

EIP-AGRI practice abstract

Short title:

Technology for N&P recovery as microalgae based biofertilisers starting from wastewater with heterotrophic microalgae

Summary:

ALGAECAN project proposes a sustainable treatment model of salty effluents that combines cost-effective heterotrophic algae cultivation with spray drying of the collected microalgae to obtain a product of commercial interest as raw material for biofertilisers production or animal feed.

The coupling of wastewater treatment and microalgae production was proposed as alternative for reducing the production cost, now as an alternative to the utilisation of conventional wastewater treatment systems because the utilisation of microalgae allows recovering nutrients carried by the wastewater, while minimising emissions of greenhouse gases and saving energy.

In ALGAECAN project closed-loop technology in which no waste is created. Valorisation of the by-product as a biofertiliser as a substitute for chemical fertilisers. The actual technology requires long hydraulic residence times and extensive surfaces. The obtained effluent would be suitable for industrial use, cleaning or irrigation, which implies decrease in the consumption of water.

The treatment system prototype is composed of three main steps: 1) a two-phase microalgae growing system, which consumes the organic matter and nutrients contained in the effluent; 2) a separation step to recover the clean water (that will comply with reuse standards), and; 3) a drying step to recover the dry microalgae (used as biofertiliser or animal feed).

This system is placed in two containers with solar panels that provide energy to the whole system. In case that there is not enough solar radiation, this technology will be supported by energy from biomass.

For more information: https://nutriman.net/farmer-platform/technology/id_253