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Algae have recently received a lot of attention as a new biomass source for the production of renewable energy. Some of the main characteristics which distinguish algae from other biomass sources are: algae have a high biomass yield per unit of light and area; have a high oil or starch content; do not require agricultural land nor fresh water for growth; and wastewater and CO<sub>2</sub> (by combustion gas) can be used as nutrients. The different technological components and

the most common systems for culturing algae for energy purposes are discussed in this paper together with sustainability aspects. Several existing sets of sustainability criteria for biofuels are analysed for applicability, followed by an analysis of opportunities and risks of algae-based biofuel production. Furthermore, suitability and environmental, economic and social sustainability of this option for biofuel production is discussed in the context of potential and threats for developing countries.



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