

BIOECONOMY WORKING GROUP PROJECT FACILITATION WORKSHOP – CBE JU CALL FOR PROJECT PROPOSALS

DISCUSSION TABLE 1

Call number: HORIZON-JU-CBE-2022-IA-04: Co-processing of mixed bio-based waste streams

Table facilitator: University of Ljubljana, Faculty of Health Sciences

Project idea:

Nature-based solutions can be applied for soil health, carbon mitigation, downstream water quality protection, biodiversity benefits as well as assisting agricultural production and supply chains to achieve net-zero environmental emissions while achieving food and water security and meet climate goals. Algal technologies as one of several nature-based solutions are experiencing interesting advancements in the field of wastewater treatment and recovery efficiency of resources for agricultural use. The core principle of the proposed project is the research of a closed-streams concept based on algal technology, in lab scale photobioreactors and a pilot scale high-rate algal pond (HRAP), to produce green products of two components (1-water, 2-biomass).

In the project, HRAP would be optimized to increase biomass production and efficient harvesting during the wastewater treatment process. Next, different green products from algal biomass would be developed and tested including direct fertigation, slow-release fertilizers, and bio soil amendments. Additionally, treated water would be used for irrigation. This approach would allow the acquisition of new scientific knowledge of green products produced by algal technology, based on lab-, pilot scale experiments, and tested by lysimeter field and pot experiments for safe reuse in agriculture. New understanding, base od monitoring of soil and plants, would be gained on how potentially hazard compounds (heavy metal, pathogens, microplastics, contaminants of emerging concern and multi-drug resistant bacteria) and nutrients from municipal wastewater can cycle and how environmental and health risk can be managed by water and nutrient reuse regarding EU regulations. Green products such as water for irrigation, organic fertilisers, green mulch, and biostimulants would be evaluated, based on existing legislation and compared to products of conventional wastewater treatment technologies.

Project owner: University of Ljubljana, Faculty of Health Sciences

Partners sought: RTOs, R&D oriented SMEs, farmer associations and similar, as well as a coordinator for the project. Partners that could work on analysing market opportunities and assessing health risks.