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EXPERIMENTAL INVESTIGATIONS ON THE PERFORMANCE AND EXHAUST EMISSIONS OF A DIESEL ENGINE USING JATROPHA OIL AS A FUEL

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ABSTRACT

Efforts are under way in many countries, including India, to search for suitable alternative fuels for diesel that are environment friendly. The need to search for an alternate fuel arises mainly from the standpoint of preserving the global environment and the concern about long term supplies of conventional hydrocarbon- based diesel fuels. Bio-diesel is a domestically produced, renewable fuel that can be used in unmodified diesel engines with the current fuelling infrastructure. It is safe, biodegradable and reduces serious air pollutants such as soot, particulates, carbon monoxide, hydrocarbons, and air toxics. Performance, storage requirements and maintenance are similar to bio-diesel blend fuels and petroleum diesel. In India, Jatropha is found to have favourable agricultural conditions for growth. Its advent is going to prove very beneficial for the Indian as well as the world market even as fossil fuel's demand goes on increasing i.e., indirectly proportional to its availability. In this work, Bio-diesel I have produced from Jatropha oil by a chemical process called Transesterification process. Bio-diesel is blended with the Diesel fuel in various ratios and also used as a sole fuel in a single cylinder diesel engine. The performance and emission characteristics are studied. In this project work the suitability of bio-diesel as a better alternative fuel for diesel engine is investigated and established.

KEYWORDS: Experimental Investigations, Bio-diesel, Jatropha Oil