

## Biofuels and Bioenergy

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### ABSTRACT

Biodiesel, Biobutanol, and Biogasoline are examples of biofuels. Biodiesel is biodegradable, less CO<sub>2</sub> and NO<sub>x</sub> emissions. Continuous use of petroleum sourced fuels is now widely recognized as unsustainable because of depleting supplies and the contribution of these fuels to the accumulation of carbon dioxide in the environment. Renewable, carbon neutral, transport fuels are necessary for environmental and economic sustainability. Algae have emerged as one of the most promising sources for biodiesel production. It can be inferred that algae grown in CO<sub>2</sub>-enriched air can be converted to oily substances. Such an approach can contribute to solve major problems of air pollution resulting from CO<sub>2</sub> evolution and future crisis due to a shortage of energy sources. This study was undertaken to know the proper transesterification, amount of biodiesel production (ester) and physical properties of biodiesel. In this study we used common species *Oedogonium* and *Spirogyra* to compare the amount of biodiesel production. Algal oil and biodiesel (ester) production was higher in *Oedogonium* than *Spirogyra* sp. However, biomass (after oil extraction) was higher in *Spirogyra* than *Oedogonium* sp. Sediments (glycerine, water and pigments) was higher in *Spirogyra* than *Oedogonium* sp. There was no difference of pH between *Spirogyra* and *Oedogonium* sp. These results indicate that biodiesel can be produced from both species and *Oedogonium* is better source than *Spirogyra* sp. Bioenergy is major stake holder in meeting global future energy needs. This contribution can be extended significantly in the near future, by reducing the greenhouse gas emission and saving environment, as well as improving trade balances.

**Keywords:** Biodiesel, Biobutanol, Biogasoline, Biomass, Transesterification, *Oedogonium*, *Spirogyra*

