon, Woosuk University, Republic of Korea

Biotechnology

BIO 3.1/PRO 3.1: Biodiesel

Chairs: Per Munk Nielsen, Novozymes A/S, Denmark; Casimir C. Akoh, University of Georgia, USA; and Anders Rancke-Madsen, Novozymes, Denmark

101 D

- 2:35 Introduction.
- 2:40 **Improving Pre-treatment Efficiency of Oil Feedstock using Adsorbent Filter Aids.** David Gittins, Li-Chih Hu, and Nathan Dias*, *Imerys Filtration Minerals Inc., USA*
- 3:00 **Online Real-time Quality Control of Biodiesel using Near-Infrared Spectroscopy.** Dominik Margraf, *BUCHI NIR-Online GmbH, Germany*
- 3:20 **FFA Reduction and Production Control.** Frankie Mathis and Bo Munk, *Tactical Fabrication LLC, USA*
- 3:40 **Integrating Conventional and Enzymatic Approaches Towards Industrial Biodiesel Production.** Marcelo Cantele, *Tranfertech Gestão de Inovações LTDA, Brazil*
- 4:00 **Enzymatic Esterification to Handle the FFA in Biodiesel Production.** Per Munk Nielsen, *Novozymes A/S, Denmark*
- 4:20 **Liquid Lipases for Enzymatic Refining: Technical Advantages Beyond Green Technology.** Zheng Guo, *Aarhus University, Denmark*
- 4:40 **A New Enzymatic Biodiesel Polishing Process Based on Esterification of FFA into Methyl Esters.** Anders Rancke-Madsen, *Novozymes, Denmark*
- 5:00 **Soapstock Acidulation using Carbon Dioxide.** Rusty Sutterlin, *Inventure Renewables, USA*

Edible Applications Technology

EAT 3: Nano-, Micro- and Macrostructure

Chairs: Silvana Martini, Utah State University, USA; and Alejandro G. Marangoni, University of Guelph, Canada

101 A

- 2:35 Introduction.
- 2:40 **Determination of Phase Transition Temperatures of Micro Crystals from Sequential Microscopic Images.** Hironori Hondoh¹, Mio Aoki², Seiya Takeguchi³, and Satoru Ueno¹, ¹Graduate School of Biosphere Science, Hiroshima University, Japan; ²Hiroshima University, Japan; ³The Nisshin OilliO Group, Ltd./Hiroshima University, Japan
- 3:00 **Addition of Phytosterol Esters to Palm Oil Influences its**

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:

- Price, price fixing, price calculation, or price changes;
- Costs;
- Terms or conditions of sales;
- Quote decisions;
- Discounts;
- Product or service offerings; or
- 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.

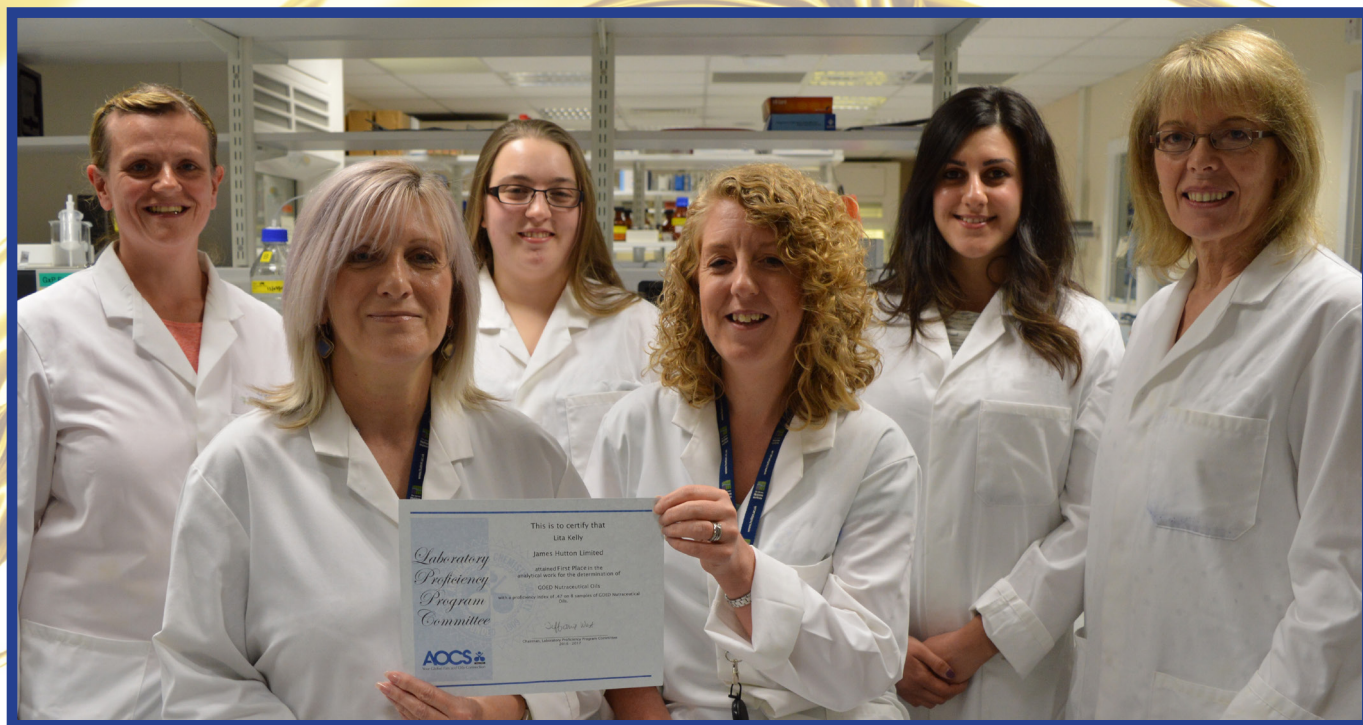
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'Equilibrium' and Isothermal Crystallization Behavior. Eva Daels¹, Bart Goderis¹, and Imogen Foubert², ¹*Katholieke Universiteit Leuven, Belgium*; ²*Katholieke Universiteit Leuven Kulak, Belgium*

- 3:20 **Tailoring Promotion or Retardation of Nucleation Kinetics of Fats with Emulsifiers.** Katsuyoshi Saitou¹, Ken Taguchi², Rika Homma¹, Masao Shimizu¹, Koichi Yasunaga¹, Yoshihisa Katsuragi¹, Satoru Ueno³, and Kiyotaka Sato^{4*}, ¹*Kao Corporation, Japan*; ²*Graduate School of Integrated Arts and Sciences, Hiroshima University, Japan*; ³*Graduate School of Biosphere Science, Hiroshima University, Japan*; ⁴*Hiroshima University, Japan*
- 3:40 **The Coalescence Behavior of Fat Globules in the Presence of Protein, mono/diglycerides and Polysorbate 80.** Abbey E. Thiel and Richard W. Hartel, *University of Wisconsin-Madison, USA*
- 4:00 **Adsorption Mechanisms for Hydrophobic Food Surfactants at an Oil-Water Interface.** Jennifer A. Staton and Stephanie R. Dungan, *University of California, Davis, USA*
- 4:20 **Stability Studies of Pickering Emulsions Based on Different Types of Oils and its Application in Chocolate.** Cunhong Chen¹, Yanchao Liu², Hong Zhang³, Yanlan Bi², Qi Shen¹, Zhenbo Xu¹, and Xuebing Xu⁴, ¹*Wilmar (Shanghai) Biotechnology Research & Development Center Co., Ltd., China*; ²*Henan University of Technology, China*; ³*Wilmar (Shanghai) Biotechnology Research & Development Center Co., Ltd., Denmark*; ⁴*Wilmar Global Research and Development Center, China*
- 4:40 **Particulate Effects in Chocolate on Fat Bloom during Storage.** Jiayang Jin and Richard W. Hartel, *University of Wisconsin-Madison, USA*
- 5:00 **Examining Aerated Peanut Butter Systems Containing Lactic Acid Esters of Monoglycerides Compared to Traditional Samples.** Kaustuv Bhattacharya, Niall Young, and Henrik Kragh, *DuPont Nutrition & Biosciences ApS, Denmark*

Edible Applications Technology

EAT 3.1a/LOQ 3b: Manufacture and Stabilization of W/O and O/W Emulsions for Optimal Shelf-life

Chairs: Tanu Tokle, Qualitech, USA; Ann-Dorit Moltke Sørensen, Technical University of Denmark, Denmark; and Chandra Ankolekar, Kemin Industries Inc., USA

101 H

- 4:15 Introduction.
- 4:20 **Stability and Functionality of Colloidosomes as Delivery Systems for Small Molecules.** Umut Yucel, *Kansas State University, USA*
- 4:40 **Impact of Phospholipids and Tocopherols on the Oxidative Stability of Soybean Oil-in-Water Emulsions.** Gautam Samdani, D. Julian McClements, and Eric A. Decker, *University of Massachusetts Amherst, USA*
- 5:00 **Effect of Droplet Size and Interfacial Crystallization on the Rheology of Fat Crystal-stabilized Water-in-Oil Emulsions.** Dérick Rousseau and Ruby R. Rafanan, *Ryerson University, Canada*
- 5:20 **Label Friendly EDTA Alternative for Oxidative Stability Improvement in Food Emulsions.** Lan Ban, Yvonne Gildemaster, and Joan Randall, *Kemin Food Technologies, USA*

Edible Applications Technology

EAT 3.2/H&N 3.1: Influence of Fat Composition and Structure in Foods on Metabolic Status

This session sponsored in party by Danone Nutricia Research.

Chairs: Amanda Wright, University of Guelph, Canada; and Marie-Caroline Michalski, INRA, France

101 E

- 2:35 Introduction.
- 2:40 **Introducing the Importance of Molecular and Supramolecular Lipid Structures on Metabolism and Beyond.** Marie-Caroline Michalski, *INRA, France*

- 3:20 **Is the Food Matrix an Important Factor for Lipid Bioaccessibility and their Subsequent Metabolism?** Sylvie Turgeon, *INAF, Laval University, Canada*
- 4:00 **Citric Acid Esters-stabilized Emulsions During *in vitro* Digestion: Effect of the Physical State of Emulsifier.** Qing Guo, Nick Bellissimo, and Dérick Rousseau*, *Ryerson University, Canada*
- 4:20 **Impact of Emulsion Droplet Physical State on *in vitro* Lipid Digestion.** Surangi K.P.H. Thilakarathna and Amanda Wright, *University of Guelph, Canada*
- 4:40 **Monounsaturated Fats and Stearic Acid: Summary of Impact on Human Cardiometabolic Outcomes.** Dariush Mozaffarian, *Friedman School of Nutrition & Health Policy, Tufts University, USA*
- 5:20 ***In vitro* and *in vivo* Evidence of Dietary trans-vaccenic Acid Retroconversion to trans-palmitoleic Acid.** Etienne Guillocheau, Garcia Cyrielle, Léo Richard, Daniel Catheline, Philippe Legrand, and Vincent Rioux, *Agrocampus-Ouest, France*

Health and Nutrition

H&N 3: Lipids through the Lifespan

This session is sponsored in part by DSM Nutritional Products.

Chairs: Adriana Gaitán, Louisiana State University, USA; and Ignacio Vieitez, UdelaR, Uruguay

101 J

- 2:35 Introduction.
- 2:40 **Fats and Oils Needs during the Lifespan and their Effects on Health and Well-being Part 2 - The Potential Health Effects of the Changing Fat Landscape.** Penny Kris-Etherton, *The Pennsylvania State University, USA*
- 3:20 **Dietary Monounsaturated Fatty Acids and Cardiovascular Disease Prevention: a Surprising Story Beyond Oleic Acid.** Zhi-Hong Yang (*Health and Nutrition New Investigator Research Award Winner*), *Lipoprotein Metabolism Section, Cardio-Pulmonary Branch, NHLBI, NIH, USA*
- 3:40 **Understanding the Relationship Between Dietary Fatty Acids and Blood and Tissue Fatty Acid Composition.** Ken D. Stark, *University of Waterloo, Canada*
- 4:20 **Antioxidant Potential of Esterified Resveratrol Derivatives in Different Model Systems.** Won Young Oh and Fereidoon Shahidi, *Memorial University of Newfoundland, Canada*
- 4:40 **Effect of Fatty Acid Chain Length and Saturation on the Lipid Profiles of Wistar Rats.** Chathuri M. Senanayake¹, Gangi R. Samarawickrama², Nimanthi Jayathilaka², and Kapila N. Seneviratne^{*1}, ¹*University of Kelaniya, Sri Lanka*; ²*Dept. of Chemistry, University of Kelaniya, Sri Lanka*
- 5:00 **Identifying Novel Docosaheptaenoic Acid-containing Phospholipids in Human Whole Blood as Indicators of Omega-3 PUFA Intake.** Juan J. Aristizabal Henao (*Honored Student Award Winner; Peter and Clare Kalustian Award Winner; Health and Nutrition Student Award Winner*) and Ken D. Stark, *University of Waterloo, Canada*

Health and Nutrition

EAT 3.2/H&N 3.1: Influence of Fat Composition and Structure on in Foods on Metabolic Status

This session sponsored in party by Danone Nutricia Research.

Chairs: Amanda Wright, University of Guelph, Canada; and Marie-Caroline Michalski, INRA, France

101 E

Joint session: for details, see EAT 3.2/H&N 3.1, above.

IOP 3: Green Chemistry

Chairs: Nurhan T. Dunford, Oklahoma State University, USA; Dharma Kodali, University of Minnesota, USA; and Jerry W. King, Critical Fluid Symposia, USA

200 H

- 2:35 Introduction.
- 2:40 **Oil and Oilseed Processing with Sustainability in Mind.** Nurhan T. Dunford, Oklahoma State University, USA
- 3:00 **Biobased Surfactants: A Useful Biorefinery Product That Can be Prepared Using Green Manufacturing.** Douglas G. Hayes, University of Tennessee, USA
- 3:20 **Eastern Red Cedar: Critical Fluid Extraction and Bioactivity of Extracts.** Fred J. Eller, USDA, ARS, NCAUR, USA
- 3:40 **Synthesis of Biobased Building Blocks from Cashew Nutshell Liquid: A Chemical Platform Approach for Polymer Synthesis.** Sylvain Caillol, Institut Charles Gerhardt, France
- 4:00 **Feruloylated Soy Glycerides: UV Absorbance Capacity and Photostability.** David L. Compton¹, John R. Goodell², and Kervin O. Evans¹, ¹USDA, ARS, NCAUR, USA; ²iActive Naturals, USA
- 4:20 **Subcritical Water Hydrolysis of Hemp Seed Oil in a Continuous Flow Coil Reactor.** Andres F. Aldana Rico¹, Ruben O. Morawicki², Jerry W. King³, Marco E. Sanjuan Mejia¹, and Antonio J. Bula Silvera¹, ¹Universidad del Norte, Colombia; ²University of Arkansas, USA; ³Critical Fluid Symposia, USA
- 4:40 **Green Chemistry in Cannabis "Oils" Extraction, Processing and Derived Products.** Jerry W. King, Critical Fluid Symposia, USA

Lipid Oxidation and Quality

LOQ 3a/PRO 3.2a: Effect of New Processing Technologies on Lipid Oxidation

Chairs: David Johnson, Kalsec Inc., USA; and Antonios Papastergiadis, Desmet Ballestra, Belgium

101 H

- 2:35 Introduction.
- 2:40 **Oxidative Stability of Tomato-based Matrices Enriched with n-3-LC-PUFA Derived from Microalgae.** Lore Gheysen¹, Nele Lagae¹, Jolien Devaere², Koen Goiris⁴, Luc De Cooman², and Imogen Foubert¹, ¹Katholieke Universiteit Leuven Kulak, Belgium; ²Katholieke Universiteit Leuven, Technology Campus Ghent, Belgium
- 3:00 **Oxidation and Hydrolysis of Lipids in Marine Edible Shellfishes During Hot Drying Process.** Dayong Zhou¹, Zhongyuan Liu², Kaiqi Gang³, Fereidoon Shahidi⁴, and Tong Wang⁵, ¹Dalian Polytechnic University, China; ²College of Food Science & Technology, Dalian Polytechnic University, China; ³School of Food Science and Technology, Dalian Polytechnic University, China; ⁴Memorial University of Newfoundland, Canada; ⁵Iowa State University, USA
- 3:20 **Effect of SprayDried Flavonoid Microparticles on Oxidative Stability of Methyl Linoleate as Lipid Model System.** Manuel J. Palma¹, Gloria Márquez-Ruiz², Paula García³, Francisca Holgado⁴, Cristina Vergara³, Begoña Giménez⁵, and Paz S. Robert⁶, ¹Universidad de Chile, Chile; ²Instituto de Ciencia y Tecnología de Alimentos y Nutrición (ICTAN-CSIC), Spain; ³Departamento de Ciencia de los Alimentos y Tecnología Química, Facultad de Ciencias Químicas y Farmacéuticas, Universidad de Chile, Chile; ⁴Instituto de Ciencia y Tecnología de Alimentos y Nutrición (ICTAN-CSIC); ⁵Departamento de Ciencia y Tecnología de los Alimentos, Facultad Tecnológica, Universidad de Santiago de Chile, Chile; ⁶Universidad de Chile, Chile
- 3:40 **The Impact of Diacylglycerol on Association Colloids Formation and Lipid Oxidation.** Mizue Ouchi¹, Eric A. Decker², and D. Julian McClements², ¹Kao Corporation, Japan; ²University of Massachusetts Amherst, USA

EAT 3.1a/LOQ 3b: Manufacture and Stabilization of W/O and O/W Emulsions for Optimal Shelf-life

Chairs: Tanu Tokle, Qualitech, USA; Ann-Dorit Moltke Sørensen, Technical University of Denmark, Denmark; and Chandra Ankolekar, Kemlin Industries Inc., USA

101 H

Joint session: for details, see EAT 3.1a/LOQ 3b on page 52

Processing

PRO 3: By-product Processing

Chairs: Norman J. Smallwood, The Core Team, USA; and Samia Mezouari, FoodScience-R&D-qc, Canada

200 F

- 2:35 Introduction.
- 2:40 **Current Situation for Spent Bleaching Earth Disposal.** Norman J. Smallwood, The Core Team, USA
- 3:00 **Processing of Atlantic Salmon (*Salmo salar*) Heads for the Extraction of Proteoglycans.** Subin R.C.K. Rajendran¹, Aishwarya Mohan², Zied Khiri³, and Beth Mason², ¹Dept. of Chemistry, Dalhousie University, Canada; ²Verschuren Centre for Sustainability in Energy and the Environment, Canada; ³Lethbridge College, Canada
- 3:20 **Oil Recovery from Palm Kernel Meal using Subcritical Water Extraction in a Stirred Tank Reactor.** Johnnys A. Bustillo Maury¹, Andres F. Aldana Rico^{*1} (**Processing Student Award Winner**), Jerry W. King², Cindy L. Garcia Pinto¹, Ingrid N. Hernandez Medina¹, Jose Urbina³, Juan C. Urueta³, Marco E. Sanjuan Mejia¹, and Antonio J. Bula Silvera¹, ¹Universidad del Norte, Colombia; ²Critical Fluid Symposia, USA; ³Palmaceite SA, Colombia
- 3:40 **Use of Lipids for Enhancing the Nutritional Value, Digestibility and Health Safety of Hay.** William J. Hausmann, The Core Team, USA
- 4:00 **Investigation of the Selective Extraction of Non-polyisoprenic Compounds from *Parthenium argentatum* Biomass with Pressurized Fluids.** Teerasak Punvichai¹, Daniel Pioch², Serge Palu², and Eric Tardan², ¹Prince of Songkla University, Thailand; ²CIRAD, UR 114 Biowoeb, France
- 4:20 **Orange Oil Based Highly Flame-retardant Rigid Polyurethanes Foams for Industrial Applications.** Sanket Bhoyate, Mihail Ionescu, Pawan Kahol, and Ram Gupta*, Pittsburg State University, USA
- 4:40 **Impact of Heat and Pressure on the Polyphenol Composition of Plant Extracts.** Michael Eskin and Usha Thiyam*, University of Manitoba, Canada
- 5:00 **Challenges of Extraction and Downstream Processing of Polyunsaturated Oils from Microbial Biomass.** Thushan S. Withana-Gamage and Udaya N. Wanasundara, POS Bio-Sciences, Canada

Processing

BIO 3.1/PRO 3.1: Biodiesel

Chairs: Per Munk Nielsen, Novozymes A/S, Denmark; Casimir C. Akoh, University of Georgia, USA; and Anders Rancke-Madsen, Novozymes, Denmark

101 D

Joint session: for details, see BIO 3.1/PRO 3.1 on page 50.

Processing

LOQ 3a/PRO 3.2a: Effect of New Processing Technologies on Lipid Oxidation

Chairs: David Johnson, Kalsec Inc., USA; and Antonios Papastergiadis, Desmet Ballestra, Belgium

101 H

Joint session: for details, see LOQ 3a/PRO 3.2a, above.

Protein and Co-Products

ANA 3.1/PCP 3a: Bioprocessing for New/Value-added Protein Utilization: Digestibility Issues/Analytical Measurements

Chairs: Sneh Bhandari, Merieux Nutrisciences, USA; Buddhi Lamsal, Iowa State University, USA; and Bishnu Karki, South Dakota State University, USA

101 C

Joint session: for details, see ANA 3.1a/PCP 3a on page 49.

Protein and Co-Products

PCP 3b: Bioprocessing for New/Value-added Protein Utilization: Technologies

Chairs: Buddhi Lamsal, Iowa State University, USA; and Bishnu Karki, South Dakota State University, USA

101 C4:15 **Introduction**

4:20 **Fungal Fermentation of Rapeseed Meal for Better Animal Feed.** Bo Hu, *University of Minnesota, USA*

4:40 **Extraction and Properties of Protein from Camelina Engineered to Produce Acetyl-triacylglycerols (Camelina Acetyl-TAG).** Mila P. Hojilla-Evangelista¹, Roque L. Evangelista¹, and John Ohlrogge², ¹USDA, ARS, NCAUR, USA; ²Michigan State University, USA

5:00 **Oilseed Protein Based Biomimetic Adhesive Inspired by Mussel Adhesion.** Nandika Bandara¹, Hongbo Zeng², and Jianping Wu², ¹Dept. of Agricultural, Food and Nutritional Science, University of Alberta, Canada; ²University of Alberta, Canada

5:20 **Production of Proteins from Partially De-oiled Mustard Flour.** Levente L. Diosady and Bih King Chen*, *Dept. of Chemical Engineering, University of Toronto, Canada*

Surfactants and Detergents

S&D 3a: Surfactants in Agricultural Applications

Chairs: Michael Tate, Dow Chemical Company, USA; and Ryan Totten, Stepan Company, USA

200 C2:35 **Introduction.**

2:40 **Compatibility Agents for Complex Tank Mix Systems.** Jacob P. Bell, Julia A. Sheehan, and Kelly Buchek, *Stepan Company, USA*

3:00 **Fundamentals of Multi-Surfactant/Solvent/Water Phase Behavior in Agricultural Applications Using High Throughput Techniques.** Michael Tate, Laura Havens, Matthew Benedict, Thomas Boomgaard, Jeff Michalowski, Matt Entorf, Romain Britton, and Bethany Karl, *The Dow Chemical Company, USA*

3:20 **Adjuvant Use for Crop Protection Products.** Douglas J. Linscott, Madan M. Somasi, Hongyoung Jeon, and Suresh B. Annangudi Palani, *DowAgroSciences, LLC, USA*

3:40 **Structured Surfactants as Rheology Modifiers for Electrolyte Systems.** Kelly Buchek, Elodie Shaw, and Ryan Totten*, *Stepan Company, USA*

Surfactants and Detergents

S&D 3b: General Surfactants

Chairs: Robert Coots, Colonial Chemical, USA; Erika Szekeres, Method, USA; and Dennis Abbeduto, Colonial Chemical Inc., USA

200 C4:15 **Introduction**

4:20 **Virtual Detergency Experimentation.** Rodrigo J. Olmedo and Nicolas A. Olmedo, *CONSUMERTEC, Ecuador*

4:40 **Characteristic Curvature of Ether Carboxylate Surfactants and Contribution of Functional Groups.** Thu Nguyen and Carla Morgan, *Sasol Performance Chemicals, USA*

5:00 **Thickener for Cationic Disinfectant-based Formulations.** Grace N. Mahfouz, Smita Brijmohan, Mark Paczkowski, and Chris Belock, *Lubrizol Corporation, USA*

5:20 **Surface Activity of Plant Oil-based Monomers in Emulsion Copolymerization.** Kyle Kingsley¹, Vasylyna Kirianchuk², Oleh Shevchuk¹, and Andriy Voronov¹, ¹North Dakota State University, USA; ²Lviv Polytechnic National University, Ukraine

Surfactants and Detergents

S&D 3.1: Surfactants and Additives in Enhanced Oil Recovery and Oilfield Applications

This session is sponsored in part by Harcros Chemicals and Ultimate EOR Services.

