Biodiesel production from microalgae: Processes, technologies and recent advancements

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Abstract

This literature review discusses several aspects of biodiesel production from microalgae. This paper elucidates the optimal bioenvironmental conditions for microalgae cultivation, process design of algal biodiesel production, physicochemical properties of lipids extracted from microalgae and the properties of the produced biodiesel fuel, and the transesterification process. On the other hand, this paper illustrates the designs of up-to-date full-scale and lab-scale photobioreactors (PBRs). Furthermore, this paper argues different bioengineering aspects of biodiesel production from microalgae. Eventually, the measurements, calculations, design parameters, Life Cycle Analysis (LCA) of the production process are discussed.

Keywords: Biodiesel, algae, photobioreactors, lipids, transesterification.

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