

ABSTRACT

Sustainable energy sources, which are pollution free and environmentally friendly, are one of the key challenges of world's future society. Living algae are literally renewable power source, which may become one of future's electricity supplies.

The energy source perfectly integrates in natural environments and is accessible all over the world. Biomass is used for facility heating, electric power generation, and combined heat and power.

Biomass can be converted into electric power through several methods. That includes thermal, ultrasonic, gasification, pyrolysis, and anaerobic digestion. Anaerobic digestion produces a renewable natural gas when organic matter is decomposed by bacteria in the absence of oxygen.

Algal biofuels are seen as one of the most promising solutions of global energy crisis and climate change for the years to come. Bio methane is a flexible and easily storable fuel that can be used wherever natural gas is used without the need to change any settings on equipment designed to use natural gas.

In regions where a natural gas grid already exists, there is a ready-made system for the distribution of bio methane. Major advantages of algae are potentially high yield and no competition with food crops for arable land and fresh water resource.

The most effective methods of producing biofuels from algal feedstock is fermentation of macro algae to bioethanol.

The role of different operational and environmental parameters for instance pH, temperature, nutrients on sustainable methane generation are also mentioned along with pre- treatment and treatment processes.