Chairs: Upali Weerasooriya, University of Texas at Austin, USA / Harcros Chemicals & Ultimate EOR Services, USA; and Jeffrey Harwell, University of Oklahoma, USA

200 A2:35 **Introduction.**

2:40 **A Novel Microfluidic Platform to Measure Dynamic Interfacial Tensions at Short Time Scales.** Sachin Goel¹, Samson Ng², Edgar Acosta³, and Arun Ramchandran³, ¹Dept. of Chemical Engineering and Applied Chemistry, University of Toronto, Canada; ²Syncrude Canada Limited, Canada; ³University of Toronto, Canada

3:00 **Quantitative Crude Oil Demulsification Analysis Using Multiple Light Scattering.** Matt Vanden Eynden¹, Christelle Tisserand², Yoann Lefeuvre², Pascal Bru², and Gerard Meunier², ¹Formulation, Inc., USA; ²Formulation, France

3:20 **Novel Surfactants for Chemical Enhanced Oil Recovery.** Himanshu Sharma¹, Krishna Panthi¹, Pinaki Ghosh¹, Upali P. Weerasooriya², and Kishore K. Mohanty¹, ¹The University of Texas at Austin, USA; ²University of Texas, Harcros Chemicals & Ultimate EOR Services, USA

3:40 **Comprehensive Evaluation of Scleroglucan Biopolymer for EOR under Harsh Reservoir Conditions.** Mohannad Kadhum, Tryg Jensen, Briana Kozlowicz, Eric S. Sumner, Jeffrey Malsam, and Ramakrishna Ravikiran, *Cargill, USA*

4:00 **Surfactants as Steam Foam Additives for Thermal EOR Processes.** Thu Nguyen¹, Ajay Raj¹, and Jorge M. Fernandez², ¹Sasol Performance Chemicals, USA; ²Sasol North America, USA

4:20 **Amido-Amine Based Surfactants: Synthesis, Characterization, and Physico-Chemical Investigation for Enhanced Oil Recovery in Carbonate Reservoirs.** Syed S. Hussain and Muhammad Sha Kamal, *King Fahd University of Petroleum and Minerals, Saudi Arabia*

4:40 **Oil Compatible Cylindrical Micelles at a Very Wide Range of Temperatures and Salinities.** Krishna Panthi¹, Himanshu Sharma¹, Upali P. Weerasooriya³, and Kishore K. Mohanty¹, ¹University of Texas at Austin, USA; ³University of Texas, Harcros Chemicals & Ultimate EOR Services, USA

5:00 **The Ultra-low IFT Behavior and Mechanism of a Novel Combined Cationic/Anionic-nonionic Gemini Surfactants System for Chemical Flooding.** Haishun Feng¹, Jirui Hou¹, Liming Zhang¹, Zhe Li¹, Wanli Kang³, and Hairong Wu¹, ¹China University of Petroleum (Beijing), China; ²China University of Petroleum (East China), China

5:20 **Use of Carbonaceous Nanoparticles as Surfactant Carrier in Crude Oil Recovery: Part I. Laboratory Study.** Changlong Chen, Ben Shiau, and Jeffrey Harwell, *University of Oklahoma, USA*



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WEDNESDAY MORNING

Analytical

ANA 4: Trace Contaminants, including Processing Contaminants

Chairs: Jessica K. Beekman, US Food and Drug Administration, USA; and Mark W. Collison, Archer Daniels Midland Co., USA

101 G

- 7:55 Introduction.
- 8:00 **Comparison of Analytical Methodologies for the Analysis of Bound MCPD and Glycidol in Edible Oils and Infant Formula.** Jessica K. Beekman¹, Kaitlin Grassi¹, Shaun MacMahon¹, Jan Kuhlmann², Adam Becalski³, Greg Jaudzems⁴, and Fabien Robert⁴, ¹US Food and Drug Administration, USA; ²SGS Germany GmbH, Germany; ³Health Canada, Canada; ⁴Nestle Quality Assurance Center, USA
- 8:20 **Detection Limits and Challenges in Low Level Analysis of MCPD and Glycidol using AOCS Method Cd 29c-13.** Mark W. Collison and Kevin Adlaf, *Archer Daniels Midland Co., USA*
- 8:40 **Recent Status of EU-regulation on 3-MCPD and Glycidol in Oils/Fats, Infant Formulae and Analytical Solutions Available.** Jan Kuhlmann, *SGS Germany GmbH, Germany*
- 9:00 **Modern Analytical Tools in MCPD and Glycidol Analysis: Research and Routine Analysis Perspectives.** Katerina Mastovska¹, Vojtech Hrbek², Beverly Belkova², Barbara A. Mitchell³, Urairat Koesukwiwat⁴, and Jana Hajslova², ¹Covance Food Solutions, USA; ²University of Chemistry and Technology, Czech Republic; ³Covance Labs, Inc., USA; ⁴Covance Food Solutions, Singapore
- 9:20 **Toxicity Evaluation of 2-MCPD and Estimation of Intestinal Absorption of the Monoesters.** Yomi Watanabe¹, Naoki Kaze², Kaeko Murota³, Hirofumi Sato⁴, Yuri Osafune⁵, and Araki Masuyama⁵, ¹Osaka Research Institute of Industrial Science and Technology, Japan; ²Ueda Oils & Fats MFG., Japan; ³Kindai University, Japan; ⁴Osaka Municipal Technical Research Institute, Japan; ⁵Osaka Institute of Technology, Japan
- 9:40 Break
- 10:00 **The Importance of Aligning Analytical Limits with Health-based Guidance Values: Process-formed Compounds Case Study.** Paul R. Hanlon, *Abbott Nutrition, USA*
- 10:40 **Healthy but also Flavorful Food: Mitigation Strategies for Food-borne Toxicants Combined with Sensory Properties Accepted by Consumers.** Michael Granvogl, *Technical University of Munich, Germany*
- 11:00 **MOSH/MOAH and Plasticizers: Status quo of Analysis and Activities of the Authorities in the EU.** Jan Kuhlmann, *SGS Germany GmbH, Germany*
- 11:20 **Immuno Magnetic Solid Phase Extraction Combined with Cleanup to Determine Aflatoxin B1 in Vegetable Oils.** Hongshun Yang and Xi Yu, *National University of Singapore, Singapore*
- 11:40 **Effect of the Composition and Structure of Excipient Emulsion on the Bioaccessibility of Pesticide Residue in Agricultural Products.** Ruojie Zhang¹ (*Honored Student Award Winner; Lipid Chemistry and Nutrition Award Winner*) D. Julian McClements¹, Lili He¹, Zipei Zhang¹, Wenhao Wu², Yeonhwa Park³, and Baoshan Xing², ¹University of Massachusetts Amherst, USA; ²Stockbridge School of Agriculture, University of Massachusetts Amherst, USA; ³Dept. of Food Science, University of Massachusetts Amherst, USA

Biotechnology

BIO 4: Plant and Algae Lipid Biotechnology and Genomics

Chairs: Jay Shockey, USDA, ARS, SRRC, USA; and Timothy P. Durrett, Kansas State University, USA

200 I

- 7:55 Introduction.

- 8:00 **Genome Editing and Plant Agriculture.** Daniel Voytas, *University of Minnesota, USA*
- 8:40 **Improving the World's Nutrition with Next Generation Canola Oils.** Lorin R. Debonte, Xinmin Deng, Richard Fletcher, Kristin P. Monser-Gray*, Diliara Iassonova, and Willie Loh, *Cargill Inc., USA*
- 9:00 **Generation and Characterization of Multiple Mutated Oilseeds via CRISPR Cas9 Genome Editing.** Jay Shockey, Catherine Mason, and Tien Thuy Vuong, *SRRC-ARS-USDA, USA*
- 9:20 **CRISPR-Cas9 Genome Editing to Alter Oil Production in the Hexaploid Oilseed Crop *Camelina sativa*.** Jose A. Aznar-Moreno and Timothy P. Durrett, *Kansas State University, USA*
- 9:40 **Advancing Genomic Solutions in Algae Biofuels and Bioproducts.** Eric R. Moellering, *Synthetic Genomics, Inc, USA*
- 10:00 Break.
- 10:20 **Molecular Breeding Tools for Rapid Conversion of Cover Crop Pennycress into a Novel Oilseed Crop.** Tim Ulmasov, *Arvegenix, USA*
- 10:40 **Employing Synthetic Biology Approaches to Facilitate Value-added Oil Production in the Oilseed Cover Crop Pennycress.** John Sedbrook¹, Michaela McGinn¹, Malihe Esfahanian¹, Sunil Bansal², Brice Jarvis¹, Taylor Suo¹, Tara Nazarene³, M. David Marks⁴, Ed Cahoon⁵, and Timothy P. Durrett², ¹Illinois State University, USA; ²Kansas State University, USA; ³University of Nebraska, USA; ⁴University of Minnesota, USA; ⁵University of Nebraska-Lincoln, USA;
- 11:00 **Glycolytic Genes Influences Mesocarp Oil Content in Oil Palm.** Jaime Y.S. Low¹, Nurliana Y.S. Ruzlan², Noor Azizah Musa Musa³, Ai-Ling Ong³, David R. Appleton¹, Fook Tim Chew⁴, Hirzun M. Yusof², and Hari Krishna Kulaveerasingam⁵, ¹Biotechnology & Breeding Department, Sime Darby Plantation R&D Centre, Malaysia; ²Sime Darby Renewables, Sime Darby Plantation Sdn Bhd, Malaysia; ³Biotechnology & Breeding Department, Sime Darby Plantation R&D Centre; ⁴Dept. of Biological Sciences, National University of Singapore, Singapore; ⁵Sime Darby Plantation R&D Centre, Malaysia
- 11:20 **Recapitulation of Triacylglycerol Biosynthesis Pathways to Increase Hydroxy-Fatty Acid Accumulation.** Daniel Lunn, James Wallis, and John Browse, *Washington State University, USA*

Biotechnology

BIO 4.1/S&D 4: Biosurfactants and Additives

Chairs: Daniel K.Y. Solaiman, USDA, ARS, ERRC, USA; and George A. Smith, Sasol North America, USA

200 C

- 7:55 Introduction.
- 8:00 **Next Generation Castor Oil Ethoxylates.** Ollie James, Dustin Landry, Liam McMillan, and George Smith, *Sasol North America, USA*
- 8:20 **Glycolipid Biosurfactants: Characteristic Curvature and Applications in Microemulsions and Emulsions.** Zheng Xue, Dennis Parrish, Eric Theiner, Khalil Yacoub, Andras Nagy, and Terrence Everson, *Evonik Corporation, USA*
- 8:40 **Glucamide Surfactants: Structural and Interfacial Aspects.** Brajesh Jha, *Colgate Palmolive, USA*
- 9:00 **NMR Investigation of the Effect of pH on Micelle Formation by an Amino Acid-based Surfactant.** Kevin F. Morris¹, Gabriel Rothbauer¹, Elisabeth Rutter¹, Chelsea Reuter-Seng¹, Simon Vera², Eugene Billiot², Yayin Fang³, and Fereshteh Billiot², ¹Carthage College, USA; ²Texas A&M Corpus Christi, USA; ³Howard University, USA
- 9:20 **Effects of Rhamnolipid on Phagotrophic Algae as Sensitive Ecologically Important Model Organism.** Krutika Invally, Suo Xiao, and Lu-Kwang Ju*, *University of Akron, USA*
- 9:40 **Application of Sophorolipids to Control Food Pathogens.** Daniel K.Y. Solaiman, Richard D. Ashby, Xuetong Fan, and Modesto Olanya, *USDA, ARS, ERRC, USA*
- 10:00 **The Stability of Nanoemulsions and Emulsions Containing Cinnamaldehyde and Biosurfactants, and their Antimicrobial Performance against *Escherichia coli* O157:H7 and *Listeria***

Monocytogenes. Kangzi Ren and Buddhi Lamsal, *Iowa State University, USA*

10:20 **Unique Characteristics of Sophorolipid, Yeast Glycolipid Biosurfactants, and its Application as Eco-friendly Bio-detergents.** Yoshihiko Hirata, Glen Lelyn Quan, Michiaki Araki, and Mizuyuki Ryu, *Saraya, Japan*

10:40 **Appisurf: Functionality Driven Design and Synthesis of New-to-Nature Glycolipid Biosurfactants.** Sophie L.K.W. Roelants¹, Sofie Demaeseneire², and Wim Soetaert³, ¹Bio Base Europe Pilot Plant, Belgium; ²Ghent University, Belgium; ³Centre for Industrial Biotechnology and Biocatalysis (InBio.be), Ghent University, Belgium

Edible Applications Technology

EAT 4: Lipid Gels: Application and Functionality in Edible Products

This session is sponsored in part by Cargill, Inc.

Chairs: Michael Rogers, University of Guelph, Canada; and Serpil Metin, Cargill Inc., USA

101 A

7:55 Introduction.

8:00 **Oil Gel: Its Historic Development and Technical Hurdles to Overcome for Future Commercialization.** Linsen Liu, *IOI Loders Croklann, USA*

8:20 **Peptide-based Low Molecular Weight Organogelators (LMOGs): Structural Influence of Side Chain, Chain Length and D/L Configuration On Gelation Behavior.** Yaqi Lan and Yong Cao, *South China Agricultural University, China*

8:40 **Physical Properties, Microstructure and Intermolecular forces of Soybean Oil Oleogels Structured by Different Polysaccharides.** Zong Meng¹, Keyu Qi², and Yuanfa Liu³, ¹School of Food Science and Technology, Jiangnan University, China; ²School of Food Science and Technology, State Key Laboratory of Food Science and Technology, Jiangnan University, China; ³School of Food Science and Technology, State Key Laboratory of Food Science and Technology, Jiangnan University, China

9:00 **Natural Saponin-based Emulsion Templates for Edible Oil Structuring.** Xiaquan Yang, *South China University of Technology, China*

9:20 **Photoprotective Mechanism of Supramolecular Oleogels on Retinyl Palmitate.** Yixing Tian and Nuria C. Acevedo*, *Iowa State University, USA*

9:40 Break

10:00 **Interaction between Different Lipid Structuring Agents in Organogels.** Thais L.T. da Silva¹ (*Honored Student Award Winner*), Silvana Martini², and Daniel B. Arellano¹, ¹University of Campinas, Brazil; ²Utah State University, USA

10:20 **Engineering Mechanical Properties of Edible Oleogels Based on Ethylcellulose and Lecithin.** Mayra Aguilar-Zarate¹, Jorge F. Toro-Vazquez¹, and Alejandro G. Marangoni², ¹Universidad Autónoma de San Luis Potosí, Mexico; ²University of Guelph, Canada

10:40 **Crystallization Behavior of Low Saturated, Non-Hydrogenated Fat Systems Structured with Different Oleogels - Monoglycerides, Vegetable Wax and its Combinations.** Fernanda Davoli¹, Serpil Metin¹, and Paul Smith³, ¹Cargill, USA; ²Cargill Global Foods Research, Belgium

11:00 **Whey Protein and Vegetable Oil Interactions within Oleocolloid Matrices.** Clifford Park, Rafael Jimenez-Flores, and Farnaz Maleky, *Ohio State University, USA*

11:20 **Influence of Polar Compounds and Fatty Acid Composition on the Formation of Organogels.** Eckhard Flöter, Maria Scharfe, and Yassin Ahmane Technical University of Berlin, Germany♦

Edible Applications Technology

EAT 4.1/LOQ 4b: Food Structuring to Reduce Lipid Oxidation

Chairs: Hong-Sik Hwang, USDA, ARS, NCAUR, USA; Alex Kripps, Caldic USA, USA; and Yaqi Lan, South China Agricultural University, China

101 H

10:15 Introduction

10:20 **Formation of Free-flowing Fish Oil-loaded Hollow Solid Lipid Micro- and Nanospheres Using Carbon Dioxide.** Junsu Yang and Ozan N. Ciftci*, *University of Nebraska-Lincoln, USA*

10:40 **Natural Wax Oleogels-A Method to Prevent Oxidation of Fish Oil.** Hong-Sik Hwang¹, Matthew Phaner², Jill Moser¹, and Sean Liu³, ¹USDA, ARS, NCAUR, USA; ²University of Michigan-Flint, USA; ³USDA, ARS, USA

11:00 **Self-assembled Colloidal Complexes of Polyphenol-gelatin and their Stabilizing Effects on Emulsions.** Chaoying Qiu, Yu Huang¹, Zhen Zhang², Ying Li³, and Yong Wang¹, ¹Jinan University, China; ²South China University of Technology, China; ³Guangdong Saskatchewan Oilseed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, China

11:20 **Ability of SDS Micelles to Increase the Antioxidant Activity of α -tocopherol.** Raffaella Inchingolo¹ (*European Section Travel Grant Winner and Lipid Oxidation and Quality Travel Grant Winner*), Sezer S. Kiralan¹, Sibel Uluata¹, MariaTeresa Rodriguez Estrada², D. Julian McClements³, and Eric A. Decker³, ¹University of Massachusetts, USA; ²University of Bologna, Italy; ³University of Massachusetts Amherst, USA

11:40 **Impact of Reduced Oxygen Environment and Natural Antioxidants on the Oxidative Stability of Oil-in-Water Emulsions.** Eric A. Decker¹ and David R. Johnson², ¹University of Massachusetts Amherst, USA; ²Kalsec Inc., USA

Health and Nutrition

H&N 4a: Nutrigenetics and Nutrigenomics of Lipid Metabolism

This session is sponsored in part by National Cattlemen's Beef Association and Young Living Essential Oils.

Chairs: Susan K. Raatz, USDA, ARS, Grand Forks Human Nutrition Research Center, USA; and Fabiola Dionisi, Nestlé Research Center, Switzerland

101 J

7:55 Introduction.

8:00 **Genetic Determinants of the Cardiometabolic Risk Factor Response to an N-3 PUFA Supplementation.** Marie-Claude Vohl, *Laval University, Canada*

9:00 **Effect of Fatty Acid Chain Length on Regulation of Hepatic Gene Expression by Saturated Fats.** Harsha Hapugaswatte¹, Chathuri M. Senanayake¹, Gangi R. Samarawickrama², Kapila N. Seneviratne¹, and Nimanthi Jayathilaka², ¹University of Kelaniya, Sri Lanka; ²Dept. of Chemistry, University of Kelaniya, Sri Lanka

9:20 **Trans Fatty Acids Suppress TNF α -induced Inflammatory Gene Expression in Endothelial and Hepatocellular Carcinoma Cells.** Marine S. Da Silva¹, Sarah O'Connor², Pierre Julien², Jean-François Bilodeau², Olivier Barbier³, and Iwona Rudkowska², ¹Centre de recherche du CHU de Québec – Université Laval, Canada; ²Endocrinology and Nephrology Unit, Centre de recherche du CHU de Québec – Université Laval, Canada; ³Laboratory of Molecular Pharmacology, Centre de recherche du CHU de Québec – Université Laval, Canada ♦

9:40 **Gene-dietary Fat Interactions and Cardiometabolic Health.** José M. Ordovás, *Tufts University, USA*

Health and Nutrition

H&N 4b: Ralph Holman Lifetime Achievement Award Lecture

Chairs: Douglas M. Bibus, Lipid Technologies LLC, USA; and Fabiola Dionisi, Nestlé Research Center, Switzerland

101 J

11:00 Ralph Holman, Omega 3 and Me. Susan K. Raatz, *USDA, ARS, Grand Forks Human Nutrition Research Center, USA*

Industrial Oil Products

IOP 4: Oleochemicals

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

200 H

7:55 Introduction.

8:00 **The Global Challenges in Chemicals and Energy.** Mischa Schneider, *Chemsped Technologies AG, Switzerland*

8:20 **Effective Magnesium Oxide-Zeolite Catalysts to Produce Iso-Oleic Acid, Precursor of Isostearic Acid.** Helen Ngo Lew, Jianwei Zhang, and Robert A. Moreau, *USDA, ARS, Eastern Regional Research Center, USA*

8:40 **A Soybean Oil-based Adhesive and its Application for Birdseed Binding.** Tao Fei, Melissa Slagle, Darren H. Jarboe, and Tong Wang, *Iowa State University, USA*

9:00 **Bioplasticizers Derived from Regular and High Oleic Soybean Oil.** Lucas J. Stolp (*Industrial Oil Products Student Award Winner*) and Dharma R. Kodali, *University of Minnesota, USA*

9:20 **Innovations in Biodiesel Production Value Chain Toward Circular Economy.** Xiaofei P. Ye, *University of Tennessee, USA*

9:40 **Improved Synthesis and Cost Estimates for the Production of Saturated Branched-Chain Fatty Acids from Vegetable Oils.** Jianwei Zhang, Winnie Yee, Robert A. Moreau, and Helen Ngo Lew, *USDA, ARS, Eastern Regional Research Center, USA*

10:00 **Laser-assisted Catalytic Oxidation of Glycerol over Gold Supported Catalysts.** Zeinab Chehadi¹, Jean-Sébastien Girardon², Mickaël Capron³, Franck Dumeignil⁴, and Safi Jradi¹, *¹Laboratoire de Nanotechnologie et d'Instrumentation Optique, Institut Charles Delaunay, UMR 6281 CNRS, Université de Technologie de Troyes, France; ²Univ. Lille, CNRS, Centrale Lille, ENSCL, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide; ³Univ. Lille, CNRS, Centrale Lille, ENSCL, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, France; ⁴Université de Lille, France*

10:20 **The Effect of Plant Oil-Based Monomer Structure on Properties of Latex Synthesized in Miniemulsion Polymerization.** Zoriana Demchuk¹, Ananiy Kohut², Ihor Tarnavchuk¹, Stanislav Voronov², and Andriy Voronov¹, *¹North Dakota State University, USA; ²Lviv Polytechnic National University, Ukraine*

10:40 **Preparation of Mango Kernel Fat Stearin using 2-methylpentane and its Application in Heat-resistant Chocolate Fats.** Jun Jin (*Honored Student Award Winner*), Qingzhe Jin, and Xingguo Wang, *Jiangnan University, China*

11:00 **Producing Fully Renewable Medium Chain Alpha Olefins via an Integrated Biorefinery Process.** Tao Dong, Wei Xiong, Jianping Yu, and Philip Pienkos, *National Renewable Energy Laboratory, USA*

11:20 **High Linoleic Soybean Oil a New Feedstock for Industry: Alkyd Resin and Paint Example.** Rick Heggs, *Oilseed Innovation Partners, Canada*

Lipid Oxidation and Quality

LOQ 4a: Lipid Oxidation in Complex Food Products and Interactions with Ingredients

Chairs: Linhong Yao, Mondelez International Inc., USA, USA; and Lan Ban, Kemin Food Technologies, USA; and Will Schroeder, Kemin Food Technologies, USA

101 H

7:55 Introduction.

