

Macroalgae as a Gaseous Fuel Option: Potential and Advanced Conversion Technologies

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Abstract : The aim of this work is to provide an overview of macroalgae as an alternative feedstock for gaseous fuel production and key innovative technologies. Climate change and continuously depleting resources are the key driving forces to think for alternative sources of energy. Macroalgae can be favored over land based energy crops because they are not in direct competition with food crops. However, some drawbacks, such as high moisture content, seasonal variation in chemical composition and process inhibition limit the economic practicability. Macroalgae, like brown seaweed can be converted into gaseous and liquid fuel by different conversion technologies. Biomethane via anaerobic digestion is the appealing technology due to its dual advantage of a commercially applicable and environment friendly technology. Other technologies like biodiesel and bioethanol conversion technologies from seaweed are still under progress. Screening of high yielding macroalgae species, peak harvesting season and process optimization make the technology economically feasible for alternative source of feedstock for biofuel production in future.

Keywords : anaerobic digestion, biofuels, bio-methane, advanced conversion technologies, macroalgae

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