

27th LipidForum Symposium 2013

Nordic Forum for Lipid Research and Technology

**Helsinki, Finland
17 – 19 June 2013**

ISBN: 978-1-63266-230-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2013) by The Nordic Lipid Forum
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact The Nordic Lipid Forum
at the address below.

The Nordic Lipid Forum
c/o FHL Maring
Box 5471, Majorstuen
N-0305 Oslo, Norway

Phone: +47 908 92 156

Jon.aulie@fhl.no

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

PROGRAMME

Monday, June 17

8.30- Registration

9:15 Opening

SESSION I: IMPACT OF LIPIDS ON HUMAN HEALTH

Chair: *Bente Torstensen*

National Institute of Nutrition and Seafood Research (NIFES), Norway

9:30 Keynote lecture

Recent advances in the field of omega-3-lipids """"":

Charlotte Jacobsen, National Food Institute, Technical University of Denmark

**Herring roe phospholipids improved plasma lipids and glycemic control in """"";
healthy, young subjects**

Bjørndal B, Strand E, Gjerde J, Veum V, Alvin Berger, Berge RK,
Arctic Nutrition AS, Norway

10:30-11 Coffee

11:00 Young Scientist Award

**Lipid hydrolysis products affect the composition of microbiota isolated from """"32
infant fecal samples after *in vitro* fermentation**

Rikke Mette Bennike, Licht TR & Hellgren LI, Technical University of Denmark

**The fate of marine lipids in gastric juice – *in vitro* study of lipid oxidation and the """"33
effect of antioxidants**

Vera Kristinova, Rustad T, Storrø I, SINTEF Fisheries and aquaculture & Norwegian
University of Science and Technology, Norway

**Development of malondialdehyde and 4-hydroxy-2-hexenal during dynamic """"34
gastrointestinal digestion of marine lipids**

Larsson K, Harrysson H, Alminger M, Havenaar R, Ingrid Undeland
Chalmers University of Technology, Sweden

12:00-13 Lunch

13:00 Keynote lecture

The role of plant stanol ester in the management of dyslipidemia """"35

Susanna Resin, Raisio Group, Benecol Unit, Finland

Rice-omics: classification of rice using small bioactive lipids as markers""""36

Zhu D, Laura Nyström, ETH Zürich, Switzerland

14:00-14:30 Coffee

SESSION II: EXPLOITATION OF NOVEL PLANT AND ANIMAL SOURCES FOR LIPIDS IN FOOD AND FEED

Chair: *Arnar Halldórsson*, Lysi hf, Iceland

14:30 **Characterization of bioactive lipids of vegetable origin**''''''''37
Grimmer S, Vogt G, Nicolaisen EM, Lundby F, Astrid Nilsson,
Nofima, Norwegian Institute of Food, Fisheries and Aquaculture Research

Replacing dietary plant ingredients with land animal by-products improves ''''''38
metabolic health in Atlantic salmon, *Salmo salar* L
Nina Liland, Hatlen B, Takle H, Venegas C, Espe M, Torstensen BE, Waagbø R,
The National Institute of Nutrition and Seafood Research (NIFES), Norway

15:10 Young Scientist Award
Imaging lipids in live microalgae''''''''39
Lillie R. Cavonius, Fink H, Kiskis J, Albers E, Undeland I, Enejder A,
Chalmers University of Technology, Sweden

Supported lipid membranes: examination of the structure and properties with''''''''3:
scanning probe microscopy
Slawomir Sek, Pawlowski J., Juhaniwicz J.
University of Warsaw, Poland

Isolation of marine phospholipids from non-soluble fraction (sediments) after''''''''3;
hydrolysis of salmon backbones
Mozuraityte R, Slizyte R, Storrø I, Remman T, Lantto R
SINTEF Fisheries and Aquaculture, N-7465 Trondheim, Norway

16:15 End of scientific programme

18:30-20:30 Boat trip
Royal Line M/S Ofelia leaving from the Market Place

Tuesday, June 18

SESSION III: ENHANCING OXIDATIVE STABILITY

Chair: *Ingrid Undeland*, Chalmers University of Technology, Sweden

9:00 Keynote lecture
Structuring food to prevent lipid oxidation during processing and storage''''''''42
Karin Schwarz, University of Kiel, Germany

Young Scientist Award
Volatile profiles of oat flours and extrudates analysed by HS-SPME-GC-MS''''''''43
Annelie Damerou, Moisio T, Partanen R, Forssell P, Lampi A-M, Piironen V
University of Helsinki, Finland

10:00-10:30 Coffee

**10:30 Interfaces controlling lipid oxidation – enzymatic protein cross-linking as a tool''''''44
for interfacial modification**

*Riitta Partanen, Ma H, Kylli P, Lampi A-M, Boer H, Mackie A, Blomberg E,
Forssell P, VTT Technical Research Centre of Finland, Finland*

Effect of addition of antioxidant to herring by-products prior to oil production ''''''45

