

URBIOFIN

NEWSLETTER NO. 6

THE PROJECT

Demonstration of an integrated innovative biorefinery for the transformation of municipal solid waste (MSW) into new bio-based products.

Each person in Europe generates an average of 500 kg of MSW per year. Around 50% of this waste is composed of organic matter, made up of carbohydrates, proteins and lipids, all of which represent useful raw materials to synthesize value added products. However, to date this potential has not been fully exploited. Therefore, the URBIOFIN project aims to demonstrate the techno-economic and environmental viability of converting the organic fraction of MSW into bio-based chemicals such as building blocks, biopolymers and additives.

OUR ACHIEVEMENTS SO FAR

During the last months, as in almost all sectors, the COVID-19 health crisis impacted the activities of the URBIOFIN project. Fortunately, the works especially in the 3 involved pilot plants could restart in May-June.

On 16th June 2020 the first URBIOFIN International workshop was organised as a virtual workshop. 65 participants attended the workshop showing a great interest in the project asking interesting questions. The 6th General Meeting was also held virtually on 27th July 2020 where the accomplishments of the last project months were presented and the ongoing and upcoming activities for the next 6 months period discussed.



First slide of the 1st URBIOFIN virtual workshop

The achievements per Work Package (WP2-WP8) are briefly described below:

WP2 - CONVERSION OF OFMSW TO BIOETHANOL AS BUILDING BLOCK FOR THE PRODUCTION OF BIO-ETHYLENE
CSIC's bio-ethylene module tendering process has been finally awarded. Currently the supplier and CSIC finalised the engineering design. The new module installation and

start-up is foreseen by start mid-October 2020 at IMECAL's facilities.

IRIS has made studies to determine relevant online variables measurement of IMECAL's process with scale up samples. The finalization of the modelling for the fermentation and distillation stages is in progress, so the installation of the sensors will be realized soon.

In the coming months, it is expected to continue the demo trials at IMECAL with the biowaste from URBASER's waste treatment plant.

In the meanwhile, NOVOZYMES, CIEMAT and IMECAL will continue working in the optimization trials with new enzymes combos.

WP3 - CONVERSION OF OFMSW TO VFAS (VOLATILE FATTY ACIDS) FOR THE PRODUCTION OF PHAS

At URBASER the local warm start-up of the dehydration system was performed in the beginning of July with digestate from the hydrolytic digester. 91.1% of total solid removal was achieved.

Regarding the scl- and mcl-PHA production, CLAMBER is keeping on testing the mixed-culture in the 3L fermenter. For the pure-culture, WUR sent an updated version of mcl-PHA fermentation protocol at the beginning of July and CLAMBER has requested optimized amounts of antibiotic.

Concerning the scl- and mcl-PHA extraction, various, more benign, solvents were compared for the efficiency of PHA extraction from bacterial biomass, both for scl-PHA produced by AINIA and mcl-PHA produced by WUR.

AINIA continues working on the cost-effectiveness of mixed-culture PHA production using synthetic VFA feeding. To this aim, the effect of OLR has been investigated under two operational conditions. Also, CLAMBER is still studying the processes using green solvents and valuing the necessary equipment.

WP4 - BIOGAS BIOCONVERSION TO BIOMETHANE AND ADDED VALUE PRODUCTS

UVA researchers were teleworking full time and in contact with the engineering company EMATEC for polishing the final details on the engineering process and the equipment selection for the construction of the pilot plants. With the equipment shipped by EMATEC, the final layout installation of the plants for biogas upgrading into biomethane and the PHA production from biogas were done. End June 2020 the construction started with the download of the bioreactors, storage tanks pump and compressors.

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6TH URBIOFIN NEWSLETTER ONLINE

Our sixth URBIOFIN newsletter is now ready for [download](#). Read and find out what we have achieved so far and where you can meet us in the near future! If you want to receive our newsletter automatically, please register [here](#).

URBIOFIN is an innovation project funded by the Bio Based Industries Joint Undertaking (BBI JU) under the EU Horizon 2020 programme and coordinated by "Industrias Mecánicas Alcudia S.A., (IMECAL S.A.)".

The aim of the URBIOFIN project is to demonstrate techno-economic and

environmental viability of an integrated and innovative biorefinery for the transformation of the organic fraction of municipal solid waste (MSW) into new marketable bioproducts, chemical building blocks, biopolymers and additives.

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Contacts



Caterina Coll

Press Contact

Project Coordinator

caterina@imecal.com