

Preparation of Biodiesel from Some Crude Oils

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Abstract

This research is mainly concerned with the processes of biodiesel production, characterization and quality assessment by using jatropha, cotton seed, corn and palm oils as raw materials. Transesterification of jatropha oil was carried out by using sodium methoxide via two stage processes (acid-catalysed esterification followed by based-catalysed transesterification) to produce 80% volume of biodiesel. The other oils (cotton seed oil, corn oil and palm oil) were produced by the based-catalysed transesterification method. This process gave 90%, 85%, and 80% volume of biodiesel (methyl ester) fuel for cotton seed oil, corn oil and palm oil, respectively. The fuel-related properties of prepared biodiesel such as kinematic viscosity, acid value and flash point of the resultant biodiesel (methyl esters) were determined by ASTM method. It was found that the properties of resultant biodiesel were nearly the same as that of petro-diesel. The engine performance test on prepared biodiesel (jatropha and cotton seed oil) reveals that the prepared biodiesel can be substituted in some parts of petroleum diesel.

Key words: transesterification, biodiesel, jatropha oil, cotton seed oil, corn oil, palm oil, ASTM method

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