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BionovFOOD - Green processing and valorization of organic by-products of distilleries, as novel approaches for climate-smart protein applications for alternative food and circular bio-economy

Food systems have created demand for addressing adequate nutrition, safe, healthy, accessible, and affordable food, under the pressure of increasing trend of the global population (projected to reach 10 billion by 2050), climate changes, pandemics, economic crisis, growth in the dietary supplements segment and many more. Sustainable and cost-efficient development of innovative food sources are needed to meet the projected nutrition demand, which have recently attracted the attention of both producers and consumers. Conversely, the significant losses and waste production by the processing industries are becoming a serious nutritional, economical, and environmental issue. The aim of BionovFOOD project is to propose novel approaches to valorize the distillery organic by-products and to include them into a biorefinery system. These will be used as raw materials in processes aimed at the recovery/separation of bio-products, with a focus on the production of proteins for food application. To reach this goal will be developed on a pilot-demo scale, process concepts for bio converting grape marcs, wine lees and vinasse, generated from the distillery industry, into protein-rich ingredients to be used for the production of alternative food products. Life cycle assessment and techno-economic aspects for the production of protein sources produced from edible and safe fungi will be investigated. With proteins produced will be designed and developed novel food. BionovFOOD project constitute the starting point for the understanding that distilleries' by-products can significantly contribute to the future production of alternative protein-rich fungal biomass for food applications. Indeed, it will create synergies and co-benefits across 4 priority areas: nutrition and healthy diets; climate and environment; circularity and resource efficiency; and innovation. This project is a unique opportunity for my career and will boost my scientific profile.

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