



Press release

Circular and Inclusive utilisation of alternative PROteins in the MEDiterranean value chains

Problem:

Current European agricultural production systems are heavily dependent on protein imports to cover the nutritional needs of aquaculture and livestock production, but also for human consumption. This situation is especially valid for the Mediterranean Region, where drought and ecological deficits are worsening the self-sufficiency of traditional protein supply chains. There is an urgent need for the EU for efficient, viable and locally produced alternative protein sources.

Solution

Most agricultural farming systems produce a huge amount of livestock and crop residues, as well as a variety of side-streams. On a yearly basis, it is estimated that 27% of our agricultural production is lost, which corresponds to 1.6 billion tons on a global basis, valued at 750 billion US\$ annually. Similarly, one-third of all food produced for human consumption is either lost or wasted. These losses represent a big pool of untapped and underrated resources.

The main objective of the CIPROMED project is to increase the stability and resilience of Mediterranean agri-food production systems through direct exploitation of locally produced traditional crops, as well as by valorising the proteins from locally generated agri-industrial side-streams (e.g., brewer's spent grain, oilseed presscakes), and the upcycling and bioconversion of their extraction residues to protein produced by insects, legumes, microalgae and fermentation products to be further utilized in the agri-food and feed sectors.

CIPROMED will use a multi-actor approach, where insects and microalgae will be produced exploiting agri-industrial residues and extraction side-streams as substrates and applying innovative rearing and cultivation techniques to attain higher protein yields. To close the loop, insect frass will be used as soil fertiliser for legume (lupins and faba beans) production. High quality protein ingredients from agri-industrial residues, insects, legumes and microalgae will be extracted for food and feed applications via economically and environmentally sustainable extraction processes.

To achieve circularity, the residues generated by the extraction processes will be integrated in diets formulated for insect rearing and heterotrophic microalgae cultivation, minimizing the residual amounts. Microbial fermentation will be used to enhance the range, stability and health promoting functionality of the new proteins. All protein ingredients will be fully characterized, in terms of nutritional value, functional, biological properties and safety. Based on the generated results, new prototypes of food and feed products containing the new protein ingredients will be formulated and validated using advanced and optimised processing technologies.

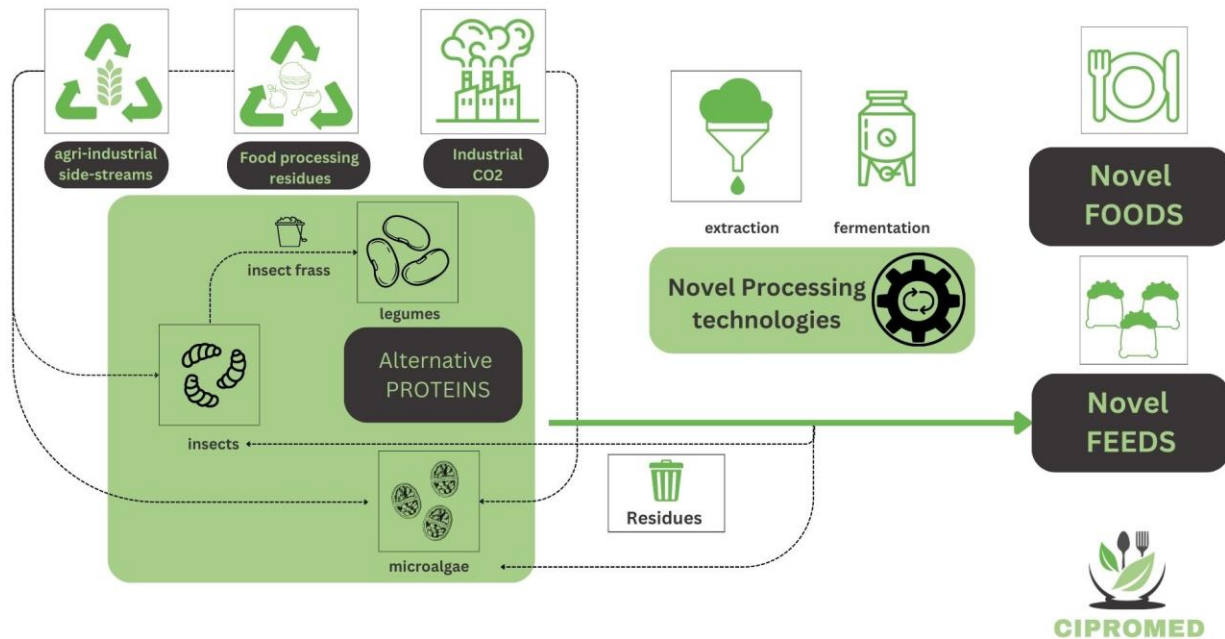


Figure 1: CIPROMED concept

Impact:

CIPROMED aims to reduce the risk for the Mediterranean countries of being dependent on imported protein sources and will help the participating countries to rely more on locally produced nutrient sources. CIPROMED aims to adjust novel protein production to the unique Mediterranean conditions, creating a new, socio-economically feasible and environmentally sustainable alternative protein value chain and production system located in Mediterranean countries.

CIPROMED will elicit consumer perceptions/preferences around the new types of foods and feeds in the Mediterranean Region, considering also the unique religious and cultural characteristics and demographic differences of each participating country. In contrast to conventional agriculture, the production of the most common commercially reared insect and heterotrophic microalgae species on by-product feeds is characterised by considerably low GHG emissions (30-50% lower), having, therefore, a lower environmental impact and contribution to global warming.

CIPROMED will focus on the improvement of human health by designing and evaluating alternative proteins-based diets that will target metabolic and immune systems and promote human health.

Mediterranean countries will have to switch to farming systems with more efficient use of natural resources.

Consortium

	Partner	Short Name	Country
1	University of Thessaly	UTH	Greece
2	Deutsches Institut für Lebensmitteltechnik e.V.	DIL	Germany
3	Alma Mater Studiorum- Università di Bologna	UNIBO	Italy
4	University of Turin	UNITO	Italy
5	Italian National Research Council	CNR	Italy
6	Technion - Israel Institute of Technology	IIT	Israel
7	Institut für Lebensmittel- und Umweltforschung e.V.	ILU	Germany
8	AlgaEnergy S.A.	AE	Spain
9	nextProtein Tunisia Sarl	NP	Tunisia
10	SPAROS Lda	SPAROS	Portugal
11	Flying Spark LTD	FS	Isreal
12	AquaBioTech Group	ABT	Malta
13	ELVIZ SA	ELVIZ	Greece
14	RTD TALOS Ltd	TALOS	Cyprus
15	Stolzenberger Bakery	SB	Germany
16	Green Development and Innovation Association	GDI	Morocco
17	Georg-August-Universität Göttingen Stiftung Öffentlichen Rechts	UGOE	Germany

Project data

Title	Circular and inclusive utilisation of alternative proteins in the Mediterranean value chains
Grant Agreement number	2231
Starting date	1 May 2023
Duration	36 Months
Total budget	€ 4.738.918,81



The PRIMA programme is supported and funded under Horizon 2020, the Framework European Union's Programme for Research and Innovation



Grant Agreement: 2231