European Circular Innovation Valley

C2BIOTICS

Circular Biotics from Acetate Side Streams to Health-Promoting Food Ingredients

Food & Agro-food Systems

Circular & Sustainable Bioeconomy

Mission 1 Industrial Symbiosis & Resource Efficiency

Mission 3 Business Models & Market Innovation

Accepted funding: 1,480,865.18

Budget: € 1,665,090.70

Funding rate: 88,94%

PARTNERS

Navarra (Spain)
- Fundación CENER (lead partner)
- ECOVINAL, SLU
- Universidad de Navarra (UNAV)

Normandy (France)
- ACTALIA

Northern Netherlands (SNN) (The Netherlands)
- Van Hall Larenstein University of Applied Sciences (VHL)

WHAT SPARKED THE IDEA BEHIND THIS PROJECT?

"Building on CENER's existing acetate-fed fermentation process, capable of producing different biotic fractions, C2BIOTICS was conceived to demonstrate that acetate-rich side streams can become circular carbon sources for producing higher-value prebiotic, probiotic, postbiotic, parabiotic and synbiotic ingredients."

CHALLENGE

Food production still depends largely on virgin resources, while valuable by-products are often underused or discarded — causing resource inefficiencies and environmental impacts.

PROJECT AND OBJECTIVES

C2BIOTICS turns agri-food side streams into high-value biotic ingredients for food applications, bringing together expertise across regions to show how circular bioeconomy solutions can create value from existing resources.

IMPACT

- Circular carbon share: 0% baseline -> ≥95% target (up to 100% where feasible)
- Virgin sugar displaced: ≥2.6 kg sugar-eq/kg biotic
- Climate benefit: 1.8-2.9 kg CO2e/kg biotic avoided vs sugar-fed baseline (confirmed by LCA)
- Scale-up: acetate-fed fermentation from TRL5-6 to TRL7 with reproducible demo lots
- Market readiness: 5 biotic categories, 2-3 food matrices, food-grade prototypes where feasible, safety dossier + TEA/LCA

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