



Wednesday, April 14, 11:00 am – 1:00 pm US Eastern Time

Session 3 – Innovative Packaging

Session Co-Chairs: **Ana Francis Carballo**, PhD, National University of Costa Rica, Costa Rica and **Thomas Gude**, PhD, Swiss Quality Testing Services (SQTS), Switzerland

Biography: **Ana Francis Carballo Arce** holds a PhD in Chemistry from the University of Ottawa, Canada, with a dual doctorate in the areas of natural product chemistry and medicinal chemistry. In recent years, she has carried out research on the characterization of lignocellulosic waste from the Costa Rican agribusiness for its use in obtaining high value-added products through bioprocesses. In addition, she carries out research projects aimed at the isolation and characterization of active principles from plants that can be used for the development of phytopharmaceuticals or as controllers of pests of agro-industrial interest. Ana teaches research skills at the high school and university levels, developing mediation strategies that allow the development of 21st century skills in present and future generations. Ana is presently an academic in the School of Chemistry at the National University of Costa Rica where she teaches courses on the isolation and characterization of secondary metabolites, as well as courses developing the skills necessary for writing and executing research projects in the field. She is also the coordinator of the Biorefinery Research Laboratory in the School of Chemistry at the National University of Costa Rica.



Biography: **Thomas Gude** is Deputy Head of the Swiss Quality Testing Services (SQTS) in Switzerland. After studying food chemistry in Berlin, Germany, followed by a PhD in the area of veterinary drugs at the Federal Health Service in Berlin, he has been working for an EU Reference Laboratory and for more than 10 years in the pharmaceutical and chemical industry in various research and development positions, as well as in quality assurance. Thomas has been working for SQTS for 18 years and is responsible for the food and non-food testing laboratories. Besides the analytical challenges, he is working in the area of risk assessments with a special focus on food, food contact materials and non-food products. In addition, he is giving lectures at several institutions and universities, including ETH Zürich, on food safety and the analytical chemistry of food.



1. The Road towards Fully Cellulosic Barrier Materials: Possible Alternatives to Plastics, **Caroline Locre**, CTP - The Pulp and Paper Research & Technical Centre, France

Abstract: Packaging materials with good barrier performances are necessary to preserve food or even extend shelf-life. Cellulosic materials offer advantages such as sustainability, being made from renewable resources and recyclable, or strong mechanical performances, but often need to be coupled to plastic materials in order to provide barrier performances. Innovative processes such as



wet-lamination of microfibrillated cellulose and Chromatogeny bring barrier performances to papers and boards without the addition of a plastic layer, thus opening the way to reduce the use of fossil-based materials in packaging and ensuring packaging made from such materials can be recycled in a conventional paper recycling stream.

Biography: **Caroline Locre** has an engineering degree in papermaking and joined CTP as Project Leader in the fields of surface treatments of papers and boards, barrier materials, and food contact materials. She is active in R&D projects related to surface treatment of papers/boards and development of new food contact materials with specific barriers properties.



2. Fighting plastic pollution with innovative food packaging, **Nathalie Gontard**, PhD, University of Montpellier, France

Abstract: After revolutionizing our everyday life in all sectors, from construction, the automotive industry, electronics to, above all, in the food industry and the food packaging sector, providential plastic has turned into a time bomb with the revelation of the long-term effects of plastic waste, contaminating our food and polluting our environment. Unfortunately, Life Cycle Analysis (LCA) and environmental indicators cannot take into account these major micro- and nano-plastic pollution impacts. Existing solutions will be deciphered using the waste hierarchy principle and the latest development on innovative food packaging with close to a zero-plastic footprint will be presented. A new eco-efficient food packaging solution based on non-food (agricultural residues), recyclable and, above all, biodegradable polyester will be detailed as example.

Biography: **Nathalie Gontard** is Research Director at INRAE Montpellier, co-author of more than 200 A level papers (h-index 45), promoter and leader of a research group working on "Circular Economy and Plastic pollution in the Agri-Food sector" with a focus on food packaging and plastic waste reduction. Nathalie is a coordinator of several H2020 international projects (e.g., www.nowa2020.eu), an expert for the European Commission and previously for the EFSA (European Food Safety Authority), strongly involved in science-society interactions.



3. Renewable materials obtained from agriculture and aquaculture residues in Costa Rica, the experience of POLIUNA, Chemistry Department, Universidad Nacional, **Marianelly Esquivel Alfaro**, Msc., National University of Costa Rica, Costa Rica

Abstract: The Polymers laboratory (POLIUNA) has been dedicated to the use of agriculture and aquaculture residues for the extraction of natural polymers, which have been applied to obtain various types of materials that have several applications, such as controlled release of drugs, encapsulation and packaging, among others. The use of agricultural residues for the extraction of cellulose and



derivatives has been achieved, as well as the use of shrimp exoskeleton for the extraction of chitin and derivatives.

Biography: **Marianelly Esquivel Alfaro** is an industrial chemist with an M.Sc. in Forest Products Science. She has experience in agro-industrial and aquaculture residues valorization. She currently serves as faculty and a researcher at the Polymers group (POLIUNA) at the Universidad Nacional of Costa Rica.



4. Compostable Packaging: Technical Possibilities, consumer attitudes and behaviours in the UK and China, **Caroline Orfila, PhD, School of Food Science and Nutrition, University of Leeds, United Kingdom, on behalf of the Citrusafe consortium**

Abstract: Compostable packaging offers existing technical possibilities to replace some plastic in the food sector. However, lack of choice for consumers as well as limited knowledge and facilities is limiting the potential of compostable material in the food circular economy. This talk will present recent results from the Citrusafe project which valorised citrus biopolymers for packaging, and some consumer insights into to compostable packaging.

For more information about the Citrusafe project, visit: [citrusafe](https://citrusafe.com).

Biography: **Caroline Orfila** is Professor of Plant Biochemistry and Nutrition and Associate Director of the Global Food and Environment Institute at the University of Leeds, United Kingdom.

Prof. Orfila's academic expertise integrates plant science, food science and nutrition. The focus of the research is on understanding the nutritional quality and safety of a range of plant crops, including legume and cereal seeds, tubers, fruits and vegetables. She is particularly interested in using low-cost agricultural and food processing methods to reduce waste and enhance the nutritional quality of diets. Prof. Orfila leads several large multinational projects in waste valorisation for nutrition and food safety. She is also interested in understanding urban food consumption and behaviour, using a range of methods to understand how people in cities access nutritious foods.



<https://environment.leeds.ac.uk/food-nutrition/staff/7148/professor-caroline-orfila>