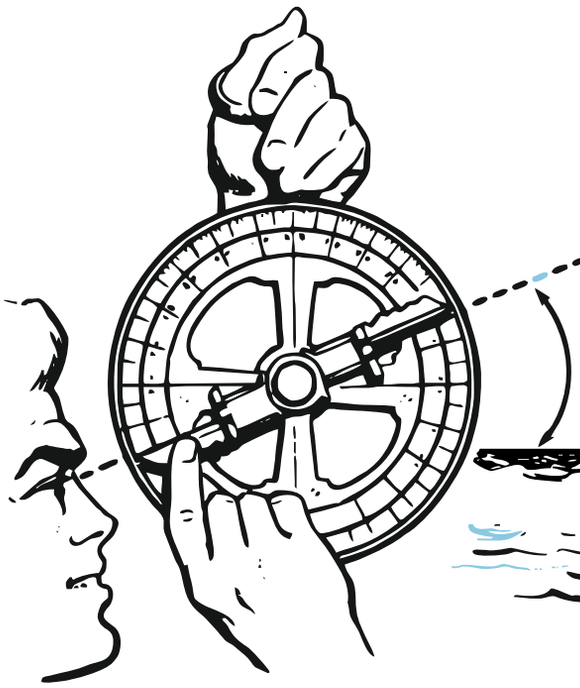


Łukasiewicz
Institute of Heavy
Organic Synthesis
BLACHOWNIA

HORIZON europe

TOPIC ID:
HORIZON-JU-CBE-2025-RIA-02

Bio-based and biodegradable delivery systems for fertilising products to reduce microplastics pollution & promote soil health

Bio-Based and Biodegradable Coated Fertilizers

Type of project: RIA

Call opening date: 4 April 2025 Call deadline: 17 September 2025

www.icso.lukasiewicz.gov.pl

ABOUT US

Since early 2000s Łukasiewicz - ICSO "Blachownia" has been working on various technologies to replace fossil-based chemicals with bio-based or waste-based alternatives. The feedstocks that we are working on include plant oils, wood oil, starch, bio-based alcohols, lignin, cellulose, and organic acids. Our offer can be divided into the following segments: fuels, specialty chemicals, polymers, solvents, cosmetic additives and waxes.

Łukasiewicz – ICSO "Blachownia" offers cooperation in the following areas:

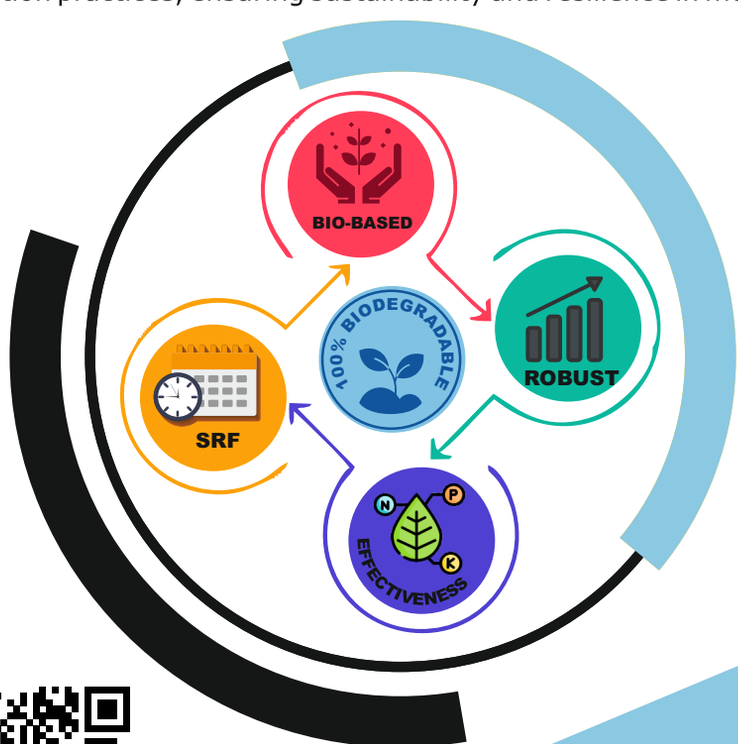
- Development of lignin-based coatings for multi-component fertilizers
- Assessment of Fertilizer Performance
- Process upscaling (from lab to pilot scale)
- Analytical services and online process control
- Life Cycle Assessment (LCA) and Techno-Economic Analysis (TEA)
- Biodegradation tests

OUR IDEA

We offer bio-based and biodegradable delivery systems for fertilizing products, addressing the critical need to reduce microplastic pollution in agriculture while promoting soil health. These systems utilize innovative lignin-based encapsulation methods that combine mineral nutrients (N, P, K) with organic materials to create slow-release formulations.

The biodegradable coatings are designed to meet Regulation (EU) 2019/1009, ensuring they break down into environmentally benign substances, minimizing residue accumulation. Their ability to regulate nutrient release not only reduces nutrient losses and eutrophication risks but also fosters carbon sequestration by improving soil organic matter content.

To validate their environmental and agronomic benefits, we perform biodegradability tests and efficacy assessments under realistic agricultural conditions. By integrating circular economy principles, these solutions aim to transform fertilization practices, ensuring sustainability and resilience in modern agriculture.



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