



5TH FOOD STRUCTURE AND FUNCTIONALITY SYMPOSIUM
18–21 SEPTEMBER 2022, CORK, IRELAND



STRUCTURING FOODS FOR A SUSTAINABLE WORLD

| Sunday, 18 September 2022 | |
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| 17:00-18:30 | Conference registration |
| 18:30-19:30 | Welcome drinks reception and poster viewing |
| Monday, 19 September 2022 | |
| 07:30-09:00 | Conference registration |
| | Introduction and session 1: Shaping the proteins of tomorrow |
| | Session Chairs – D errick Rousseau, Neta Lavon |
| 09:00-09:10 | Welcome Sean Hogan, Andr e Brodtkorb, Teagasc, Ireland |
| 09:10-09:30 | KN.01 Introduction Mark Fenelon, Teagasc, Ireland |
| 09:30-10:00 | KN.02 Cultured steaks - novel sustainable production method for high-quality meat Neta Lavon, Aleph Farms, Israel |
| 10:00-10:20 | ST.01 Exogenous addition of a nano-scale dimension dramatically enhances the tensile properties and juicy mouthfeel of plant-based whole cut meat analogues Mario Martinez-Martinez, Aarhus University, Denmark |
| 10:20-10:40 | ST.02 Structuring whey proteins into aerogel templates for oil absorption: an innovative strategy to replace fat and steer lipid digestibility Stella Plazzotta, University of Udine, , Italy |
| 10:40-11:10 | Break |
| | Session 1: Shaping the proteins of tomorrow (cont.) |
| | Session Chairs - D errick Rousseau, Neta Lavon |
| 11:10-11:30 | ST.03 Surface absorption and tribology of plant proteins compared to whey protein isolate Frances Brown, University of Leeds, UK |
| 11:30-11:50 | ST.04 Origins of chewiness in plant-based burgers Jovan Ilic, University of Belgrade, Serbia |
| 11:50-12:10 | ST.05 Techno-functional properties of high-protein plant-based flours: moving to a world beyond soy and pea. Celia Badia-Olmos, Institute of Agrochemistry and Food Technology (IATA-CSIC), Spain |
| 12:10-12:30 | ST.06 Can meat analogue structures be improved by enzymatic transglutaminase treatment? Miek Schlangen, Wageningen University, The Netherlands |
| 12:30-13:00 | Poster flash presentations FP1.20 Demulsification of water-in-oil emulsions stabilized with glycerol monostearate crystals Malek El-Aooiti, Toronto Metropolitan University, Canada FP1.44 Quantitative microstructural analysis of network formation in milk protein-polysaccharide mixtures by time-resolved confocal microscopy Mariska Br uls, Technical University of Eindhoven, The Netherlands FP1.30 Structuring and phase behavior of milk protein concentrate and pea starch during high moisture extrusion processing Kasper Skov, Aarhus University, Denmark FP1.37 Effects of glass transition on food powder surfaces probed by atomic force microscopy Claire Gaiani, Universit  de Lorraine, France FP1.14 Novel enzymatic starch modification for tailoring its digestibility: An in vitro and in vivo study Konstantinos Korompokis, KU Leuven, Belgium FP1.55 Pickering emulsions stabilized by nanoparticles produced with modified starch obtained by heat-moisture treatment (HMT) Samantha Pinho, University of Sao Paulo, Brazil |
| 13:00-13:30 | Lunch |
| 13:30-14:30 | Poster Session 1 |