8:00 **Lipid Oxidation in Fish Feed.** Ann-Dorit Moltke Sørensen, Anita Ljubic, and Charlotte Jacobsen*, *Technical University of Denmark, Denmark*

8:20 **The Combination of Green Tea and Rosemary – Impact of System, Concentration and Ratio on Antioxidant Performance.** Xin Tian, Nora Yang, and Poulson Joseph, *Kalsec Inc., USA*

8:40 **Evaluation of Antioxidants and Antimicrobials from Plant Extracts in Pet Food.** Charlotte Deyrieu¹, Erwann Durand¹, Nathalie Barouh¹, Jérôme Lecomte², Françoise Michel-Salaun³, Bruno Baréa¹, Gilles Kergourlay³, and Pierre Villeneuve¹, *¹CIRAD, France; ²CIRAD, Greece; ³Vidoka Diana Pet Food, France*

9:00 **Non-targeted Screening for Oxidized Lipids in Foods.** Verena Grüneis¹, Natasa Popovic², Martin Zehl³, Jürgen König⁴, and Marc Pignitter*, *¹Dept. of Physiological Chemistry, Faculty of Chemistry, University of Vienna, Austria; ²Dept. of Physiological Chemistry, Faculty of Chemistry, University of Vienna, Austria; ³Dept. of Analytical Chemistry, Faculty of Chemistry, University of Vienna, Austria; ⁴Dept. of Nutritional Sciences, Faculty of Life Sciences, University of Vienna, Austria*

9:20 **Polyphenol Shifts in Lipid Oxidation Pathways and Interactions with Proteins Alter Apparent Antioxidant Effectiveness.** Karen M. Schaich¹, and Xiaosong Chen², *¹Dept. of Food Science, Rutgers University, USA; ²China Agricultural University, China*

Lipid Oxidation and Quality

EAT 4.1/LOQ 4b: Food Structuring to Reduce Lipid Oxidation

Chairs: Hong-Sik Hwang, USDA, ARS, NCAUR, USA; and Alex Kripps, Caldic USA, USA; and Yaqi Lan, South China Agricultural University, China

101 H

Joint session: for details, see EAT 4.1/LOQ 4b on page 57.

Phospholipid

PHO 3: Developments and Applications of Novel and Modified Phospholipids

Chairs: Ernesto Hernandez, Advanced Lipid Consultants, USA; and Xuebing Xu, Wilmar Global Research and Development Center, China

200 A

7:55 Introduction.

8:00 **Preparation and Functional Evaluation of Antarctic Krill Lipid.** Yuanfa Liu¹, Dewei Sun², Peirang Cao¹, and Zong Meng³, *¹Jiangnan University, China; ²School of Food Science and Technology, Jiangnan University, China; ³School of Food Science and Technology, Jiangnan University, China*

8:20 **Review of Uses of Phospholipids in Delivery Systems and Bioactive Carriers Applications.** Ernesto Hernandez, *Advanced Lipid Consultants, USA*

8:40 **Composition and Structure of Phospholipid in Breast Milk: Towards Specific Interest in Infant Formula.** Wei Wei¹, Mingdong Dong², and Xingguo Wang¹, *¹Jiangnan University, China; ²Interdisciplinary Nanoscience Center, Aarhus University, Denmark*

9:00 **Design of Two-layered Microcapsules of Chia Oil by Using Sunflower PC-enriched Lecithin and the LBL Technique.** Luciana M. Julio¹, Claudia N. Copado¹, Vanesa Y. Ixtaina¹, Bernd W.K. Diehl²,

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and Mabel Tomás^{*1}, ¹CIDCA (CONICET-UNLP), Argentina; ²Spectral Service AG, Germany

- 9:20 **Low Molecular Weight Food Grade Emulsifiers including Soy Lecithins / Phosphatidylcholine Span a Wide Range of Interfacial Tensions and Interfacial Rheological Properties.** Arnulf Schoeppe and Padmavathi Sridharan, *Cargill Texturizing Solutions Deutschland GmbH & Co.KG, Germany*
- 9:40 **Extraction, Purification and Enzymatic Modification of Phospholipids from Antarctic Krill.** Shulai Liu, Jie Hu, Kaixi Xu, Bokai Yu, and Yuting Ding, *Zhejiang University of Technology, China*
- 10:00 **Novel Structured Phospholipids and Applications from Avocado Oil.** Sara KoohiKamali and Ernesto Hernandez, *Advanced Lipids Consultants, USA*
- 10:20 **Characterization of Novel Vegetable Lecithin and its Application in Emulsions.** Xuebing Xu, Fang Cong*, and Binbin Chen, *Wilmar Global Research and Development Center, China*

Processing

PRO 4: Processing ABC — Part II

Chairs: Bruce Patsey, Oil-Dri Corporation of America, USA; and Kris Knudson, Crown Iron Works Co., USA

200 F

- 7:55 Introduction.
- 8:00 **The Use of Controlled Flow Cavitation to Improve the Performance of Degumming, Refining and Biodiesel Operations.** Darren J. Little¹, Peter Reimers¹, and Oleg Kozyuk², ¹Arisdyne Systems, Inc., USA; ²ASI Chief Technology Officer, Ukraine
- 8:20 **Centrifuge Equipment in Fats and Oils Processing.** William Younggreen, *Alfa Laval Inc., USA*
- 8:40 **Composite Adsorbent - Filter Aid for High Performance Oil Purification.** Li-Chih Hu, David Gittins, and Nathan Dias, *Imerys Filtration Minerals Inc., USA*
- 9:00 **Low Color Bodies During Bleaching Impacting Refining Cost.** Jorge Bello, *EP Engineered Clays, USA*
- 9:20 **Removal of Biofuel Feedstock Trace Elements by Bleaching Clays.** David Brooks and Sajo Naik, *Oil-Dri Corporation of America, USA*
- 9:40 **Dry Condensing System; Why all this Sudden Interest in this Technology?** Sascha Wenger-Parving, *GEA Process Engineering, Denmark*
- 10:00 **What is Your Best Deodorizer Choice? Developments in Deodorization Process.** Leon Pablo Espinosa, *Desmet Ballestra, USA*
- 10:20 **New Developments in Physical Refining and Removal of Contaminants in Edible Oils.** Perry Alasti, *Artisan Industries Inc., USA*
- 10:40 **An Alternative Filtration in Bleaching.** Tony Dinsbach, *Filtration Group BV, The Netherlands*
- 11:00 **Glycidyl Ester Formation and Mitigation.** Linsen Liu, Stephen Lumor, and Tri Le, *IOI Loders Crokann, USA*
- 11:20 **Results of Experiments to Reduce MCPD and Glycidyl Esters in Edible Fats and Oils by Ionic Liquid Treatment.** Frank Pudel¹, Jennifer Heymann², and Bertrand Matthäus³, ¹Pilot Pflanzenöltechnologie Magdeburg e.V., Germany; ²Evonik Creavis GmbH, Germany; ³Max-Rubner-Institut, Germany

Protein and Co-Products

PCP 4: Pulse Proteins

Chairs: Tanya Der, Pulse Canada, Canada; and Chibuike Udenigwe, University of Ottawa, Canada

101 C

- 7:55 Introduction.
- 8:00 **Global Market Trends for New Pulse Product Development.** Tanya Der, *Pulse Canada, Canada*
- 8:20 **Cropping Location and Year Affect Protein Content and Amino Acid Score of Different Lentil Varieties.** Matthew G. Nosworthy¹,

Jason Neufeld¹, Tom Warkentin², and James D. House¹, ¹University of Manitoba, Canada; ²Crop Development Centre/Dept. of Plant Sciences, University of Saskatchewan, Canada

- 8:40 **Bioaccessibility of Bioactive Compounds with Dipeptidyl Peptidase-IV and α -glucosidase Inhibitory Activities in Pulses.** Chibuike C. Udenigwe¹, Elisa Di Stefano^{*1}, and Teresa Oliviero², ¹University of Ottawa, Canada; ²Wageningen University, The Netherlands
- 9:00 **Functional and Sensory Characterization of Pre-treated Yellow-Eyed Beans.** Marcia English, *Saint Francis Xavier University, Canada*
- 9:20 **Pulse Ingredients as an Alternative to Soy in the Production of Meat Analog via High Moisture Extrusion Cooking.** Jenni Harrington, *Buhler Inc., USA*
- 9:40 **Break.**
- 10:00 **Oleogelation using Pulse Protein-Stabilized Foam.** Athira Mohanan, Yan Ran Tang, Michael Nickerson, and Supratim Ghosh, *University of Saskatchewan, Canada*
- 10:20 **Wet Fractionation of Lentil and Faba Bean for Protein Ingredient Production: Effect of Processing Factors on Ingredient Quality and Functionality.** Anusha Samaranayaka¹, Rick Green¹, Michael Nickerson², and Shannon Hood-Niefer³, ¹POS Bio-Sciences, Canada; ²University of Saskatchewan, Canada; ³Saskatchewan Food Industry Development Centre Inc., Canada
- 10:40 **Nanoparticles Prepared from Desolvation of Pea Protein Concentrates as a Potential Stabilizer for Pickering Emulsions.** Chi Diem Doan and Supratim Ghosh, *University of Saskatchewan, Canada*
- 11:00 **Effect of the Carriers on the Microstructure and Functionality of Spray Dried Pea Protein Isolate.** Yang Lan and Jiajia Rao, *North Dakota State University, USA*
- 11:20 **Reformulating Cereal-based Foods with Pulses: Effect on Nutrient Density and Environmental Sustainability.** Christopher Marinangeli, *Pulse Canada, Canada*
- 11:40 **Panel Discussion: Current Trends and Future Direction of Pulse Research and Development.**

Surfactants and Detergents

BIO 4.1/S&D 4: Biosurfactants and Additives

Chairs: Daniel K.Y. Solaiman, USDA, ARS, ERRC, USA; and George A. Smith, Sasol North America, USA

200 C

Joint session: for details, see BIO 4.1/S&D 4 on page 56.

WEDNESDAY AFTERNOON

Analytical

ANA 5: Marine Oils and Other Products

Chairs: Cynthia Srigley, US Food and Drug Administration, USA; and Adam Ismail, Global Organization for EPA and DHA Omega-3s, USA

101 G

- 1:55 Introduction.
- 2:00 **Oxidative Status and Nutrient Label Claim Accuracy of the Top 50 Selling Omega-3 Products in the US.** Adam Ismail, *Global Organization for EPA and DHA Omega-3s, USA*
- 2:20 **Sensory Vocabulary for Marine Omega-3 Oils.** Wenche Emblem Larssen, *Møreforskning, Norway*
- 2:40 **An Examination of Marine and Vegetable Oil Oxidation Data from a Multi-Year, Third-Party Database.** Anna A. De Boer¹, Adam Ismail², Keri Marshall³, Gerard Bannenberg¹, Kevin L. Yan¹, and William J. Rowe¹, ¹Nutrasource, Canada; ²Global Organization for EPA and DHA Omega-3s, USA; ³DSM Nutritional Products, USA
- 3:00 **Chemical Changes During the Acute Oxidations of Fish Oils.** Austin S. Phung¹, Selina C. Wang¹, Adam Ismail², Gerard

Bannenberg², and Ameer Taha³, ¹University of California-Davis, Olive Center, USA; ²Global Organization for EPA and DHA Omega-3s, USA; ³University of California, Davis, USA

- 3:20 **Compositional Analysis of Algal Biomass, an Emphasis of Unique Contribution of Algal Lipids.** Lieve Laurens, *National Renewable Energy Laboratory, USA*
- 3:40 **Sterol Fingerprinting in Algae, a New Method for a New Feedstock.** Stefanie Van Wycken, and Lieve Laurens*, *National Renewable Energy Laboratory, USA*
- 4:00 **Analysis of Omega-3 Polyunsaturated Fatty Acids (PUFA) in Phospholipid Oils: A Design of Experiment Approach for Method Optimization.** Cynthia Srigley and Isa C. Orr-Tokle, *US Food and Drug Administration, USA*
- 4:20 **Evaluation of an Ultra Inert WAX-phase Column for the Analysis of Fatty Acids and FAMES.** Gustavo Serrano Izaguirre, Allen Vickers, Yun Zou, and Daron Decker, *Agilent, USA*
- 4:40 **Trans-fat Determination by Gas Chromatography Vacuum Ultraviolet Detection.** Jonathan Smuts¹ and Barbara A. Mitchell², ¹VUV Analytics, USA; ²Covance Labs, Inc., USA

Biotechnology

BIO 5: General Biotechnology

Chairs: Long Zou, Bunge Creative Solutions Center, USA; Lu-Kwang Ju, University of Akron, USA; and Guoqin Liu, South China University of Technology, China

200 I

- 1:55 Introduction.
- 2:00 **Comparison of Three Methods for Analyses of Triacylglycerols in Cocoa Butter Alternatives.** Jun Jin (*Lipid Processing and Biotechnology Award Winner*), Qingzhe Jin, and Xingguo Wang, *Jiangnan University, China*

- 2:20 **Enzymatic Processing Methods to Reduce Saturated Fat Content of Oils.** Matthew A. Robinson, *Dow AgroSciences, USA*
- 2:40 **Optimizing Oil Production by *Mucor circinelloides* using Cheese Whey Permeate.** Juliana M. Leite Nobrega de Moura Bell, Lauryn Chan, Josh Cohen, Gulistan Ozturk, Marie Hennebelle, and Ameer Taha, *University of California, Davis, USA*
- 3:00 **Effect of Interesterification on the Physicochemical Profiles of Rice Bran Wax-based Modified Fats.** Zhen Zhang¹, Huihua Huang², and Yong Wang³, ¹South China University of Technology, China; ²School of Food Science and Engineering, South China University of Technology, China; ³Jinan University, China
- 3:20 **Substrate Preference of Long Chain acyl-CoA Synthetase for Hydroxy-Fatty Acids.** Jesse D. Bengtsson and John Browse, *Washington State University, USA*
- 3:40 **Effective Enrichment of Palmitoleic Acid from Seabuckthorn Oil by Combining Different Methods.** Nakyung Choi¹, Ju Yeon Chung¹, Heejin Kim³, and In-Hwan Kim¹, ¹Korea University, Republic of Korea; ²Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea
- 4:00 **Synthesis of 2-docosaheptaenoylethylglycerol by Enzymatic Ethanolysis.** Yu Zhang, Xiaosan Wang, Shuo Zou, Qingzhe Jin, and Xingguo Wang, *Jiangnan University, China*
- 4:20 **Preparation of Diisononyl Adipate via Lipase-catalyzed Esterification in a Solvent-free System.** Aree Lee¹, Heejin Kim², and In-Hwan Kim¹, ¹Korea University, Republic of Korea; ²Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea

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EAT 5/IOP 5: Waxes and Phase Change Materials

Chairs: Nuria Acevedo, Iowa State University, USA; and Chelsey Castrodale, Clasen Quality Chocolate, USA

200 H

- 1:55 Introduction.
- 2:00 **Multiple β Forms of Tripalmitin in Different Crystallization Pathway.** Seiya Takeguchi¹, Hironori Hondoh², Hidetaka Uehara³, and Satoru Ueno², ¹The Nisshin Oil Group, Ltd./Hiroshima University, Japan; ²Graduate School of Biosphere Science, Hiroshima University, Japan; ³The Nisshin Oil Group, Ltd., Japan
- 2:20 **The Effect of Processing on Hybrid Shortenings Containing Diacylglycerols.** Iris Tavernier¹ (*Edible Applications Technology Student Award Winner*) Tom Rimaux², Koen Dewettinck³, and Ian T. Norton⁴, ¹Ghent University, Belgium; ²Vandemoortele R&D Centre, Belgium; ³University of Gent, Belgium; ⁴Chemical Engineering, University of Birmingham, UK
- 2:40 **Engineering Lipid Properties Through Glycerolysis.** Reed A. Nicholson and Alejandro G. Marangoni, University of Guelph, Canada
- 3:00 **Developing Vegetable Oil Based Wax Coating Alternatives.** Tong Wang and Tao Fei, Iowa State University, USA
- 3:40 **An Emerging Natural Wax: Sorghum Wax from Bioethanol Production.** Jeffrey T. Cafmeyer, Battelle, USA
- 4:00 **Role of Rice Bran Wax on Crystallization and Rheological Properties of Oleogels from Rice Bran Oil.** Khakhanang Wijarnprecha¹, Pravitt Santiwattana², Sopark Sonwai³, and Dérick Rousseau⁴, ¹Dept. of Food Technology, Silpakorn University, Thailand; ²Thai Edible Oil Co., Ltd., Thailand; ³Silpakorn University, Thailand; ⁴Ryerson University, Canada
- 4:20 **Phase Change Analysis of Waxes and Wax Blends by Thermal Microstructure Evolution Analysis.** Matt Vanden Eynden¹, Roland Ramsch², Giovanni Brambilla², Pascal Bru², and Gerard Meunier², ¹Formulation, Inc., USA; ²Formulation, France

EAT 5.1/S&D 5.1: Complex Phenomena at Interfaces

Chairs: Sam Adamy, Church & Dwight Co. Inc., USA; and Ozan N. Ciftci, University of Nebraska-Lincoln, USA

101 A

- 1:55 Introduction.
- 2:00 **Complex Interfaces: Role in Foam and Emulsion Behavior of Rinse-off Cosmetics.** Edward DiAntonio, Hani Fares, Martin S. Vethamuthu*, and Seher Ozkan, Ashland Specialty Ingredients G.P., USA
- 2:20 **Effect of Emulsifiers on the Interfacial Tension of Fat-reduced W/O Emulsions Added with a High Behenic Stabilizer.** Marisol Cordova-Barragan¹, Jaime D. Pérez-Martínez¹, and Elena Dibildox Alvarado², ¹Lab. Biopolímeros Alimentarios, Facultad de Ciencias Químicas, Universidad Autónoma de San Luis Potosí, Mexico; ²Universidad Autónoma de San Luis Potosí, Mexico
- 2:40 **Interaction and Synergism in Surfactant/ Water Soluble Polymer Solutions in Boosting Foaming Performance in Home, Personal Care Formulations.** Manilal Dahanayake¹ and Milton J. Rosen², ¹Surfactant Solution Experts LLC, USA; ²Surfactant Research Institute, USA
- 3:00 **Preparation of Novel Food Emulsifier using Amino Acids and Partial Glycerides.** Mahua Ghosh and Sriparna Chakraborty, University of Calcutta, India
- 3:20 **Surfactant Effects on Fat Crystallization at the Oil-water Interface.** Nicole Green¹, Stephen R. Euston², and Dérick Rousseau¹, ¹Ryerson University, Canada; ²Heriot-Watt University, UK
- 3:40 **Characterizing Adsorption Kinetics and Wetting Behavior of Polyelectrolyte Complexes (PECs).** Claire Dentinger and David Scheuing, Clorox, USA

- 4:00 **Physical Modification of Faba Bean Proteins Significantly Improves Interfacial and Emulsifying Properties of O/W Emulsions.** Yan Ran Tang and Supratim Ghosh*, University of Saskatchewan, Canada
- 4:20 **Crystal-melt Interfacial Energy Effects on the Surface Nucleation of Triglycerides.** Alejandro G. Marangoni, University of Guelph, Canada

H&N 5: General Health and Nutrition

Chairs: Jenifer Heydinger Galante, Stepan Company, USA; and Fabien Schultz, Technical University of Berlin, Neubrandenburg University of Applied Sciences, Germany

101 J

- 1:55 Introduction.
- 2:00 **East and Central African Medicinal Plants as Anti-inflammatory Inhibitors in the 15-LOX / 15-Hydroxyeicosatetraenoic Acid and COX / PGH2 Pathways.** Fabien Schultz¹ (*European Section Travel Grant Winner*), Godwin Anywar², Ogechi Favour Osuji³, and Leif-Alexander Garbe⁴, ¹Technical University of Berlin, Neubrandenburg University of Applied Sciences, Germany; ²Makerere University, Uganda; ³Applied Chemistry, School of Agriculture and Food Sciences, Neubrandenburg University of Applied Sciences, Germany; ⁴Neubrandenburg University of Applied Sciences, Germany
- 2:20 **Gamma-linolenic Acid Regresses Human Glioma.** Undurti Das, BioScience Research Centre, India
- 2:40 **Conjugated Linoleic Acid Delivered as Nanoemulsion Reduced Fat Accumulation and Increased Activity in *Caenorhabditis elegans*.** Yeonhwa Park¹, Peiyi Shen², Yiren Yue², Ou Wang², and D. Julian McClements³, ¹Dept. of Food Science, University of Massachusetts Amherst, USA; ²University of Massachusetts, USA; ³University of Massachusetts Amherst, USA
- 3:00 **Increased Body Mass Index and C-reactive Protein are Associated with Low Serum α -carotene in Adults.** Ambria Crusan¹, David R. Jacobs², Ryan T. Demmer³, and Susan K. Raatz⁴, ¹University of Minnesota, USA; ²Division of Epidemiology and Community Health, School of Public Health, University of Minnesota, USA; ³Division of Epidemiology and Community Health, School of Public Health, University of Minnesota, USA, USA; ⁴USDA, ARS, Grand Forks Human Nutrition Research Center, USA
- 3:20 **Enhancing Bioaccessibility of Phytosterols using Nanoporous Starch Bioaerogels.** Ali Ubeyitogullari (*Honored Student Award Winner; Manuchehr (Manny) Eijadi Award Winner*), Régis Moreau, and Ozan N. Ciftci, University of Nebraska-Lincoln, USA
- 3:40 **Effect of the Type of Feeding on Quality Characteristics of the Lipid Fraction in Beef.** Luis C. Vazquez¹, Jennifer Fernandez², Guillermo Reglero¹, and Carlos Torres¹, ¹University Autonoma of Madrid, Spain; ²Research Institute of Food Science (CIAL, CSIC-UAM), Spain
- 4:00 **Sex Differences in Rat Oxylipins Vary between Tissues and Diet, and Do Not Reflect Precursor Fatty Acids.** Harold M. Aukema¹, Shan Leng¹, Anne Mendonca², Lucien G.J. Cayer¹, Afroza Ferdouse¹, and Tanja Winter¹, ¹University of Manitoba, Canada; ²Federal University of Uberlandia, Brazil
- 4:20 **High Speed, Consistent Extraction for the Compounds of Interest in the Potency Testing of Cannabis.** Tom Hall and Rudolf Addink, Fluid Management Systems, USA

EAT 5/IOP 5: Waxes and Phase Change Materials

Chairs: Nuria Acevedo, Iowa State University, USA; and Chelsey Castrodale, Clasen Quality Chocolate, USA

200 H

Joint session: for details, see EAT 5/IOP 5 on page 62.

