



PROMISEANG

Alternative PROteins from Mlcrobial fermentation of non-conventional SEA sources for Next-Generation food, feed and non-food bio-based applications



INVESTIGATION



SUSTAINABLE



VIABLE



Funded by
the European Union

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Expected outcomes

PROMISEANG aims to develop novel proteins from underexploited marine sources, including marine invertebrate and macroalgae discards and industrial biowaste and by-products, through fermentation using fungi, yeast or bacteria. This should generate new microbial protein biomass that meets market requirements for food, animal feed and non-food products such as pharmaceuticals and cosmetics.

A technically and economically viable biorefinery for microbial-based protein production will be demonstrated, allowing for high yields, reduced production times and costs, minimal environmental impact and increased availability of proteins in the EU.

Taking a zero-waste approach, **PROMISEANG** will also recover and synthesise non-protein bio-compounds and molecules for food, feed and non-food applications.



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Objectives

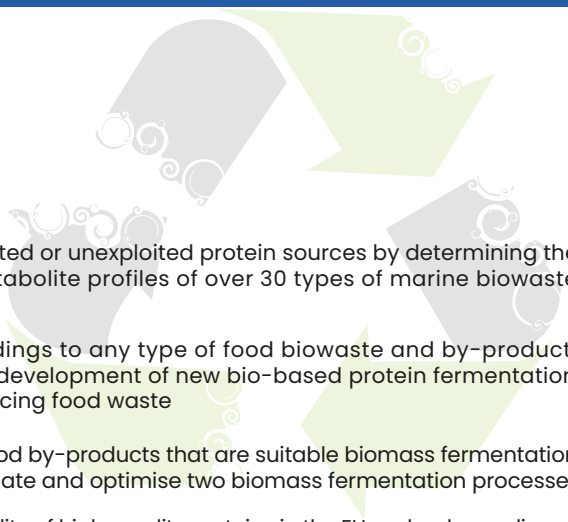
PROMISEANG's goal is to formulate zero-waste procedures for producing proteins via biomass fermentation of non-conventional marine sources. It then looks to use the proteins to create nutritious, high-value, sustainable food, feed and non-food products.

To this end, the project aims to:

- ▶ Understand the requirements for use of marine food waste and by-products as a fermentation substrate
- ▶ Determine the sustainability of the new proteins compared to currently available alternatives
- ▶ Use biomass fermentation to produce sustainable, healthy, protein-rich microbial extracts
- ▶ Foster development of the circular economy by recovering bioactive compounds from fermentation side streams
- ▶ Confirm the nutritional value, safety and health benefits of the new food and feed products
- ▶ Maximise project impact through exploitation activities and dissemination of results to various audiences



Impacts

- 
- ↓ Identify underexploited or unexploited protein sources by determining the nutritional and metabolite profiles of over 30 types of marine biowaste and by-product
 - ↓ Extrapolate the findings to any type of food biowaste and by-product, contributing to the development of new bio-based protein fermentation processes and reducing food waste
 - ↓ Identify 10 marine food by-products that are suitable biomass fermentation substrates and validate and optimise two biomass fermentation processes
 - ↓ Increase the availability of high-quality proteins in the EU and reduce reliance on imports by mobilising protein streams from alternative sources and delivering five high-quality protein extracts
 - ↓ Create seven non-protein ingredients using residual biomass
 - ↓ Develop nutritious, healthy, safe and sustainable feed, food and non-food products by creating over 30 formulations and delivering at least four food, five feed and three non-food prototypes
 - ↓ Draw up six sets of guidelines for production of proteins and other biomolecules via biomass fermentation
 - ↓ Enhance the resilience, circularity and sustainability of bio-based marine protein industries

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WP2: SORTING OF UNDEREXPLOITED MARINE SOURCES FOR PRODUCTION OF ALTERNATIVE PROTEINS BY FERMENTATION

UVIGO



WP3: NOVEL ALTERNATIVE PROTEINS BY BIOMASS FERMENTATIONS

MOA



WP5: EVALUATION AND VALORISATION OF OTHER NON-PROTEIN BIOMOLECULES

INL



WP4: VALIDATION OF ALTERNATIVE PROTEINS

IBPRS



WP6: DESIGN AND VALIDATION OF FOOD, FEED AND NON-FOOD PROTEIN-BASED PRODUCTS

BZN



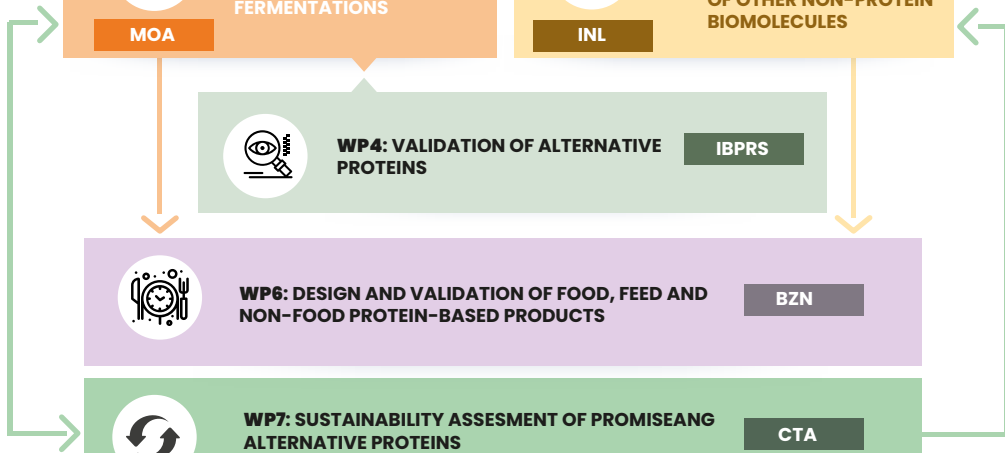
WP7: SUSTAINABILITY ASSESSMENT OF PROMISING ALTERNATIVE PROTEINS

CTA



WP8: EXPLOITATION, COMMUNICATION & DISSEMINATION

CTA





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New microbial protein biomass that meets the requirements of the food market



Universidade de Vigo



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AND FOOD BIOTECHNOLOGY
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