| Session 2: Pushing the envelope - new techniques & approaches | |
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| | Session Chairs – André Brodkorb, Claire Gaini |
| 14:30-15:00 | KN.03 Pushing the envelope - new techniques & approaches Claire Gaini, <i>Université de Lorraine, France</i> |
| 15:00-15:20 | ST.07 Microscopic label-free visualizing of structures in complex food materials Mathias P. Clausen, <i>University of Southern Denmark, Denmark</i> |
| 15:20-15:40 | ST.08 Fiber reinforced protein-starch composite as the basis for meat analogues Stacie Dobson, <i>University of Guelph, Canada</i> |
| 15:40-16:00 | ST.09 Rheology fingerprinting techniques combined with tribological analysis as tools for characterization of structure in high internal phase emulsions stabilized by whey protein isolate Beibei Zhou, <i>Teagasc Food Research Centre, Ireland</i> |
| 16:00-16:30 | Break |
| Session 2: Pushing the envelope - new techniques & approaches (cont.) | |
| | Session Chairs – André Brodkorb, Claire Gaini |
| 16:30-16:50 | ST.10 Multiple techniques to characterize high protein anisotropic structures using Rheological fingerprint by large-deformation Lissajous curves and Confocal Raman microscopy Julie Frost Dahl, <i>Aarhus University, Denmark</i> |
| 16:50-17:10 | ST.11 Assessment of pepsin diffusion within casein gels by quasi-elastic neutron scattering (QENS) and fluorescence recovery after photobleaching (FRAP) Meltem Bayrak ^{1,2} , ¹ CSIRO Food and Nutritional Sciences Werribee, Australia. ² RMIT University, School of Science, Australia |
| 17:10-17:30 | ST.12 Mechanical properties of the mastication process simulator, ORAL-MAPS[®], using gummy candy as a model Reina Kanda, <i>Meiji Co., Ltd., Japan</i> |
| 17:30-18:15 | Author Workshop This workshop will provide essential information about the publishing process, and specifically in the journal <i>Food Structure</i> . Sonia Calligaris, Editor-in-Chief, <i>Journal Food Structures; Università di Udine, Italy</i> Inez van Korlaar, <i>Elsevier BV, The Netherlands</i> |
| 19:00-22:00 | Pathways from academia to entrepreneurship A networking event for students and early-career researchers |
| Tuesday, 20 September 2022 | |
| Session 3: Innovations in sustainable food processing | |
| | Session Chairs – Christopher Gregson, Remko Boom |
| 09:00-09:30 | KN.04 Mild processing - preserving natural structure to enhance functionality of food ingredients Remko Boom, <i>Wageningen University & Research, The Netherlands</i> |
| 09:30-09:50 | ST.13 Novel rotating die coupled to a twin-screw extruder as a new route to create meat analogues Silvia Snel ^{1,2} , ¹ Wageningen University & Research, The Netherlands. ² Hes-So Valais, Switzerland |
| 09:50-10:10 | ST.14 Temperature-dependent rheology and microstructure of fat contained in adipose tissue from pork, beef, and lamb Dérick Rousseau, <i>Toronto Metropolitan University, Canada</i> |
| 10:10-10:30 | ST.15 Structure-rheology relationship in monoolein liquid crystals Philipp Fuhrmann, <i>University of Natural Resources and Life Sciences, Austria</i> |
| 10:30-11:00 | Break |
| Session 3: Innovations in sustainable food processing (cont.) | |
| | Session Chairs – Christopher Gregson, Remko Boom |
| 11:00-11:20 | ST.16 Studying the composition and functionality of European Plaice (<i>Pleuronectes Platessa</i>) rest raw material to generate high-value products Sophie Kendler, <i>Norwegian University of Science and Technology, Norway</i> |
| 11:20-11:40 | ST.17 Plant-based ingredients in dairy and meat alternatives – Structural and nutritional aspects Martina Lille, <i>VTT Technical Research Centre of Finland Ltd., Finland</i> |
| 11:40-12:00 | ST.18 Functionality-driven selection of sustainable food product formulations – A framework to select models demonstrated with gelling of pea ingredients Anouk Lie-Piang, <i>Wageningen University & Research, The Netherlands</i> |

