EUCALYDTUS LIGNIN VALORISATION FOR ADVANCED MATERIALS AND CARBON FIBRES

EUCALIVA aims to create evidences to be an “Industrial success case” as a novel integral solution to fully valorise bio-resources at local level, to be then replicated at local/national level by other industrial partners interested in the technology and/or the products obtained within this project

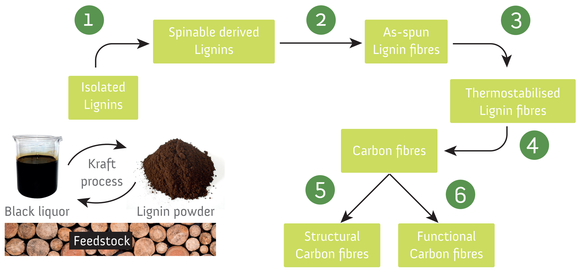
The current lack of competitiveness of bio-based technologies against other industrial (far more polluting) sources requires further development and optimisation of innovative processes that are cost-effective and resource-efficient.

For this reason, key players, with clear focus on industrial solutions are working jointly in EUCALIVA and will bring together the capacities, background and specific knowledge to validate scaling-up solutions to use waste components from papermaking activities as raw material to obtain innovative value-added products, targeting specific applications in niche markets such as biosensors, flexible electronics, filtration elements.

PROJECT CONCEPT

EUCALIVA project proposes a fully-integrated, energetically-efficient, scalable, innovative and flexible processing chain based on the valorization of Lignin for producing Carbon fibres (CF) and other Carbon-based materials, mainly for functional applications.

1. Purification and/or modification (Polyurethane)
2. Spinning
3. Thermostabilisation
4. Carbonisation
5. Graphitization
6. Activation



PROJECT FUNDING

H2020 BBI JTI 2016 / BBI-2016-D03: "Valorisation of Lignin and other side-streams to increase efficiency of biorefineries and increase sustainability of the whole value chain".

Project budget: 2.419.871€ - EU Funding: 1.795.010€.

From 2017-09-01 to 2021-02-28.

KEY OUTCOMES

- Successful introduction of ‘Lignin-to-bio-product’ concepts at semi-commercial scale.
- New bio-based, renewable and economically viable method of formulating Lignin blends, precursors of other products.
- Bio-based products with a very promising marketability: stretchable electronic films and activated Carbon from non-woven Lignin felt.
- Waste valorisation, separating useful components such us Lignin and Polyurethanes.
- Life Cycle Analysis (LCA) and Life Cycle Cost (LCC).
- Energy, fossil-fuel consumption and CO_2 reduction.
- Business case as tool for market deployment.

ECOPROLIVE PARTNERS	TYPE OF PARTICIPANT	KEY ROLE IN THE PROJECT	ORGANIZATION DESCRIPTION	COUNTRY
contactica innovation	Coordinator	Coordination/ exploitation Plan/ Prospective-market research/ LCA	Innovation Management and R&D consulting company; market prospective, IPR management, technology watch and benchmarking studies; internationalization and export consortia, Life Cycle Analysis, Life Cycle Cost Analysis and Social Life Cycle Analysis, combining them in Life Cycle Sustainability Analysis; business plan for innovative new products, prospective analysis for new niche emerging market for EU financing opportunities.	Spain
enviro hemp	SME	Activated Carbon production derived from non-wovens	Development of environmentally-friendly, sustainable bio-products and high-tech applications, providing tailored materials for industrial sectors, looking to develop green innovative carbon materials (activated carbon fundamentally) for water treatment, gas treatment, energy and other industries. Valorization of agricultural waste and scale-up of activated carbon production. ENV focuses on defining innovative processes to exploit the huge potential of industrial hemp and other agricultural and forest species.	Spain
OZ	SME	Valorisation line of Lignin-derived products/ Technology transfer and innovation management	SME involved in Materials R&D, products prototyping, and ToT from Lab scale to manufacturing and industrial domains spanning from Automotive and Aerospace, to Construction & Buildings, Biomedical, PPE and Wearables, Sportswear & Outerwear, Military & Defence, Yachting & Nautics, Electronics and Energy.	Italy
BIOSENSOR	SME	Testing quality and marketability of stretchable films/ Certification	Production and commercialization of sensors and biosensors based on the use of biologic material and their applications. Most of Biosensor’s production is focus on the design, fabrication and product engineering of miniaturized modular portable instruments suitable for a variety of applications, mainly in the field of water analysis.	Italy
stfi SÄCHSISCHES TEXTIL FORSCHUNGS INSTITUT e.V.	RTD	Know-how spunbonded/meltblown nonwovens, nanofiber nonwovens/ processing of staple fibres into nonwovens	Non-profit research institution. Process-related and product-related research work of STFI covers classical textile technologies as well as innovative technical solutions for a wide range of applications in nonwovens and technical textiles. The main fields of research are: nonwovens/films, warp-knitting/weaving, textile finishing/ecology, textile recycling/vegetable fibres, technical nets and ropes, composite development and textile materials research.	Germany
TAMPERE UNIVERSITY OF TECHNOLOGY	RTD	Lignin valorisation chain research work	TUT have expertise in transforming bio-derived raw material (e.g. Cellulose and Lignin) into water-soluble form and preparing films and fibres from the dissolved polymer. They have expertise in the preparation of bio-based micron and submicron scale fibres as precursors to the Carbonization. They have appropriate laboratory facilities for different kind of pre-treatments of the raw materials and a laboratory scale wet spinning machine for preparing fibres.	Finland

EUCALIVA

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BIO-BASED INDUSTRIES Public-Private Partnership

Bio-based Industries Consortium

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