Life COMPOlive

New generation of bioCOMPosites based on OLIVE fibers for industrial application

The LIFE COMPOLIVE project has received funding from the LIFE programme of the European Union

Some data

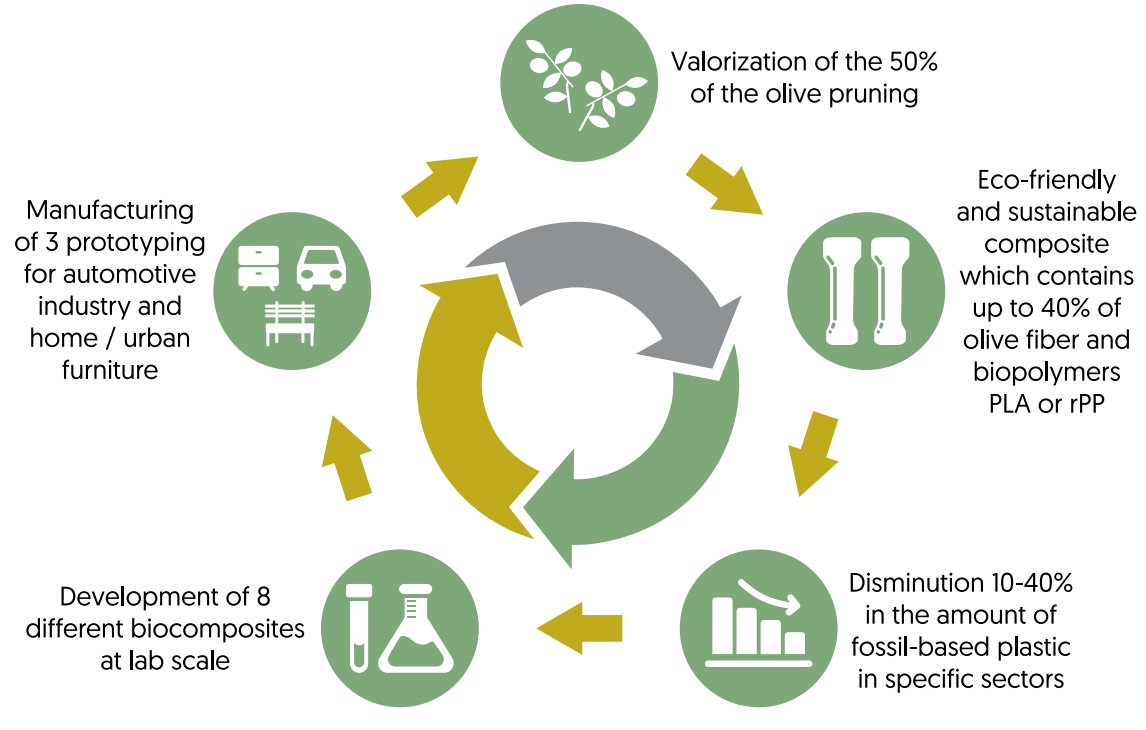
- Group of 6 international partners with a budget of ~1,7 M € ending in 2023.
- This project has received funding from the European Agency CINEA (Ref.: LIFE18 ENV/ES/000309).

LEADER: andaltec CENTRO TECNOLÓGICO DEL PLÁSTICO

PARTNERS: CITOLIVA · Universidad de Jaén · Ford Go Further · MATRICERÍA PEÑA · caliplast OUVRONS NOS HORIZONS · Plasturgia

Expected results

1. Recovery of pruning by-products for use as raw material, optimal for the indicated sectors.
2. Manufacture of final prototype parts for applications in 3 different industrial sectors.
3. Involvement and recognition of the project by the primary sector and policy makers.



Environmental problem

a. **Generation of by-products from the olive pruning process:** Olive cultivation represents 85% of the total cultivated area of the province of Jaén. In Andalusia, olive cultivation occupies 1.5 million hectares. Only in Europe, 7 million tons of olive pruning are generated annually.

b. **High demand for fossil-based plastics:** According to the COM (2018) "A European Strategy for Plastics in a Circular Economy", it is estimated that 400 million tons of CO_2 are currently generated annually from the production of plastics and the incineration of plastic waste.

Challenges and goals

The main objective of the Comp0live project is the valorization of the by-products resulting from olive pruning activities, to obtain polymer-based composite materials with applications in different sectors, such as the automotive industry and furniture.

