This project is part of the PRIMA Programme supported by the European Union

NOVAPACK

NOVel **A**ntimicrobial coatings and **PACK**aging in the Mediterranean

SECTION 2

Thematic Area: Topic 2.3.1-2023 (RIA) Assessing novel antimicrobial food packaging and coating materials to reduce food waste to improve safety in the Mediterranean food supply chain.

Budget: 999,768.00 €
Duration: 36 months
Project website:
https://cbqf.esb.ucp.pt/projects/novel-antimicrobial-coatings-and-packaging-mediterranean

State and Coordinator entity:
PORTUGAL,
Universidade Católica Portuguesa

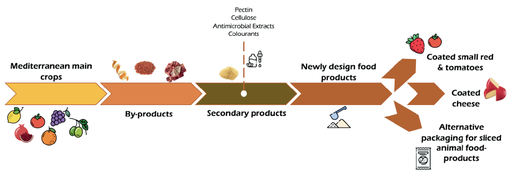
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1 PROBLEM STATEMENT AND KEY OBJECTIVES

The **NOVAPACK** project addresses the growing need for sustainable solutions in the food packaging sector, focusing on the valorization of agri-food waste. In the Mediterranean region, the food industry generates significant quantities of by-products such as non-conforming fruits, peels, pomaces, and seeds. These residues are currently underutilized, yet they represent an abundant, renewable, and low-cost source of valuable compounds including fibers, vitamins, minerals, and phenolic compounds with recognized bioactive and antimicrobial properties.

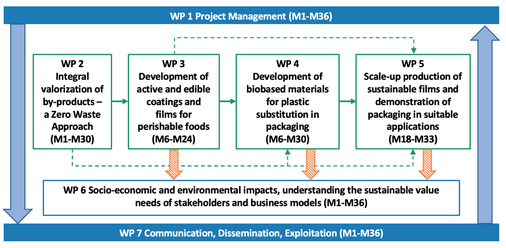
NOVAPACK aims to exploit these by-products to develop cost-effective, biodegradable antimicrobial **films and coatings** that extend the shelf life of minimally processed foods. Special attention is given to key Mediterranean crops like citrus fruits, pomegranates, tomatoes, grapes, and olives.



2 BRIEF SUMMARY OF THE METHODOLOGY

Five technical WP were designed to achieve the project goals:

WP2, a new range of bioactive and functional extracts (such as antimicrobial, antioxidant, soluble polysaccharides and cellulose and lignin) resulting from the valorisation of industrial F&V wastes will be produced through sustainable & integrative methodology to achieve the zero-waste concept.



WP3 and **WP4**, the different extracts will be employed to develop several novel formulations of active/ functional coatings, films and bio-based packaging.

WP5, the MVP will be performed using pilot and semi-industrial plants, based on the results obtained from laboratory assessment.

3 KEY EXPLOITABLE RESULTS

Bioactive Compound Extraction
Extracting and purifying bioactive compounds foractive food coatings and packaging.

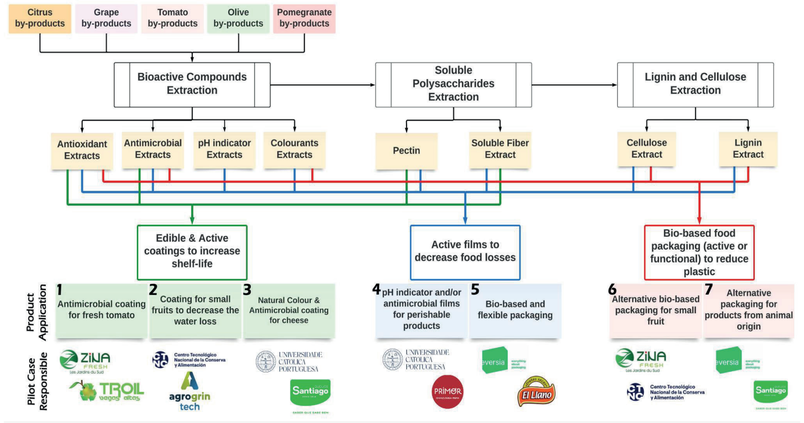
Antimicrobial Extracts
Bioactive extracts with antimicrobial, antifungal, and antioxidant properties for food safety.

Natural Colourants
Natural colourants and pH-indicator extracts for smart packaging solutions.

Soluble Polysaccharides
Pectin and other soluble polysaccharides for new coating formulations and biodegradable films.

Alternative Packaging
Alternative packaging materials tailored for fresh products in protective atmosphere packs.

Encapsulation Technologies
Innovative technologies such as encapsulation to preserve bioactivity of extracts.



These KERs were designed to support **biodegradable, sustainable, and smart food packaging solutions** reducing waste, extending shelf life, and improve safety, aligning with EU priorities in circular economy and food system resilience.

PARTNERS

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