

# BENEFICCE

*BioENERgy from biomass and bio-oil Fermentation using microbial Communities to produce Chemicals and Enzymes*



**EU-H2020 Project**

**Duration: 1-10-2020 au 30-09-2022**



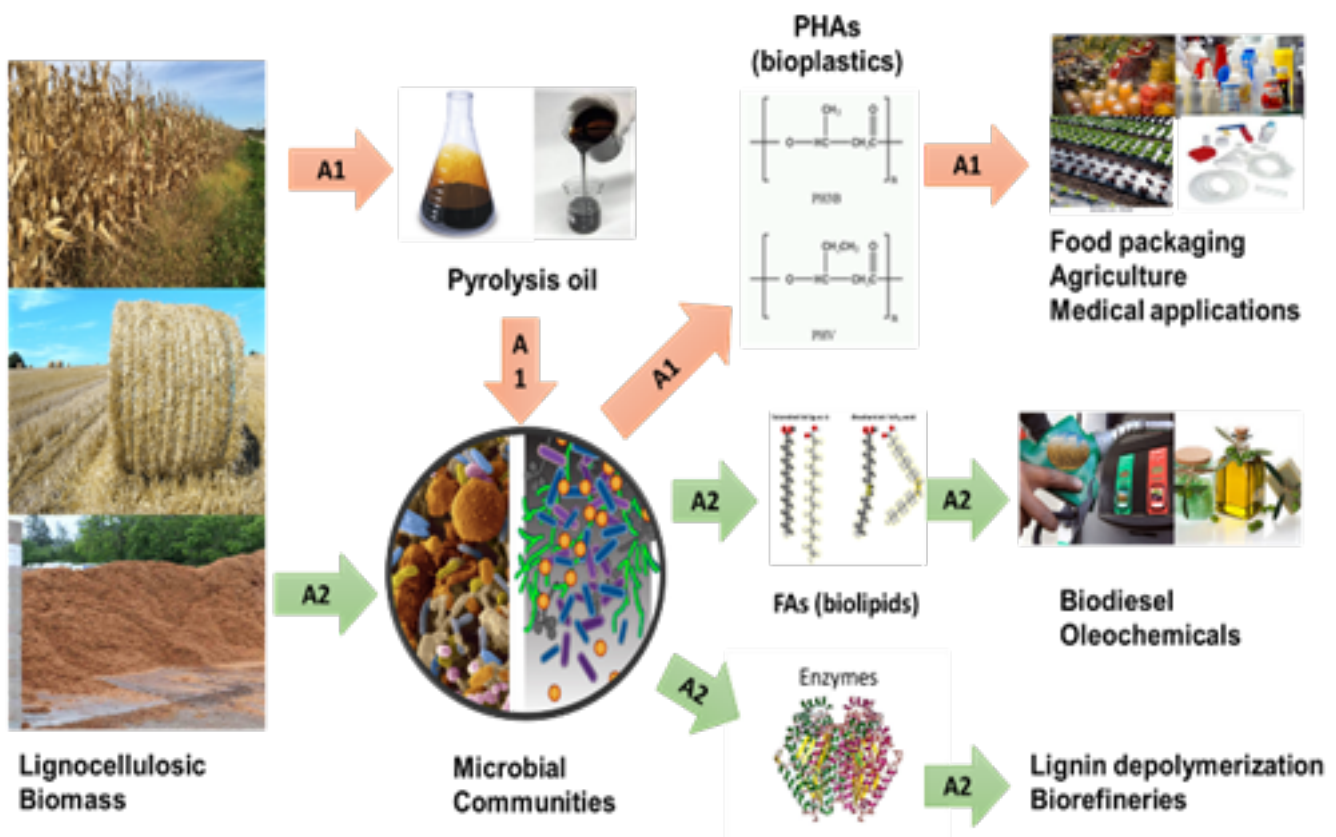
<https://twitter.com/beneficce>

## About

BENEFICCE-H2020 project was born on the 1<sup>st</sup> October 2020 thanks to a Marie-Sklodowska-Curie grant, and it was also granted with a Carnot-ISIFOR founding.

The main objective of the project is to develop a sustainable-low carbon technology to produce biodegradable and bio-sourced plastics and lipids from lignocellulosic biomass. The biomass used is the waste produced from local agricultural activities (mainly corn straw).

The bio-refinery process that will be developed consists in the utilization of microbial communities, isolated from hydrocarbon-polluted environments. These microbial communities have the ability to degrade polycyclic aromatic hydrocarbons, and to use it as a carbon source. Within this microbial communities, two groups will be isolated and enriched:



- \* A community capable to produce polyhydroxyalcanoates (PHAs), a biodegradable and biocompatible plastic, using bio-oil as a carbon source. The bio-oil will be produced from pyrolysis of agricultural waste.
- \* A community capable to produce lipids and ligninolytic enzymes by direct biomass (agricultural waste) fermentation.

Both the microbial communities isolated from environmental samples, and the waste of agricultural local activities, are low-cost raw materials. BENEFICCE-H2020 project will transform the low cost raw material in industrial added value. To reach this aim, BENEFICCE develops a process that will minimize the CO<sub>2</sub> emissions and reduces the production costs, making it competitive for an industrial application.

BENEFICCE project is being developed at the IPREM, Environmental Chemistry and Microbiology Pole, at the IBEAS building. Part of the project will be developed in collaboration with international partners, including the Sustainable Process Engineering group (SUPREN) at the Basque Country University (Spain), the Food and Biobased Research Group of Wageningen University (Netherlands) and at FUTUREENERGY, our industrial partner in UK.

BENEFICCE is not only an applied research project, but also an educational project. Master students are welcome to participate. Stages, conferences and seminars will be regularly organized during its two years life.

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Basque Country University (UPV/EHU)- Spain



Wageningen University and Research (WUR)- Netherlands



FuturEnergy

- Industrial Partner-UK

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