Associated benefits:

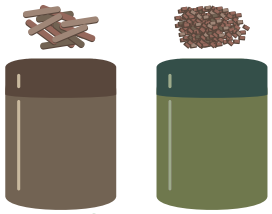
1. Omission of the burning of pruning remains and elimination of the associated environmental impact.
2. Substitution of materials from fossil fuels (polypropylene) by others from renewable sources (natural fiber).

Process

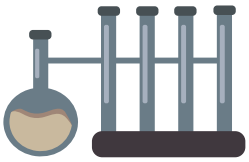
Obtaining a product made with biocomposite is carried out in the LIFE-COMP0LIVE project through the following stages:

1. Collection and pre-chipping of olive tree pruning residues in the cultivation area itself.
2. Transportation of the biomass from the field to the processing facilities to obtain the olive fiber.
3. Chipping and sieving of biomass to obtain olive fiber with selected granulometry.
4. Chemical treatment of olive fiber.
5. Insertion of the olive fiber in the polymeric matrix by means of compounding technology to obtain the polymeric biocomposite.
6. Characterization of biocomposites and optimization of their properties to adapt them to the requirements of end users.
7. Scaling of the biocomposite manufacturing process.
8. Manufacture of prototype parts by injection and extrusion technologies using the developed biocomposites.

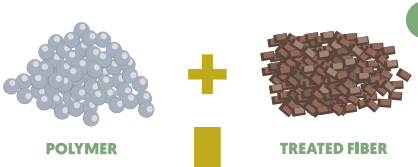
1 2 COLLECTION AND TRANSPORTATION



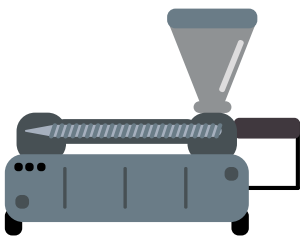
3 CHIPPING AND SIEVING

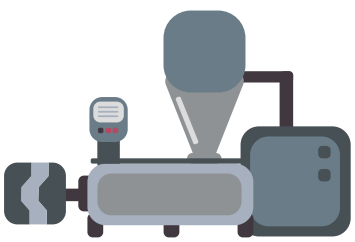


4 CHEMICAL TREATMENT



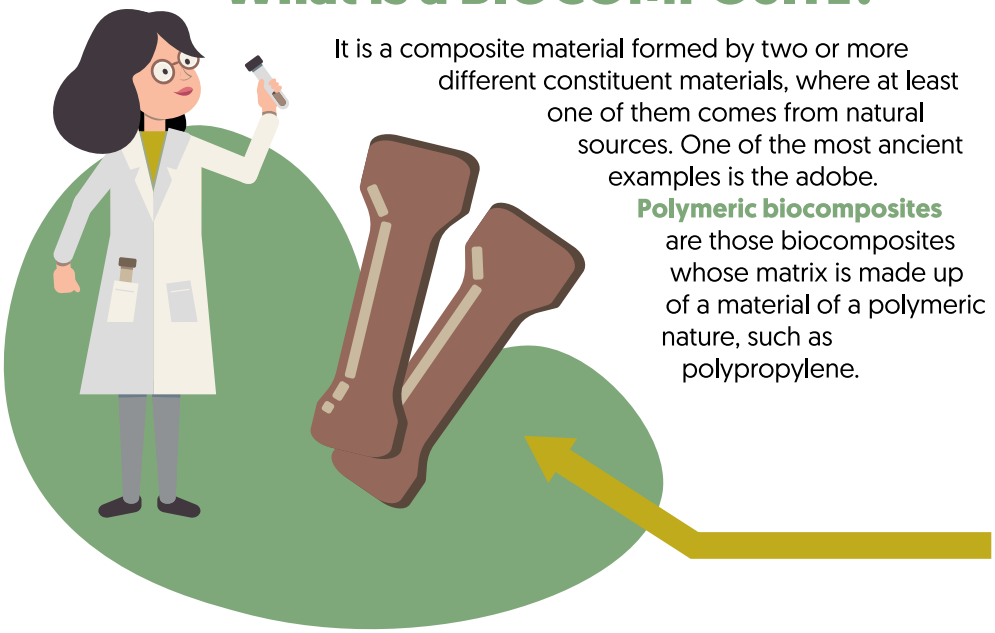
5 COMPOUNDING





6 7 8 INJECTION

What is a BIOCOMPOSITE?



It is a composite material formed by two or more different constituent materials, where at least one of them comes from natural sources. One of the most ancient examples is the adobe.

Polymeric biocomposites are those biocomposites whose matrix is made up of a material of a polymeric nature, such as polypropylene.