LOQ 5a: Oxidation By-products in Food and Feed: Impact on Nutritional Value and Metabolic Processes

Chairs: S.P.J. Namal Senanayake, *Camlin Fine Sciences, USA*; and Constantin Bertoli, *Nestle Product Technology Center, Switzerland*

101 H

- 1:55 Introduction.
- 2:00 **Nutritional Impacts of Oxidation Byproducts in Food: The Pet Food Dilemma.** Megan E. Morts and Greg Aldrich, *Kansas State University, USA*
- 2:20 **Dietary Intake of Mildly Oxidized Fat Increases Colitis and Colitis-associated Colon Tumorigenesis through Activation of Toll-like Receptor 4 (TLR4) Signaling.** Weicang Wang, Yuxin Wang, Eric A. Decker, and Guodong Zhang* (*Lipid Oxidation and Quality Division Travel Grant Winner*), *University of Massachusetts Amherst, USA*
- 2:40 **Implications of Feeding Peroxidized Lipids in Swine.** Brian Kerr, *USDA-ARS, USA*
- 3:00 **Food-induced Formation of Health-damaging Compounds during Repeated Deep-fat Frying Cycles.** Ru Shen, William G. Helferich, and Nicki J. Engeseth, *University of Illinois at Urbana-Champaign, USA*

LOQ 5b: Lipid Oxidation and Quality General Session

Chair: Jill Moser, *USDA, ARS, NCAUR, USA*

101 H

- 3:35 Introduction.
- 3:40 **Synergism and Antagonism of Phenolic, Amine and Sulfur-containing Antioxidants in Lipid Oxidation.** Olga T. Kasaikina and

Karina M. Zinatullina, *Semenov N.N. Institute of Chemical Physics, Russia*

- 4:00 **Physical and Oxidative Stability of O/W Emulsions Stabilized by Gum Arabic Glycated Pea Proteins.** Bingcan Chen and Fengchao Zha*, *North Dakota State University, USA*
- 4:20 **Oxidative Stability of Flaxseed Oil: Effect of Polar, non-Polar and Surface Active Antioxidants.** Athira Mohanan, Michael Nickerson, and Supratim Ghosh, *University of Saskatchewan, Canada*
- 4:40 **Antioxidant and Antibacterial Activity of Different Extracts from Herbs Obtained by Maceration or Supercritical Technology.** Ignacio Vieitez, Lucia Maceiras, Iván Jachmanián, and Silvana Alborés, *UdelaR, Uruguay*

Processing

PRO 5: New Technologies for Oil Processing

Chairs: Darren J. Litle, *Arisdyne Systems, Inc., USA*; and Gijs Calliauw, *Desmet Ballestra Group, Belgium*

200 F

- 1:55 Introduction.
- 2:00 **Enzymatic Degumming with Expanders for Maximum Oil Yield.** Steve Gregory, *DSM, USA*
- 2:20 **Recent Developments in Hydrodynamic Nanocavitation in Oil Refining: The Next Best Thing.** Marc J. Kellens, *Desmet Ballestra Group, Belgium*
- 2:40 **Elimination of MCPDs and GEs in Edible Oils.** Joseph Rongione, *Stepan Company, USA*
- 3:00 **Dry Condensing in Oil Refining: Latest Improvements to Further Enhance Oil Quality, Plant Safety, Process Efficiency and Overall Sustainability.** John A. Weston¹, Jelle L. Nijdam², and Pieter Jellema², ¹*Desmet Ballestra, USA*; ²*Solutherm, The Netherlands*
- 3:20 Break
- 3:40 **New Applications for Controlled Flow Cavitation in the Refining**

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- of Edible Oils.** Peter Reimers¹, Oleg Kozyuk², and Darren J. Litle¹, ¹Arisdyne Systems, Inc., USA; ²ASI Chief Technology Officer, Ukraine
- 4:00 **Soy and Other Protein Concentrates.** Alexander M. Danelich, Crown Iron Works, USA
- 4:20 **Enzymatic Gums Deoiling.** Antonios Papastergiadis, Desmet Ballestra, Belgium

Processing

PRO 5.1: General Processing

Chairs: Mohammad Alam, Texas A&M University, USA; and Richard Clough, Texas A&M University, USA

200 A

- 1:55 Introduction.
- 2:00 **Selectively Extracting Triglycerides by Chain Length and Saturation from Microalgae with Supercritical Carbon Dioxide.** Thomas A. Kwan (*Ralph H. Potts Memorial Fellowship Award Winner*), Qingshi Tu, and Julie B. Zimmerman, Yale University, USA
- 2:20 **Formation of 3-MCPD and Glycidyl Esters in Palm Oil using Different Laboratory-scale Refining Units.** Biow Ing Sim and Chin Ping Tan*, Universiti Putra Malaysia, Malaysia
- 2:40 **Reduction of Toxins in Fish Oil from PPM to PPB in a Specialized Passive Stripper at Micron-level Vacuum.** Caitlin A. Davis, Artisan Industries Inc., USA
- 3:00 **Synthesis of Esters from Chia Seeds Mucilage and Saturated Fatty Acids of *Irvingia gabonensis* Kernels.** Sidrine Kerthy Koumba Ibinga¹, Gwendoline Gravé¹, Jean-Francois Fabre², Eric Lacroux³, Muriel Cerny⁴, Romain Valentin⁵, Raphaël Bikanga⁶, and Zéphirin Mouloungui⁴, ¹INP - ENSIACET, France; ²LCA UMR1010 INRA-INP/ENSIACET, France; ³Chimie Agro-Industrielle, France; ⁴Laboratoire de Chimie Agro-Industrielle, France; ⁵INRA, France; ⁶USTM, France

Protein and Co-Products

PCP 5: Protein and Co-Products General Session

Chairs: Nandika Bandara, Dept. of Agricultural, Food and Nutritional Science, University of Alberta, Canada; and Rotimi Aluko, University of Manitoba, Canada

101 C

- 1:55 Introduction.
- 2:00 **Iron Release Properties of Pulse Seed Ferritin Concentrates After Simulated *in vitro* Gastrointestinal Tract Digestion.** Rotimi Aluko, University of Manitoba, Canada
- 2:20 **Anti-inflammatory Properties of Potato Protein Hydrolysates in Primary Cells, Cell Lines and Mice Model.** Chibuike C. Udenigwe¹, Ming Gong², Emeka B. Okeke³, and Jude E. Uzonna³, ¹University of Ottawa, Canada; ²Dalhousie University, Canada; ³University of Manitoba, Canada
- 2:40 **Antioxidant Peptides from Sorghum Proteins and Composition-Activity Relationships.** Yonghui Li, Kansas State University, USA
- 3:00 **Greening, Reducing Capacity, and Protein Oxidation in Sunflower Butter Cookies as a Function of pH.** Sihui Liang¹, Lan Han Tran², and Lilian M. Were¹, ¹Chapman University, USA; ²Nong Lam University, Vietnam
- 3:20 **Transforming Soy Adhesives to Provide Greater Strength.** Christopher Hunt and Charles R. Frihart*, Forest Products Laboratory, USA
- 3:40 **Recovery and Utilisation of Pelagic Processing Blood-Waters**

from Marine Processing Plants and Utilization of Protein for Nutritional and Potential Health Applications. Maria Hayes¹, John Fagan², Michael Cannon², and Michael Gallagher², ¹Food BioSciences Department, Teagasc Food Research Centre, Ireland; ²Bord Iascaigh Mhara, Ireland

- 4:00 **Modelling and Optimization of Rapeseed Protein Extraction and Purification.** Claire Defaix¹, Frantz Fournier¹, Arnaud Aymes², Olivier Galet³, and Romain Kapel², ¹LRGP - UMR CNRS 7274, France; ²Reaction and Process Engineering Laboratory UMR-7274, France; ³Avril Group, France
- 4:20 **Preparation of Highly Purified Lignan from Defatted Sesame Meal by Supercritical Carbon Dioxide Extraction and Solvent Crystallization.** Heejin Kim¹, Nakyung Choi², No Young Kim¹, Jong Hun Choi³, Chulyoung Lee³, and In-Hwan Kim^{1,2,*}, ¹Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea; ²Dept. of Integrated Biomedical and Life Sciences, Graduate School, Korea University, Republic of Korea; ³R&D Center, Nongshim, Republic of Korea

Surfactants and Detergents

S&D 5: Surfactant Synthesis and Fundamental Properties

Chairs: Ron A. Masters, Stepan Company, USA; and Michael Miguez, Shell Global Solutions, Inc., USA

200 C

- 1:55 Introduction.
- 2:00 **Alkyldimethyl Amine Oxides – Determination of pKa and Elucidation of Micelle Structure with FT-IR Spectroscopy.** David Scheuing, Clorox, USA
- 2:40 **2-phenyl or Not 2-phenyl: The Secret Life of Linear Alkylbenzene Sulfonate.** George A. Smith, Sasol North America, USA
- 3:00 **Solving a Hard Problem: Oleofuran Surfactants for Hundredfold Improved Hard Water Stability.** Christoph Krumm¹, Kristeen Joseph², Dae Sung Park², and Paul J. Dauenhauer², ¹Sironix Renewables, USA; ²University of Minnesota, USA
- 3:20 **New Methyl Ester Ethoxylate Derived from C18 Fraction of Palm Oil for Liquid Laundry Detergent.** Akinori Joko, Yuka Morimoto, Yukihiro Kaneko, and Norio Tobori, Lion Corporation, Japan
- 3:40 **Low Foaming Nonionic Surfactants with High Bio-Based Content.** Scott Jaynes, Croda, Inc., USA
- 4:00 **Force Mapping and Characterization of Surfactant Adsorbed on Flat and Patterned Surfaces.** Joshua J. Hamon¹, Rico Tabor², Brian P. Grady¹, and Alberto Striolo³, ¹University of Oklahoma, USA; ²Monash University, USA; ³University College London, UK
- 4:20 **Foam Properties of Alcohol Ethoxylates, Ether Sulfates and Ether Carboxylates.** Tamra Weemes, Thu Nguyen, and Jamie Thibodeaux, Sasol Performance Chemicals, USA
- 4:40 **New Surfactants: Gemini and Microbial Type.** Sunil S. Bhagwat, Institute of Chemical Technology, Deemed University, India

Surfactants and Detergents

EAT 5.1/S&D 5.1: Complex Phenomena at Interfaces

Chairs: Sam Adamy, Church & Dwight Co. Inc., USA; and Ozan N. Ciftci, University of Nebraska-Lincoln, USA

101 A

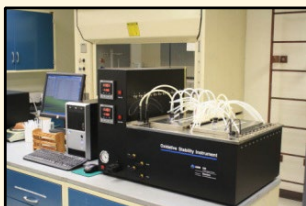
Joint session: for details, see EAT 5.1/S&D 5.1 on page 62.

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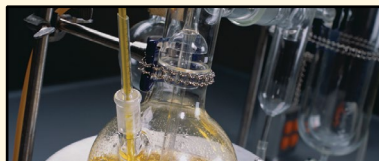
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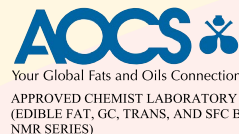
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Chemists find AOCS proficiency program and Approved Chemist status build customer confidence

Quantifying customer confidence can be as challenging as quantifying materials in a sample. Customers look to certifications and awards as measures of a laboratory's quality.

That was how Claire Traynor, Head of Mylnefield Lipid Analysis of James Hutton Limited, and her lab became involved with the AOCS Laboratory Proficiency Program (LPP). Traynor originally enrolled her lab in the GOED Nutraceutical Oils Series at the request of a customer. Participating in the LPP series has allowed them to build customer confidence and better understand how their results compare to their peers.

"Taking part in the program helps us to determine how our laboratory compares to other laboratories, and we were especially pleased to receive First Place in the 2016–17 LPP. This was a great boost for my analysts, especially those performing the analysis, but also confirms the quality of the work that we undertake for our customers is to a very high standard," according to Traynor.

Each year, AOCS publishes a list of LPP Award Winners as part of the Society's commitment to recognize the expertise and dedication to quality of chemists in the program. The list consists of analysts who have scored in the top 10% of each series. The recognition is important both inside and outside of the lab for Traynor and her analysts.



"Taking part in such programs is important as part of our commitment to quality, and it gives our customers extra confidence in their results."

In addition, AOCS recognizes the analytical excellence of individual chemists with Approved Chemist status. Earning Approved Chemist status allows chemists to use the Approved Chemist logo to advertise their expertise. To earn it, chemists must achieve a precise score in four consecutive quarters as an LPP participant (July 1, October 1, January 1 and April 1), return results for all samples, report results for all required constituents and be an AOCS member.

Rudy Fulawka, a Seed Chemist with Bayer CropScience, has been an AOCS Approved Chemist in gas chromatography for 17 years. He uses AOCS methods to identify and quantify tocopherols and glucosinolates in canola seeds and to determine the fatty acid profile of the oil.

According to Fulawka, he is a competitive person, but lab work doesn't offer many opportunities to compete. Earning Approved Chemist status gives him a standard to shoot for and an outlet for his competitive nature. It looks good on his curriculum vitae and to customers.



"AOCS Approved Chemist status gives clients confidence in my results."

Full-year LPP participants are eligible to apply for the Approved Chemist program. **AOCS Approved Chemists** are in high demand, and are highly respected throughout the industry. Use your status as an AOCS Approved Chemist to promote your technical expertise and attract new business – apply today!



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Presentation Information

- ▶ The presenter is the first author or otherwise indicated with an asterisk (*).
- ▶ Abstracts are available online at AnnualMeeting.aocs.org/2018Resources or on **The App** through May 31, 2018. See page 8 for download instructions.
- ▶ Access and print abstracts in the computer lab located in room M 100 J on the mezzanine level of the Convention Center.
- ▶ Award presentations are highlighted by a gray box.

Poster viewing

Monday, May 7 | Noon–6:00 p.m. | Hall B
Tuesday, May 8 | Noon–6:45 p.m. | Hall B
Wednesday, May 9 | 11 a.m.–2 p.m. | Hall B

Dedicated poster viewing

Authors will be available at their posters to answer your questions. Don't miss these chances to discuss poster presentations with their authors!

Monday, May 7 | 5 p.m.–6 p.m. | Hall B

Edible Applications Technology	Lipid Oxidation and Quality
Health and Nutrition	Protein and Co-Products
Industrial Oil Products	Surfactants and Detergents

Tuesday, May 8 | 5:45 p.m.–6:45 p.m. | Hall B

Analytical	Phospholipid
Biotechnology	Processing

ANA-P: Analytical Poster Session

Chair: Diliara Iassonova, Cargill, USA

Hall B

- Purification of Native Cyanogenic Glycosides from Flaxseed.** Veronique J. Barthet and Tao Fan, *Canadian Grain Commission, Canada*
- Crystalline Pattern of Phytosterols in High Oleic Sunflower Oil for Food Applications.** Mayanny G. Silva, Valéria S. Santos, Lisandro P. Cardoso, Maria Helena A. Santana, and Ana Paula B. Ribeiro, *University of Campinas, Brazil*
- Thermal Properties and Solid Profiles of Hardfats-Soybean Oil Blends for Formulation of Lipid Carriers.** Mayanny G. Silva and Ana Paula B. Ribeiro, *University of Campinas, Brazil*
- Comparative Recovery Analysis of Conjugated Linoleic Acids (CLA) Following Different Methylation Protocols.** Yiyi Li, Raad S. Gitan, Deborah L. Chance, James K. Waters, and Thomas P. Mawhinney, *University of Missouri, USA*
- ¹H-NMR Measurement of Polar Phenolic Compounds: Reliable Determination of the Geographical Origin of Olive Oils.** Torben Küchler and Ole Winkelmann, *Eurofins Analytik GmbH, Germany*
- Using GC-MS and Helium to Resolve Positional Isomers of trans-C16:1 and trans-C18:1 Fatty Acids.** Etienne Guillocheau, Daniel Catheline, Philippe Legrand, and Vincent Rioux, *Agrocampus-Ouest, France*
- A Microscopy Study of the Structure of Njansa and Other Selected Seeds: Method Development.** Benjamain M. Bougouneau¹, Michael Moore², Samuel A. Besong³, and Alberta N.A. Aryee⁴, ¹Dept. of Human Ecology, Delaware State University, USA; ²Optical Center for Applied Research, Dept. of Physics and Engineering, Delaware State University, USA; ³Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA; ⁴Delaware State University, USA

- The LC-UV Analysis of 16 Cannabinoids of Interest in Commercially Available CBD Oils.** Joseph D. Konschnik, Justin A. Steimling, and Ashlee M. Reese, *Restek Corporation, USA*
- Rapid Measuring and Modelling Total Polar Compounds in Frying Oils using a Flash Gas Chromatography Electronic Nose.** Lirong Xu¹, Li Xu², Qingzhe Jin³, and Xingguo Wang³, ¹Jiangnan University, China; ²School of Food Science and Technology, Jiangnan University, China; ³Jiangnan University, China
- Electron Paramagnetic Resonance Spectroscopy Study of Milk Fat Globule Membrane Dynamics during Simulated Digestion.** Maha Alshehab, Madhu S. Budamagunta, John C. Voss, and Nitin Nitin, *University of California, Davis, USA*
- Infrared Spectroscopy and PLS Procedures for the Rapid Prediction of EPA and DHA Contents in Marine Oil Dietary Supplements.** Sanjeeva R. Karunathilaka, Cynthia Srigley, Betsy J. Yakes, Sung Hwan Choi, Lea Brückne¹, and Magdi Mossob¹, ¹US Food and Drug Administration, USA
- Applying High Speed Gas Chromatography for the Speciation of Fats in Foods and Edible Oils.** Joseph D. Konschnik, Colton Myers, Kristi Sellers, and Scott Adams, *RESTEK Corporation, USA*
- Buffer Optimization for Accelerated SDS Depletion by Transmembrane Electrophoresis in Top-down Proteomic Workflows.** Subin R. C. K. Rajendran¹ (**Analytical Student Award Winner**), Khaldun Al Azzam², Nicole Unterlander¹, and Alan Doucette¹, ¹Dept. of Chemistry, Dalhousie University, Canada; ²Al-Ghad International College for Applied Medical Sciences, Saudi Arabia
- Isolation and Identification of Stearidonic Acid Geometric Isomers.** Pierluigi Delmonte, Andrea Milani, U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, USA
- A Method for Analyzing TAGs Composition of Human Milk Fat using UPC2-Q-TOF-MS.** Xinghe Zhang¹ and Guanjun Tao², ¹School of Food Science and Technology, Jiangnan University, China; ²State Key Laboratory of Food Science and Technology, School of Food Science and Technology, Jiangnan University, China
- The Rapid Analysis of Terpenes in Cannabis.** Ron R. Honnold, *Agilent, USA*
- HPTLC with Tandem MS and HR-MS for Structural Identification in Lipidomic and Other Complex Lipid Samples.** Vicente L. Cebolla¹, Maria P. Lapieze², Luis Membrado¹, Maria Savió³, Jesus Orduna⁴, and Judith Nichols⁵, ¹Instituto de Carboquímica/CSIC; ²Instituto de Carboquímica/CSIC, Spain; ³CEQMA/CSIC, Spain; ⁴ICMA / CSIC; ⁵CAMAG Scientific, Inc., USA
- Identification of Degradation Products after Subcritical Water Hydrolysis of Hemp Oil using GC-MS and FTIR-ATR.** Andres F.

Join the conversation!



#AOCS2018

- Aldana Rico¹, Ruben O. Morawicki¹, Jerry W. King², Rohana Liyanage², Chris Mazzanti¹, Marco E. Sanjuan Mejia¹, and Antonio J. Bula Silvera¹, ¹Universidad del Norte, Colombia; ²Critical Fluid Symposia, USA
19. **Analysis of Heavy Metal Concentrations and Human Exposure from Hemp Oils and Hemp Products.** Patricia Atkins and Sean Curran, *SPEX CertiPrep, USA*
 20. **Fatty Acid Analysis with Applied Retention Time Locking.** Barbara A. Mitchell, Scott Wejrowski*, Youa Herr, and Thomas Vennard, *Covance Labs, Inc., USA*
 21. **Analysis of Vitamin D and Previtamin D in Food Products.** Jinchuan Yang, *Waters, USA*
 22. **Unique GC Column Selectivity for Time and Cost-efficient Separation of Complex cis/trans Fatty Acid Methyl Esters in Food.** Ramkumar Dhandapani, *Phenomenex, USA*
 23. **New Method for Fast and Straightforward Determination of Oxidation Stability of Fats and Oils.** Carolin Edinger, *Anton Paar ProveTec GmbH, Germany*
 24. **FET Analysis of Solvents in Cannabis Oil: Adapting to Changing Regulations.** Amanda Rigdon¹, Anne Jurek², Julie Kowalski³, and Frank Dorman⁴, ¹Emerald Scientific, USA; ²EST Analytical, USA; ³Trace Analytics, USA; ⁴Pennsylvania State University, USA
 25. **Fast Simultaneous Determination of Capsaicin, Dihydrocapsaicin and Nonivamide for Adulteration in Edible and Crude Vegetable Oils Coupled with UPLC-MS/MS.** Chuan Zhou, Dianping Ma, Wen Ming Cao, Hai Ming Shi, and Yuan Rong Jiang, *Wilmar Biotechnology Research & Development Center (Shanghai) Co., Ltd., China, China*
 26. **Determination Polycyclic Aromatic Hydrocarbons in Tocopherol and Ether Compound by Gas Chromatography Tandem Mass Spectral.** Tong Li, Ruifeng Zhang, Chuan Zhou, Hong Yang, Wen Ming Cao, and Yuan Rong Jiang, *Wilmar Biotechnology Research & Development Center (Shanghai) Co., Ltd., China*
 27. **A Primary Animal Fat Adulteration Application: Determination Branched Chain Fatty Acid in Beef and Mutton Tallow with GC-Q-TOF & GC-FID and Evaluation.** Tong Li, Peijin Tong, Hong Yang, Wen Ming Cao, and Yuan Rong Jiang, *Wilmar Biotechnology R&D Center (Shanghai) Co., Ltd., China*
 28. **A Novel Method for Quantitative Analysis of Blend Oil Based on GC-FID and NPDA.** Peijin Tong, Hong Yang, Wei Ting Ting, Tong Li, Wen Ming Cao, and Yuan Rong Jiang, *Wilmar Biotechnology R&D Center (Shanghai) Co., Ltd., China*

BIO-P: Biotechnology Poster Session

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

Hall B

1. **Isoflavone Phosphate Synthetase from *Bacillus subtilis* BCRC80517.** Chen Hsu¹ (*Biotechnology Student Award Winner*) and Nan-Wei Su², ¹National Taiwan University, Dept. of Agricultural Chemistry, Taiwan; ²National Taiwan University, Taiwan
2. **Fungal Fermentation of De-Hulled Ground Barley to Increase Protein Levels.** Burgandy R. Roberts¹, Bishnu Karki², Jacob Zahler¹, Michael Brown³, and William Gibbons¹, ¹South Dakota State University, USA; ²Dept. of Biology and Microbiology, South Dakota State University, USA; ³Dept. of Natural Resource Management, South Dakota State University, USA
3. **Optimization of Fungal Stimulation and Processing Parameters to Maximize Glyceollin Production in Soybeans.** Stephanie A. Wootton¹, Bishnu Karki², Mark Berhow³, and William Gibbons¹, ¹South Dakota State University, USA; ²Dept. of Biology and Microbiology, South Dakota State University, USA; ³USDA National Center for Agricultural Utilization Research, USA
4. **An Integrated Multi-omics Study on Lipid Turnover of *Schizochytrium* sp. S31 Cultured on Glycerol.** Ming Chang, Tao Zhang, Ruijie Liu, Qingzhe Jin, and Xingguo Wang, *Jiangnan University, China*

5. **An Effective Method for Deacidification of High-acid Rice Bran Oil by Enzymatic Amidation.** Xingguo Wang and Xiaosan Wang*, *Jiangnan University, China*
6. **Dendritic Nanomolecules as Drug Carriers: Solubilization, Sustained Release and Biocompatibility Study.** Ravindra V. Movliya and Pravinkumar M. Patel, V. P. & R. P. T. P. Sc. College, *India*
7. **Sequential Liquefaction of *Nicotiana tabacum* Stems Biomass by Crude Polyhydric Alcohols for the Production of Polyols and Rigid Polyurethane Foams.** Chiragkumar M. Patel, *Industrial Chemistry Dept., V. P. & R. P. T. P. Science College, India*

EAT-P: Edible Applications Technology Poster Session

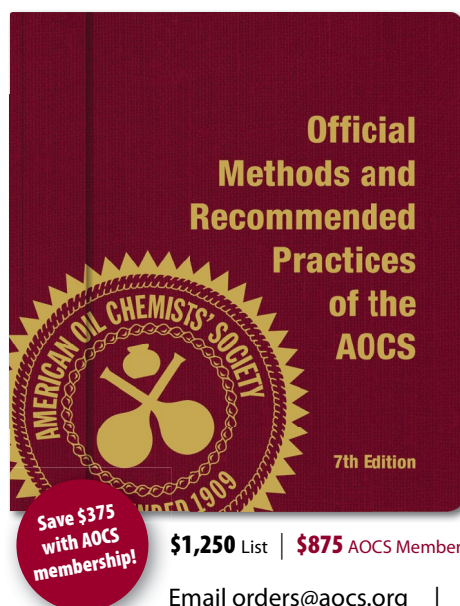
Chair: Supratim Ghosh, *University of Saskatchewan, Canada*

