



LIFE Multi-AD 4 AgroSMEs - High performance multiphase anaerobic reactor for agroindustrial wastewater treatment

LIFE17 ENV/ES/000331



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Project description:

Background

Wastewater from the food and drink sector typically contains high concentrations of biodegradable organic matter. These pollutants are challenging to filter out of sewage systems and can contaminate natural water bodies. Many industrial processes to treat industrial effluents carrying organic matter are optimised for large factories, where economies of scale make vast technology investments affordable. In contrast, the food and drink sector is dominated by small and medium-sized enterprises who do not discharge enough wastewater for existing anaerobic digestion reactors to prove economically viable. Cheaper reactors could help food and drink companies use water resources in a safer and more efficient manner, as set out in the EU Water Framework Directive, and save natural resources, as described in the Industrial Emissions Directive.

Objectives

The LIFE Multi-AD 4 AgroSMEs project aims to design and industrialise an anaerobic digestion reactor capable of economically treating wastewater discharged by small companies operating in Europe's food and drink sector. Project partners will scale-up a patented prototype to capacities of 25-500 cubic metres (considerably smaller than existing anaerobic reactors whose size averages 2 500 cubic metres). An automated control system will optimise the digestion process, breaking down the organic matter contained in effluents regardless of variations in its composition over time. In view of tailoring models

to sub-sectors of the food and drink industry, project partners will develop software for dimensioning future reactors. The project will notably demonstrate its anaerobic reactor in a Spanish winery and help transfer the technology to vegetable processing plants in Navarra, Spain.

These tasks will contribute to ensuring the safe and efficient use of water resources in line with the Water Framework Directive (2000/60/EC), to have a resource-efficient industrial sector in the whole EU (Industrial Emissions Directive (IED, 2010/75/EU), and ultimately to foster the use of renewable energy in industry (Renewable Energy Directive 2009/28/EC).

Expected results:

- Industrialise a process to treat liquid and gas sludge from small and medium-sized companies operating in the food and drink industry;
- Design the technology to meet the demands of SMEs, reaching capacities as small as 25-500 cubic metres;
- Recover biogas from the digestion process to provide end-users with valuable fuel;
- Treat wastewater from the food and drink industry in less than 20 hours, using 30% less energy and cutting costs by over 50%;
- Develop software to automate process steps and size up future models to client requirements;
- Build an industrial-scale demonstration reactor of 100m³ and validate its performance in a winery in Spain;
- Compare achievements with existing anaerobic reactors.

Results

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Environmental issues addressed:

Themes

Water - Waste water treatment

Keywords

use of waste as energy source, waste water treatment, food production, agroindustry, beverage industry

Target EU Legislation

- Water
- Directive 2000/60 - Framework for Community action in the field of water

- policy (23.10.2000)
- Industry and Product Policy
 - Directive 2010/75 - Industrial emissions (integrated pollution prevention and control) (24.11.201 ...
 - Climate Change & Energy efficiency
 - Directive 2009/28 - Promotion of the use of energy from renewable sources (23.04.2009)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	AGUA, ENERGÍA Y MEDIOAMBIENTE SERVICIOS INTEGRALES, S.L.U.
Type of organisation	Large enterprise
Description	AGUA, ENERGÍA Y MEDIOAMBIENTE SERVICIOS INTEGRALES, S.L.U. (AEMA) is an engineering company established in the region of La Rioja, Spain, since 2002. It develops industrial technology to protect aspects of the environment including water quality and clean energy.
Partners	Instituto Tecnológico de Aragón, Spain PURINES ALMAZAN S.L., Spain Institutions et Stratégies, France Societatea de Inginerie Sisteme SIS S.A., Romania

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Administrative data:

Project reference	LIFE17 ENV/ES/000331
Duration	01-SEP-2018 to 28-FEB -2022
Total budget	2,177,086.00 €
EU contribution	1,301,352.00 €
Project location	Rioja(España)

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