



PROLIFIC-INTEGRATED CASCADES OF PROCESSES FOR THE EXTRACTION OF PROTEINS AND BIOACTIVE MOLECULES FROM LEGUMES, FUNGI AND COFFEE AGRO-INDUSTRIAL SIDE STREAMS

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ProlificH2020



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D+ studio [d-plus.it]

Along the food chain, 1.3 billion tons of co-products, residues and waste accrue each year, according to FAO statistics. This biomass is an abundant source of compounds for high-value applications in many industrial sectors.

It bears the potential to tap protein-rich side products for the conversion into food and feed protein. An important endeavor given the growth of the world population and the inclining demand. The market is also increasingly interested in bioplastics, functionalised packaging and

improved biodegradable polymeric materials. In 2016, global production capacities of bioplastics for the packaging amounted to about 1.6 million tons. Moreover, bioactive molecules, such as fibres, polyphenols, carotenoids, phytosterols and caffeine, are recognized as important ingredients in lifestyle food and healthy diets.

Innovative bio-refinery processes can obtain such compounds from agro waste streams and turn them into value-adding ingredients in various products.

The **PROLIFIC** project sets its activity in the frame of the Circular Economy Package launched in 2017 by DG Environment of the European Commission, that strongly promotes the adoption of cascades of processes to use biomass in integrated biorefineries and the innovative use of co-products, side-products, residual streams and biowaste to obtain value-added bio-based chemicals and material to address these specific market needs.



PROLIFIC OBJECTIVES

PROLIFIC will apply, validate and scale-up a flexible integrated cascading approach to extract and to convert protein, fibers and other bioactive compounds from agro-industrial processing residues of legumes, fungi and coffee.

These compounds will be valorized in the formulation of product prototypes for the food, feed, cosmetics and packaging industry.

5
COMPLETELY
NEW BIO-BASED
VALUE CHAINS WILL
BE SET UP

4
DIFFERENT
INDUSTRIAL SECTORS
(FOOD, COSMETIC,
PACKAGING, FEED)

8
EUROPEAN COUNTRIES
(7 EU MEMBER STATES
AND 1 ASSOCIATED COUNTRY)

17
PARTNERS
(FOOD INDUSTRY / SME, RESEARCH INSTITUTION
& UNIVERSITIES)

FUNDING
4.7
MILLION
EURO

16
PRODUCT PROTOTYPES
WILL BE PRODUCED
AND VALIDATED AT
INDUSTRIAL LEVEL

4
YEARS
SEPTEMBER 2018
-
AUGUST 2022

The extracted compounds are valorized in the formulation of different product prototypes:

THE PROTOTYPES

- Cereal-based, vegetarian/vegan and meat food products.
- Feed for pigs and poultry.
- Cosmetic creams with sunscreen and anti-aging properties and toothpaste.
- Bioactive and biodegradable food and cosmetic packaging.



PROLIFIC INTEGRATED CASCADES OF PROCESSES

AGRO-INDUSTRIAL
PROCESSING

EXTRACTION
PROCESSES

MOLECULAR
CHARACTERIZATION
AND BIOACTIVITY

FINAL PRODUCT
PROTOTYPES

PROCESS
EVALUATIONS

