

Presentations

13:30-13:50

Presenter Manuel Salvador, Technical Coordinator at IDENER R&D

Title: *SECRETed - Sustainable Exploitation of bio-based Compounds Revealed and Engineered from naTural sources*

13:50-14:10

Presenter Alain Goossens, Vlaams Instituut voor Biotechnologie VZW

Title: *InnCoCells- Innovative high-value cosmetic products from plants and plant cells*

14:10-14:30

Presenter Fernando Reyes, Fundacion MEDINA

Title: *MARBLES - Marine Biodiversity as Sustainable Resource of Disease-Suppressive Microbes and Bioprotectants for Aquaculture and Crop Diseases*

14:30-14:50

Presenter Manuel Salvador, Technical Coordinator at IDENER R&D

Title: *Unlocking the potential of marine biotechnology: Biosurfactants and siderophores Integrative Management Platform*

14:50-15:10

Presenter Kieran Walshe, Founder and CEO of Accuplex Diagnostics

Title: *Innovative end-user applications based on siderophores*

15:10-15:30

Presenter Amir Akhgari, Senior Scientist, VTT

Title: *Sustainable skin care ingredients from plant cells with scientifically proven efficacy*

A.I.M.S. Cluster

Session IV is devoted to the research activities of A.I.M.S. Cluster which consists of the EU projects MARBLES, InnCoCells, SECRETed and Algae4IBD funded under H2020: *Prospecting aquatics and terrestrial natural biological resources for biologically active compounds*. The A.I.M.S. Cluster aims to bridge the gaps among the 3 projects and add value to their research activities by identifying and addressing common methodological challenges.

SECRETed

SECRETed is an EU-H2020 project aimed at leveraging aquatic biotechnology to create innovative industrial products for sectors like agrochemicals, pharmaceuticals, cosmetics, and chemistry. The project focuses on developing hybrid molecules with customized properties by combining biosynthetic genes from marine and extremophilic microorganisms. Utilizing machine learning algorithms, SECRETed will uncover genetic mechanisms responsible for biosynthesis and expand chemical diversity. It will construct a unique database comprising molecular structures, physicochemical characteristics, bioactivities, and genetic mechanisms. Reverse engineering biosynthetic gene clusters will standardize and modularize genetic elements to enhance industrial exploitation. Industry-driven formulations will be developed based on engineered combinations of genetic elements expressed in microbial hosts, with new strains designed, built, and tested iteratively for sustainable industrial processes.

Link to the Project: <https://www.secreted.eu/>

InnCoCells

The InnCoCells project aims to create sustainable production processes for cosmetic ingredients using underutilized plant resources. Techniques like cell cultures, aeroponics, and greenhouse cultivation will be optimized with metabolic engineering tools to increase yields of bioactive compounds. Pilot-scale production and extraction will demonstrate the viability of these processes for at least ten ingredients. A cascade biorefinery approach will maximize resource utilization. Techno-economic assessments and life cycle analyses will ensure economic feasibility and environmental sustainability. Safety and efficacy of ingredients will be validated through innovative assays without animal testing. Stakeholder engagement, including industry, academia, farmers, policymakers, and consumers, will guide research. Communication strategies will be tailored for different stakeholders, and regulatory compliance will be ensured. The project aims to strengthen the European bioeconomy by fostering innovation in biobased goods and markets.

Link to the Project: <https://www.innocells.org/>

MARBLES

The MARBLES project aims to harness marine microbial biodiversity for sustainable bioprospecting, targeting applications in aquaculture, agriculture, and healthcare. By focusing on unique host-microbe interactions in marine environments, including marine sponges, microalgae, and fish, the project seeks to discover novel bioactive molecules and microbial consortia. Employing a systems-wide genomics approach, MARBLES aims to uncover disease-suppressive microbiomes and explore chemicals that induce bioactive compound production. The project aims to deliver microbes, consortia, bioactive natural products, and derivatives for combating infectious diseases in various industries. MARBLES emphasizes cost-effectiveness and environmental and health benefits, offering alternatives to existing practices. Collaboration with SMEs and large companies in aquaculture, crop protection, and health sectors is integral. The project aligns with international protocols and UN sustainable development goals, contributing to SDG 2, 3, 12, 13, and 14, as well as ongoing UN processes.

Link to the Project: <https://marblesproject.eu/>