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FOOD WASTE VALORISATION IN BIOFILMS AND BIOCOMPOSITE PRODUCTIONS

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The roadmap to a resource-efficient Europe identified food as a key sector needing improvements. Indeed, approximately one third of all food produced globally is wasted every year throughout the whole food chain-from farmers to consumers. To extract the significant amounts of valuable compounds contained in those wastes that are not currently valorised, the research is focused on a possible combination of affordable and flexible processing technologies for the extraction and the use of traditional transformation approaches to reduce the amounts normally discarded with costs of disposal and generating a significant environment impact. In the last five years in our research group, researchers are focusing the attention on the processing of on cellulosic-fibres, proteins and other molecules extracted from different food wastes such as tomato and potato leaves, legumes in the framework of two European projects, specifically LEGUVAL during the 7FP e AGRIMAX founded by BBI-2016 still in progress. Our activities inside LEGUVAL project concerned firstly the denaturation of protein extracted from legumes to be used as a starting compounds for the preparation of materials in a dry process (in mixture with polymer matrices). The residual fraction resulting from the extraction process, which is enriched in fibers, was used as an additive in the production of compostable composites. The same approach was continued in AGRIMAX project with the aim to demonstrate the technical and economic feasibility of these new applications for the agricultural value chains by applying biorefinery processes. In the project, they carried out a deep characterization of potato juice extracted from potato peels. This work was then combined with a detailed investigation of the denaturation behavior of proteins from peas and the denaturated material was used as matrix for the preparation of composites in the presence as potato juice as filler.

BIOGRAPHY

Bronco Simona received her Master's in Chemistry at the University of Pisa in 1994 and her PhD on Natural Science/Chemistry at ETH Zurich in Switzerland in 1997 in Homogeneous Catalysis. She has a permanent position as Researcher at Institute for the Chemical and Physical Processes at CNR in Pisa, Italy. She has over 20 years of international experience in polymer science including design, synthesis and characterization of polymeric materials with controlled architecture, morphology and composition on a nano or micrometric scale. One of the main topics of her research is focused on the valorisation of food wastes for the development of biofilms and biocomposites to be used in agricultural and packaging application. She is author of more than 50 scientific papers, chapters in books and has three patents.

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