Algal Biodiesel: The Next Generation Green Energy Resources towards Sustainability

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ABSTRACT

Energy is the greatest requirement for maintenance of entire ecosystem. Renewable resources of global energy consumption are one of the major concern phenomena in new era. Fossil fuels have been used as the most useful supplier of energy generation purposes from many years. But now a days it cannot meet the energy demands due to its depletion and insufficient resources. Also, it raises the huge amount of environmental pollution and global warming issues. To overcome these, currently a diverse range of algal species has been revealed for green energy production. The worldwide bioenergy evolution rate is being increased a lot due to its various salient features e.g., higher amount of biomass generation, faster growth rate, higherCO_2 consumption, ability to survive in different environmental stress conditions, cost effectiveness etc. The development of amazing technological innovations in the field of algal genetic engineering for advanced bio energy production has led to an extensive reputation across the world. Various approaches has been adopted for large scale of algal cultivation towards ennoble the algal biofuel generation. However, there are certain barriers for commercial energy production from algal feedstock. The current literature survey deals with recent development of technological processes and information about algal cultivation for biofuel generation with special emphasis on biodiesel. Present survey also discusses about the genetic and metabolic engineering aspects towards elevated the bioenergy production with special emphasis on biodiesel from different algal regimes which are extremely propitious for community in near future. Moreover, few preliminary experimental results will be presented to show the potential of few algal isolates in this current research work.

Keywords: Algae, green energy, biofuel, bioenergy, algal biodiesel, genetic engineering, sustainability

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