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Bio-based Industries
Consortium

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Fungi Fermentation
supported by Digital Modeling



**Circular
Bio-based
Europe**
Joint Undertaking



THE MISSION

The world's ever-growing population demands an increasing amount of protein, which cannot be sustainably met through traditional sources. Innovative approaches are key to procure high-quality protein both efficiently and sustainably.

THE PLAN

ZEST's strategy focuses on devising an enhanced, scale-flexible, and AI-controlled fermentation production system capable of generating a diverse array of protein products for the food and pet-food industries, as well as byproducts for the cosmetic industry.

THE HERO

Fungi-based proteins present a promising solution to this challenge, given its versatility in utilizing a variety of raw materials and its potential for global production.

MAIN OBJECTIVES

- 1 Develop an innovative fermentation system for producing fungal proteins and nutrients for food and pet food products, as well as other bio-based products like cosmetics.
- 2 Utilise digital modelling and artificial intelligence for process optimisation and creating a zero-waste production system.
- 3 Assess the entire value chain to ascertain their economic viability, market potential, environmental impact, and sustainability of fungal-based products.

EXPECTED IMPACT

- 1 Establish new industrial biotechnology pathways.
- 2 Enhance competitiveness of European biorefineries.
- 3 Improve mycelium productivity and resource efficiency.
- 4 Strengthen food security and increase social acceptance of circular bio-based solutions.
- 5 Expand the range of bio-based products meeting market demands.

THE TEAM

The four-year initiative (1 June 2024 - 31 May 2028), supported by the Circular Bio-based Europe Joint Undertaking (CBE JU) and its members with a total budget of 7.5 million euros, is driven by a collaborative consortium made up of eleven entities from five European countries.

