



WASTE2FUELS

*Sustainable production of next generation
biofuels from waste streams*

Context

WASTE2FUELS aims to develop next generation biofuel technologies capable of converting agrofood waste (AFW) streams into high quality biobutanol. Butanol is one of the most promising biofuels due to its superior fuel properties compared to current main biofuels, bioethanol and biodiesel. In addition to its ability to reduce carbon emissions, its higher energy content (almost 30% more than ethanol), its ability to blend with both gasoline and diesel, its lower risk of separation and corrosion, its resistance to water absorption, allowing it to be transported in pipes and carriers used by gasoline, it offers a very exciting advantage for adoption as engines require almost no modifications to use it.

Innovation

The main Waste2Fuels innovations include:

- Development of novel pre-treatment methods for converting AFW to an appropriate feedstock for biobutanol production thus dramatically enlarging current available biomass for biofuels production;
- Genetically modified microorganisms for enhancing conversion efficiencies of the biobutanol fermentation process
- Coupled recovery and biofilm reactor systems for enhancing conversion efficiencies of Acetone-Butanol-Ethanol fermentation
- Valorisation of by-products, developing an integrated model to optimise the waste-to-biofuel conversion and facilitate the industrial scale-up
- Process fingerprint analysis by environmental and techno-economic assessment
- Biomass supply chain study and design of a waste management strategy for rural development

Valorising 50% of the unavoidable AFW as feedstock for biobutanol production could divert up to 45 million tonnes of food waste from EU landfills, preventing 18 million tonnes of greenhouse gases (GHG) and saving almost 0.5 billion liters of fossil fuels.

Project ID card

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