

TIP 3. USE CASES FOR BIOTECHNOLOGY DEVELOPMENT



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TIP: Use case of valorization of oilseed cake in high value-added products as a platform to promote an open-access facility for pre-industrial scaling of biotechnologies, bioprocesses, and bioproducts.

Approximate investment: 15M €

Expected economic impact: 24,4M €

References:

- The EU biotech and biomanufacturing sector is facing several challenges that need to be addressed for it to realise its full potential.
- More than 50% of pilot production projects in the industrial biotechnology sector require an investment of over 1 million euros. The cost of pilot production is often five times higher than the earlier research stages.

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Main objective

The goal of this first phase of the BOT is to design an industrial plant of olive pomace appraisal to use it as fertilizer in parallel to a multiproduct biorefinery to obtain high added value products as functional ingredients, animal feed, PLA and biofuels, with a zero-waste process goal, become what could be an other future BIP (TIP Deployment of bio-industrial Parks (BIP) through three leading initiatives).

Expected results

Expanding the capacity of the biomanufacturing development need open testbeds to successfully scale up from prototype components in a production relevant environment (MRL6) to low-rate production capability (MRL8). The project wants to create the first phase of a future Biomanufacturing Open Testbed (BOT), in the short-term through the valorization of an abundant endogenous resource, as olive pomace, and expandable in the mid-term based on the results of the TIP Bioindustries for the Decarbonization of the Petrochemical sector (B4DP). The project will be designed for modularity and adaptability for a range of new bioproducts, also those that apply to the food and feed sector.

Justification

From the beginning of the Shared Agenda in 2018, the need to have spaces for the pre-industrial scale-up of biomanufacturing was identified. These spaces are currently called testbeds and continue to be indispensable for biomanufacturing deploying. Testbeds will help to fill a number of important roles in supporting the growth of the bioeconomy, including physical facilities, continuing education and hands-on training, R&D for bioproducts/bioprocessing, and touchpoints between regulators and industry.

The challenge is that these infrastructures require a very significant investment and that its must have a viable business model. The experience of Alcarras Bioproductors has taught us that starting by turning a problem into a high added value opportunity is usually the best way to boost these experimental environments, that's why this first phase of BOT aims will industrially produce fertilizers and in parallel obtain high added value products from the olive pomace by-product, for example, the required lactic acid, that after some processing steps will make possible of get the required PLA bioplastic for the 3D printing filament cardboards.

This will provide other industries the possibility to develop design high-value products with bioeconomic and zero waste environmental characteristics, promoting the validation of the equipment and its extension to other value chains based on the demands identified in the PIT Bioindustries for the Decarbonization of the Petrochemical sector (B4DP).

Contribution towards

2035 Goals - AC LLEIDA TERRA D'OPORTUNITATS

Open access facilities to reduce technological and non-technological risks associated with the new industrial model.

Viable business models at an economic, social and environmental level that value forestry and agricultural ecosystem services, which allow increasing incomes in the primary sector.

Shared vision 2050 - AC LLEIDA TERRA D'OPORTUNITATS

Economic Development: The bio-open testbed olive cake use case will attract investments, generate new business opportunities and facilitates biomanufacturing development.

Sustainability: The zero-waste approach will maximize the economic benefits and reduce the environmental impact.

Education and Workforce Development: The multiproduct biorefinery with exchangeable blocks will serve as a research and training centre for new technologies and approaches. Generating the required knowledge in the byproducts treatment and reprocessing, which will be incorporated to Lifelong professional training center for Green Jobs.

Transformative Innovation Ecosystem: Open testbeds are critical facilities to truly become a place-based arena for transformative.

Improved Quality of Life: Indirectly, the project's contributions to economic growth, job creation, and sustainability will have a positive impact on society by improving living standards and reducing inequality.

SDG

Directly

Indirectly



NICHES

BIOFERTILIZERS	BIOFUELS	BIOCHEMICALS	BIOPOLIMERS
AGROTECH	UPCYCLED FOOD INGREDIENTS		
SUSTAINABLE PROTEIN (ANIMAL AND HUMAN CONSUMPTION)			