71st ICoMST
GIRONA - CATALONIA - SPAIN
3rd-8th August - 2025

Session 1 – "Sustainability in meat production"

Advancing the valorization of meat co-products in food, pet food, and biomedicine applications presented by **Dr. Ricard Bou**, Spain

Global population growth continues to drive increased meat production, leading to a surplus of edible co-products such as offal. Promoting their integration into the human diet supports sustainability and healthy eating patterns. However, consumer reluctance persists due to concerns over safety, sensory properties, status, and unfamiliarity. Developing food ingredients from underutilized co-products represents an interesting strategy. These ingredients exhibit versatile techno-functional properties, can act as cost-effective meat extenders. Despite these benefits, co-product ingredients are often overlooked due to labelling challenges. Labelling laws often require detailed disclosure of species and anatomical parts, which, although transparent, can reduce consumer appeal. Furthermore, the type and extent of processing influence public perceptions particularly with chemical methods, can contribute to consumer mistrust. To facilitate their integration into food products, policymakers and the food industry must find a balance by adopting clear, accurate, and appealing nomenclature that complies with regulations. Cost efficiency is also a key factor in co-product valorization. Eco-innovative technologies such as ultrasound processing have proven effective in gelatin production and other applications, offering advantages in affordability and ease of implementation. Subcritical water hydrolysis also presents a promising alternative to enzymatic or chemical methods. However, this and other innovative techniques remain at the pilot or laboratory scale due to technological and economic constraints. Nevertheless, they show considerable potential for broader application in other sectors such as pharmaceuticals and cosmetics, where high-value markets may justify investment. In biomedicine, meat co-products could provide structural proteins, bioactive peptides, and other active pharmaceutical ingredients. To unlock this potential, key challenges must be addressed, including regulatory limitations, safety gaps and technical barriers. Nevertheless, co-products offer a cost-effective and sustainable alternative to produce hydrolysates and bioactive peptides. In addition to their potential use as growth media in biotechnological processes, these compounds offer diverse applications, including nutraceuticals, sports nutrition, or certain groups of people with metabolic disorders or special nutritional needs. Currently, most protein hydrolysates are used for developing savory flavors in food and pet food. The pet food industry represents a rapidly growing market that demands natural and minimally processed ingredients, and accounts for a significant share of animal co-products utilization. This sector is projected to witness even greater growth, particularly for super-premium and single-ingredient pet food, in which fresh meat is also used. Additionally, processed animal proteins are also increasingly relevant in animal and aquaculture feed, especially where alternative protein sources remain underdeveloped.(R. Bou, L. Pinotti, D. Zeugolis, A. Watigny, C. Álvarez, 2025, Advancing the valorisation of meat co-products in food, pet food, and biomedicine applications. Waste Management 204, 114948)



Ricard Bou, PhD, *Researcher at IRTA in Monells, Functionality and Food Safety Program*

Mr. Bou holds degrees in Agricultural Engineering and Food Science Technology and completed his PhD at the University of Barcelona in 2005. As a postdoctoral researcher, he worked at the University of Massachusetts, the University of Barcelona, and the ICTAN Institute, part of the Spanish National Research Council, before joining IRTA.

His main research areas include the processing of meat and fish products, the role of porphyrins in color and lipid oxidation, the development of plant-based analogues, side-stream valorization, and the use of eco-innovative technologies. He is the author of over 80 review and research articles and has participated in more than 30 national and international research projects, as well as over 20 contracts with various companies.