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TECHNICAL ASPECTS OF BIODIESEL PRODUCTION FROM VEGETABLE OILS

ABSTRACT

Biodiesel, a promising substitute as an alternative fuel has gained significant attention due to the finite nature of fossil energy sources and does not produce sulfur oxides and minimize the soot particulate in comparison with the existing one from petroleum diesel. The utilization of liquid fuels such as biodiesel produced from vegetable oil by transesterification process represents one of the most promising options for the use of conventional fossil fuels. In the first step of this experimental research, edible rice bran oil used as test material and converted into methyl ester and non-edible jatropha vegetable oil is converted into jatropha oil methyl ester, which are known as biodiesel and they are prepared in the presence of homogeneous acid catalyst and optimized their operating parameters like reaction temperature, quantity of alcohol and the catalyst requirement, stirring rate and time of esterification. In the second step, the physical properties such as density, flash point, kinematic viscosity, cloud point, and pour point were found out for the above vegetable oils and their methyl esters. The same characteristics study was also carried out for the diesel fuel for obtaining the baseline data for analysis. The values obtained from the rice bran oil methyl ester and jatropha oil methyl ester are closely matched with the values of conventional diesel and it can be used in the existing diesel engine without any hardware modification. In the third step the storage characteristics of biodiesel are also studied.

KEYWORDS

[rice bran oil methyl ester](#), [jatropha methyl ester](#), [esterification](#), [optimization](#), [properties](#), [storage](#)

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