

MICRO4BIOGAS:

European research for sustainable power



Abandoning old energies

Fossil fuels pollute our planet and are finite. The world is heading towards a global **energy and climate crisis** that can only be solved by looking towards new, sustainable, energy sources.



Empowering substitutes

We must **promote renewable energies**, develop them and increase their competence. This means achieving a **continuous power supply** that is affordable despite changing environmental conditions.



Biogas, but better

At MICRO4BIOGAS, we will **boost the efficiency of biogas production** by harnessing the microbes that create this sustainable fuel. Our goal is to make biogas a **competitive energy source**.

The project in numbers

4 
Years

15 
Partners

6 
Countries

5,7 
Funding

Find out more!

 www.micro4biogas.eu

 @Micro4Biogas

 abendroth.ca@gmail.com

Partners



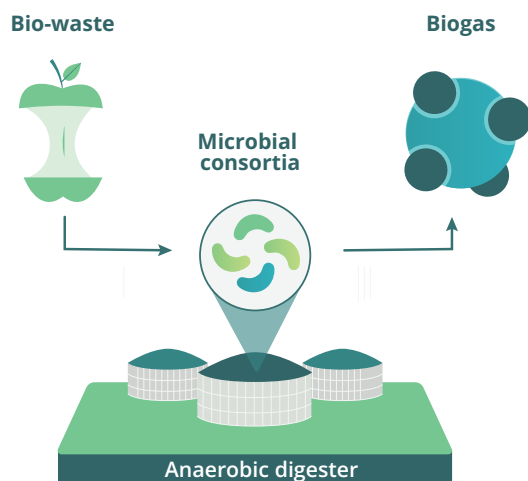
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A research and innovation project to optimise biogas production

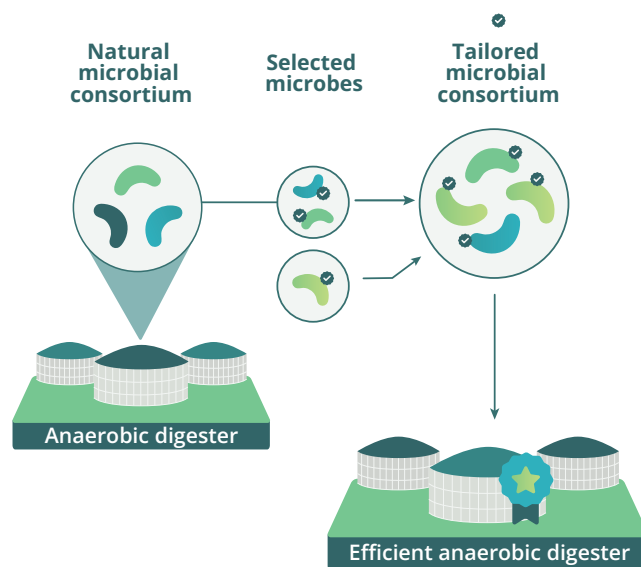
Biogas is renewable and storable. Now let's make it efficient

Microbial biogas production: a black box



Biogas is a **sustainable fuel** made up mostly of methane (CH_4 ; 55-70%) and carbon dioxide (CO_2 ; 30-40%). It is produced when **organic matter is decomposed** by microorganisms (bacteria and archaea) in the absence of oxygen. Despite being a long-known process, these groups of microbes are not well studied, so industrial biogas production faces **efficiency issues**.

Developing the best microbes for the job



To improve production, we will optimise the microorganisms in biogas tanks. This has two steps: first, analysing and **selecting the most efficient decomposers** which are already present in anaerobic digesters, and second, using directed evolution in the laboratory to create **tailored microbial communities** for digesting waste. This is called bioaugmentation.

Testing MICRO4BIOGAS in the real world

Our improved microbial communities will be tested in a **new biogas power plant** of 925m³ in Aras de los Olmos. This small town in Spain will become one of the **first in Europe** to rely 100% on renewable energy!

Aras de los Olmos
Pilot plant

Boosting the pillars of biogas production



Speed

Quicken the process of waste degradation



Yield

Obtain more biogas out of the organic waste



Quality

A more refined biogas with higher methane content



Reproducibility

Solid protocols that can be implemented in other plants

Our project aims to improve **every relevant aspect** of biodigestion to make it truly competitive.

Supporting the European energy transition

The chance of **transforming waste into electricity, heat and fuel** is a priceless strategy to build a strong European bioeconomy. That is the reason our project is focused on optimising biogas production: creating a **reliable power source** that contributes to deliver the European **Green Deal**.