Hall B

1. **Influence of Dairy Emulsifier Type and Droplet Size on Gastrointestinal Fate of Corn Oil Emulsion: In vitro Digestion.** Li Liang¹, Xingguo Wang², Qingzhe Jin², and D. Julian McClements³, ¹State Key Laboratory of Food Science and Technology, School of Food Science and Technology, Jiangnan University, China; ²Jiangnan University, China; ³University of Massachusetts Amherst, USA
2. **X-ray Study on Melt Crystallization Kinetics of Triacylglyceride Molecular Compound System.** Ken Taguchi¹, Ryuichi Ikoma², Akihiko Toda², Hironori Hondoh³, Satoru Ueno³, and Kiyotaka Sato², ¹Graduate School of Integrated Arts and Sciences, Hiroshima University, Japan; ²Hiroshima University, Japan; ³Graduate School of Biosphere Science, Hiroshima University, Japan
3. **Cocoa Butter Substitute Produced by Enzymatic Inter-esterification of Binary Blends Containing *Irvingia gabonensis* Seed Fat.** Sabine Danthine¹, Juste Yamoneka Wasso¹, Paul Malumba¹, Georges Lognay², and Christophe Blecker², ¹University of Liège, Belgium; ²University of Liège, Belize
4. **Electrostatic Deposition of Chitosan on Lecithin Stabilized Emulsion Inhibits Mycotoxin Production in *Fusarium graminearum*.** Dianhui Wu¹, Jiajia Rao¹, and Jian Lu², ¹North Dakota State University, USA; ²School of Biotechnology, Jiangnan University, China
5. **Extraction of Carotenoids and Antioxidant Compounds from Guava Processing Waste.** Renan S. Lima¹, Itaciara L. Nunes, Sandra Regina S. Ferreira², and Jane Mara Block³, ¹Federal University of Santa Catarina, Brazil; ²Federal University of Santa Catarina, Brazil; ³UFSC, Brazil
6. **Profile of Volatile Compounds of Dark Chocolate Formulated with Cocoa Butter Equivalent.** Cristiano S. Souza, and Jane Mara Block*, *UFSC, Brazil*
7. **Characterization of Soybean Oil Organogels Structured with Candelilla Wax and Monoglycerides.** Natalia Martinez¹, Natani Amaro², Thaís Jordânia², Gabriel D. Fernandes³, Bruno Irigaray¹, Iván Jachmanián⁴, and Daniel Barrera-Arellano², ¹UdelaR, Uruguay; ²Laboratório de óleos e gorduras, FEA, UNICAMP, Brazil; ³Fats and Oils Laboratory, School of Food Engineering, UNICAMP, Brazil
8. **Filler-matrix Interactions to Control Texture of Oil-continuous Systems.** Auke de Vries and Dérick Rousseau, *Ryerson University, Canada*
9. **Structural and Mechanical Properties of Palm Oil in the Presence of Air and Sugar.** Dérick Rousseau and Hardeep Devgan*, *Ryerson University, Canada*
10. **Fat-sugar Interactions Measured by Force Spectroscopy.** Dérick Rousseau, and Nicole Green*, *Ryerson University, Canada*
11. **Tailoring Crystalline Structure using High Intensity Ultrasound to Reduce Oil Migration.** Silvana Martini¹, Zachary Cooper¹, Juhee Lee¹, and Véronique Gibon², ¹Utah State University, USA; ²Desmet Ballestra Group, Belgium
12. **Sonocrystallization of a Tristearin-free Fat.** Jeta V. Kadamne¹, Maria A. Moore², Casimir C. Akoh², and Silvana Martini¹, ¹Utah State University, USA; ²University of Georgia, USA
13. **Lipid Composition and Antioxidant Property of Sea Buckthorn Oils**

- Extracted by Supercritical and Subcritical Technologies.** Li Zheng¹, Longkai Shi¹, Zhao Chenwei², Qingzhe Jin¹, and Xingguo Wang¹, ¹Jiangnan University, China; ²State Key Laboratory of Food Science and Technology, School of Food Science and Technology, Jiangnan University, China
14. **Chemical Characterization and Antioxidant Capacity of Sesame Oils Extracted by Supercritical, Subcritical and Conventional Techniques.** Longkai Shi, Li Zheng, Ruijie Liu, Ming Chang, Qingzhe Jin, and Xingguo Wang, *Jiangnan University, China*
 15. **Control of Protein Digestion under Simulated Gastrointestinal Conditions using Biopolymer Microgels.** Ruojie Zhang, Zipei Zhang, and D. Julian McClements, *University of Massachusetts Amherst, USA*
 16. **Physicochemical, Functional and Sensory Properties of Margarine Supplemented with Bush Mango Kernel and Njansa Seed Oils.** Anh T.L. Nguyen¹, Peace C. Asuzu², Benjamain M. Bougouneau³, Samuel A. Besong⁴, and Alberta N.A. Aryee^{*1}, ¹Delaware State University, USA; ²College of Agriculture & Related Sciences, Delaware State University, USA; ³Dept. of Human Ecology, Delaware State University, USA; ⁴Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA
-
- H&N-P: Health and Nutrition Poster Session**
 Chairs: Ignacio Vieitez, UdelaR, Uruguay; and Varun Koneru, Young Living Essential Oils, USA
 Hall B
1. **Evaluation of Intestinal Absorption of Dietary Sphingolipids.** Yui Tomo¹, Nami Tomonaga¹, Yuki Manabe¹, Akinori Ando², Tsuyoshi Tsuduki³, Jun Ogawa², and Tatsuya Sugawara^{*4}, ¹Kyoto University, Japan; ²Div. Appl. Life Sci., Grad. Sch. Agric., Kyoto University, Japan; ³Tohoku University, Japan; ⁴Laboratory of Marine Bioproduct of Technology, Division of Applied Bioscience, Japan
 2. **The Protective Role of Lcn2 Against Intestinal Inflammation and Gut Microbiota Dysbiosis in HFD-Induced Obesity.** Xiaoxue Qiu¹, Marissa Macchietto², Trevor Gould³, Steven Shen², and Xiaoli Chen⁴, ¹University of Minnesota, Twin Cities, USA; ²Clinical Translational Science Institute, University of Minnesota-Twin Cities, USA; ³Informatics Institute, University of Minnesota-Twin Cities, USA; ⁴Dept. of Food Science and Nutrition, University of Minnesota-Twin Cities, USA
 3. **Black Bean Flour Properties after Steam Jet-cooking: A Comparative Study as Affected by pH.** James A. Kenar¹, Jill Moser¹, Frederick C. Felker¹, Mukti Singh², and Sean Liu³, ¹USDA, ARS, NCAUR, USA; ²NCAUR-ARS-USDA, USA; ³USDA, ARS, USA
 4. **Dietary Fat Influences the Composition of Bacteria and its Metabolites in Cecum of Rat.** Ryota Hosomi¹, Anna Matsudo¹, Takaki Shimono², Seiji Kanda², Toshimasa Nishiyama², Munehiro Yoshida², and Kenji Fukunaga³, ¹Kansai University, Japan; ²Kansai Medical University, Japan; ³Faculty of Chemistry, Materials and Bioengineering, Kansai University, Japan
 5. **Edible Hydrogel Beads Fabrication with Self-regulating Microclimate pH Properties: Retention of Enzyme Activity After Exposure to Gastric Conditions.** Zipei Zhang and D. Julian McClements, *University of Massachusetts Amherst, USA*
 6. **Virgin Grape Seed Oil Attenuates High-fat Diet-induced Obesity and Insulin Resistance.** Hui Zhang and Gangcheng Wu, *Jiangnan University, China*
 7. **Effect of Noodle Formulation and Frying Medium on Oil Absorption in Steamed-and-Fried Instant Noodles.** Jinfeng Qi¹, and Xingguo Wang², ¹Jiangsu University of Science and Technology, Jiangnan University, China; ²Jiangnan University, China
 8. **Endocannabinoid Metabolome in Human Breast Milk – A Guatemalan Cohort.** Adriana V. Gaitan¹, Jodi T. Wood², Lipin Ji³, Yingpeng Liu³, Spyros P. Nikas⁴, Juliana A. Donohue⁵, Lindsay Allen⁶, Noel W. Solomons⁷, Alexandros Makriyannis³, and Carol J. Lammi-

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9. **Dietary Intakes of n-3 and n-6 Polyunsaturated Fatty Acids in Preschool-aged Children in the Guelph Family Health Study.** Jessie L. Burns (née MacKinnon), Julia A. Mirotta, Alison M. Duncan, Jess Haines, and David W.L. Ma, *University of Guelph, Canada*
10. **Potential Bioactivity of Phenolics in Hulls and Dehulled Grains of Lentils; Focusing on the Inhibitory Activity Against the Oxidation of LDL Cholesterol and Supercoiled DNA Strand.** Fereidoon Shahidi and JuDong Yeo* (*Honored Student Award Winner*), *Memorial University of Newfoundland, Canada*
11. **Investigation of Bioactive Lipids from African Medicinal Plants Collected in the Tropical Rainforests of Uganda.** Fabien Schultz¹, Godwin Anywar², Ogechi Favour Osuji³, Anh Nguyen³, Luc Pieters⁴, and Leif-Alexander Garbe⁵, ¹Technical University of Berlin, Neubrandenburg University of Applied Sciences, Germany; ²Makerere University, Uganda; ³Applied Chemistry, School of Agriculture and Food Sciences, Neubrandenburg University of Applied Sciences, Germany; ⁴Dept. of Pharmaceutical Sciences, University of Antwerp, Belgium; ⁵Neubrandenburg University of Applied Sciences, Germany
12. **Different Effects of Squalene on Lipid Metabolism in Livers of KK-A^y and C57BL/6 Mice.** Shaokai Liu¹, Masashi Hosokawa², and Kazuo Miyashita², ¹Graduate School of Fisheries Sciences, Hokkaido University, Japan; ²Hokkaido University, Japan
13. **Study on the Effect of Activated Carbon with Bleaching Earth in Reduction of Polycyclic Aromatic Hydrocarbons in Soybean Oil.** Nilufar Aliar Zanjani¹, Zahra Piravi Vanak², and Mehrdad Ghavami¹, ¹Islamic Azad University, Science and Research Branch, Tehran, Iran; ²Standard Research Institute of Iran, Faculty of Food Industries and Agriculture, Iran
14. **Antioxidant Capacity of Mango Kernels: a Comparative Study.** Anh T.L. Nguyen¹, Samuel A. Besong², and Alberta N.A. Aryee*¹, ¹Delaware State University, USA; ²Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA
15. **Storage Stability of Palm-based Vitamin E (tocotrienol-rich fraction) in Functional Granola Bar.** Noor Lida Habi Mat Dian¹, Wan Suet Ying¹, Fu Ju Yen¹, Miskandar Mat Sahri¹, and Lai Oi Ming², ¹Malaysian Palm Oil Board, Malaysia; ²Universiti Putra Malaysia, Malaysia
16. **A New Dietary Source of Branched Fat from Fermented Asian Foods.** Dong Hao Wang¹, Yupeng Yang¹, Zhen Wang^{1,2}, Peter Lawrence¹, Randy W. Worobo¹, and James T. Brenna², ¹Cornell University, USA; ²University of Texas at Austin, USA

IOP-P: Industrial Oil Products Poster Session

Chair: Jerry W. King, *Critical Fluid Symposia, USA*

Hall B

1. **Polyol and Polyurethane Prepared from Rubber Seed Oil by Hydroformylation.** Jian Hong¹, Xiao-Qin Yang², Xianmei Wan³, Zhifeng Zheng², and Zoran Petrovic³, ¹Kansas Polymer Research Center, Pittsburg State University, USA; ²Southwest Forestry University, China; ³Pittsburg State University, USA
2. **An Emerging Natural Wax: Sorghum Wax from Bioethanol Production.** Jeffrey T. Cafmeyer, *Battelle, USA*
3. **Soy-based Polyester Polyols for Flexible Polyurethane Foams and Elastomers.** Dragana Radojicic and Mihail Ionescu, *Pittsburg State University, USA*
4. **Algal Oil Derived Polyurethane Foams.** Olivera Bilic¹, Zoran Petrovic², Ivan Javni², Milica Lovric², and Scott Franklin³, ¹Kansas Polymer Research Center/PSU, USA; ²Pittsburg State University, USA; ³Checkerspot, Inc., USA

5. **Study of Physical and Tribology Properties of Soybean Oil-based Grease Formulated with Polysoap.** Zengshe Liu¹, Girma Biresaw¹, Atanu Biswas¹, and H.N. Cheng², ¹Food and Industrial Oil Research, NCAUR, ARS/USDA, USA; ²SRRC/ARS/USDA, USA
6. **Copolymers from Photochemical Thiol-ene Polycondensation of Fatty Dienes with Alkyl Dithiols.** Bryan R. Moser, *USDA Agricultural Research Service, USA*
7. **Chemometric Comparison of Neutral Lipids in Camellia Oil with Other Cooking oils.** Ling Peng, Chi Chen, and Yiwei Ma, *University of Minnesota, USA*
8. **Two-Step Temperature Extraction for the Separation of Waxes and Oil in Sorghum Bran.** Robert A. Moreau and Megan E. Hums*, *USDA, ARS, ERRC, USA*
9. **Free Fatty Acid Generation during Dry-grind Corn Ethanol Fermentation.** Brett Brothers, Tong Wang, and Hui Wang, *Iowa State University, USA*
10. **Extraction and Characterization of Passion Fruit and Guava Oils from Industrial Residual Seeds and Their Application as Biofuels.** Paulo A.Z. Suarez, *University of Brazil, Brazil*
11. **Glycerolysis Reaction Under Ultrasound.** Kiran Shinde and Atul Deshmane, *Whole Energy Fuels Corp., USA*

LOQ-P: Lipid Oxidation and Quality Poster Session

Chair: Uwe Nienaber *DSM Nutritional Products, USA*

Hall B

1. **A Comparison of Commercial Enzymes Used Individually or in Combination for Aqueous Enzymatic Extraction of Oil from Njanga Seed.** Mary Besong¹, Anh T.L. Nguyen², Samuel A. Besong³, and Alberta N.A. Aryee*², ¹The Henry P. Becton School of Nursing & Allied Health, Fairleigh Dickinson University, USA; ²Delaware State University, USA; ³Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA
2. **Impact of High Pressure and Temperature Processing on Antioxidant Activity of Canola Meal Extracts.** Ruchira Nandasiri, Erika Zago, and Usha Thiyan, *University of Manitoba, Canada*
3. **Chemometric Comparison of Aldehyde Formation in Olive Oil and Camellia Oil at Frying Temperature.** Ling Peng, Jieyao Yuan*, and Chi Chen, *University of Minnesota, USA*
4. **Chemometric Profiling of Aldehyde Distribution in Frying Oil and French Fries.** Lei Wang, Yuyin Zhou*, Yukari Yamashita, and Chi Chen, *University of Minnesota, USA*
5. **Development of Novel Free-flowing Fish Oil-loaded Hollow Solid Lipid Micro- and Nanoparticles to Improve Oxidative Stability of Fish Oil.** Junsu Yang and Ozan N. Ciftci, *University of Nebraska-Lincoln, USA*
6. **Physical and Oxidative Stability of 50-70% Fish Oil-in-Water Emulsions Stabilized with Sodium Caseinate and Phosphatidylcholine.** Betül Yesiltas¹, Ann-Dorit Moltke Sørensen², Pedro J. Garcia-Moreno², and Charlotte Jacobsen*², ¹National Food Institute, Technical University of Denmark, Denmark; ²Technical University of Denmark, Denmark
7. **Identification and Quantification of Phytoprostanes and Phytofurans in Coffee and Cocoa By- and Co-products.** Mariana Ruesgas Ramon¹, Claire Vigor², Amandine Rocher², Guillaume Reversat³, Joseph Vercauteren³, Camille Oger³, Jean-Marie Galano³, Thierry Durand³, Erwann Durand⁴, and Maria Cruz Figueroa-Espinoza⁵, ¹SupAgro Montpellier, France; ²Institut des Biomolécules Max Mousseron, France; ³Institut des Biomolécules Max Mousseron, UMR 5247 CNRS, University of Montpellier, ENSCM, Faculty of Pharmacy, France; ⁴CIRAD, France; ⁵Montpellier SupAgro, UMR IATE, Montpellier, France
8. **An Investigation of the Antioxidant Activity of Alkyl Gallates in Model Membranes.** Yu Zhao¹, Drew Marquardt², Ryan J. Elias¹, and John N. Coupland¹, ¹Pennsylvania State University, USA; ²University of Windsor, Canada

9. **Predicting the Oxidative Stability in Bakery Products: Application of Accelerated Method Based on Oxygen Consumption.** Claudio Corradini¹, Antonella Cavazza¹, Emma Chiavaro², Carmen Lagana³, Stefano Casiraghi⁴, Monia Scarsi⁴, Maria Paciulli⁵, Massimiliano Rinaldi⁵, and Maria Grimaldi⁶, ¹Università degli Studi di Parma, Italy; ²Dipartimento di Scienze degli Alimenti e del Farmaco, Università di Parma, Italy; ³VELP Scientifica, Italy; ⁴VELP Scientific, Inc., USA; ⁵Dipartimento di Scienze degli Alimenti e del Farmaco, Università di Parma, Italy; ⁶Dipartimento di Scienze Chimiche, della Vita e della Sostenibilità Ambientale, Università di Parma, Italy
10. **A Study of Photooxidation in Edible Oils by FTIR Spectroscopy and Incubation at Moderate Light Intensity.** Noelia Tena¹, Ramón Aparicio-Ruiz¹, Ana Lobo², María Teresa Morales³, Aparicio Ramón², and Diego L. García González², ¹Instituto de la Grasa (CSIC), Spain; ²Instituto de la Grasa (CSIC); ³University of Seville, Spain
11. **Food-induced Formation of Health-damaging Compounds During Repeated Deep-fat Frying Cycles.** Ru Shen, William G. Helferich, and Nicki J. Engeseth, University of Illinois at Urbana-Champaign, USA
12. **Lecithin Near Critical Micelle Concentration had the Highest Oxidative Stability in Corn Oil.** JiSu Kim¹, YunSik Woo¹, Jiwon Ryu¹, MiJa Kim², and JaeHwan Lee³, ¹Sungkyunkwan University, Republic of Korea; ²Kangwon National University, Republic of Korea; ³Dept. of Food Science and Biotechnology, Sungkyunkwan University, Republic of Korea
13. **Optimization and Validation of Rancimat Operational Parameters to Determine Walnut-oil Oxidative Stability.** Lucia Felix and Irwin R. Donis-Gonzalez, University of California-Davis, USA
14. **Correlation between Phenolic Compounds and Antioxidant Activity of Sapucaia Nut (*Lecythis pisonis* Cambess) Aqueous Extract.** Fernanda Demolinder¹, Priscila Policarpi², Leticia Turcato², Luciano Vitali³, Gustavo A. Mücke³, and Jane Mara Block⁴, ¹Dept. of Food Science and Technology - Federal University of Santa Catarina, Brazil; ²Dept. of Food Science and Technology, Federal University of Santa Catarina, Brazil; ³Dept. of Chemistry - Federal University of Santa Catarina, Brazil; ⁴UFSC, Brazil
15. **Microwave-assisted Synthesis and Antioxidant Activity of Palmitoyl-epigallocatechin Gallate.** Tao Zhang, Ruijie Liu, Ming Chang, Qingzhe Jin, and Xingguo Wang, Jiangnan University, China
16. **Comparison of Walnut Oil Obtained by Different Extraction Solvents.** Pan Gao and Xingguo Wang, Jiangnan University, China
17. **Co-solvent Modified Supercritical Carbon Dioxide Extraction and Antioxidant Activity of Rosemary Extracts.** Ignacio Vieitez, Lucía Maceiras, and Iván Jachmanián, UdelaR, Uruguay
18. **Opportunities for Low Saturate High Oleic Canola Oil in Food Industry: Frying Quality and Oxidative Stability.** Xiaolan Luo and Diliara Iassonova, Cargill Inc., USA
19. **The Degraded Products During Frying.** Junmei Liang, Yuan Rong Jiang, and Wenyan Ji, Wilmar (Shanghai) Biotechnology Research & Development Center Co., Ltd., China
20. **Radical Detection in Antioxidant Treated Fish Oil using Electron Paramagnetic Resonance.** Ewa Szajna-Fuller, Carrie Wray*, and Qing Bin, Kemin Industries, USA
2. **Inhibitory Activities of *Amaranthus viridis*, *Telfairia occidentalis* and *Solanum macrocarpon* Leaf Extracts Against Carbohydrate-Digesting Enzymes.** Olayinka A. Olarewaju (*Protein and Co-Products Division Travel Grant Winner*), Adeola M. Alashi, and Rotimi Aluko, University of Manitoba, Canada
3. **Inhibitory Activities of Yellow Field Pea Protein-derived Peptides Against α -amylase and α -glucosidase.** Temitola O. Awosika (*Protein and Co-Products Division Travel Grant Winner*) and Rotimi Aluko, University of Manitoba, Canada
4. **Optimization of Submerged Fungal Incubation Process for Production of Guar Protein Hydrolysate.** Jacob Zahler¹, Bishnu Karki², Michael Brown³, and William Gibbons¹, ¹South Dakota State University, USA; ²Dept. of Biology and Microbiology, South Dakota State University, USA; ³Dept. of Natural Resource Management, South Dakota State University, USA
5. **Effect of Physical and Biochemical Pre-treatment on Digestibility and Bioaccessibility of Nutrients in Pulses.** Elisa Di Stefano¹ (*Protein and Co-Products Division Travel Grant Winner*), Chibuike C. Udenigwe¹, and Teresa Oliviero², ¹University of Ottawa, Canada; ²Wageningen University, The Netherlands
6. **A New Chromatographic Method for Simultaneous Quantification of Proteins and Phenolic Compounds from Oleaginous Meal.** Sara Albe Slabi¹, Christelle Mathé², Xavier Framboisier³, Arnaud Aymes³, Olivier Galet⁴, and Romain Kapel³, ¹Reaction and Process Engineering Laboratory UMR-7274, Avril Group, France; ²Reaction and Process Engineering Laboratory, France; ³Reaction and Process Engineering Laboratory UMR-7274, France; ⁴Avril Group, France
7. **Understanding the Effects of Processing Conditions on the Extraction of Oil and Protein from Almond Flour.** Thaiza Serrano Pinheiro de Souza (*Protein and Co-Products Division Travel Grant Winner*), Neiva Maria M. de Almeida, and Juliana M. Leite Nobrega de Moura Bell, University of California-Davis, USA
8. **Peptide Mapping of Cryoprecipitated Proteins from Select Rosaceae Seeds.** Sahil Gupta (*Protein and Co-Products Division Travel Grant Winner*), Valerie D. Zaffran, Tengfei Li, and Shridhar K. Sathe, Florida State University, USA
9. **Inhibitory Effects of Hydrolyzed Oat Proteins on Human LDL Oxidation their Bile Acids Binding Capacity.** Gabriela Campos and Apollinaire Tsopmo, Carleton University, Canada
10. **Characterization of Soluble Proteins from Commercial Oat Millings.** Mallory E. Walters and Apollinaire Tsopmo, Carleton University, Canada
11. **Physicochemical Properties of Rice Albumin with a Suppressive Function Against Hyperglycemia.** Aya Hamada¹, Shigenobu Ina², Nozomi Fujisawa², Ayaka Akima³, Yusuke Yamaguchi¹, Makoto Akao⁴, Hitoshi Kumagai³, and Hitomi Kumagai⁴, ¹Nihon University, Japan; ²College of Bioresource Sciences, Nihon University, Japan; ³Kyoritsu Women's University, Japan; ⁴Dept. of Chemistry and Life Science, College of Bioresource Sciences, Nihon University, Japan
12. **Deamidation of Water-soluble Wheat Gliadin by Cation-exchange Resins.** Hanae Nakamura¹, Sumika Ochiai¹, Ryusuke Abe¹, Yusuke Yamaguchi, Makoto Akao², Hitoshi Kumagai³, Reiko Urade⁴, and Hitomi Kumagai², ¹Nihon University, Japan; ²Dept. of Chemistry and Life Science, College of Bioresource Sciences, Nihon University, Japan; ³Faculty of Home Economics, Kyoritsu Women's University; ⁴Kyoto University, Japan
13. **Protease Hydrolysis to Alter the Functional Properties of Proteins.** Kelly Gregory, Caroline H. Best, Deborah Winetzky, and Chris Penet, Bio-Cat, USA
14. **Substitution of Naturally Occurring Bromelain using a Blend of Proteases.** Caroline H. Best, Kelly Gregory, and Chris Penet, Bio-Cat, USA
15. **Orally Administered Ovotransferrin Preserves Bone Microarchitecture in Ovariectomized Rats.** Nan Shang (*Honored Student Award Winner; Protein and Co-Products Division Travel Grant Winner*) and Jianping Wu, University of Alberta, Canada
16. **Converting Corn Distillers Grain Proteins to High-value Antioxidants.**

