

Algae eating carbon dioxide using novel photobioreactors

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Unternehmen: ecoduna produktions- GmbH

Ort: Bruck/Leitha, Lower Austria

Description:

Algae have the potential to play an important role as a renewable raw material for different applications in the future. These include, among others, biofuel production, water treatment or carbon capture and storage. The technology company ecoduna produktions-GmbH has developed an innovative "hanging garden system" for the cultivation of phototrophic microorganisms (such as algae).

This "hanging garden system" is an innovative reactor system for the efficient production of microalgae consisting of several vertically suspended tubes (see picture gallery). In the specially formed photobioreactor (PBR), algae can make use of a larger proportion of the light supply with less space consumption compared to a pond system. In order to effectively cultivate algae cultivation on an industrial scale, a sufficient quantity of CO₂ is necessary, as is a maximum utilization of solar radiation. The PBR allows optimal light absorption, as the surface exposed to the sun is maximized in comparison to other systems. By this measure a high-quality, productive algae breed becomes possible.

Furthermore, the system CO₂ is fed for optimal photosynthesis activity. The fine CO₂ blisters generated in this process make it possible to distribute nutrients throughout the reactor and, on the other hand, prevent the deposition of algae on the reactor surface. The nutrient medium can thus reach up to six meters of height within the vertically suspended reactor tubes without an additional pumping system. This allows about 10 cm² of the reactor's surface area to provide 3.2 m² of the surface area. The reactor system is closed and therefore prevents evaporation and contamination by other organisms.

Algae production on an industrial scale means that it is not only possible to produce a regenerative raw material, but also to reduce CO₂ from industrial processes. Furthermore, the algae can absorb the nitrogen and phosphorous components dissolved in the waste water and convert them into valuable biomass.

Further information: [LINK](#)

Source:

