

pHYBi Project - 1st Press Release

Sevilla, October 9th, 2024

New Horizon Europe project pHYBi Kicked off: Sustainable bio-based lignocellulosic feedstock for textile applications through phytomanagement

How can a sustainable bioeconomy function without competing with land for food crops? This question arises particularly in Europe, where land is scarce, as around 80% of land is used for settlements, agriculture, forestry, and infrastructure. However, land is needed to grow industrial crops as sustainable feedstocks for the bioeconomy.

This critical challenge is being addressed by the EU-funded pHYBi project, which proposes a circular economy approach combining soil phytoremediation with a sustainable lignocellulosic biomass valorisation process. The project focuses on using degraded, polluted, and saline soils for cultivating industrial crops, such as poplar, birch, willow, hemp, and miscanthus, that will not only improve the environment but also provide valuable resources for the bio-based textile industry. These industrial crops will be grown using phytomanagement techniques, which involve absorbing pollutants from the soil while simultaneously producing valuable biomass.



On 8th October 2024, the pHYBi consortium met in Seville to kick-off the project activities.

At the project's kick-off event in Seville on October 8, 2024, the pHYBi consortium, composed of 11 organizations from five European countries, came together to launch the project's activities. The project will run for 48 months, during which time partners will develop and test a range of innovative strategies to enhance crop growth and soil health using organic and inorganic (nano-) amendments, as well as fungal and bacterial inocula. Among the key developments will be the creation of Genome-Scale Metabolic (GEM) models, which will be used to evaluate and improve interactions between plants and microbes.

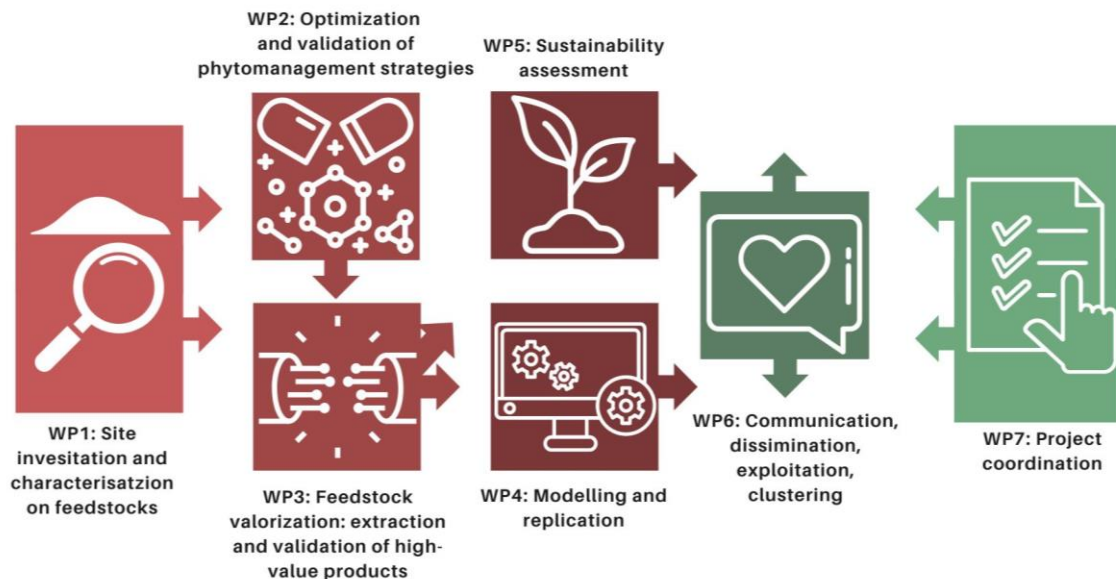
Phytomanagement and sustainable biomass valorisation

The core of the pHYBi project revolves around combining phytomanagement — the use of plants for soil remediation — with the extraction and valorisation of lignocellulosic biomass (cellulose, hemicellulose, and lignin) for high-value applications in the textile industry. By processing biomass grown on polluted soils, pHYBi aims to create environmentally friendly fibres and pigments for sustainable use in textile manufacturing.

The main objectives of the pHYBi project include:

- Investigation and monitoring of existing and new pilot phytomanagement sites.
- Optimisation of phytomanagement strategies for high-yield biomass production on polluted and saline soils.
- Development of a virtual replication tool to simulate the process in different regions across Europe.
- Demonstration of the economic, social and environmental feasibility of these sustainable practices.

Outline of the pHYBi Work Plan



Overview of the pHYBi Work Packages and their interrelation.

Looking ahead: A sustainable future for Europe's textile industry

pHYBi's innovative approach will directly contribute to the EU's Soil Deal for Europe, which aims to restore degraded soils and reduce pollution. By demonstrating how biomass can be harvested from contaminated soils without affecting food crops, pHYBi is expected to significantly reduce the EU's global footprint in the production of feedstock for the bio-based economy. By integrating the latest

scientific knowledge from fields such as agronomy, microbiology, and chemical engineering, pHYBi promises to set new standards for sustainable industrial crop production.

In addition, the project will involve a wide range of stakeholders - from farmers to textile manufacturers - to ensure that the benefits of bio-based products are fully understood and adopted throughout the value chain.

The success of pHYBi could pave the way for broader adoption of phytomanagement practices, not only within Europe's textile industry but also in other sectors that rely on sustainable bio-based feedstocks.

THE pHYBi PROJECT IN SHORT

Project Name: PHYtomanagement as a sustainable feedstock source of lignocellulosic-based high-value Bio-based products for textile applications.

Call Topic: HORIZON-JU-CBE-2023-R-01 Phyto-management; curing soil with industrial crops, utilising contaminated and saline land for industrial crop production (RIA TRL 5)

Duration: 4 years (October 2024 – September 2028)

Partnership: The project, coordinated by Idener R&D. It consists of 11 partners from Spain, Italy, France, Germany and Croatia: [Idener R&D A.I.E](#) (Spain), [Next Technology Tecnotessile Società Nazionale di Ricerca r.l.](#) (Italy), [Steinbeis 2i GmbH](#) (Germany), [Fundacion Centro Tecnológico de Investigacion Multisectorial](#) (Spain), [Universidad de Burgos](#) (Spain), [Université de Franche-Comté](#) (France), [Université Bourgogne-Franche-Comté](#) (France), [Phytowelt Greentechnologies GmbH](#) (Germany), [Universidad de Oviedo](#) (Spain), [Particula Group](#) (Croatia), [Digital Innovation Hub on Livestock Environment, Agriculture & Forest](#) (Spain)

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More Information: <https://www.cbe.europa.eu/projects/phybi>

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