

# ZELCOR

### Zero Waste Ligno-Cellulosic Bio-Refineries

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#### www.zelcor.eu

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Bio-based Industries Consortium



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## ZERCOR Zero Waste Ligno-Cellulosic Bio-Refineries

#### **Project Goals**

Zelcor project aims at demonstrating the feasibility of transforming lignocellulose biorefinery recalcitrant side streams into high addedvalue biobased products, including fine chemicals. Its concept is to combine chemical and enzymatic catalysis with insects-based biological conversion, within a biorefinery integrated approach.

The project is conceived to avoid waste production by recycling waste bio-based products and improve the sustainability of existing second generation biorefineries. It addresses three types of recalcitrant raw materials: lignocellulosic residues from ethanol production, lignins dissolved during pulping process and lignin-like humins formed by sugars conversion. Enzyme and process engineering will be implemented to design efficient conversion routes and permit technological breakthroughs.

A transversal platform for the characterisation of biomolecules will be settled to identify bio-products of commercial interest among lignins and humins multifunctional nanoparticles, phenolic antioxidants, insects-based chitosans and aromatic chemical intermediates.



Thanks to this platform, Zelcor will enhance knowledge of the structure-function relationships and the mechanisms involved in recalcitrant raw materials catalytic depolymerisation and bioconversion.

Demonstration of the approach feasibility will be performed by process scaling-up, formulation of end-product prototypes and value chain sustainability and safety assessment.

The presence of industrial partners all along the value chains, from lignocellulosic feedstock to end products, will facilitate demonstration activities and technological transfers. With this strong industry drive, Zelcor will lead to large scale production of biomolecules for cosmetics, packaging and chemical industry, as well as novel biocatalysts.

Zelcor is a 5.2M€ collaborative project, 49% of which for SMEs (43% EC grant). It gathers 17 organisations from 8 countries, including 6 academia, 8 SMEs, and 2 corporations.



#### ZELCOR partners all along the value chain







#### Contact

#### **Project Coordination**

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