Success Story

COMET

BE2020

BIOENERGY 2020+ GmbH

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Microalgae can replace maize in biogas plants

This research project investigates in detail the potential of using microalgae as a feedstock in biogas plants. Another aim is to find synergies of biogas plants and microalgae cultivation. In addition, the generation of valuable products form microalgae is investigated.

Advantage

Microalgae are phototrophic microorganisms. They can utilise sun light, carbon dioxide and inorganic nutrients for biomass growth - similar to plants. Their advantage is that their growth rate can be much higher than in plants and also non-agricultural areas can be used for their cultivation. Different algal strains will be cultivated and screened in the course of the research project. The aim is to find strains which show a high biomass growth rate. Such microalgae could at least partially replace common feedstocks (e.g. maize) in the future.

Biogas plants show the potential of synergistic effects with the cultivation of microalgae. Microalgae can utilize the carbon dioxide from

bmwfw Federal Ministry of Science, Research and Economy

bmvit Austrian Ministry for Transport, Innovation and Technology

the flue gas of the biogas plant. In addition, waste heat from the biogas plant can be used for the heating of the algae cultivation system. Last, but not least, also the nutrients from the digestate of the biogas plant can be used for microalgae growth.

Further studies

Alternatively it is also investigated, which valuable products can be gained from microalgae, such are: proteins, lipids, pigments. The microalgae residue (after extraction of the valuable product) can be transformed into energy in the biogas plant. In general, the utilisation of microalgae show a great potential, nevertheless still a lot of research is needed to design commercially viable processes.

Fig. 1: Microalgae culture

Impact and effects

Microalgae can replace other feedstocks in biogas plants.

Take advantage of synergies of microalgae cultivation and biogas plants.

Contact and information

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Further information on COMET – Competence Centers for Excellent Technologies: www.ffg.at/comet
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