PCP-P: Protein and Co-Products Poster Session

Chairs: Mila Hojilla-Evangelista, USDA, ARS, NCAUR, USA; and Navam Hettiarachchy, University of Arkansas, USA

Hall B

1. **Pilot Plant Fractionation of Canary Seeds and Functional Properties of Protein Isolates.** Allaoua Achouri¹, Delphine Martineau Côté¹, Stéphane Sirois¹, Emily Mason¹, Pierre Hucl², Elsayed Abdel-Aal¹, and Lamia L'Hocine³, ¹Agriculture and Agri-Food Canada, Canada; ²University of Saskatchewan, Canada

Ruijia Hu¹, Wei Wu¹, and Yonghui Li^{2*}, ¹Kansas State University, Grain Science and Industry, USA; ²Kansas State University, USA

17. **Single-shot Top-down Proteomics with Capillary Electrophoresis-electrospray Ionization-tandem Mass-spectrometry for Identification of 570 Escherichia Coli Proteoforms.** Rachele A. Lubeckyj (*Lipid Oxidation and Quality Division Travel Grant Winner*), Michigan State University, USA

PHO-P: Phospholipid Poster Session

Chair: Ernesto Hernandez, Advanced Lipid Consultants, USA

Hall B

1. **Physical, Oxidative Stability and Microstructure Characteristics of Structured Lipid/Skim Milk Emulsions Prepared by using Different Emulsifiers.** Abdelmoneim H. Ali¹, Wei Wei², Sherif M. Abed², Sameh Korma¹, Qingzhe Jin³, and Xingguo Wang³, ¹School of Food Science and Technology, Jiangnan University, China, China; ²State Key Laboratory of Food Science and Technology, Synergetic Innovation Center of Food Safety and Nutrition, School of Food Science and Technology, China; ³Jiangnan University, China
2. **Effect of Modified Sunflower Lecithins on Bread Quality.** Estefania N. Guiotto¹, Mabel Tomás², and Claudia M. Haros³, ¹Centro de Investigación y Desarrollo en Criotecología de Alimentos (CIDCA), Argentina; ²CIDCA (CONICET-UNLP), Argentina; ³Grupo de cereales, Instituto de Agroquímica y Tecnología de Alimentos (IATA-CSIC), Spain
3. **Preparation of Phosphatidylcholine by Transphosphatidylation of Phosphatidylethanolamine and Phospholipase D.** Wei-Ju Lee, Taipei Medical University, Taiwan
4. **Release of ω -3 and ω -6 Epoxides from Acidic Phospholipids of Lipoproteins by IIA, V and X Secretory Phospholipases A2.** Arnis Kuksis and Waldemar Pruzanski, University of Toronto, Canada

PRO-P: Processing Poster Session

Chairs: Ozan N. Ciftci, University of Nebraska-Lincoln, USA; and Ali Ubeyitogullari, University of Nebraska-Lincoln, USA

Hall B

1. **Enzymatic Preparation of Food and Medical Materials from Fish Oil.** Kazumi Katagiri¹, Yomi Watanabe², Ryosuke Hoshina¹, and Hideaki Kobayashi¹, ¹Kewpie Corporation, Japan; ²Osaka Research Institute of Industrial Science and Technology, Japan
2. **High Intensity Ultrasound and Bubble Dynamics does not Affect the Oxidative Stability of Soybean Oil.** Juhee Lee¹, Roberta Claro da Silva², Peter Birkin³, Tadd Truscott¹, and Silvana Martini¹, ¹Utah State University, USA; ²North Carolina A&T University, USA; ³University of Southampton, United Kingdom
3. **Method of Miscella Zenith Deacidifying Process Research.** Zhao Chenwei¹, Weiguo Qin², and Jinfeng Qi³, ¹State Key Laboratory of Food Science and Technology, School of Food Science and Technology, Jiangnan University, China; ²COFCO Engineering & Technology Co., Ltd., China; ³Jiangsu University of Science and Technology/Jiangnan University, China
4. **Effects of Heat Pretreatment of Wet-milled Corn Germ on Physicochemical Properties of Oil.** Liyou Zheng¹, Jianhua Huang², Jun Jin³, Xingguo Wang³, and Qingzhe Jin³, ¹State Key Laboratory of Food Science and Technology Synergetic Innovation Center of Food Safety and Nutrition School of Food Science and Technology, China; ²School of Food Science and Technology, Jiangnan University, China; ³Jiangnan University, China
5. **Quantitative Isolation of Cannabinoids from Plant Material.** Albert J. Dijkstra and Robert W. LaChance, FAOCS, France
6. **CLA-Rich Vegetable Oil Production by Adapting a Small Scale Hydrogenation Reactor.** Chaun Min Ruan¹, and Andrew Proctor^{2*}, ¹University of Arkansas, USA; ²Dept. of Food Science, University of Arkansas, USA

7. **Large Scale Purification of Minority Fatty Acids by Liquid Chromatography: The n-3 docosapentaenoic Acid Case.** Gaëtan Drouin, Etienne Guillocheau^{*}, Daniel Catheline, Vincent Rioux, and Philippe Legrand, Agrocampus-Ouest, France
8. **Temperature Controlled Pulsed Light Treatment: Impact on Aflatoxin Level, and Quality Parameters of Peanut Oil.** George Baker¹, Basheer Iqdam, Manal Abuagela, and Andrew MacIntosh, University of Florida, USA
9. **Development of an Extraction and Purification Process to Obtain High Purity Wax from Sorghum.** Junsu Yang, Loren Isom, Curtis Weller, and Ozan N. Ciftci, University of Nebraska-Lincoln, USA
10. **Concentration of Lignan from Defatted Sesame Meal by Supercritical Carbon Dioxide Two Step Process.** No Young Kim¹, Heejin Kim², Nakyung Choi¹, Jong Hun Choi³, Chulyoung Lee³, and In-Hwan Kim¹, ¹Korea University, Republic of Korea; ²Dept. of Public Health Sciences, Graduate School, Korea University, Republic of Korea; ³R&D Center, Nongshim Republic of Korea
11. **Quality Characteristics of Cold-pressed Flaxseed Oils from Cultivars in China.** Qianchun Deng, Xiao Yu, Qingde Huang, Fenghong Huang, Xiaoshan Wei, Xixi Zang, Peng Chen, and Luxi Meng, Oil Crops Research Institute, Chinese Academy of Agricultural Sciences; Hubei Key Laboratory of Lipid Chemistry and Nutrition; Key Laboratory of Oils, China
12. **Quality and Safety Control Technology in Wood-pressed Rapeseed Oil.** Youfeng Zhang¹, Ruijie Liu², Qingzhe Jin³, and Xingguo Wang³, ¹School of Food Science and Technology, Jiangnan University, People's Republic of China; ²Jiangnan University/Cornell University, China; ³Jiangnan University, China
13. **Study and Modeling of Oilseeds Continuous Pressing.** Houcine Mhemdi, University of Technology Compiègne, France

S&D-P: Surfactants and Detergents Poster Session

Chair: Michael Wint, Amway Corporation, USA

Hall B

1. **Novel Phosphate Ester Replacement for C8-C10 Linear Alkyl Phosphate Esters.** Ryan C. Vikan and Philip C. Benes^{*}, Nease Co., USA
2. **Amide Types of Chemocleavable Surfactants Bearing a 1,3-Dioxolane Ring Derived from Diethyl Tartrate.** Makoto Okumura¹, Daisuke Ono^{2*}, Shintaro Kawano³, Hirofumi Sato³, Motohiro Shizuma³, and Araki Masuyama¹, ¹Osaka Institute of Technology, Japan; ²Osaka Research Institute of Industrial Science and Technology, Japan; ³Osaka Municipal Technical Research Institute, Japan
3. **Formaldehyde Free Microencapsulates Improve Detergent Fragrance Delivery.** Terry Crutcher, Ashland Specialty Ingredients G.P., USA
4. **Cationic Polyacrylamide/Cationic Gemini Surfactants Hybrid Material for Enhanced Oil Recovery in Carbonate Reservoirs.** Muhammad Sha Kamal and Syed S. Hussain, King Fahd University of Petroleum and Minerals, Saudi Arabia
5. **A New Approach to Measure the Adsorption Density of Surfactant on Carbonate Rock Using TOC Analysis.** Muhammad Sha Kamal and Abdullah S. Sultan, King Fahd University of Petroleum and Minerals, Saudi Arabia
6. **Investigating the Effects of Controlled Lateral Confinement Width and Surface Chemistry on Surfactant Adsorption onto Silica using AFM.** Joshua J. Hamon¹, Brian P. Grady¹, Alberto Striolo², and Rico Tabor³, ¹University of Oklahoma, USA; ²University College London, United Kingdom; ³Monash University, USA
7. **Fragrance Influence on Stability for Fabric Care Applications.** Matt Vanden Eynden¹, Christelle Tisserand², Yoann Lefevre², Pascal Bru², and Gerard Meunier², ¹Formulacion, Inc., USA; ²Formulacion, France
8. **Continuous Production of Sugar Fatty Acid Ester from 100% Biorenewable Materials using Heterogeneous Resin Catalyst.** Tomone Sasayama¹ and Naomi Shibasaki-Kitakawa², ¹Dept. of Chemical Engineering, Tohoku University, Japan; ²Tohoku University, Japan



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See page 19 for the expo floorplan.

ADF Engineering, Inc. (801)

adfengineering.com | USA

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 locations. 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.

Interest Area(s): Industrial Oil Products, Processing

AGI USA, Inc. (808)

asahiglassplant.com | USA

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.

Interest Area(s): Biotechnology

Agilent Technologies (306)

agilent.com | USA

Agilent Technologies is a leading provider of sample preparation, chromatography, mass spectrometry, elemental analysis, molecular spectroscopy, and laboratory information systems, as well as support services, columns and consumables that enable you to analyze, confirm, and quantify substances of interest with confidence from sample preparation to final report.

Interest Area(s): Analytical

Alegre Science, Inc. (307)

alegrescience.com | USA

We provide leading edge NMR, MRI products from NIUMAG Corp, Dry Air sources from Alegre Science, and the melloeX portable liquid CO2 extraction system.

Alfa Laval Inc. (706)

alfalaval.us | USA

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.

Interest Area(s): Edible Applications Technology, Industrial Oil Products, Processing, Protein, and Co-Products

amafilter LFC Lochem – Filtration Group Process Systems (609)

ama-lfc.com | Netherlands

Amafilter LFC Lochem - Filtration Group Process Systems key activity is the design and manufacturing of filter installations aimed at separating solids from liquids, as well as selling and servicing these installations and selling and distributing a wide range of filtration products like filter housings, filter cartridges, filter bags and spare parts. With a heritage of almost 90 years we are active in almost every industry. Visit www.ama-lfc.com to learn more.

Amano Enzyme USA (305)

amano-enzyme.co.jp | USA

Amano Enzyme USA manufactures microbial source, Non-GMO enzymes for a number of applications involving fat and oil processing, including lipases for enzyme modified cheese and other dairy flavor production, Omega-3 fatty acid production and improved purity of triglycerides, in addition to other applications in the food, nutraceutical, diagnostic and pharmaceutical industries. Kosher and Halal certified material is available.

Anderson International Corp (700)

andersonintl.net | USA

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

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of low- and high-oil content seeds for solvent extraction.

Interest Area(s): Processing

ANKOM Technology (205)

ankom.com | USA

ANKOM Technology produces analytical instrumentation for food and feed testing. We are best known for introducing Filter Bag Technology (FBT), which allows high-volume, accurate analytical testing. Our systems are used in more than 110 countries worldwide. Ask about our products: ANKOM XT15 Fat Extractor, ANKOM Automated TDF Dietary Fiber Analyzer, ANKOM RF Gas Production Analyzer, and ANKOM A2000 Fiber Analyzer.

Interest Area(s): Analytical

AOCS 2019 | Explore St. Louis (109)

explorestlouis.com | USA

Want to get more involved in the planning of the 2019 AOCS Annual Meeting in St. Louis, Missouri, USA? View volunteer opportunities at annualmeeting.aocs.org/2019.

Arisdyne Systems, Inc. (405)

arisdyne.com | USA

Arisdyne Systems, Inc. — Applying the Power of Controlled Cavitation. Arisdyne 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. Arisdyne Systems, Inc. is the leading provider of high shear force and high temperature ("hot spot") for superior mixing (emulsions and dispersions), particle size reduction and chemical reactions with applications in various industries.

Artisan Industries Inc. (411)

artisanind.com | USA

For over 80 years, Artisan Industries has provided optimized, engineered separation solutions. Produced in the USA and maintained across the globe, Artisan has been revolutionizing the way companies

solve their most challenging separation processes. Eliminate multiple processing steps, reduce waste, and increase product value and profitability with Artisan's Technologies. Stop by booth 411 to learn how Artisan and JET-VAC® Technologies can be incorporated into your process intensification efforts.

Interest Area(s): Edible Applications Technology, Health and Nutrition, Industrial Oil Products, Processing, Surfactants and Detergents

ATC Scientific (207)

atcscientific.com | USA

ATC Scientific is an analytical testing laboratory located in North Little Rock, Arkansas, USA. We are a full service, independently owned lab, specializing in agriculture, food, feed, and microbiology testing. Our strength is in providing quality results while delivering fast turnaround time and attentive customer service. Our primary goal is to assure the highest quality results are presented to our clients in a fast, timely manner.

Interest Area(s): Analytical

Australian Oilseeds Federation (907)

australianoilseeds.com | Australia

Bruker Corporation (104)

bruker.com | USA

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 one measurement. Ready-to-use calibrations for edible fats, oils, and oil seeds enable a quick and efficient start. Bruker is supporting the industry to contribute to better nutrition and health around the world.

Interest Area(s): Analytical, Processing

BUCHI Corporation (308)

buchi.com | USA

For 75 years, BUCHI is a leading solution provider in laboratory technology for R & D, quality control and production worldwide. Our solutions for laboratory, industrial and parallel evaporation, spray drying, melting point, freeze drying, preparative chromatography, extraction, distillation and digestion, Dumas and near infrared spectroscopy meet the highest needs of our customers around the globe.

Buhler Inc. (906)

buhlergroup.com | USA

When it comes to oilseed preparation, Bühler is the natural choice of partner for processing soybeans, rapeseeds, sunflower and corn. The company offers high-availability, low-downtime technology for the preparation of oilseeds prior to extraction. Bühler works closely with manufacturers of pressing and extraction systems to provide complete processing solutions. Bühler's combination of proven reliability, innovative technology and comprehensive services will maximize extraction yield.

Buss ChemTech AG (503)

buss-ct.com | Switzerland

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 100 oleochemical plants. BCT will provide the scope of supply that fits your particular needs.

Caldic USA, Inc. (101)

caldic.us | USA

Under the Dadex® brand, Caldic has been delighting our customers by innovating and supplying antioxidant solutions to the global food and pet food industry for over 25 years. Our extensive line of synthetic and natural antioxidant solutions can be tailored to meet each customer's specific application and shelf life challenges. Caldic's dedicated R&D application and our unique blend of science, quality, and customer service guarantee great results in your finished product.

Interest Area(s): Edible Applications Technology, Industrial Oil Products, Lipid Oxidation and Quality

Camlin Fine Sciences (504)

camlins.com | USA

Camlin Fine Sciences has been a trusted name in the antioxidant industry for more than 25 years. CFS provides a complete portfolio of shelf life solutions for the food, pet food, rendering, animal feed, and biodiesel industries. Our NaSure™ plant-based antioxidant solutions offer a natural alternative in shelf-life extension while Xtendra™ traditional antioxidant solutions combine time-proven ingredients. Analytical services available. Please contact us for additional information.

Interest Area(s): Analytical, Health and Nutrition, Lipid Oxidation and Quality

Center for Testmaterials BV (507)

cftbv.nl | Netherlands

Center for Testmaterials (CFT) is your one-stop-shop for detergent performance test materials. We deliver our products (and products from other suppliers) worldwide directly from our factory in The Netherlands. Next to the widest range of soiled test fabrics, we offer test fabrics for testing secondary performance. We also offer test materials testing the performance of (hand) dish wash detergents, hard surface cleaners, and specialized testing equipment.

Interest Area(s): Surfactants and Detergents

Clariant (409)

clariant.com | Mexico

Clariant, one of the world's leading specialty chemical companies, contributes to value creation with innovative and sustainable solutions for customers from many industries. At the same time, our R&D is focused on addressing the key trends of our time. These include energy efficiency, renewable raw materials, emission-free mobility, and conserving finite resources. Our business units are organized into four business areas: Care Chemicals, Natural Resources, Catalysis, and Plastics and Coatings.

Interest Area(s): Edible Applications Technology, Processing

COSA Xentaur Corporation (301)

cosaxentaur.com | USA

Cosa Xentaur provides innovative, affordable NMR analysis solutions to the food, fuel, chemical, plastic, and petrochemical industries.

Croll-Reynolds Co., Inc. (502)

croll.com | USA

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 in the Far East as well as the United States, Croll Reynolds has emerged as the leading supplier of low cost, high-performance vacuum systems to the edible oil industry. If you're considering a new plant, an expansion, or an upgrade, consider Croll Reynolds.



Crown Iron Works Company (806)

Sponsor of Attendee Communications

crowniron.com | USA

Crown Iron Works provides design and supply services for vegetable/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.

Interest Area(s): Processing**Desmet Ballestra** (702)Sponsor of Wi-Fi and *The App*

desmetballestra.com | USA

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.** (607)

purifine.com | USA

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 to providing you with a higher profit and a more sustainable process.

**DuPont Nutrition & Health**

(111)

food.dupont.com | USA

DuPont Nutrition & Health combines in-depth knowledge of food and nutrition with current research and expert science to deliver unmatched value to the food, beverage, pharmaceutical, and dietary supplement industries. We are innovative solvers, drawing on deep consumer insights and a broad product portfolio to help our customers turn challenges into high-value business opportunities.

Interest Area(s): Health and Nutrition**DVC Process Technologists** (911)

Sponsor of President's Welcome Reception

dvcprocesstech.com | India

DVC Process Technologists is a trusted name in the field of Edible Oils & Fats Industry. We are a single window for customers for all their needs regarding design, manufacture and supply of various process technologies along with equipment and turnkey solutions for Edible Oil refining, Oil seeds extraction and other value added processes for by products. We believe in upbringing innovative technologies with respect to better efficiency, superior product quality and simplified operations.

Enzyme Innovation (611)

enzymeinnovation.com | USA

EP Minerals (406)

epminerals.com, epengineeredclays.com | USA

EP Minerals and EP Engineered Clays produce innovative engineered materials from Diatomaceous Earth (DE), Perlite, Bentonite Clay, and Montmorillonite Clay. We specialize in the highest quality purification products and filter aids for oleochemical, edible oils, and biodiesel purification and processing. We provide our customers with world-class technical expertise and excellent customer service.

Interest Area(s): Processing**Euro Fed Lipid** (904)

eurofedlipid.org | Germany

Euro Fed Lipid is a federation of 13 scientific associations concerned with lipids, fats, and oils. The federation represents 2,000 individuals and companies. Its

mission is the furthering of lipid science and technology, and the cooperation and exchange of ideas between scientists and technologists at a European level. The activities of Euro Fed Lipid include the organization of international congresses at varying venues, by the co-organization of the fair "oils+fats", and the publishing of the *European Journal of Lipid Science and Technology*.

Evonik Corporation (408)

Sponsor of the Walk the Halls Pedometer Challenge

evonik.com | USA

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 customers' needs.

**Farmet A.S.** (712)

farmet.eu | Czech Republic

Farmet a.s. is a Czech company founded in 1992. We are one of the world-wide leading specialists in turn-key deliveries of pressing shops and feed extrusion technologies. Our product portfolio ranges from individual machines, small plants to large-capacity plants using different presses and extruders with different capacities. Our technologies based on our own R&D and production provide the customers the best cost-effective, economic and environmentally-friendly solutions.

Interest Area(s): Phospholipid, Processing**Filtration Group Process, Inc.** (610)

filtrationgroup.com | USA

Filtration Group products are known internationally for their superior quality, high efficiency, and value. Filtration Group provides superior filtration solutions for industrial liquid, edible oil, biofuels, chemicals, petrochemicals, and water filtration applications. Filtration Group products cover a wide range of expertise in highly engineered and customized filter vessels, in a variety of materials, which gives us the edge in designing a filter system to meet your specific requirements.

Formulation Inc. (202)

formulation.com | USA

For over 20 years, Formulation has



developed instrumentation that provide solutions to measuring and predicting the stability and rheology of concentrated emulsions, dispersions, foams, and powders. Multiple Light Scattering is used to track particle movement and correlate this to events such as sedimentation, creaming, clarification, flocculation, gelation, and thermal phase transitions, while our new microfluidic technology allows for rapid viscosity versus shear rate flow curve generation.

Interest Area(s): Analytical, Edible Applications Technology, Industrial Oil Products, Surfactants and Detergents

French Oil Mill Machinery Co. (403)

frenchoil.com | USA

French custom designs, manufactures, and supports oil-seed 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. French's Innovation Center development lab offers a wide variety of testing services.

Interest Area(s): Processing



Galaxy Scientific, Inc. (200)

galaxy-scientific.com | USA

Galaxy Scientific, Inc. designs and manufactures superior near-infrared solutions for quality control and assurance. The near-infrared spectrum of an oil contains a wealth of information that can be used to determine important parameters. Spectroscopic analysis of fats and oils is rapid, requires no sample preparation, and can quantify multiple parameters with a single measurement. Galaxy Scientific offers both offline and online FT-NIR solutions for analysis of edible fats and oils.

Interest Area(s): Analytical, Edible Applications Technology, Industrial Oil Products, Lipid Oxidation and Quality



Oil Products, Processing, Protein and Co-Products

Gerstenberg Services A/S (612)

gerstenbergs.com | Denmark

GRACE (107)

grace.com/en-us | USA

TRISYL® silicas are synthetic amorphous micronized silica used for refining and processing of edible oils and fats to help improve quality, stability, and reduce neutral oil losses.

Interest Area(s): Edible Applications Technology, Processing

Graham Corporation (508)

graham-mfg.com | USA

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.



GEA North America (400)

wsus.com | USA

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.

Interest Area(s): Biotechnology, Edible Applications Technology, Industrial



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Interest Area(s): Industrial Oil Products, Processing

Guangzhou TICUN Technology Development Co., Ltd. (606)

ycundetergent.en.alibaba.com | China

Hanna Instruments (304)

hannainst.com | USA

Hanna Instruments revolutionized pH testing with the introduction of pHep in 1986 now with millions of units sold. Today, Hanna leads the industry in innovation designing, manufacturing, and supporting meters, titrators, probes, buffers, solutions, and related equipment. Hanna's 1,000 employees and 65 offices are dedicated to making and supporting the best scientific testing products in the world. Our goal is to make everything better by making testing more accessible, easy, and accurate.

Interest Area(s): Analytical, Processing

HF Press+LipidTech (800)

hf-press-lipidtech.com | Germany

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.

Interest Area(s): Edible Applications Technology, Processing

Hollbras Industrial Filtration (410)

hollbras.com.br | Brazil

Dedicated to providing industrial filtration solutions for 25 years, Hollbras specializes in liquid filtration. With our expertise, Hollbras provides customers improvements in their filtration processes, deploying our specialist staff and own laboratory equipped with pilot units for filtration and semi-industrial pilot units for testing at our customers' own factories.

Interest Area(s): Edible Applications Technology, Industrial Oil Products, Processing

ICOF America, Inc., (a member of Musim Mas Group) (402)

musimmas.com | USA

MUSIM MAS GROUP: Headquartered in Singapore, our business is involved with every part of the palm oil supply chain: from managing plantations and mills to

refining crude palm oil and manufacturing palm-based product, supported by an extensive fleet of ships that enhance our logistical capability. ICOF AMERICA is a member of the Musim Mas Group and their marketing arm in North America.

