

# 2018 AOCS Annual Meeting & Expo

May 6–9 | Minneapolis Convention Center | Minneapolis, Minnesota, USA



## Lipid Oxidation and Quality (LOQ) Interest Area Tentative Technical Program

As of April 1, 2018

*This presentation list is not final and is subject to change.*

*The presenter is the first author, or the author indicated with an asterisk (\*).*

### Monday Afternoon

#### **LOQ 1a: Lipid Oxidation Fundamentals**

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

**Role of Antioxidants and Stability of Frying Oils.** S.P.J. Namal Senanayake, *Camlin Fine Sciences, USA*

**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*

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

**Application of Differential Pulse Voltammetry to Determine the Efficiency of Stripping Tocopherols from Commercial Fish Oil.** Rachele A. Lubeckyj<sup>1</sup>, Jill Moser<sup>2</sup>, and Matthew Phaner<sup>\*3</sup>, <sup>1</sup>*Michigan State University, USA;* <sup>2</sup>*USDA, ARS, NCAUR, USA;* <sup>3</sup>*University of Michigan-Flint, USA*

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

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

**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*

**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*

**Impact of Modified Lecithin on the Antioxidant Activity of alpha-Tocopherol in Bulk Oils.** Eric A. Decker and Anuj G. Shanbhag\*, <sup>1</sup>*University of Massachusetts Amherst, USA*

**Controlling Oxidation in Skin Care Products with Novel Seaweed Antioxidants.** Ditte B. Hermund<sup>1</sup>, Birgitte R. Thomsen<sup>1</sup>, Niruja Sivasubramaniam<sup>2</sup>, Shuk Y. Heung<sup>3</sup>, Randi Neerup<sup>4</sup>, Louise M. Klinder<sup>5</sup>, Susan Holdt<sup>2</sup>, and Charlotte Jacobsen<sup>\*1</sup>, <sup>1</sup>*Technical University of Denmark, Denmark;* <sup>2</sup>*National Food Institute, Technical University of Denmark, Denmark;* <sup>3</sup>*DTU Food, Denmark;* <sup>4</sup>*Danish Technological Institute, Denmark;* <sup>5</sup>*Mellisa Aps, Denmark*

## Tuesday Morning

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

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

#### **The Combination of High Oleic Oils and Natural Antioxidants as a Powerful Tool for Shelf Life Extension.**

*Susan Knowlton, DuPont Company, Pioneer, USA*

#### **The Antioxidative Activity of Soluble Bound Phenolic Compounds Fractions Extracted from Germinated Chickpea in Oil-in-Water Emulsions.**

*Minwei Xu and Bingcan Chen, North Dakota State University, USA*

#### **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*

#### **Oxidative Stability of Margarines, Shortenings and Spreads.**

*Min Hu, DuPont Nutrition & Health, USA*

#### **Shelf-life Extension of Meat and Meat Products by Using Natural Antioxidants.**

*Henna F.S. Lu, Kalsec Europe Ltd, UK*

#### **Differential Stability of Linoleic Sun, Soy and Rapeseed Oils Using TBHQ and Rosemary in Fried Potatoes.**

*Richard Della Porta, Frito-Lay, USA*

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

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

#### **Antioxidant Efficacy and Impact of Storage Conditions.**

*Marie Shen<sup>1</sup>, Lan Ban<sup>1</sup>, and Chandra Ankolekar\*<sup>2</sup>,  
<sup>1</sup>Kemin Food Technologies, USA; <sup>2</sup>Kemin Industries Inc., USA*

#### **Sensory Directed Chemical Analysis of Oxidized Marine Oils.**

*Roy D. Desrochers, Tufts University Sensory and Science Center, USA*

#### **Developing a Sensory Oxidation Quality Scale.**

*Monica L. Godbout, Abbott Nutrition, USA*

#### **Assessing Virgin Olive Oil Stability and Shelf Life at Moderate Conditions by FTIR Spectroscopy Endowed with a Mesh Cell Accessory.**

*Noelia Tena<sup>1</sup>, Ramón Aparicio-Ruiz<sup>1</sup>, Ana Lobo<sup>1</sup>, María Teresa Morales<sup>2</sup>, Aparicio Ramón<sup>1</sup>, and Diego L. García González\*<sup>1</sup>,  
<sup>1</sup>Instituto de la Grasa (CSIC), Spain; <sup>2</sup>University of Seville, Spain*

