



A digital bio-platform and microbial bioprocess to prospect and utilize macroalgae responsibly and sustainably: iCULTURE will make it possible!

Rome 27/11/2023 - The [iCULTURE project](#) is warming up its engines and it's ready to get to the core of its research activities after the kick-off meeting, held in Porto on the 18th and 19th of September 2023. Funded by the European Commission as a Research and Innovation Action under Horizon Europe and coordinated by the [Norwegian University of Science and Technology](#), this four-year project aims at prospecting new seaweed resources and generating a catalyst that can convert seaweed residuals into high value bioactives.

“Currently, over 100 Megatons of seaweed constitute Europe’s largest biomass, but less than 0.25% is utilized. After extraction of important chemical compounds from the seaweed, the chemical companies are left with 50-70% remains or residual side-streams, that are largely unexploited. These residuals are discarded, or at best, sold as low-cost, low nitrogen fertilizers” explains Nadav Bar, professor and researcher at the [Norwegian University of Science and Technology](#) and iCULTURE project coordinator. He adds: *“iCULTURE aims to contribute to answer the needs of the marine, feed, food, and pharma sectors by establishing a novel zero-waste value chain. The protection of ocean’s biodiversity life, and the utilisation of bioresources will be a combined goal of the project in an innovative way”*.

Georg Kopplin, Research & Development manager at Alginor emphasises: “Wild macroalgae displays one of Europe’s largest renewable and vastly regrowing resources. By producing high value substances from biorefinery side-streams, fermentation allows us to widely expand the product portfolio, adding flexibility to the business case, and strongly increases the value of seaweed as a raw material.”

The main concept of iCULTURE is to create a new value chain with the help of three toolboxes. Janique Koehler, iCULTURE scientific coordinator, briefly describes them: *“The Artificial Intelligence toolbox with machine learning algorithms will highlight robust species suitable for utilisation. The Models Toolbox will predict the most resilient seaweed and will allow a management strategy to use seaweed in a responsible and sustainable manner. The Technology Toolbox, with all the components for a digitally-controlled bacterial bioprocess utilising seaweed residuals will produce valuable products”*.

All these toolboxes will be developed thanks to the knowhow of a highly diverse, cross-disciplinary consortium, consisting of 17 partners from 10 countries. European expertise on ICT, bioinformatics, biodiversity, biotechnology, synthetic biology and bioprocessing, is combined to strive to achieve the project’s ambitious goals: develop a set of digital toolboxes that can prospect for new species of seaweed, utilize these in microbial fermentation, and understand how to use them responsibly and sustainably.

At the kick off meeting of the iCULTURE project, the project officer Salvatore Martire shared some expectations from the European Commission and the European Research Executive Agency, providing key messages for the project’s implementation which will pave the way for future activities to reach iCULTURE ambitious goals.

More information about the project, its objectives and collaboration opportunities are available on the [website](#) and the dedicated social media platforms ([Twitter](#), [LinkedIn](#), [Instagram](#)).