Development of Plant-Based Biostimulants and Organic Fertilizers from Agricultural Waste

Summary

Profile type	Company's country	POD reference
Research & Development Request	**Türkiye**	**RDRTR20250707019**

Profile status	Type of partnership	Targeted countries
PUBLISHED	**Research and development cooperation agreement**	• **Spain** • **France** • **Netherlands** • **Belgium**

Contact Person	Term of validity	Last update
Enrico FRANZIN	**7 Jul 2025** **7 Jul 2026**	**7 Jul 2025**

General Information

Short summary

A Turkish company transforms agricultural wastes, as well as plant-based biomass, into high value-added inputs to develop advanced biostimulants for sustainable agriculture. This project focuses on producing next-generation biostimulants/organic fertilizer with controlled release to enhance plant resilience against environmental stress. They are seeking strategic partners to collaborate in final product development, efficacy validation, and safety assessment.

Full description

The company. is an R&D-driven biotech company developing sustainable and eco-friendly agricultural inputs. Their aim is to create high-performance biostimulants and organic fertilizers that enhance plant resistance to environmental stress factors.

In this project, depending on available raw materials and partner contributions, they aim to develop high value-added functional agricultural inputs by processing agricultural waste, as well as plant-based biomass. The active compounds obtained are formulated using controlled release technologies to enable more efficient and prolonged absorption by plants. This approach improves the efficiency of agricultural water and input usage while also contributing to the European Green Deal and sustainable agriculture goals by reducing environmental impact.

The company is prepared to lead the formulation development, active compound extraction, encapsulation, design of

controlled release systems, and pilot-scale production. Their existing lab infrastructure supports the extraction of natural biomolecules, creation of encapsulation systems, particle characterization, stability testing, and prototyping adapted to various application scenarios.
The biostimulant and/or organic fertilizer products to be developed will be designed to be applicable with foliar application, soil application, drip irrigation systems or drone-assisted precision agriculture technologies. Thus, product options suitable for both small and large-scale producers and adaptable to different geographical and climatic conditions will be created.

To complete these processes, the company is looking for collaborative partners who can contribute in the following areas within the scope of the project:
• Companies that have access to biological resources of plant, agricultural, forest or algal origin and can contribute to the processing or enrichment of these raw materials
• Laboratories or R&D organizations with infrastructure and experience in field trials, efficacy analysis, ecotoxicity and safety tests
• Technology companies that develop drone technologies and can optimize the application of liquid formulations by air
To complete these processes; cooperation is aimed with biomass supply companies that can contribute to the processing of raw materials, analysis laboratories that can conduct field trials and technology partners that can optimize the application of formulations by drone.

Advantages and innovations

The biostimulant/ organic fertilizer formulation developed by the company offers a combination of controlled release system, natural and biodegradable carriers and agricultural waste-based components, creating an environmentally friendly and highly effective agricultural input. This approach is compatible with circular economy principles and supports both ecological and economic sustainability.

Technological Innovations:
• Thanks to the controlled release mechanism, it ensures that nutrients and bioactive substances are taken by the plant in a long-term and balanced manner.
• Natural biodegradable carrier systems increase the effect of the product without harming the environment.
• Nanotechnological encapsulation increases the stability of active compounds, extends the duration of effect and provides high efficiency with low doses.
• The product content is formulated to be compatible with organic agriculture.

Environmental and Economic Contributions:
• It contributes to the protection of soil and water resources by reducing the use of traditional chemical fertilizers.
• It provides optimization in water consumption thanks to its controlled release and bioavailability features.
• High value-added products are obtained by evaluating agricultural, forestry wastes and algal origin.
• It contributes to reducing the carbon footprint and combating climate change.
• It provides cost advantage for small and medium-sized producers with lower application frequency and higher efficiency.

This innovative approach of the company supports both technological transformation and environmental responsibility in agriculture at the same time. The developed systems also have the flexibility to be customized according to different agricultural conditions in the future.

Technical specification or expertise sought

The company is looking for R&D-focused SME partners to collaborate with in the scope of the Eurostars call with the aim of developing biostimulants and/or organic fertilizers. The expected contributions from the partners may differ depending on their competence and infrastructure.
Some partners may provide active ingredients (e.g. extracts, ferments or natural polymers) thanks to their access to plant, agricultural or algal raw materials and pre-processing capacity. In this case, the company develops controlled-release formulations using these components and undertakes efficacy analyses at laboratory and field levels.

Some partners may be competent in direct field applications. In this case, the company will carry out the formulation and production; the partner applies the developed product to the field using drones or traditional methods, measuring parameters such as yield, stress tolerance and water use efficiency, and ensuring validation of the project under real field conditions.
A “formulation + application technology” model can be developed together with drone companies and companies that can integrate the developed products with drone technology. Thus, an innovative solution can be presented where the biological input and application method are optimized together.

Stage of development

Under development

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 13: Climate Action**

IPR Status

IPR applied but not yet granted

IPR Notes

A patent application has been made in Türkiye and the process is ongoing.

Partner Sought

Expected role of the partner

The company is looking for R&D-focused SME partners to collaborate with in the scope of the Eurostars call with the aim of developing biostimulants and/or organic fertilizers. The expected contributions from the partners may differ depending on their competence and infrastructure.
Some partners may provide active ingredients (e.g. extracts, ferments or natural polymers) thanks to their access to plant, agricultural or algal raw materials and pre-processing capacity. In this case, the company develops controlled-release formulations using these components and undertakes efficacy analyses at laboratory and field levels.

Some partners may be competent in direct field applications. In this case, the company will carry out the formulation and production; the partner applies the developed product to the field using drones or traditional methods, measuring parameters such as yield, stress tolerance and water use efficiency, and ensuring validation of the project under real field conditions.
A “formulation + application technology” model can be developed together with drone companies and companies that can integrate the developed products with drone technology. Thus, an innovative solution can be presented where the biological input and application method are optimized together.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 50 - 249**
- **SME 11-49**
- **University**
- **R&D Institution**
- **SME <=10**
- **Big company**

Call Details

Framework program

Eureka

Call title and identifier

Eurostars 3 Call

Submission and evaluation scheme

One stage application

Anticipated project budget

1000000

Coordinator required

No

Deadline for EoI

31 Jul 2025

Deadline of the call

4 Sep 2025

Project duration in weeks

156

Web link to the call

https://eurekanetwork.org/opencalls/eurostars-september-2025/

Project title and acronym

Development of Plant-Based Biostimulants and Organic Fertilizers from Agricultural Waste

Dissemination

Technology keywords

- **03004001 - Agro chemicals**

Market keywords

- **09005 - Agriculture, Forestry, Fishing, Animal Husbandry & Related Products**

Targeted countries

- **Spain**
- **France**
- **Netherlands**
- **Belgium**

Sector groups involved

- **Agri-Food**