## Tuesday Afternoon

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

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

#### **Oxidative Stability of Tomato-based Matrices Enriched with n-3-LC-PUFA Derived from Microalgae.**

*Lore Gheysen<sup>1</sup>, Nele Lagae<sup>2</sup>, Jolien Devaere<sup>3</sup>, Koen Goiris<sup>4</sup>, Luc De Cooman<sup>4</sup>, and Imogen Foubert<sup>1</sup>,  
<sup>1</sup>Katholieke Universiteit Leuven Kulak, Belgium; <sup>2</sup>1KU Leuven University KULAK, Belgium; <sup>3</sup>KU Leuven Technology Campus Ghent, Belgium; <sup>4</sup>Katholieke Universiteit Leuven, Technology Campus Ghent, Belgium*

#### **Oxidation and Hydrolysis of Lipids in Marine Edible Shellfishes During Hot Drying Process.**

*Dayong Zhou<sup>1</sup>, Zhongyuan Liu<sup>2</sup>, Kaiqi Gang<sup>3</sup>, Fereidoon Shahidi<sup>4</sup>, and Tong Wang<sup>5</sup>,  
<sup>1</sup>Dalian Polytechnic University, China; <sup>2</sup>College*

*of Food Science & Technology, Dalian Polytechnic University, China; <sup>3</sup>School of Food Science and Technology, Dalian Polytechnic University, China; <sup>4</sup>Memorial University of Newfoundland, Canada; <sup>5</sup>Iowa State University, USA*

**Effect of Spray-Dried Flavonoid Microparticles on Oxidative Stability of Methyl Linoleate as Lipid Model System.** Manuel J. Palma<sup>1</sup>, Gloria Márquez-Ruiz<sup>2</sup>, Paula García<sup>3</sup>, Francisca Holgado<sup>4</sup>, Cristina Vergara<sup>3</sup>, Begoña Giménez<sup>5</sup>, and Paz S. Robert<sup>1</sup>, <sup>1</sup>Universidad de Chile, Chile; <sup>2</sup>Instituto de Ciencia y Tecnología de Alimentos y Nutrición (ICTAN-CSIC), Spain; <sup>3</sup>Departamento de Ciencia de los Alimentos y Tecnología Química, Facultad de Ciencias Químicas y Farmacéuticas, Universidad de Chile, Chile; <sup>4</sup>Instituto de Ciencia y Tecnología de Alimentos y Nutrición (ICTAN-CSIC); <sup>5</sup>Departamento de Ciencia y Tecnología de los Alimentos, Facultad Tecnológica, Universidad de Santiago de Chile, Chile

**The Impact of Diacylglycerol on Association Colloids Formation and Lipid Oxidation.** Mizue Ouchi<sup>1</sup>, Eric A. Decker<sup>2</sup>, and D. Julian McClements<sup>2</sup>, <sup>1</sup>Kao Corporation, Japan; <sup>2</sup>University 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, Kemin Industries Inc., USA*

**Stability and Functionality of Colloidosomes as Delivery Systems for Small Molecules.** Umut Yucel, Kansas State University, USA

**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

**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

**Label Friendly EDTA Alternative for Oxidative Stability Improvement in Food Emulsions.** Lan Ban, Yvonne Gildemaster, and Joan Randall, Kemin Food Technologies, USA

### Wednesday Morning

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

*Chairs: Lynn Yao, Mondelēz International Inc., USA, USA; Lan Ban, Kemin Food Technologies, USA; and Will Schroeder, Kemin Food Technologies, USA*

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

**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

**Evaluation of Antioxidants and Antimicrobials from Plant Extracts in Pet Food.** Charlotte Deyrieux<sup>1</sup>, Erwann Durand<sup>1</sup>, Nathalie Barouh<sup>1</sup>, Jérôme Lecomte<sup>2</sup>, Françoise Michel-Salaun<sup>3</sup>, Bruno Baréa<sup>1</sup>, Gilles Kergourlay<sup>3</sup>, and Pierre Villeneuve<sup>1</sup>, <sup>1</sup>CIRAD, France; <sup>2</sup>CIRAD, Greece; <sup>3</sup>Videka Diana Pet Food, France

**Non-targeted Screening for Oxidized Lipids in Foods.** Verena Grüneis<sup>1</sup>, Natasa Popovic<sup>2</sup>, Martin Zehl<sup>3</sup>, Jürgen König<sup>4</sup>, and Marc Pignitter\*<sup>1</sup>, <sup>1</sup>Department of Physiological Chemistry, Faculty of Chemistry, University of Vienna,

