PROJECT FACTSHEET

www.list.lu/index.php?id=29&no_cache=1&L=2&tx_listprojects_listprojectdisplay%5BlistProjects%5D=680&cHash=e081c76d234a5664124b583b89422ed1

InnCoCells

Towards innovative plant-based production processes for the commercial exploitation of scientifically validated cosmetic ingredients.

Inspiration

Plants are increasingly used by cosmetic industries looking for natural, innovative, competitive and sustainable alternatives. The attractiveness of these natural resources might nevertheless cause their over-exploitation. As such, biotechnology has thus become a key approach to valorise plants as renewable resources, while preventing environmental degradation.

However, major bottlenecks, including reduced biomass availability and low recovery yield are currently holding back the industrial exploitation of plants for e.g. the production of cosmetic ingredients. Innovative strategies for the development of sustainable plant-based production processes are therefore needed to improve the production rates and meet the market demand at economically feasible cost.

Innovation

The main objective of InnCoCells is to improve the production of valuable specialised compounds by plants and plant cell cultures. To do so and together with their European partners, LIST has the ambition to optimise innovative and sustainable plant-based production processes for the commercial exploitation of scientifically validated cosmetic ingredients sourced from underutilised plant resources. These resources will be valorised for profitable and sustainable production using plant cells and hairy root cultures, as well as plants in greenhouses and fields.

In charge of the bioprocess development and upscaling phase of this project, LIST researchers will develop an upstream production system meeting industrial requirements in terms of product quality and unit economics by transferring laboratory-scale bioprocesses optimised for biomass and metabolite yield to a pilot-scale process. They will also actively contribute to bioprospecting and strain engineering, upstream optimisation of plant cell cultures at the laboratory scale, chemical analysis of innovative ingredients, dissemination and communication.

Impact

InnCoCells will boost investment, employment and economic growth in Europe by developing innovative biotechnology-based plant products and processes, promoting direct investment by the cosmetics industry and increasing opportunities for employment in the manufacturing and supply chain. This innovative European project will achieve these broad aims by directly supporting the sustainable biodiscovery and use of natural biological resources from diverse environments and ecosystems.

On a short to medium-term perspective, it will contribute to the development of novel natural products with significant bioactive properties, by sustainably exploiting promising species/organisms and chosen production routes. On a longer-term perspective, InnCoCells will reduce the pressure on the harvesting of wild plant populations, preserve arable lands and ensure the environmental and economic sustainability of the entire process (European Sustainable Development Goals SDG12, SDG15).

Finally, InnCoCells will not only foster the public-private cooperation in European biotechnology by bringing together academics, industrial stakeholders and non-profit organisations but also increase the public knowledge of the plants' biodiversity potential by comprising policymakers and consumers.

Partners

VTT (FI) , VIB VZW (BE) , EVILVO (BE) , ENEA (IT) , TUDA (DE) , EPSO (BE) , MERCK (DE) , AE (BE) , ABS (IT) , PAT (FR) , ALT (LV) , EVO (AT) , ECOM (BG) , SCAND (NO) , TRM (UK) , CosVal (FR)

Financial Support

Horizon2020

Contact

5, avenue des Hauts-Fourneaux
L-4362 Esch-sur-Alzette
phone: +352 275 888 - 1 | LIST.lu

Jean-François HAUSMAN (jean-francois.hausman@list.lu)
Gea GUERRIERO (gea.guerriero@list.lu)

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST