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Sustainable small-scale biogas production from agro-food waste for energy self-sufficiency (BIOGAS^3 project)

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The aim of BIOGAS^3 is to promote the sustainable production of renewable energy from the biogas obtained of agricultural residues and food and beverage industry waste (agro-food waste) in small-scale concepts for energy self-sufficiency. Despite its multiple benefits, anaerobic digestion (AD) is not yet widely implemented in the agro-food sectors. New sustainable AD concepts are needed to increase the demand of biogas solutions. The project strategy includes: i) Analysis of the needs of end-users ii) development of tools to address these needs iii) on-field actions to bring the developed tools to the end-users, including training sessions, workshops, webinars, etc. The main results of the project are summarized below:

1. Sustainable small-scale AD models based on existing technologies of small-scale AD to serve as examples for potentially interested agro-food companies.
2. Business collaboration models and small BIOGAS software to evaluate the sustainability of new small scale biogas plants.
3. Build-up of skills and awareness on small-scale AD through on-line and face-to-face trainings, live webinars, etc. (ongoing).
4. Set the ground for new investments in agro-food companies with potential to implement small-scale AD (ongoing).

The activities to date, point to a growing interest in the small-scale biogas production for energy self-consumption, especially in the countries where policies supporting renewables are changing. The agro-food sub-sectors with higher interest are those that have high energy consumption and significant waste generation, and the waste management is costly. The biogas plant constructors are ready to provide small-scale solutions to the agro-food industry. Several examples exist with proven economic feasibility.

Biography

Paz Gomez is agricultural engineer, with a specialization in Rural Engineering and Agricultural Technical Engineer, specialization in Livestock Exploitations, both University Degrees by the Polytechnic University of Valencia (Spain, 2007). She did her research fellowship in Leibniz Institute for Agricultural Engineering Potsdam-Bornim in 2007, and is a visiting researcher in the Bavarian State Institute for Agricultural Engineering (LfL, Fresing) in 2011. She is a Researcher in AINIA Technology Centre since 2008, in the field of biomethanation of agro-industrial waste through anaerobic co-digestion. She is into development of economic feasibility tools for biogas plants, analysis of agricultural valorisation of anaerobic digestates from horticultural crops and studies on biomethane applications. She has experience in related projects: PROBIOGAS project, focused on development of sustainable production systems and use of agro-industrial biogas in Spain, DIGESMART project, focused on digestate from manure recycling technologies, and AGROBIOMET project, focused on sustainable production and use of biomethane as vehicle fuel using manure and alternative biomasses, among others.

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