

PERFORMANCE OF INTERNAL COMBUSTION ENGINE USING GREEN FUEL (JATROPHA OIL)

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Abstract

The increasing industrialization and development in the field of transport sector of the world have led to a steep rise for the demand of petroleum products. Petroleum fuels are obtained from limited reserves of foreign countries. Presently our country is facing the problem of foreign exchange due to the import of crude oil. Hence, it is necessary to look for alternative fuel, which can be produced from available raw material within the country. In the present investigation, the bio-diesel produced from the jatropha seeds have been considered as a potential alternative for running the compression ignition engines. The different blends of bio-diesel and conventional diesel have been tested on the engine. The experimental data obtained for various concentrations of bio-diesel blends have been compared with base line data of conventional diesel. Significant improvement in engine performance has been observed due to the use of bio-diesel. Acceptable thermal efficiencies of the engine have been obtained with different blends of bio-diesel and diesel. It has been observed that 20% of jatropha oil can be substituted for diesel without any engine modification and preheating of the blends. The level of hydrocarbon emission and noise level have been found to be reduced with the use of more bio-diesel content.

Keywords: Jatropha curcas, oil, Bio-diesel, Viscosity, Diesel, Compression Ignition Engine.