

ALEHOOP: BIOREFINERIES FOR THE VALORISATION OF MACROALGAL RESIDUAL BIOMASS AND LEGUME PROCESSING BY-PRODUCTS TO OBTAIN NEW PROTEIN VALUE CHAINS FOR HIGH-VALUE FOOD AND FEED APPLICATIONS

ALEHOOP provides a pilot-scale demonstration focused on the recovery of low-cost dietary proteins in biorefineries through a sustainable and low-cost process based on macroalgae and legume processing wastes. Proteins resulting from the process will be used in food and animal feed sectors.

In food and animal feed sectors, consumers are demanding functional and affordable natural proteins from sources other than conventional ones. Moreover, the industry is demanding protein formulations of biological origin, which can be produced at low cost and with better environmental performance.

ALEHOOP project provides a sustainable and cheap solution for the recovery of biofunctional and technological proteins. The current sources of these proteins are soy, cereals or potatoes (mainly imported into Europe and environmentally unsustainable). The scarcity of this kind of resources in Europe, whose availability does not meet the demands of the region, forces the search for new sources of protein, which have not been exploited until now.

In this project, the main objectives are; (1) taking advantage of the remains from botanical origin materials processing (legumes) and residual macroalgae as feedstock, which can provide demanded proteins in an eco-friendlier way. Green and brown macroalgae will be collected in Rias Baixas (Spain) and Norway, respectively. By-products generated after the processing of legumes will also be harvested in Spain. Both raw materials will be sourced from the region, which will boost the local economy and has the potential to reduce imports of currently used raw materials; (2) optimising the processing of algal biomass in biorefinery, in order to increase the protein harvest with respect to other processes at laboratory scale, with specific involvement in terms of quality and quantity. The protein purity of these treatments is thought to reach 60-70%.

Both the optimisation of the process and the recovery of botanical waste, will lead to a significant reduction in the carbon footprint compared to conventional processes (30% less), as well as significant energy savings in the order of 20%. Production costs will also be reduced by around 20% compared to conventional processes.

The project will lead to the development of two new products, one based on seaweed (macroalgae) and the other on legumes.

ALEHOOP will last 48 months, receiving funding from the European Union's Horizon H2020 research and innovation programme, specifically in call H2020-BBI-JTI-2019. ALEHOOP is estimated to have a total eligible cost of 6,718,370 € and it will receive funding of about 5,140,274.41 €.

Project partners

The consortium is composed of sixteen partners from six different countries. CONTACTICA S.L. (Project coordinator) (Spain), ISANATUR SPAIN S.L. (Spain), BIOZON GMBH (Germany), BIOSURYA S.L. (Spain), CENTIV GMBH (Germany), GARLAN, S.COOP. (Spain), ALGINOR ASA (Norway), NUTRITION SCIENCE (Belgium), INDUKERN S.A. (Spain), EV-ILVO (Belgium), ANFACO-CECOPECA (Spain), FUNDACION TECNALIA RESEARCH & INNOVATION (Spain), TECHNOLOGICAL UNIVERSITY DUBLIN (Ireland), Universidad de Cádiz (Spain), VETERINARY RESEARCH INSTITUTE (Czech Republic) and Universidad de Vigo (Spain).

For more information

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