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| 12:00-12:30 | Poster flash presentations FP2.56 Impact of chitosan and/or transglutaminase treatment on the stability of gliadin-based nanoparticles Katarzyna Kaczynska, <i>KU Leuven, Belgium</i> FP2.30 Unravelling the relation between the composition and microstructure of fruit and vegetable cell wall material, the impact of particle size reduction techniques and the resulting functional properties Jelle Van Audenhove, <i>KU Leuven, Belgium</i> FP2.01 Boiling vs baking: cooking methods influence cell wall integrity and the digestion of starch and protein from white and sweet potatoes in vitro Daniela Freitas, <i>Teagasc Food Research Centre, Ireland</i> FP2.58 The role of amylose content on the phase behavior of plant protein-starch systems during high moisture processing Laura Roman, <i>Aarhus University, Denmark</i> FP2.55 Confocal Raman microscopy for studying complex food structures Sandra Beyer Gregersen, <i>Aarhus University, Denmark</i> FP2.38 New findings for effective grinding processes in chocolate manufacturing related to surface properties of solids Dana Middendorf, <i>DIL German Institute of Food Technologies, Germany</i> |
| 12:30-13:00 | Lunch |
| 13:00-14:00 | Poster Session 2 |
| | Session 4: Designing food structures for human health |
| | Session Chairs – Tara Grauwet, Cathrina Edwards |
| 14:00-14:30 | KN.05 Exploiting food structure for healthier processed foods Cathrina Edwards, <i>Quadram Institute Bioscience, UK</i> |
| 14:30-14:50 | ST.19 Protein oleogels – structuring oils with plant-based protein aggregates Annika Feichtinger, <i>Wageningen University & Research, The Netherlands</i> |
| 14:50-15:10 | ST.20 Soluble pea protein-gum arabic based coacervates and their application in foods Talita A Comunian ^{1,2} , ¹ Teagasc Food Research Centre, Fermoy, Ireland. ² Technische Universität Berlin, Germany |
| 15:10-15:30 | ST.21 How to affect lipid digestion of food emulsions: the answer hidden in its structural properties Tara Grauwet ¹ , <i>KU Leuven, Belgium</i> |
| 15:30-16:00 | Break |
| | Session 4: Designing food structures for human health (cont.) |
| | Session Chairs – Tara Grauwet, Cathrina Edwards |
| 16:00-16:20 | ST.22 Food matrix effect on the in vitro digestibility of β-carotene-loaded o/w emulsions: a semi-dynamic gastrointestinal study Anna Molet-Rodríguez, <i>University of Lleida, Spain</i> |
| 16:20-16:40 | ST.23 Impact of fortified milk systems on the gastrointestinal fate of curcumin nanoemulsion Haroon Jamshaid Qazi, <i>Massey University, New Zealand</i> |
| 16:40-17:00 | ST.24 Effect of chymosin-induced hydrolysis of α₁-casein on the tribological behaviour of brine-salted semi-hard cheese Alan Kelly, <i>University College Cork, Ireland</i> |
| 19:00-22:00 | Gala dinner |
| Wednesday, 21 September 2022 | |
| | Session 5: Ingredient up-cycling and food waste reduction |
| | Session Chairs – Sean Hogan, Brijesh K Tiwari |
| 09:00-09:30 | KN.06 Innovative approaches for upcycling of food processing streams Brijesh K Tiwari, <i>Teagasc Food Research Centre / University College Dublin, Ireland</i> |
| 09:30-09:50 | ST.25 Effect of chitosan concentration on the encapsulation and physical properties of nanoparticles loaded with natural phenolic compounds Milena Martelli-Tosi, <i>University of São Paulo, Brazil</i> |
| 09:50-10:10 | ST.26 Gastrophysical characterization of marine biopolymers from jellyfish as food stabilizers Mie Thorborg Pedersen, <i>University of Southern Denmark, Denmark</i> |
| 10:10-10:30 | ST.27 Heat and shear treatment of side stream blends from sunflower oil and dairy industry for future sustainable food applications Norbert Raak, <i>Aarhus University, Denmark</i> |
| 10:30-11:00 | Break |

| Session 5: Ingredient up-cycling and food waste reduction (cont.) | |
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| | Session Chairs – Sean Hogan, Brijesh K Tiwari |
| 11:00-11:20 | ST.28 Valorization of apple pomace waste as functional emulsifier in pickering and multilayer emulsion system stabilized with chickpea protein Taima Bathish, <i>Tel Hai College, Israel</i> |
| 11:20-11:40 | ST.29 Effect of colloid milling on dietary fibre concentrates recycled from white asparagus side stream Yifeng Lu, <i>WUR FPE- chair group, The Netherlands</i> |
| 11:40-12:00 | ST.30 Antimicrobial properties and bio-based film production of edible cricket chitosan, a by-product from the protein extraction process Andrea M. Liceaga, <i>Purdue University, USA</i> |
| 12:00-13:00 | Lunch |
| | Award lectures |
| | Session Chairs – Marcel Paques and Dérick Rousseau |
| 13:00-13:30 | Young Scientist Award lecture Towards a new generation of oleogels: formulation and technological developments Fabio Valoppi, <i>University of Helsinki, Finland</i> |
| 13:30-14:15 | Dr Isaac Heertje Distinguished Scientist Award lecture Challenges for the sustainable production of healthier foods Alan R. Mackie, <i>University of Leeds, UK</i> |
| 14:15-14:45 | Poster awards and closing remarks |
| 14:45 | End of conference |