*Austria; <sup>2</sup>Department of Physiological Chemistry, Faculty of Chemistry, University of Vienna, Austria; <sup>3</sup>Department of Analytical Chemistry, Faculty of Chemistry, University of Vienna, Austria; <sup>4</sup>Department of Nutritional Sciences, Faculty of Life Sciences, University of Vienna, Austria*

**Polyphenol Shifts in Lipid Oxidation Pathways and Interactions with Proteins Alter Apparent Antioxidant Effectiveness.** Karen M. Schaich, and Xiaosong Chen<sup>2</sup>, <sup>1</sup>Dept. of Food Science, Rutgers University, USA; <sup>2</sup>China Agricultural University, China

#### **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 Agriculture University, China*

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

**Natural Wax Oleogels-A Method to Prevent Oxidation of Fish Oil.** Hong-Sik Hwang<sup>1</sup>, Matthew Phaner<sup>2</sup>, Jill Moser<sup>1</sup>, and Sean Liu<sup>3</sup>, <sup>1</sup>USDA, ARS, NCAUR, USA; <sup>2</sup>University of Michigan-Flint, USA; <sup>3</sup>USDA, ARS, USA

**Self-assembled Colloidal Complexes of Polyphenol–gelatin and their Stabilizing Effects on Emulsions.** Chaoying Qiu, Yu Huang<sup>1</sup>, Zhen Zhang<sup>2</sup>, Ying Li<sup>3</sup>, and Yong Wang<sup>1</sup>, <sup>1</sup>Jinan University, China; <sup>2</sup>South China University of Technology, China; <sup>3</sup>Guangdong Saskatchewan Oilseed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, China

**Ability of SDS Micelles to Increase the Antioxidant Activity of  $\alpha$ -tocopherol.** Raffaella Inchingolo<sup>1</sup>, Sezer S. Kiralan<sup>1</sup>, Sibel Uluata<sup>1</sup>, MariaTeresa Rodriguez Estrada<sup>2</sup>, D. Julian McClements<sup>3</sup>, and Eric A. Decker<sup>4</sup>, <sup>1</sup>University of Massachusetts, USA; <sup>2</sup>University of Bologna, Italy; <sup>3</sup>University of Massachusetts, Amherst, USA; <sup>4</sup>University of Massachusetts Amherst, USA

**Impact of Reduced Oxygen Environment and Natural Antioxidants on the Oxidative Stability of Oil-in-Water Emulsions.** Eric A. Decker<sup>1</sup>, and David R. Johnson<sup>\*2</sup>, <sup>1</sup>University of Massachusetts Amherst, USA; <sup>2</sup>Kalsec Inc., USA

#### Wednesday Afternoon

#### **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*

**Nutritional Impacts of Oxidation Byproducts in Food: The Pet Food Dilemma.** Megan E. Morts and Greg Aldrich, *Kansas State University, USA*

**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\*, *University of Massachusetts Amherst, USA*

**Implications of Feeding Peroxidized Lipids in Swine.** Brian Kerr, *USDA-ARS, USA*

**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

**Synergism and Antagonism of Phenolic, Amine and Sulfur-containing Antioxidants in Lipid Oxidation.** Olga T. Kasaikina and Karina M. Zinatullina<sup>2</sup> *Semenov N.N. Institute of Chemical Physics, Russia*

**Physical and Oxidative Stability of O/W Emulsions Stabilized by Gum Arabic Glycated Pea Proteins.** Bingcan Chen<sup>1</sup> and Fengchao Zha<sup>\*2</sup>, <sup>1</sup>*North Dakota State University, USA*

**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*

**Antioxidant and Antibacterial Activity of Different Extracts from Herbs Obtained by Maceration or Supercritical Technology.** Ignacio Vieitez, Lucía Maceiras, Iván Jachmanián, and Silvana Alborés, *UdelaR, Uruguay*

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

Chair: Uwe Nienaber, DSM Nutritional Products, USA

**A Comparison of Commercial Enzymes Used Individually or in Combination for Aqueous Enzymatic Extraction of Oil from Njangsa Seed.** Mary Besong<sup>1</sup>, Anh T.L Nguyen<sup>2</sup>, Samuel A. Besong<sup>3</sup>, and Alberta N A Aryee<sup>\*2</sup>, <sup>1</sup>*The Henry P. Becton School of Nursing & Allied Health, Fairleigh Dickinson University, Teaneck, NJ 07666, United States;* <sup>2</sup>*Delaware State University, USA;* <sup>3</sup>*Dept. of Human Ecology, College of Agricultural Sciences, Delaware State University, USA*

