

INCITE PROJECT KICK-OFF
October 17, 2019
Brussels, Belgium

BIOECONOMY | RESEARCH & INNOVATION | INCITE PROJECT

Launch of a new H2020 project aiming to incite a transition to a more flexible and sustainable chemistry by taking novel integrated upstream and downstream processing paths involving flow chemistry and membrane technology in two chemo-enzymatic processes to an industrial level.

- INCITE – INnovative Chemoenzymatic InTEgrated processes - fosters competitiveness of the European green chemistry industry
- Aims to increase efficiency, product quality, safety and to reduce environmental footprint via chemo-enzymatic processes, compared to traditional chemical synthesis
- Project funding by European Union with €13.3 million – total budget is €17.4 million.

The INCITE project brings together 8 European partners and was successfully launched in Brussels, on October 17, 2019. Over the next 4 years, it will investigate selected enzymatic conversions with flow chemistry and membrane technology in innovative hybrid process schemes and aims to build two novel demonstration plants in real industrial settings. The target products include commodities and fine chiral chemicals for crop protection, agro-chemicals, public health, feed/food or cosmetics.



CONTEXT AND OBJECTIVES

According to the European Environmental Agency (EEA), the EU chemical industry, including pharmaceuticals, emitted a total of 128.2 million tons of CO₂ equivalent in 2015, thus having a considerable impact on the environment. Due to the increasing concern on climate change and environmental issues, the focus of manufacturing industries has been gradually shifting towards the development of alternative greener, safer and sustainable processes.

In that context, chemo-enzymatic conversion presents immense opportunities for developing sustainable processes. Enzymatic processes are particularly interesting to produce chiral molecules because of their high regio- and enantio-selectivity, which greatly simplifies downstream processing compared to traditional chemical synthesis. Additionally, their compatibility with ambient pressures and temperatures conditions is on the plus side for reducing the environmental footprint of the produced molecules.

In that context, INCITE aims to prove at an industrial scale that chemo-enzymatic processes have clear environmental gains, are cost-effective and can contribute to increase safety in the work environment. The project will base its demonstration on two chemo-enzymatic processes using hydrolases, one being the esterase-catalyzed of an important precursor in the production of insecticides, and the other being the solvent-free synthesis of oleochemical esters using lipase enzymes.

“Once demonstrated, these processes will have a significant potential for increasing product quality while reducing both costs and environmental footprint, with a more targeted production at lower temperatures and fewer and less hazardous effluents than in currently utilized conventional chemical synthesis processes” concluded Dr. Yann RAOUL, the project coordinator from Oleon N.V.

SUSTAINABILITY

In the course of the project, processes will be demonstrated in real industrial settings and both cases should have clear advantages of greater efficiency, higher product quality, higher safety and a smaller environmental footprint. The project estimates reaching a minimum of 20% decrease in greenhouse gas emissions and a minimum of 40% resource and energy efficiency gains compared to traditional chemical synthesis and will demonstrate this assumption using state of the art Life Cycle Assessment methods.

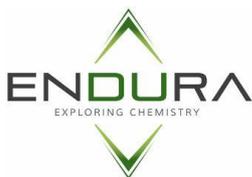
IMPACT

In a broader perspective, EU Project Officer Carmine Marzano stated that “INCITE can significantly maximize its impact by widely disseminating its results and ensure possible applicability of its findings outside of the two demonstration cases used as examples”.

A MULTI-STAKEHOLDER PROJECT

INCITE brings together 8 European partners, coordinated by OLEON N.V. (Belgium)

- 3 universities and research organizations: Flemish Institute for Technological Research (VITO, Belgium), Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V. - Fraunhofer Institute for Microengineering and Microsystems, IMM (Germany), Ghent University – Environmental Organic Chemistry and Technology Department & Green Chemistry and Technology Department (EnVoc & GreenChem, 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

INCITE has received € 13.3 M funding from the European Union's Horizon 2020 Research and Innovation Programme on the Topic CE-SPIRE-04-2019 - Efficient integrated downstream processes (Grant Agreement number 870023).

For more information, please refer to the European Commission website:

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

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