*Carvajal Ana Karina, Mozuraityte R, Standal IB, Stoknes I, Storrø I, Aursand M,
SINTEF Fisheries and Aquaculture & Norwegian University of Science and
Technology, Norway*

**Comparison of three methods for extraction of volatile lipid oxidation products ''''''46
from food matrices for GC-MS analysis**

*Charlotte Jacobsen, Yesiltas B, Berner L, Thomsen BR,
National Food Institute, Technical University of Denmark*

11:30-13 Lunch

**SESSION IV: ADVANCES AND APPLICATIONS IN OIL PROCESSING
TECHNOLOGIES**

Chair: *Lars Hellgren*, Technical University of Denmark

13:00 Keynote lecture

Removal of polyaromatic hydrocarbons from vegetable oils''''''''''47

Zsolt Kemeny, Bunge EMEA, Hungary

**Feeding salmon on a diet made from fish oil decontaminated by short path''''''48
distillation, aided by a volatile working fluid, has positive effect on growth, feed
utilization, quality and health marker parameters**

*Harald Breivik, Olli JJ, Ruyter B, Mørkøre T, Thorstad O,
Neperdo Biomarine, Norway*

Enzymatic production of triacylglycerols: study of kinetics''''''''49

*Sørskår E, Revilija Mozuraityte, Storrø I, Standal IB, Aursand M
SINTEF Fisheries and Aquaculture, Norway*

14:15 Special announcement

Amar Halldórsson, Lysi hf, Iceland

14:30-15:00 Coffee

15-16 Lipidforum members meeting

19:00 Symposium dinner

Restaurant Töölonranta (Helsinginkatu 56)

Wednesday, June 19

SESSION V: LIPID COMPOSITION AND ANALYSIS

Chair: *Anna-Maija Lampi*,
University of Helsinki, Finland

9:00 Young Scientist Award
Arsenolipids in seaweed*****4:
Ásta Heiðrún Petursdóttir, Gunnlaugsdóttir H, Kuepper F, Raab A, Krupp E, Feldmann J, University of Aberdeen, UK & Matis, Food Safety, Environment and Genetics department, Reykjavik, Iceland

Analysis of arsenic-containing lipids in fish oil*****4;
Veronika Sele, Sloth JJ, Kasper Skov & Amlund H
National Institute of Nutrition and Seafood Research & University of Bergen, Norway

9:40-10:10 Coffee

10:10 **Fatty acid positional distribution, thermal properties and effect of solvent** *****52
fractionation on hoki and tuna oils
Tengku Mohamad TR, John Birch, University of Otago, New Zealand

Analysis of lipids using cyanopropyl-columns in normal phase HPLC *****53
Olsson P, Holmbäck J, Nilsson U, Herslöf B, Stockholm University, Sweden

Lipidomics profiling unveils the molecular phenotype of “omega-3” transgenic*****54
mice
Giuseppe Astarita, McKenzie J, Langridge J, Kang J,
Waters Corporation, Milford, MA, USA

11:15 Closing

11:30-13:00 Lunch

Poster Presentations

Digestion and Absorption of Marine Wax Esters as a Dietary Supplement 33
A. Pedersen, W. Salma, A. Hoper, T. Larsen, R. Olsen

Release of FA From Salmon Oil – A Comparison of In Vitro Digestion with Human and Porcine Gastrointestinal Enzymes 34
K. Aarak, B. Kirkhus, H. Holm, G. Vogt, M. Jacobsen, G. Vegarud

Meat from Grazing Animals Contribute to Intake of Long Chain N-3 Fatty Acids 35
S. Wretling, M. Haglund, V. Ohrvik

Lipidomics of Microalgae 36
A. Cazenave-Gassiot, P. Tiphara, F. Goh, N. Clarke, M. Wenk

Interactions of Dopamine and Melanin with Lipid Membranes 37
K. Jodko-Piorecka, M. Kluzek, G. Litwinienko

Volatile Analysis with SPME-GC-MS – Method Optimisation and Applications in Different Grain Matrices 38
M. Pulkkinen, A. Lampi, A. Damerau, L. Jarvinen, V. Piironen

Methods to Evaluate Lipid Oxidation: Strength and Weakness 39
R. Mozuraityte, V. Kristinova, T. Semb, T. Rustad, I. Storro

Sensory and Chemical Characterization of Oxidation of Marine Omega-3 Oils 40
S. Grimmer, J. Haugen, G. Berge, E. Nicolaisen, M. Carlegog, G. Vogt

Physicochemical Properties and Fatty Acid Acyl Distribution of Cold-pressed Hemp, Flax and Canola Seed Oils 41
S. The, E. Birch

Influence of Antimicrobial Peptide on Model Lipid Membranes 42
J. Juhaniwicz, S. Sek

LC-ESI-MS Investigations on Interactions Between Lipid Peroxidation Product Malondialdehyde and Isolated B-Lactoglobulin Peptides 43
G. Gurbuz, M. Heinonen