**Impact of High Pressure and Temperature Processing on Antioxidant Activity of Canola Meal Extracts.** Ruchira Nandasiri, Erika Zago, and Usha Thiyam, *University of Manitoba, Canada*

**Chemometric Comparison of Aldehyde Formation in Olive Oil and Camellia Oil at Frying Temperature.** Ling Peng, Jieyao Yuan<sup>\*</sup>, and Chi Chen, *University of Minnesota, USA*

**Chemometric Profiling of Aldehyde Distribution in Frying Oil and French Fries.** Lei Wang, Yuyin Zhou<sup>\*</sup>, Yukari Yamashita, and Chi Chen, *University of Minnesota, USA*

**Development of Novel Free-flowing Fish Oil-loaded Hollow Solid Lipid Micro- and Nanoparticles to Improve Oxidative Stability of Fish Oil.** Junsi Yang and Ozan N. Ciftci, *University of Nebraska-Lincoln, USA*

**Physical and Oxidative Stability of 50-70% Fish Oil-in-Water Emulsions Stabilized with Sodium Caseinate and Phosphatidylcholine.** Betül Yesiltas<sup>1</sup>, Ann-Dorit Moltke Sørensen<sup>2</sup>, Pedro J. Garcia-Moreno<sup>2</sup>, and Charlotte Jacobsen<sup>\*2</sup>, <sup>1</sup>*National Food Institute, Technical University of Denmark, Denmark;* <sup>2</sup>*Technical University of Denmark, Denmark*

**Identification and Quantification of Phytoprostanes and Phytofurans in Coffee and Cocoa By- and Co-products.** Mariana Ruesgas Ramon<sup>1</sup>, Claire Vigor<sup>2</sup>, Amandine Rocher<sup>2</sup>, Guillaume Reversat<sup>3</sup>, Joseph Vercauteren<sup>3</sup>, Camille Oger<sup>3</sup>, Jean-Marie Galano<sup>3</sup>, Thierry Durand<sup>3</sup>, Erwann Durand<sup>4</sup>, and Maria Cruz Figueroa-Espinoza<sup>5</sup>, <sup>1</sup>*SupAgro Montpellier, France;* <sup>2</sup>*Institut des Biomolécules Max Mousseron, France;* <sup>3</sup>*Institut des Biomolécules Max Mousseron, UMR 5247 CNRS, University of Montpellier, ENSCM, Faculty of Pharmacy., France;* <sup>4</sup>*CIRAD, France;* <sup>5</sup>*Montpellier SupAgro, UMR IATE, Montpellier, France*

**An Investigation of the Antioxidant Activity of Alkyl Gallates in Model Membranes.** Yu Zhao<sup>1</sup>, Drew Marquardt<sup>2</sup>, Ryan J. Elias<sup>1</sup>, and John N. Coupland<sup>1</sup>, <sup>1</sup>*Pennsylvania State University, USA;* <sup>2</sup>*University of Windsor, Canada*

**Predicting the Oxidative Stability in Bakery Products: Application of Accelerated Method Based on Oxygen Consumption.** Claudio Corradini<sup>1</sup>, Antonella Cavazza<sup>1</sup>, Emma Chiavaro<sup>2</sup>, Carmen Lagana<sup>3</sup>, Stefano Casiraghi<sup>\*4</sup>, Monia Scarsi<sup>4</sup>, Maria Paciulli<sup>5</sup>, Massimiliano Rinaldi<sup>5</sup>, and Maria Grimaldi<sup>6</sup>, <sup>1</sup>*Università degli Studi di Parma, Italy*; <sup>2</sup>*Dipartimento di Scienze degli Alimenti e del Farmaco, Università di Parma, Italy*; <sup>3</sup>*VELP Scientifica, Italy*; <sup>4</sup>*VELP Scientific, Inc., USA*; <sup>5</sup>*Dipartimento di Scienze degli Alimenti e del Farmaco, Università di Parma, Italy*; <sup>6</sup>*Dipartimento di Scienze Chimiche, della Vita e della Sostenibilità Ambientale, Università di Parma, Italy*