Imerys Filtration (708)

imerys-filtration.com | USA

CynerSorb is a specialty adsorbent for cost-effective refining and purification of biodiesel, edible oils, and oleochemicals. Excellent filtration characteristics allows reduction/removal of current filter aid and increases production capacity. CynerSorb is more effective at removing soaps, phospholipids, trace metals, and polar contaminants than current solutions. It works synergistically with bleaching earth and allows significant reduction of bleaching earth addition.

Interest Area(s): Edible Applications Technology, Industrial Oil Products, Processing

InCon Process Systems/ GIG Karasek (804)

ips-gigk.com | USA

Recover specialty essential oils in molecular distillation plants with modular systems using technology developed in InCon's plant. We have technology kernels around high vacuum distillation, molecular distillation, wiped film, and short path evaporation. Our proprietary processes concentrate Omega-3 fish oil beyond 90%, continuously process to 98% glycerol monostearate, and concentrate Vitamin E and tocopherols.

Interest Area(s): Lipid Oxidation and Quality, Phospholipid, Processing

Inventure Renewables, Inc. (910)

inventurechem.com | USA

Inventure Renewables pioneers process technologies for the rapid, low-cost, high yield extraction of natural biochemical and material building blocks from low-value/waste biomass to provide cost-effective, carbon neutral biofuels, biochemicals and biomaterials.

Itaconix Corporation (401)

itaconix.com | USA

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.

JEOL USA, Inc. (206)

jeolusa.com | USA

JEOL is a world leader in Analytical and Imaging instrumentation, including mass spectrometers, NMRs and ESRs, electron microscopes, and semiconductor tools. JEOL USA, Inc., is a wholly-owned subsidiary of JEOL, Ltd., Japan, and was incorporated in the United States in 1962. The company has 13 regional service centers that offer unlimited emergency service and support in the U.S.

Interest Area(s): Analytical, Industrial Oil Products, Lipid Oxidation and Quality, Phospholipid, Surfactants and Detergents

Kalsec (701)



kalsec®

Sponsor of the Highlighters

kalsec.com | USA

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.

Keit Spectrometers (106)

keit.co.uk | United Kingdom

Keit provides continuous, in-line process analysis of liquids with rugged technology. The IRmadillo™ FTIR spectrometer is built tough with a solid-state sensor. Certified safe for use in hazardous environments, it enables real-time reaction analysis of liquids at the point of production in manufacturing environments for the tracking and material identification of oils, acids, fatty acids, sugars, alcohols, and proteins, among others, in industries such as food and beverage, petrochemical and biofuels.

Interest Area(s): Analytical, Biotechnology, Industrial Oil Products, Processing

Kemin Industries (103)



Sponsor of the Name Badges and Tuesday Happy Hour Reception

kemin.com | USA

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.

Interest Area(s): Lipid Oxidation and Quality

Larodan AB (203)



Sponsor of the 5K Fun Run/Walk

larodan.com | Sweden

Larodan makes a comprehensive range of research-grade, high-purity lipids for use as analytical standards. Our customers are involved in academic research or industrial processes in a number of fields. Our products include all sorts of lipids, from simple fatty acids and methyl esters to complex oxylipins, glycerides, and phospholipids. We were founded in 1963 and our facilities are located at the Karolinska Institute in Stockholm, Sweden.

Interest Area(s): Analytical, Biotechnology, Phospholipid



LEEM Filtration (407)

leemfiltration.com | USA

LEEM Filtration is a diversified manufacturer of custom filtration products including pressure leaf filters, filter leaves, under-drains, lateral systems, and wedge wire screens. We manufacture 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 U.S., Canada, Central and South America.

Interest Area(s): Processing

Louisville Dryer Company (709)



louisvilledryer.com | USA

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. Our engineering staff is qualified in a number of disciplines and has extensive practical application experience. Featured dryers include rotary steam tube dryers and conditioners.

Interest Area(s): Edible Applications Technology, Health and Nutrition, Industrial Oil Products, Processing

Lovibond Tintometer (500)

lovibond.com | USA

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).

Malaysian Palm Oil Board (100)

mpob.gov.my | Malaysia and USA

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

Interest Area(s): Edible Applications Technology, Health and Nutrition, Industrial Oil Products, Lipid Oxidation and Quality, Surfactants and Detergents

Metabolon (605)

metabolon.com | USA

Metabolon, Inc. is the world's leading health technology company advancing metabolomics. Its Precision Metabolomics™ is a powerful technology for assessing health and delivering biomarker discoveries, innovative diagnostic tests, and valuable data for genomics and population health initiatives. It also accelerates R&D across the pharmaceutical, biotechnology, consumer products, and nutrition industries. Founded in 2000, Metabolon is based in Research Triangle Park, North Carolina, USA.

Interest Area(s): Analytical, Biotechnology, Health and Nutrition

Metrohm (501)

metrohm.com | USA

From routine moisture analysis to sophisticated anion and cation qualification, Metrohm offers a complete line of analytical laboratory and process systems for titration, ion chromatography, electrochemistry, and spectroscopy.

Interest Area(s): Analytical, Edible Applications Technology

Myande Group Co., Ltd. (805)



myandegroup.com | China

Myande Group specializes in providing oils and fats processing machinery and its engineering services on turn-key basis, including process



design, equipment manufacturing, project management, installation, commissioning, and training service.

Interest Area(s): Edible Applications Technology, Processing

Nisshin Oillio Group, Ltd., The (704)



nisshin-oillio.com | Japan

The Nisshin Oillio Group, Ltd., is a leader in the oils and fats and meals manufacturing industry in Japan. It is committed to pursue enhanced health and well-being through business operations in oils and fats and meals, healthy foods, and fine chemicals. With its 110 years of experience, Nisshin Oillio strives to develop new ways to use "the natural power of plants" to offer a wide range of products for the nutritional, functional, and tasty solutions across the "healthspan" of the global population.



Nu-Chek Prep, Inc. (608)

nuchekprep.com | USA

Nu-Chek-Prep prepares high-purity lipids for research purposes. These include fatty acids, esters, glycerides, alcohols, acetates, cholesteryl esters, alkyl-methane sulfonates, soaps, wax esters, and GC and TLC standards.

Oil-Dri Corporation of America (900)



Oil-Dri®
FLUIDS PURIFICATION

Sponsor of the Monday Happy Hour Reception

pure-flo.com | USA

Oil-Dri Corp. of America offers a full spectrum of specialty adsorbents, including Pure-Flo®, Pure-Flo® Supreme, & 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 & biodiesel producers around the world.

Interest Area(s): Processing



Oils & Fats International (OFI)/Quartz Business Media (705)

ofimagazine.com | United Kingdom

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 help-

ing 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. (300)

optek.com | USA

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

Interest Area(s): Analytical, Biotechnology, Edible Applications Technology, Industrial Oil Products, Processing

Pattyn North America, Inc. (600)

PATTYN®

Sponsor of the Power Lounge

pattyn.com | USA

Pattyn North America, Inc., in Wisconsin, offers local support and services from the project design and management to the installation and after-sales service. We guarantee the very 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, in Belgium, who has over 40 years of extensive experience in complete bulk semi-liquid packaging lines.

Interest Area(s): Health and Nutrition

PerkinElmer (303)

perkinelmer.com | USA

PerkinElmer is a global leader committed to innovating for a healthier world. Our dedicated team of 8,000 employees worldwide are passionate about providing customers with an unmatched experience as they help solve critical issues especially impacting the diagnostics, discovery, and analytical solutions markets.

Interest Area(s): Analytical, Processing

Phenomenex (208)

phenomenex.com | USA

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.

Interest Area(s): Analytical

Phillips 66 (602)

phillips66.com | USA

Phillips 66 Hexane (S): We were the first to begin producing Hexane for oil extraction in 1948. When you think C6, think Phillips 66.

Interest Area(s): Edible Applications Technology, Industrial Oil Products, Processing

PMI-Technology Sdn Bhd (601)

pmi-group.com | Malaysia

PMI was established in Malaysia in 1986, and began business operations providing sales, marketing, and after-sales technical support for a German company engaged in



ScienceDirect

Lipid Modification by Enzymes and Engineered Microbes

List: \$250 | Member: \$175*

Editor
Uwe T. Bornscheuer



Lipid Modification by Enzymes and Engineered Microbes

Edited by Uwe T. Bornscheuer

May 2018 | 448 pages | ISBN: 9780128131671

Available in softcover and eBook

Lipid Modification by Enzymes and Engineered Microbes covers the state-of-the-art use of enzymes as natural biocatalysts to modify oils and discusses how microorganisms such as yeast can be specifically designed or modified. In the past ten years, the field of lipid modification has made significant progress, not only in the tools for the development of "designer" enzymes, but also in areas such as the metabolic engineering of microbes, the discovery of novel enzyme activities for lipid modification and in the development of reaction engineering/processes. These advances are covered for the first time in this book edited by leading enzymatic scientist Uwe Bornscheuer and authored by an international team of experts.

Key Features:

- Identifies how and when to use enzymes and microbes for lipid modification
- Includes lipid modification for use in food, biofuels, oleochemicals and polymer precursors
- Provides enzymatic, microbial and metabolic techniques for lipid modification

Available for purchase at store.elsevier.com/aocs

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the manufacturing and distribution of filter presses. PMI later expanded its services to an increasing number of enterprises in the region for palm oil processing, as well as in other applications such as environmental and food processing.

Interest Area(s): Biotechnology, Edible Applications Technology, Industrial Oil Products, Phospholipid, Processing, Protein and Co-Products

PQ Corporation (201)

pqcorp.com | USA

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.

Interest Area(s): Industrial Oil Products, Processing



Protein Highway Initiative

(204)

proteinhwy.tlg.ca | Canada and USA

The Protein Highway is an initiative to enhance cross-border collaboration among entrepreneurs, researchers and investors across the Canadian Prairies and Upper Midwest/Great Plains region. Its mission is to stimulate economic growth and prosperity in innovative agricultural technology solutions to meet the ever-growing global demand for plant-derived protein.

Interest Area(s): Health and Nutrition, Protein and Co-Products

QUALISOY (404)

QUALISOY
INNOVATE. COLLABORATE. ADVANCE.

Sponsor of the Water Bottles/Stations and Tuesday Dessert Break



qualisoy.com | USA

Visit QUALISOY (Booth #404) for information about U.S.-grown soy-based solutions and how they can meet the food industry's fats and oils needs. QUALISOY promotes the development and adoption of the latest soybean traits and can help you navigate a post-PHO world. Look for QUALISOY reusable water bottles throughout the show and enjoy treats made with high-oleic soybean oil and interesterified high-oleic soybean shortening during the Tuesday post-lunch dessert break.

Interest Area(s): Edible Applications Technology

Rotex Global (711)

rotex.com | USA

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.

Interest Area(s): Industrial Oil Products, Processing



Sasol Performance Chemicals (905)

sasol.com | USA

Sasol's Performance Chemicals markets a broad portfolio of organic and inorganic commodity and specialty chemicals. Our four key business divisions are: Organics, Inorganics, Wax and PCASG (phenolics, carbon, ammonia and specialty gases). Our key products include surfactants, surfactant intermediates, fatty alcohols, linear alkyl benzene (LAB), short-chain linear alpha olefins, ethylene, mineral oil-based and synthetic paraffin waxes, cresylic acids, high-purity alumina, and many other products.

Siemens Industry, Inc. (108)

(108)

usa.siemens.com/foodbev | USA

Siemens Corporation is a U.S. subsidiary of Siemens AG, a global powerhouse focusing on the areas of electrification, automation, and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of systems for power generation and transmission as well as medical diagnosis. With approximately 377,000 employees in 190 countries, Siemens reported worldwide revenue of 83 billion euros in fiscal 2017.

Interest Area(s): Edible Applications Technology, Industrial Oil Products, Processing



SIWACO GmbH, IRLE Group (902)

siwaco.com | Germany

SIWACO as a member of the IRLE GROUP specializes in casting and machining high wear resistant rolls and roll shells. The technical expertise combined with the power of the IRLE GROUP offers cast rolls and products as well as reliable roll-services with an attractive price-performance ratio and delivery time.

The rolls are manufactured according to the utmost modern metallurgy and technical treatment standards.

Interest Area(s): Processing

Society of Cosmetic Chemists (604)

scconline.org | USA

Dedicated to the advancement of cosmetic science, the Society strives to increase and disseminate scientific information through meetings and publications. By promoting research in cosmetic science and industry, and by setting high ethical, professional and educational standards, we reach our goal of improving the qualifications of cosmetic scientists.

Solex Thermal Science Inc. (802)

solexthermal.com | Canada

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

Interest Area(s): Processing



Solutions 4 Manufacturing (912)

s4mequipment.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 technical experience, we can put together a solution for you. We will buy your idle equipment and plants.

SPEX CertiPrep (908)

spexcertiprep.com | USA

SPX FLOW Technology (707)

spxflow.com | Denmark

As leading supplier of the food industry, SPX FLOW offers a wide range of flexible and cost-effective solutions. SPX FLOW develops, engineers, manufactures, and installs components and systems. The key applications of the SPX FLOW brand Gerstenberg Schröder include margarine, shortening, butter, mayonnaise, ketchup, sauces, served by core SPX FLOW technologies like scraped surface and plate

heat exchangers, emulsification equipment, butter making equipment, mixing equipment, and valves and pumps.

Interest Area(s): Edible Applications
Technology, Processing

Steri Technologies, Inc. (710)

steri.com | USA

Steri Technologies, Inc. designs and manufactures liquid-solid separation equipment that is in use in many and varied industries around the world. These liquid-solid separation systems use Funda Pressure Leaf, Nutsche, or Candle filtration technologies.

Interest Area(s): Processing

Technochem International, Inc. (903)

technocheminc.com | USA

Technochem is a technology partner and plant supplier for the oil processing industry. We specialize 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. (506)

testfabrics.com | USA

Testfabrics, Inc. and Center for Testmaterials (CFT) have worked together for over 20 years to bring the detergent and surfactant industry the latest in clean and pre-soiled test materials and test equipment. Fast, convenient, sourcing, and problem solving involving textile testing and industry has been our commitment!

Interest Area(s): Analytical, Surfactants and Detergents

Thermo Fisher Scientific (102)



thermofisher.com | USA

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.

Interest Area(s): Analytical

United Soybean Board (505)

soynewuses.org | USA

The United Soybean Board (USB) is a farmer-funded organization working with industry to commercialize industrial applications using soybean derivatives, including new high oleic soybean oil (HOSO). Advantages include performance, versatility, cost and sustainability. USB-funded successes include soy-based rubber, paints, coatings, adhesives, lubricants, composites and foam, as well as new research including fibers and paper.

Vacuubrand Inc. (803)



vacuubrand.com | USA

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.

Interest Area(s): Processing

VELP Scientific, Inc. (412)

velp.com | USA

The American branch of VELP Scientifica, an Italian company with 30+ years' experience in design, manufacture, and distribution of high quality laboratory equipment, is a key reference for lab, research centers, and QC departments worldwide. Applications range from food and feed and water analysis to stirring solutions.

Interest Area(s): Analytical, Lipid Oxidation and Quality, Protein and Co-Products

VTA GmbH & Co., Kg (901)

vta-process.de | Germany

VTA manufactures thin film, wiped film, and short path evaporators and systems. Typical applications include lecithin drying, tocopherol concentration, omega-3 concentrations, and deodorization without 3-MCPD.

Interest Area(s): Processing

VUV Analytics, Inc. (603)



vuvanalytics.com | USA

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. Everything

absorbs strongly in the VUV spectrum. Compounds can be unambiguously identified and quantitated in a variety of applications. VUV detectors provide unmatched selectivity of isomers and co-eluting analytes without the need for chromatographic baseline resolution.

Interest Area(s): Analytical

Waters Corporation (112)



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.

Interest Area(s): Analytical

Wenck (302)

wenck.com | USA

Founded in 1985, Wenck provides environmental, engineering, construction, and response services to both public and private clients across the United States and Canada. We are a team of 275+ technical experts committed to air, water, waste, land/natural resources, and infrastructure. We are your partner and advocate.

Wiley (110)

wiley.com | USA

The American Oil Chemists' Society has partnered with Wiley to publish the *Journal of the American Oil Chemists' Society*, *Lipids*, and *Journal of Surfactants and Detergents*. Stop by the Wiley booth to browse the journals and take home a fun souvenir photo.

Interest Area(s): Health and Nutrition, Industrial Oil Products, Lipid Oxidation and Quality, Processing, Surfactants and Detergents

Wood (909)

woodplc.com | USA

Wood is a global leader in the delivery of project, engineering, and technical services to energy and industrial markets. We operate in more than 60 countries, employing around 55,000 people, with revenues of around \$10 billion.

Interest Area(s): Biotechnology, Processing

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Session Chair							
Abbeduto, D.	S&D 3a	King, J.W.	IOP 3, IOP-P	Vetter, W.	ANA 2a	Atkins, P.	ANA-P
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Ashby, R.D.	BIO 1.1/IOP 1	Lamsal, B.	ANA 3.1a/PCP 3a, PCP 3b	Wright, A.	EAT 3.2/H&N 3.1	Baker, G.	PRO-P
Bailey Hall, E.	H&N 1/PHO 1	Lan, Y.	EAT 4.1/LOQ 4b	Xu, X.	BIO 2.2/PRO 2, PHO 3	Ban, L.	ANA 2d/LOQ 2b, EAT 3.1a/LOQ 3b, LOQ 4a
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Barden, L.	HT 3	Little, D.J.	PRO 5	Yoon, S.H.	BIO 3	Bannenberg, G.	ANA 5
Barton, R.H.	PRO 2.1	Liu, K.	PCP 2b	Zou, L.	BIO 5		
Beekman, J.	ANA 4	Liu, L.	EAT 2			Bansal, S.	BIO 4
Bendini, A.	HT 7	Liu, G.	BIO 5			Barbier, O.	H&N 4a
Bertoli, C.	LOQ 5a	Maleky, F.	EAT 2			Barbieri, S.	ANA 2b
Bhandari, S.D.	ANA 3.1a/PCP 3a	Marangoni, A.G.	EAT 3			Baréa, B.	LOQ 4a
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Byrdwell, W.C.	ANA 2a	Masters, R.A.	S&D 5			Barthet, V.J.	ANA-P
Calliauw, G.H.	PRO 5	Mazzanti, G.	EAT 1			Barton, R.H.	PRO 2.1
Campbell, L.	HT 2	Metin, S.	HT 9, EAT 4			Bates, P.D.	ANA 3
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Ciftci, O.	EAT 5.1/S&D 5.1, PRO-P	Minor, W.	PRO 2.1			Bedford, A.	EAT 2
Clough, R.	PRO 5.1	Moltke Sørensen, A.-D.	EAT 3.1a/LOQ 3b			Beekman, J.	ANA 4
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Coots, R.	S&D 3b	Myers, D.	HT 10			Belkova, B.	ANA 4
Della Porta, R.	ANA 2c/LOQ 2a, ANA 2d/LOQ 2b	Nadkarni, A.	HT 6			Bell, J.P.	S&D 3a
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Der, T.	PCP 4	Nielsen, P.M.	BIO 3.1/PRO 3.1			Bello, J.	PRO 4
Diehl, B.W.K.	ANA 1a	Nienaber, U.	LOQ-P			Belock, C.	S&D 3b
Dionisi, F.	HT 4, H&N 4a, H&N 4b	Ogawa, J.	BIO 1, BIO 2.1/H&N 2			Ben Messaoud, G.	BIO 4.1/S&D 4
Dumeignil, F.	IOP 4	Panandiker, R.	S&D 2			Bendini, A.	ANA 2b
Dunford, N.T.	IOP 3	Papastergiadis, A.	LOQ 3a/PRO 3.2a			Benedict, M.	S&D 3a
Durrett, T.P.	BIO 4	Parker, A.	HT 9			Benes, P.C.	S&D-P
Fine, J.	HT 9	Patsey, B.	PRO 4			Bengtsson, J.D.	BIO 5
Gaitán, A.	H&N 3	Pink, D.A.	EAT 1			Berhow, M.	BIO-P
Galhardo, F.	BIO 2.2/PRO 2	Pinkston, J.D.	ANA 1b			Bertoli, C.	HT 4, LOQ 5a
Gallina Toschi, T.	HT 7	Raatz, S.K.	H&N 4a			Besong, S.A.	EAT-P, H&N-P
Ghosh, S.	EAT-P	Rempel, C.	HT 2			Best, C.H.	PCP-P
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Hazer, B.	BIO 1.1/IOP 1	Shahidi, F.	LOQ 1a			Bietz, D.	SS 3
Hernandez, E.	PHO 3, PHO-P	Sharko, P.T.	S&D 2			Bikanga, R.	PRO 5.1
Hettiarachchy, N.	PCP 1a, PCP-P	Shen, H.	S&D 1.1a			Bilic, O.	IOP-P, BIO 1.1/IOP 1
Heydinger Galante, J.	H&N 5	Shinn, S.	HT 10			Billiot, E.	BIO 4.1/S&D 4
Hojilla-Evangelista, M.	PCP-P	Shockey, J.	BIO 4			Billiot, F.	BIO 4.1/S&D 4
Holm, H.C.	HT 4	Sköld, F.	PRO 1			Bilodeau, J.	H&N 4a
Hosokawa, M.	BIO 2	Smallwood, N.J.	PRO 3			Bin, Q.	LOQ-P
Hou, C.T.	BIO 1	Smith, G.A.	BIO 4.1/S&D 4			Biresaw, G.	IOP-P
House, J.D.	HT 2	Smith, P.	HT 9			Birkin, P.	PRO-P, EAT 1
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Jadhav, S.	PHO 2	Theiner, E.	S&D 1.1a			Boomgaard, T.	S&D 3a
Johnson, D.	LOQ 3a/PRO 3.2a	Tian, X.	LOQ 1b			Bordes, R.	BIO 4.1/S&D 4
Ju, L.-K.	BIO 2, BIO 5	Tokle, T.	EAT 3.1a/LOQ 3b			Bordi, P.L.	HT 5
Karki, B.	ANA 3.1a/PCP 3a, PCP 3b	Totten, R.	S&D 3a			Börner, G.	PRO 1
Karunathilaka, S.R.	ANA 1a	Tsuchiya, K.	HT 8			Bornscheuer, U.T.	BIO 2, BIO 2.2/PRO 2
Kearney P.	HT 1	Tulk, B.M.	BIO 2.1/H&N 2			Bougouneau, B.M.	EAT-P
Kim, B.H.	BIO-P	Turgeon, C.	HT 6			Bowden, J.	ANA 2a
		Ubeyitogullari, A.	PRO-P			Boyer, M.J.	PRO 2.1
		Udenigwe, C.	PCP 2a, PCP 4			Brambilla, G.	EAT 5/IOP 5, EAT 2.1

