

Press release
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EUROPEAN INCITE PROJECT UPDATE AFTER 1 YEAR OF WORK

SUSTAINABLE CHEMISTRY | RESEARCH & INNOVATION | INCITE PROJECT

INCITE Project: Despite COVID-19, the European partners are progressing with the design of their two chemo-enzymatic demo plants

The INCITE project was launched in September 2019. It aims to foster competitiveness for a sustainable European chemical industry by demonstrating chemo-enzymatic processes at an industrial scale. It will increase efficiency, product quality and safety compared to traditional chemical synthesis while reducing the global environmental footprint of processes and products. INCITE's 8 European partners now share the first outcomes of their first year of work on both the Oleochemical & Agrochemical tracks of the project.

ZOOM ON FIRST OUTCOMES

AGROCHEMICAL TRACK

A large series of lab-scale experiments performed by Fraunhofer IMM & ENDURA on key steps of the synthesis process allowed to choose the best options and proper materials for future pilot trials. As an example, the racemization involved in the production process has been extensively tested and led to change in the set-up that will be retained for the pilot experiments. Regarding the enzymatic step, BiCT made great advances improving performance and conditions of the esterase use.



OLEOCHEMICAL TRACK



INCITE's partner Oleon chose a commonly used cosmetic emollient as target oleochemical ester for the industrial demonstration. Pilot-scale experiments led to further improvement of process parameters and the first samples were generated for product quality testing. Compositions were very close to chemically synthesized products used as a reference. In parallel, fine-tuning experiments were performed at lab-scale. Furthermore, promising first results were obtained for 3 additional ester candidates, in terms of process performance.

DESIGN AND ENGINEERING OF THE DEMO PLANTS

In close collaboration, BIO-P, Oleon, Fraunhofer IMM & Endura made huge progress regarding the technical specification for the two industrial demonstration plants. The project refined its plans for integrating the new production batteries in the existing production facilities and some preliminary quotations for production subunits were obtained. Oleon will welcome the oleochemical track demonstrator in his production site sited in Oelegem, Belgium while Endura will install its Agrochemical demonstration plant in Ravenna, Italy.



ABOUT INCITE

The INCITE project aims to demonstrate novel integrated upstream and downstream processing paths involving flow chemistry and membrane technology in chemo-enzymatic processes. The modularity and flexibility of the developed processes will be showcased through two demonstration cases in real industrial settings and will be using hydrolases for the sustainable, safe and energy-efficient production of commodity and fine chiral chemicals.

The first demonstration case is the "Oleochemical Track" and relates to solvent-free synthesis of natural oleochemical esters using lipase enzymes finding applications in food/feed, personal care and crop protection. The second demonstration case – the "Agrochemical Track" - involves esterase-catalyzed production of a chiral molecule used as starting material with applications in crop protection and public health.

Compared to traditional chemical synthesis processes, these chemo-enzymatic processes have clear advantages of greater efficiency, higher product quality and smaller environmental footprint. Their development to TRL7 will pave the way to their industrialization and thus lead to major positive socioeconomic impacts.

The 8 European project partners

- 3 universities and research organizations: Flemish Institute for Technological Research (VITO, Belgium), Fraunhofer Institute for Microengineering and Microsystems IMM (Germany), Ghent University – Research Group STEN & Green-Chem network (Belgium)
- 2 SMEs: BICT S.R.L (Italy), Bio-P S.R.L (Italy)
- 2 large industries: Oleon N.V. (Belgium), Endura S.P.A (Italy)
- 1 competitiveness cluster: IAR, the French Bioeconomy Cluster (France)

Duration: 48 months (September 2019 - August 2023) | Total budget: € 17.4 M

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INCITE website: <https://www.project-incite.eu/>

European Commission website: <https://cordis.europa.eu/project/rcn/224852/factsheet/en>

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