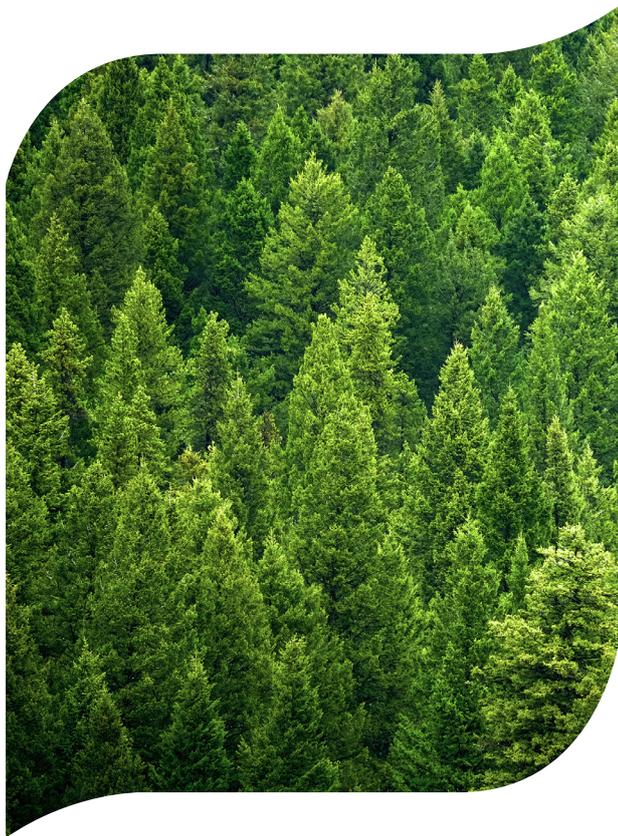


WoodZymes (2018-2021)

Adapted enzymes for the production of bio-based materials and products!

WoodZymes is a research and innovation project funded by the Bio-based Industries Joint Undertaking, a private-public partnership between European Union (H2020 programme) and the Bio-based Industries Consortium. This project focuses on extremophilic enzymes for the production of wood based molecules: from pulp mill to panels and insulation products.

This project associates 11 partners from 4 European countries: 6 research institutes, 1 SME and 4 industrial groups, including 2 pulp mills.



Objectives of the project

The WoodZymes project's main objective is to extract lignin and hemicelluloses during the pulping process, to customize them enzymatically before their use as bio-sourced additives in the production of papers, panels and insulation products. Five objectives are targeted:

- To develop enzymes adapted to industrial conditions through protein screening and engineering, to be used as biocatalysts for wood conversion,
- To transform lignin and hemicelluloses from pulp mill black liquor and bleaching effluents into platform molecules,
- To reduce energy consumption during fibre refining by 15% and to give new properties to paper/board by adding these bio-sourced additives,
- To produce wood panels and insulation foam by replacing formaldehyde-based glues and petrochemical polyols with activated lignin,
- To assess the technical feasibility, as well as environmental and socio-economic benefits of these new approaches.

More information on www.woodzymes.eu

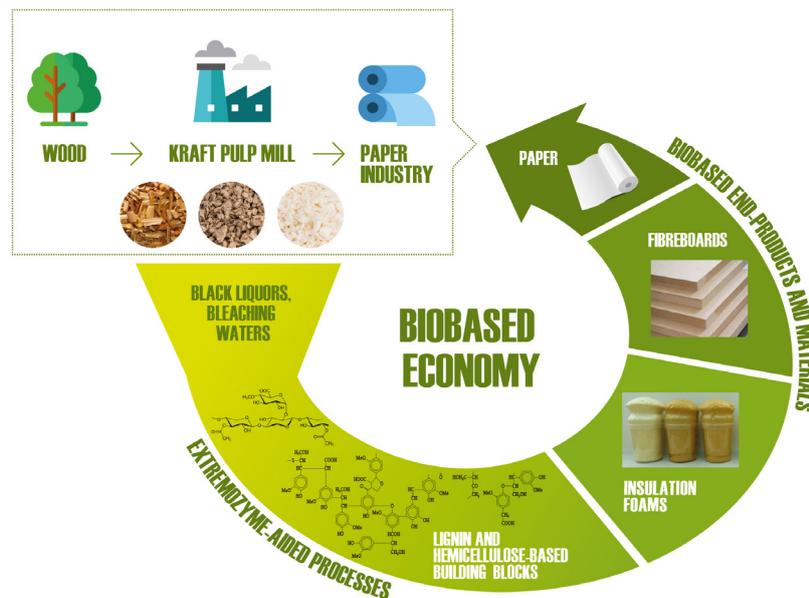
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Environmental constraints are leading to a growing demand for bio-based products, aiming at reducing petrochemical and non-renewable materials used today in many applications, particularly in the building and furniture industry. As illustrated in the figure below, the Woodzymes project aims at demonstrating the potential of extremophilic enzymes in the bio-based economy, contributing to the sustainable management and competitiveness of cellulose, wood panels and polyurethane foams while connecting the pulp and wood industries. For this, 3 major innovations will be combined:

- the production of enzymes resistant to extreme pH and temperature, compatible with the pulping process,
- the development of innovative processes for the recovery, concentration and enzymatic activation of platform molecules (lignin, hemicelluloses)
- and the formulation of hemicelluloses-based paper additives and activated lignin-based adhesives and polyurethane foams to improve the performance of papers, panels and foams.

The feasibility of this ambitious project is based on a strong European consortium formed by world-leading companies of the pulp & paper (Fibre Excellence, Navigator Company), fibreboard manufacture (FINSA France) and insulation materials sectors (Soprema), a biotech SME commercializing extremophilic enzymes (Metgen) and several research institutes and technological centres of the wood, cellulose, lignin and enzyme sectors (CSIC-CIB, CSIC-IRNAS, CSIC-IATA, CTP, FCBA and RAIZ).



Contribution of the Woodzymes project concept to the bio-based economy.



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