Author/Presenter	Session(s)	Author/Presenter	Session(s)	Author/Presenter	Session(s)	Author/Presenter	Session(s)
Brenna, J.	BIO 2, H&N-P	Choi, J.	PCP 5, PRO-P	Desrochers, R.D.	ANA 2d/LOQ 2b	Fhaner, M.	LOQ 1a, EAT 4.1/LOQ 4b
Brereton, P.	HT 7	Choi, N.	BIO 5, BIO 2, PCP 5, PRO-P	Devaere, J.	LOQ 3a/PRO 3.2a	Field, C.J.	PHO 2, H&N 1/PHO 1
Brijmohan, S.	S&D 3b, S&D 2	Choi, S.	ANA-P	Devgan, H.	EAT-P	Figuerola-Espinoza, M.	LOQ-P
Britton, R.	S&D 3a	Chong, P.	EAT 2	Dewettinck, K.	EAT 5/IOP 5	Fioroni, G.	IOP 2
Brkić Bubola, K.	ANA 2b	Christensen, E.	IOP 2	Deyrieux, C.	LOQ 4a	Fletcher, R.	BIO 4
Brooks, D.	PRO 4	Chung, J.	BIO 5	Dhandapani, R.	ANA-P	Flöter, E.	EAT 4
Brothers, B.	IOP-P	Ciftci, O.N.	H&N 5, EAT 4.1/LOQ 4b, LOQ-P, PRO-P, EAT 5.1/S&D 5.1	Di Stefano, E.	PCP-P	Foubert, I.	EAT 3, LOQ 3a/PRO 3.2a
Brown, M.	PCP-P, BIO-P, ANA 3.1a/PCP 3a	Clark, S.	PHO 2	Di Stefano, E.	PCP 4	Fournier, F.	PCP 5
Browse, J.	BIO 4, BIO 5	Clarke, P.J.	PRO 2.1	DiAntonio, E.	EAT 5.1/S&D 5.1	Framboisier, X.	ANA 3.1a/PCP 3a, PCP-P
Bru, P.	EAT 2.1, S&D 3.1, EAT 5/IOP 5, S&D-P	Claro da Silva, R.	PRO-P	Dias, N.	PRO 4, BIO 3.1/PRO 3.1	Franklin, S.	IOP-P
Brückner, L.	ANA 1a, ANA-P	Clough, R.	PRO 5.1	Dibildox Alvarado, E.	EAT 5.1/S&D 5.1	Freinkman, E.	ANA 1b
Brundie, H.	BIO 2	Cohen, J.	BIO 5	Diehl, B.W.K.	PHO 3, ANA 1a	Frihart, C.R.	PCP 2b, PCP 5
Bučar-Miklavčić, M.	ANA 2b	Collette, R.	HT 6	Dijkstra, A.J.	PRO-P	Fritter, D.	S&D 1.1b
Buchek, K.	S&D 3a, S&D 3a	Collison, M.W.	ANA 4	Dillavou, S.	S&D 1.1	Fujisawa, N.	PCP-P, PCP 1b
Budamagunta, M.S.	ANA-P	Compton, D.L.	IOP 3	Din, A.	ANA 3	Fukiya, S.	BIO 2.1/H&N 2
Bula Silvera, A.J.	ANA-P, IOP 3, PRO 3	Cong, F.	PHO 3	Ding, Y.	PHO 3	Fukunaga, K.	H&N-P
Burger, D.	ANA 1b	Conner, T.W.	HT 10	Dinsbach, T.	PRO 4	Furuzono, T.	BIO 2.1/H&N 2
Burns (née MacKinnon), J.L.	H&N-P	Cooper, Z.	EAT-P	Dionisi, F.	HT 9, H&N 4a	Gaitan, A.V.	H&N-P, H&N 3
Bussi, J.	IOP 2	Cooper, B.T.	ANA 2a	Diosady, L.L.	PCP 3b	Galano, J.	LOQ-P
Bustillo Maury, J.A.	PRO 3	Coots, R.J.	S&D 3b	Doan, C.	PCP 4	Galet, O.	ANA 3.1a/PCP 3a, PCP 5, PCP-P
Butikas, R.	S&D 1.1	Copado, C.N.	PHO 3	Dodge, E.	S&D 1	Galhardo, F.	BIO 2.2/PRO 2
Byrdwell, W.C.	ANA 2a	Cordova-Barragan, M.	EAT 5.1/S&D 5.1	Doe, J.S.	TEST 1	Gallina Toschi, T.	HT 7, ANA 1b, ANA 2b
Cafmeyer, J.T.	IOP-P, EAT 5/IOP 5	Corradini, C.	LOQ-P	Donarski, J.A.	ANA 1b	Galloway, R.	HT 6
Cahoon, E.	BIO 4	Corzo-Martinez, M.C.	BIO 3	Dong, M.	PHO 3	Gang, K.	LOQ 3a/PRO 3.2a
Caillol, S.	IOP 3	Coupland, J.N.	LOQ-P	Dong, T.	IOP 2, IOP 4	Gao, P.	LOQ-P
Calliauw, G.	PRO 5	Crocker, N.V.	BIO 1	Donis-Gonzalez, I.R.	LOQ-P	Gao, M.	ANA 3
Campos, G.	PCP-P	Crusan, A.	H&N 5	Donohue, J.A.	H&N-P	Garbe, L.	H&N-P, H&N 5
Cantele, M.	BIO 3.1/PRO 3.1	Crutcher, T.	S&D-P	Dorman, F.	ANA-P	García, P.	LOQ 3a/PRO 3.2a
Cao, P.	PHO 3	Cunnane, S.	HT 8	Doucette, A.	ANA-P	García González, D.L.	HT 7, ANA 2b, ANA 1b, ANA 2d/LOQ 2b, LOQ-P
Cao, W.	ANA 3, ANA-P	Curran, S.	ANA-P	Drouin, G.	PRO-P	Garcia Pinto, C.L.	PRO 3
Cao, Y.	EAT 4	Cyrielle, G.	EAT 3.2/H&N 3.1	Ducouret, G.	BIO 4.1/S&D 4	Garcia-Moreno, P.J.	LOQ-P
Capron, M.	IOP 4	Da Silva, M.S.	H&N 4a	Dulay, R.M.	BIO 1	Gaudino, N.I.	PHO 2, PHO 2
Cardoso, L.P.	ANA-P	Daels, E.	EAT 3	Dumeignil, F.	IOP 4	Ghavami, M.	LOQ 3a/PRO 3.2a
Carrasco-Pancorbo, A.	ANA 2b	Dahanayake, M.	EAT 5.1/S&D 5.1	Duncan, A.M.	H&N-P	Gheysen, L.	LOQ 3a/PRO 3.2a
Casiraghi, S.	LOQ-P	Dameshek, A.	S&D 1.1	Dunford, N.T.	IOP 3	Ghosh, S.	EAT 5.1/S&D 5.1, LOQ 5b, EAT 1, PCP 4
Castiglioni, J.	IOP 2	Danelich, A.M.	PRO 5	Dungan, S.R.	EAT 3, EAT 2.1	Ghosh, P.	S&D 3.1
Castrodale, C.	EAT 5/IOP 5	Daniels, R.	EAT 1, EAT 1	Dunn, R.O.	IOP 2	Ghosh, M.	EAT 5.1/S&D 5.1
Catheline, D.	ANA-P, PRO-P, EAT 3.2/H&N 3.1, ANA 3	Danthine, S.	EAT-P	Durand, E.	LOQ-P, LOQ 4a, LOQ 1b	Ghulam Kadir, A.	HT 4, BIO 1
Cavazza, A.	LOQ-P	Darwisch, V.	ANA 3	Durand, T.	LOQ-P	Gibbons, W.	BIO-P, PCP-P
Cayer, L.G.J.	H&N 5	Das, U.	H&N 5, H&N 1/PHO 1	Durrett, T.P.	BIO 4, BIO 4	Gibon, V.	EAT-P
Cebolla, V.L.	ANA-P	Dauenhauer, P.J.	S&D 5	Dzisiak, D.	HT 1	Gifford, D.	EAT 1
Cerny, M.	BIO 2.2/PRO 2, PRO 5.1	Davis, C.A.	PRO 5.1	Ebeler, S.E.	EAT 2.1	Gildemaster, Y.	EAT 3.1a/LOQ 3b
Cevoli, C.	ANA 2b	Davoli, F.	EAT 4	Edel, A.L.	PHO 2	Giménez, B.	LOQ 3a/PRO 3.2a
Chakraborty, S.	EAT 5.1/S&D 5.1	Day, L.	EAT 2.1	Edinger, C.	ANA-P	Girardon, J.	IOP 4
Chan, L.	BIO 5	Dayton, C.	BIO 2.2/PRO 2	Eller, F.J.	LOQ-P	Girelli, C.	ANA 2b
Chance, D.L.	ANA-P	de Almeida, N.M.	PCP-P	Engeseth, N.J.	LOQ 5a, LOQ-P	Gitan, R.S.	ANA-P
Chang, M.	BIO-P, EAT-P, LOQ-P, H&N 1/PHO 1	De Boer, A.A.	ANA 5	Entorf, M.	S&D 3a	Gittins, D.	PRO 4, BIO 3.1/PRO 3.1
Chanwattanakit, J.	S&D 2	De Cooman, L.	LOQ 3a/PRO 3.2a	Esfahanian, M.	BIO 4	Giuffrida, F.	ANA 1b
Chavadej, S.	S&D 2	De Schampelaere, K.	BIO 4.1/S&D 4	Eskin, M.	SS 2, LOQ-P, PRO 3	Godbout, M.L.	ANA 2d/LOQ 2b
Chehadi, Z.	IOP 4	de Vries, A.	EAT-P	Espinosa, L.	PRO 4	Goderis, B.	EAT 3
Chen, B.	PCP 3b	Debonte, L.R.	BIO 4	Euston, S.R.	EAT 5.1/S&D 5.1	Goel, S.	S&D 3.1
Chen, B.	ANA 2c/LOQ 2a, LOQ 5b	Debruyne, I.	HT 9	Evangelista, R.L.	PCP 3b	Goiris, K.	LOQ 3a/PRO 3.2a
Chen, B.	PHO 3	Decker, E.A.	EAT 4.1/LOQ 4b, ANA 2c/LOQ 2a, LOQ 3a/PRO 3.2a, EAT 3.1a/LOQ 3b, EAT 4.1/LOQ 4b, LOQ 5a, LOQ 1b	Evans, K.O.	IOP 3	Gomes Reis, M.	EAT 2.1
Chen, C.	IOP-P, LOQ-P	Decker, D.	ANA 5	Everaert, B.	BIO 4.1/S&D 4	Goncalves Peca, A.	ANA 2a
Chen, C.	S&D 3.1	Defaix, C.	PCP 5	Everson, T.	BIO 4.1/S&D 4	Goodell, J.R.	IOP 3
Chen, C.	EAT 3	Del Coco, L.	ANA 2b	Fabre, J.	PRO 5.1, BIO 2.2/PRO 2	Gordon, J.W.	S&D 1
Chen, F.	HT 5	Delbeke, E.	BIO 4.1/S&D 4	Fang, Y.	BIO 4.1/S&D 4	Goto, T.	BIO 2.1/H&N 2
Chen, H.	ANA 2a	Della Porta, R.	ANA 2d/LOQ 2b, ANA 2c/LOQ 2a	Fan, X.	BIO 4.1/S&D 4	Gould, T.	H&N-P
Chen, J.	BIO 2	Delmonte, P.	ANA 3, ANA 2a, ANA-P	Fanizzi, F.	ANA 2b	Goykhman, Y.	BIO 2
Chen, L.	PCP 2a	Demaeseneire, S.	BIO 4.1/S&D 4	Fares, H.	EAT 5.1/S&D 5.1	Grady, B.P.	S&D 5, S&D-P
Chen, P.	PRO-P	Demchuk, Z.	IOP 4	Farida Asras, M.	BIO 1	Graham, T.	S&D 1.1b
Chen, X.	H&N-P	Demmer, R.T.	H&N 5	Fei, T.	EAT 5/IOP 5	Granvogl, M.	ANA 4, ANA 2b
Chen, X.	LOQ 4a	Demolinder, F.	LOQ-P	Felix, L.	LOQ-P	Grassi, K.	ANA 4
Cheng, H.	IOP-P	Deng, X.	BIO 4	Felker, F.C.	H&N-P	Gravé, G.	BIO 2.2/PRO 2, PRO 5.1
Chenwei, Z.	PRO-P, EAT-P	Deng, Q.	PRO-P	Feng, H.	S&D 3.1	Green, N.	EAT-P, EAT 5.1/S&D 5.1
Cheong, L.	H&N 1/PHO 1	Dentinger, C.	EAT 5.1/S&D 5.1	Ferdouse, A.	H&N 5	Green, R.	PCP 4
Chew, F.	BIO 4	Der, T.	PCP 4, PCP 4	Fernandez, J.M.	S&D 3.1	Gregory, S.	BIO 2.2/PRO 2, PRO 5
Chiao, J.	HT 3	Deshmane, A.	IOP-P	Fernandez, J.	H&N 5	Gregory, K.	PCP-P
Chiavaro, E.	LOQ-P			Ferreira, S.S.	EAT-P	Gregson, C.	EAT 2.1
Chin Ping, T.	BIO 1.1/IOP 1			Ferreira-Dias, S.	PRO 2.1	Grimaldi, M.	LOQ-P
				Ferrer, D.L.	S&D 2		

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Linscott, D.J.	S&D 3a	Masters, R.A.	S&D 5, S&D 1.1	Morts, M.E.	LOQ 5a	Ong-Abdullah, M.	BIO 1
Little, D.J.	PRO 5, PRO 4	Mastovska, K.	ANA 4	Moser, J.	H&N-P, LOQ 5b, LOQ 1a, EAT 4.1/LOQ 4b	Ono, D.	S&D-P
Liu, C.	PCP 2b	Masui, H.	S&D 2			Ordovas, J.M.	H&N 4a
Liu, G.	PCP 2a	Masuyama, A.	S&D-P, ANA 4	Moser, B.R.	IOP-P	Orduna, J.	ANA-P
Liu, L.	PRO 4, EAT 4, EAT 2	Mat Sahri, M.	H&N-P, BIO 1.1/IOP 1	Mossoba, M.	ANA 1a, ANA-P	Oroz-Guinea, I.	BIO 2
Liu, R.	LOQ-P, H&N 1/PHO 1	Mathé, C.	PCP-P	Mouloungui, Z.	PRO 5.1, BIO 2.2/PRO 2	Orr-Tokle, I.C.	ANA 5
	BIO-P, EAT-P	Mathews, J.	S&D 2			Ortego, E.	BIO 3
Liu, R.	PRO-P	Mathis, F.	BIO 3.1/PRO 3.1	Movliya, R.V.	BIO-P	Osafune, Y.	ANA 4
Liu, S.	EAT 4.1/LOQ 4b, H&N-P	Matsudo, A.	H&N-P	Mozaffarian, D.	EAT 3.2/H&N 3.1	Osuji, O.	H&N-P, H&N 5
Liu, S.	H&N-P	Matsumura, Y.	BIO 1	Müller, M.	ANA 2a	Ouchi, M.	LOQ 3a/PRO 3.2a
Liu, S.	PHO 3	Matthäus, B.	ANA 2a	Murakawa, N.	BIO 2	Ozkan, S.	EAT 5.1/S&D 5.1
Liu, K.	PCP 2b, PCP 2b	Mavec, J.	HT 9	Muric, M.	ANA 2a	Ozturk, G.	BIO 5
Liu, X.	H&N 1/PHO 1	Mawhinney, T.P.	ANA-P	Murota, K.	ANA 4	Paciulli, M.	LOQ-P
Liu, Y.	PHO 3	Mazurak, V.	PHO 2	Musa, N.	BIO 4	Packer, R.	ANA 1b, ANA 1a
Liu, Y.	EAT 4	Mazzanti, C.	ANA-P	Myers, C.	ANA-P	Paczkowski, M.	S&D 3b
Liu, Y.	H&N-P	McClements, D.	EAT 3.1a/LOQ 3b, H&N-P, H&N 5, EAT 4.1/LOQ 4b, EAT-P, EAT 2.1, ANA 4, PCP 2a, LOQ 3a/PRO 3.2a, ANA 2c/LOQ 2a	Nagano, H.	BIO 1	Palma, M.J.	LOQ 3a/PRO 3.2a
Liu, Y.	EAT 3			Nagao, T.	BIO 1	Palmieri, P.	EAT 2
Liu, Z.	H&N 1/PHO 1			Nagy, A.	BIO 4.1/S&D 4	Palu, S.	PRO 3
Liu, Z.	LOQ 3a/PRO 3.2a	McCormick, R.	IOP 2	Naik, S.	PRO 4	Panandiker, R.K.	S&D 2
Liu, Z.	IOP-P	McGill, J.	EAT 2	Nakamura, H.	PCP 1b	Panthi, K.	S&D 3.1, S&D 3.1
Livney, Y.D.	PCP 2a	McGinn, M.	BIO 4	Nakamura, H.	PCP-P	Papastergiadis, A.	HT 4, PRO 5, LOQ 3a/PRO 3.2a
Liyanage, R.	ANA-P	Membrado, L.	ANA-P	Nakamura, S.	PCP 1b		
Ljubic, A.	LOQ 4a	Mendonca, A.	H&N 5	Nakashimada, Y.	BIO 1	Park, C.	EAT 4
Lievot, A.	BIO 1.1/IOP 1	Meng, Z.	PHO 3, EAT 4	Nakatsuji, R.	BIO 3	Park, D.	S&D 5
Lobo, A.	ANA 2b, ANA 2d/LOQ 2b, LOQ-P	Meng, L.	PRO-P	Nakhasi, D.	EAT 1, EAT 1	Park, S.	BIO 1
Lognay, G.	EAT-P	Menkiti, M.	IOP 4, IOP 4	Nandasiri, R.	LOQ-P	Park, Y.	H&N 5, ANA 4
Loh, W.	BIO 4	Merah, O.	BIO 2.2/PRO 2	Natale, M.	S&D 1.1	Parrish, D.	BIO 4.1/S&D 4
Longmore, N.	EAT 1	Merritt, A.	EAT 1	Naveen Kumar, G.K.	H&N 1/PHO 1	Patel, A.	EAT 1
López, E.	BIO 3	Mertz, R.E.	EAT 1	Nazarenus, T.	BIO 4	Patel, C.M.	BIO-P
Losso, J.N.	LOQ 1a	Meshginfar, N.	PCP 1b	Neerup, R.	LOQ 1b	Patel, P.M.	BIO-P
Lovric, M.	IOP-P	Messman, J.M.	BIO 1.1/IOP 1	Nelson, C.	S&D 1.1	Patel, R.	PRO 2.1
Low, J.YS.	BIO 4	Metin, S.	EAT 4, EAT 4	Nelson, D.C.	PHO 2	Patil, P.	S&D 1.1
Lu, H.F.S.	ANA 2c/LOQ 2a	Meunier, G.	S&D 3.1, EAT 5/IOP 5, EAT 2.1, S&D-P	Neufeld, J.	PCP 4	Patsey, B.	PRO 4
Lu, J.	EAT-P			Neugebauer, A.	ANA 2b	Pedersen, J.S.	BIO 3
Lu, Y.	ANA 1b	Mezouari, S.	PRO 3	Newell, M.	PHO 2	Penet, C.	PCP-P, PCP-P
Lubeckyj, R.A.	LOQ 1a, PCP-P	Mhemdi, H.	PRO-P	Newport, M.T.	HT 8	Peng, L.	LOQ-P, IOP-P
Lumor, S.	PRO 4	Michalowski, J.	S&D 3a	Ng, M.	ANA 3	Perez, B.	PHO 2, BIO 3
Lunn, D.	BIO 4	Michalski, M.	EAT 3.2/H&N 3.1	Ng, S.	S&D 3.1	Pérez-Martínez, J.D.	EAT 5.1/S&D 5.1
Luo, X.	LOQ-P	Michel-Salaun, F.	LOQ 4a	Ngo Lew, H.	IOP-P, IOP 4	Perriman, A.	BIO 3
Ma, Y.	IOP-P	Michel, G.A.	LOQ-P	Nguyen, A.	EAT-P, H&N-P	Petersen, S.V.	BIO 3
Ma, D.W.L.	H&N-P	Micke, G.A.	LOQ-P	Nguyen, T.	S&D 5, S&D 3b, S&D 3.1	Petrovic, Z.	BIO 1.1/IOP 1, IOP-P
Ma, D.	ANA-P	Miguez, M.	S&D 5	Nguyen, Q.	S&D 1.1	Petrut, R.F.	EAT 2
Ma, J.	EAT 2	Milani, A.	ANA-P, ANA 2a	Nichols, J.	ANA-P	Peyronel, F.	EAT 1
Ma, Z.	HT 5	Minor, W.S.	PRO 2.1	Nicholson, R.A.	EAT 5/IOP 5	Phaodee, P.	S&D 2
Macchietto, M.	H&N-P	Mirotta, J.A.	H&N-P	Nickerson, M.	LOQ 5b, PCP 4	Phung, A.S.	ANA 5
Maceiras, L.	LOQ 5b, LOQ-P	Mirzaee Ghazani, S.	PHO 2	Nielsen, P.	BIO 3.1/PRO 3.1	Pienkos, P.	IOP 2, IOP 4
MacIntosh, A.	PRO-P	Mitani, T.	PCP 1b	Nijdam, J.L.	PRO 5	Pierce, G.N.	PHO 2
MacMahon, S.	ANA 4	Mitchell, B.A.	ANA-P, ANA 4, ANA 5	Nikas, S.P.	H&N-P	Pieters, L.	H&N-P
Mahfouz, G.N.	S&D 3b	Mittelbach, M.	IOP 2	Nishiyama, T.	H&N-P	Pignitter, M.	LOQ 4a
Makriyannis, A.	H&N-P	Miyamoto, J.	BIO 2.1/H&N 2	Nitin, N.	ANA-P, EAT 2.1	Pink, D.A.	EAT 1
Maleky, F.	EAT 4, EAT 2	Miyashita, K.	SS 1	Nolles, R.	S&D 1	Pinkston, D.	ANA 1b
Malsam, J.	S&D 3.1	Miyashita, K.	H&N-P	Norton, I.T.	EAT 5/IOP 5	Pioch, D.	PRO 3
Malumba, P.	EAT-P	Moellering, E.R.	BIO 4	Nosworthy, M.G.	PCP 1a, PCP 4	Piravi vanak, Z.	H&N-P
Manabe, Y.	BIO 2.1/H&N 2, H&N-P	Mohan, A.	PRO 3	Nunes, I.L.	EAT-P	Policarpi, P.	LOQ-P
Maquet, A.	HT 7	Mohanani, A.	LOQ 5b, PCP 4	O'Connor, S.	H&N 4a	Popovic, N.	LOQ 4a
Marangoni, A.G.	EAT 5/IOP 5, EAT 2, EAT 5.1/S&D 5.1, EAT 1, EAT 4, EAT 3, PHO 2	Mohanty, K.K.	S&D 3.1	O'Hara, K.A.	PHO 2	Postovit, L.M.	LOQ 4a
		Mohler, C.	S&D 1.1	O'Chiai, S.	PCP-P	Povey, M.J.W.	PHO 2, H&N 1/PHO 1
Margraf, D.	BIO 3.1/PRO 3.1	Moles, A.	BIO 3	Ocholi, o.	IOP 4	Proctor, A.	EAT 2
Marinangeli, C.	PCP 4	Moltke Sørensen, A.	LOQ 4a, LOQ-P, EAT 3.1a/LOQ 3b, LOQ 1b	Ogawa, J.	BIO 2.1/H&N 2, BIO 3, BIO 1, H&N-P	Proctor, A.	PRO-P
Marks, M.	BIO 4					Pruzanski, W.	PHO-P
Marnie, N.	H&N 1/PHO 1	Monakhova, Y.B.	ANA 1a	Oger, C.	LOQ-P	Pudel, F.	ANA 2a
Marquardt, D.	LOQ-P	Monser-Gray, K.P.	BIO 4	Ogura, E.	S&D 1	Punvichai, T.	PRO 3
Márquez-Ruiz, G.	LOQ 3a/PRO 3.2a	Moore, E.	HT 5	Oh, W.	H&N 3	Qi, K.	EAT 4
Marshall, K.	ANA 5	Moore, M.A.	EAT-P	Ohlrogge, J.	PCP 3b	Qi, J.	PRO-P, H&N-P
Martin, P.	EAT 1	Moorthy, A.S.	ANA 2a	Oi Ming, L.	BIO 1.1/IOP 1, H&N-P	Qin, W.	PRO-P
Martineau Côté, D.	PCP-P	Morales, M.	LOQ-P, ANA 2b, ANA 2d/LOQ 2b	Okamoto, T.	S&D 2, S&D 1	Qiu, C.	EAT 4.1/LOQ 4b
Martini, S.	PRO-P, BIO 2.2/PRO 2, EAT 3, EAT 1, EAT 4, EAT-P	Morawicki, R.O.	ANA-P, IOP 3	Okamura, Y.	BIO 1	Qiu, X.	LOQ 1b
Martins, R.	HT 8	Moreau, R.A.	IOP 4, IOP-P	Okumura, M.	S&D-P	Qiu, X.	H&N-P
Mason, E.	PCP-P	Moreau, R.	H&N 5	Olanya, M.	BIO 4.1/S&D 4	Quan, G.	BIO 4.1/S&D 4
Mason, C.	BIO 4	Morgan, C.	S&D 3b	Olarewaju, O.A.	PCP-P	Raat, S.K.	H&N 4a, H&N 5
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