**A Study of Photooxidation in Edible Oils by FTIR Spectroscopy and Incubation at Moderate Light Intensity.** Noelia Tena<sup>1</sup>, Ramón Aparicio-Ruiz<sup>1</sup>, Ana Lobo<sup>2</sup>, María Teresa Morales<sup>3</sup>, Aparicio Ramón<sup>2</sup>, and Diego L. García González<sup>\*1</sup>, <sup>1</sup>*Instituto de la Grasa (CSIC), Spain*; <sup>2</sup>*Instituto de la Grasa (CSIC)*; <sup>3</sup>*University of Seville, Spain*

**Food-induced Formation of Health-damaging Compounds During Repeated Deep-fat Frying Cycles.** Ru Shen<sup>1</sup>, William G. Helferich<sup>2</sup>, and Nicki J. Engeseth<sup>2</sup>, <sup>1</sup>*University of Illinois, USA*; <sup>2</sup>*University of Illinois at Urbana-Champaign, USA*

**Lecithin Near Critical Micelle Concentration had the Highest Oxidative Stability in Corn Oil.** JiSu Kim<sup>1</sup>, YunSik Woo<sup>1</sup>, Jiwon Ryu<sup>1</sup>, MiJa Kim<sup>2</sup>, and JaeHwan Lee<sup>\*3</sup>, <sup>1</sup>*Sungkyunkwan University, Republic of Korea*; <sup>2</sup>*Kangwon National University, Republic of Korea*; <sup>3</sup>*Dept. of Food Science and Biotechnology, Sungkyunkwan University, Republic of Korea*

**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*

**Correlation between Phenolic Compounds and Antioxidant Activity of Sapucaia Nut (*Lecythis pisonis* Cambess) Aqueous Extract.** Fernanda Demolinder<sup>1</sup>, Priscila Policarpi<sup>2</sup>, Leticia Turcatto<sup>2</sup>, Luciano Vitali<sup>3</sup>, Gustavo A. Micke<sup>3</sup>, and Jane Mara Block<sup>\*4</sup>, <sup>1</sup>*Dept. of Food Science and Technology -Federal University of Santa Catarina, Brazil*; <sup>2</sup>*Dept. of Food Science and Technology, Federal University of Santa Catarina, Brazil*; <sup>3</sup>*Department of Chemistry - Federal University of Santa Catarina, Brazil*; <sup>4</sup>*UFSC, Brazil*

**Microwave-assisted Synthesis and Antioxidant Activity of Palmitoyl-epigallocatechin Gallate.** Tao Zhang, Ruijie Liu, Ming Chang, Qingzhe Jin, and Xingguo Wang, *Jiangnan University, China*

**Comparison of Walnut Oil Obtained by Different Extraction Solvents.** Pan Gao and Xingguo Wang, *Jiangnan University, China*

**Co-solvent Modified Supercritical Carbon Dioxide Extraction and Antioxidant Activity of Rosemary Extracts.** Ignacio Vieitez, Lucía Maceiras, and Iván Jachmanián, *UdelaR, Uruguay*

**Opportunities for Low Saturate High Oleic Canola Oil in Food Industry: Frying Quality and Oxidative Stability.** Xiaolan Luo and Diliara Iassonova, *Cargill Inc., USA*

**The Degraded Products During Frying.** Junmei Liang, Yuan Rong Jiang, and Wenyan Ji, *Wilmar (Shanghai) Biotechnology Research & Development Center Co., Ltd, China*

**Radical Detection in Antioxidant Treated Fish Oil using Electron Paramagnetic Resonance.** Ewa Szajna-Fuller, Carrie Wray<sup>\*</sup>, and Qing Bin, *Kemin Industries, USA*

**Effect of Temperatures on Thermal Oxidation of Oleic and Palmitic Acid Studied by ESR.** Hongjian Chen, Peirang Cao, and Yuanfa Liu, *Jiangnan University, China*

**The Evaluation of Frying Oils.** Dongjin Yu<sup>1</sup>, Eunseok Jang<sup>1</sup>, Minyoung Kim<sup>1</sup>, Bongchan Kim<sup>1</sup>, Yoonchang Kang<sup>1</sup>, Jinsub Shin<sup>2</sup>, and Hyeonhwa Lee<sup>2</sup>, <sup>1</sup>*Samyang Co., South Korea*; <sup>2</sup>*Samyang Corp., South Korea*