

PROMOFER



IMPROVEMENT OF FERMENTATION PROCESSES IN OBTAINING BIOPLASTICS



**Circular
Bio-based
Europe**
Joint Undertaking

The project is supported by the Circular Bio-based Europe Joint Undertaking and its members. Funded by the European Union under grant agreement No101157239. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CBE JU. Neither the European Union nor the CBE JU can be held responsible for them.



**Bio-based Industries
Consortium**
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PROMOFER will address the improvement of the fermentation processes and downstream purification identified bottleneck in the production of biobased bioplastics as PHB(V) and biobased polyurethane by valorising two kinds of feedstock (lignocellulosic biomass and food industry waste). Increasing the yield and productivity of these processes are essential for an introduction of the biobased products into the market.

The integration of these waste streams as biorefinery feedstocks will enable reducing the volumes of landfilled waste, improve competitiveness, resource efficiency and open new opportunities for the bioplastics production with added advantages of environmental performances and social acceptance.



GOAL

PROMOFER will demonstrate fermentation technologies to facilitate the large-scale deployment of industrial bio-based systems (PHBV and 2,3-BDO).

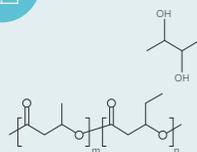


METHODOLOGY

The PROMOFER project will focus on improving the efficiencies (yield, titre, selectivity) of the entire value chain in which fermentation processes are involved to obtain bioproducts and transform these biobased bioplastics into products destined for the market. It will also significantly improve their environmental performance by using recycling and re-use strategies, focusing on the stages that comprise the value chain.



PRODUCTS



Two Sustainable and Safe by Design (SSbD), circular bio-based products will be produced:
 → **polyhydroxyalkanoates** (PHAs) to be used in geotextile nets applications (agriculture sector) and coated paper packaging applications (packaging sectors)
 → **2,3-Butanediol** (2,3-BDO) to produce bio-based PU for the technical textile applications in the fashion industry sector



VISION

PROMOFER will work towards achieving an optimal cascading use of bio-based feedstock, aiming for 'zero waste' and 'zero-pollution' operations.

11 STEPS FOR SUCCESS



Apply efficient pre-treatments for **lignocellulosic biomass**

Improve the yield of VFA production in **acidogenic fermentation**

Improve the performance of 2,3-BDO and PHBV producers through **non-GM genome** editing approaches

Improve the performance of 2,3-BDO and PHBV producers through **genetic engineering**

Improve the extraction and purification process of PHBV and 2,3-BDO by environmentally friendly alternatives

Apply an **efficient process design** for the fermentation to maximize accumulation of PHBV and 2,3-BDO

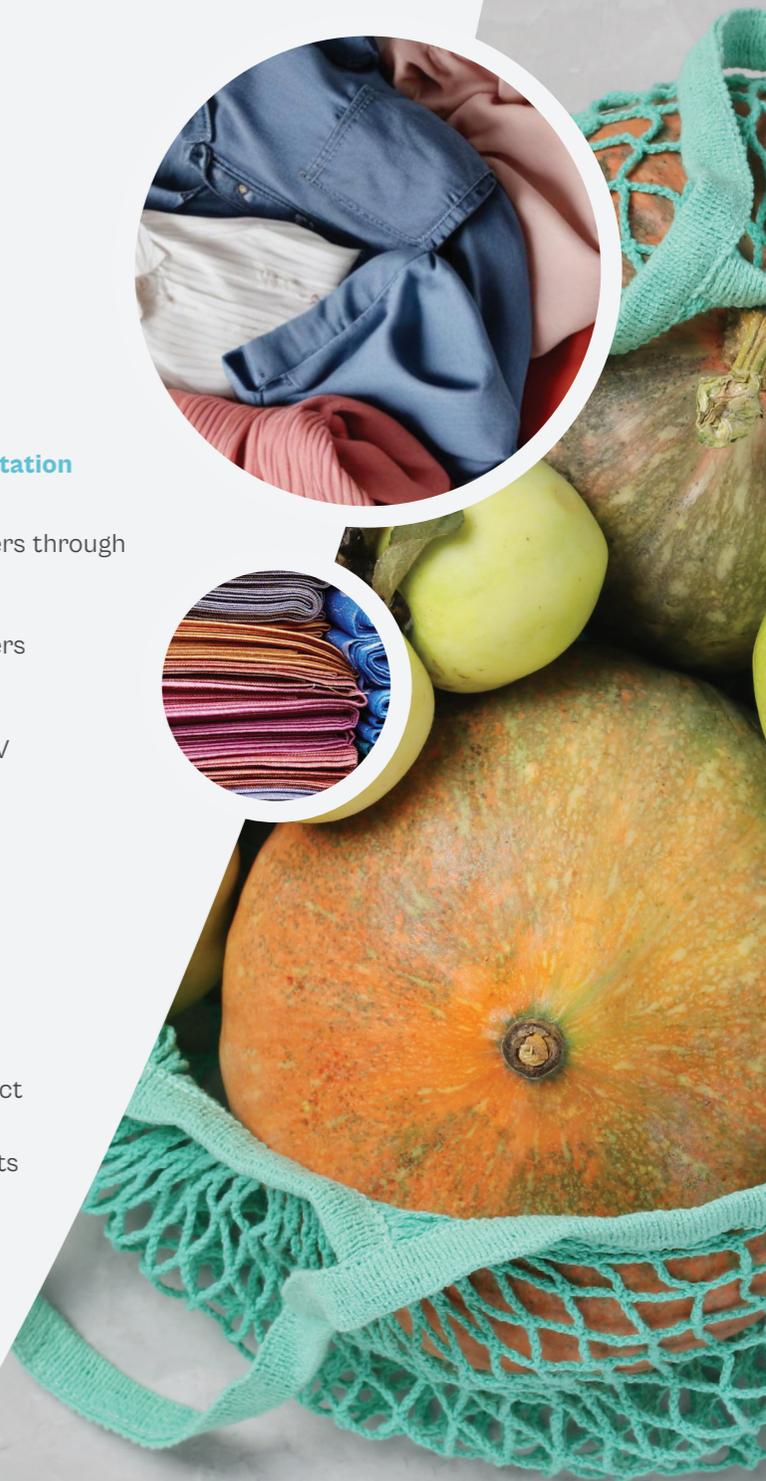
Obtain **PHBV-based compounds** and **demonstrate their performance** through the production of prototypes or **packaging** and **agricultural applications**

Produce **biobased PU** from 2,3-BDO obtained in the project

Ensure **knowledge sharing** and uptake to maximize impacts

Improve the environmental performance across all stages of the fermentation process

Determine **public awareness and acceptance** of bio-based products and to support acceptance of scalable bio-based solutions



PROMOFER



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