



### EU cofin Project Annual Report 2018

The EU projects that receive co-finance from the top sectors must submit an annual report on their technical and financial progress. This format is to be used for reporting the technical progress. The report must be submitted by 15 February 2019 to Hans van der Kolk

General information	
TKI Number of the project	AF-EU-18045
Title	Demonstration of an integrated innovative biorefinery for the transformation of Municipal Solid Waste (MSW) into new BioBased products (URBIOFIN, 745785)
project leader WR (e-mail address)	Frits de Wolf (frits.dewolf@wur.nl)
Address project website	<a href="https://www.urbiofin.eu/">https://www.urbiofin.eu/</a>
Start date	01-06-2017
End date	01-06-2021 (door de EU/BBI opgeschort van 10-08-2018 tot - naar verwachting -01-3-2019).

### Short description/aim project (this information can be published on a website of the TKI/Topsectors)

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 Alcudía 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.

Wageningen Food & Biobased Research (WFBR) is involved mainly in biosynthesis of medium chain-length fatty acids (mcl-FA) and polyhydroxyalkanoates (PHA), in FA and PHA extraction and processing of PHA into polymer blends, in the framework of Work Packages 1 (Biorefinery process design), 3 (PHA biosynthesis), and 5 (PHA-based material- and product development).

### Planning and progress Is the project going according to plan? Are there any substantive bottlenecks? If yes, please explain with a brief description of the current situation

In general, the project is going according to plan, with one main exception that was out of control of WFBR. Due to changes in the design of the pilot plant in Spain (responsibility of other partners), one or more essential deliverables of this BBI demonstration project became endangered, for which reason the EU/BBI temporarily suspended the project as per 10 august 2018 and required project amendments enabling the realization of those deliverables. Those amendments have been presented by the coordinator to the BBI in fall 2018, and are currently being submitted for final approval. It is tentatively anticipated that March 1 will be the date on which the project will be restarted.

During the suspension period no project costs were accepted as eligible by the EU, and consequently no project budget could be spent and no project activities could be carried out. Since the amount of work and remaining budget for WFBR, and also the end date of the project will all remain unchanged, the remaining work will have to be condensed to in shorter (remaining period). In view of the critical path of Work Package 3, a serious amount of work should be carried out in 2019 in this Work Package, starting as soon as the project restarts.

**Highlights and deliverables in 2018 / so far** (this information can be published on a website of the TKIs/Topsectors)

Between 01-01-2018 and 10-08-2018 Wageningen Food and Biobased Research (WFBR) contributed to Work Package 1 (Preliminary Urban Biorefinery Process design), and especially to Work Package 3 (biosynthesis of 'mcl-PHA' consisting of medium chain length fatty acids and optimization of PHA extraction from biomass).

Bioprocess data were provided by WFBR for use in Work Package 1.

In Work Package 3, several fermentations were run with the gram-negative bacterium *Pseudomonas putida*, so as to produce mcl-PHA. As a raw material and carbon source, fatty acid (FA) mixtures with a significant content of unsaturated FA were used, in advance of the use of FA derived from the *Cyrococcus curvatus*. This yeast can be grown on volatile FA (VFA) such as can be produced from the organic fraction of solid municipal waste (OFMSW).

A preliminary start was made with the screening of alternative PHA extraction methods, with a view to scaling up the extraction to demo scale or larger. Demo scale extraction will be needed for the URBIOFIN demo plant in Spain. This work is to be continued in 2019.

Some *P. putida* fermentations were carried out at 100-L scale, among else for the production of kilogram quantities of mcl-PHA. These will be needed for upcoming development, by WFBR, of PHA-based materials and products in the framework of Work Package 5.

In June 2018, WFBR hosted the second URBIOFIN general consortium meeting in Wageningen.

URBIOFIN was presented in WFBR booths, among else, at:

- The CLIB International Conference, 17-18 January 2018, Düsseldorf
- The 1<sup>st</sup> PHA platform World Congress, 4-5 September, Cologne, Germany.
- The 11<sup>th</sup> Annual EFIB (European Forum of Industrial Biotechnology), 17-18 October, Toulouse, France

<b>Number of delivered products in 2018</b> (in an appendix, please provide the titles and/or description of the products or a link to the products on public websites)			
Academic articles	Reports	Articles in journals	Introductions/workshops
n/a	1	n/a	n/a

**Appendix: Names of the products or a link to the products on a public website**

1 Deliverable 1.4 – Report on preliminary biorefinery model.

<https://www.urbiofin.eu/>

<https://www.wur.nl/nl/Onderzoek-Resultaten/Topsectoren/show/UrBioFin.htm>