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EXPERIMENTAL INVESTIGATION ON FOUR STROKE DIESEL ENGINE BY USING BIO-DEDESIEL BLENDS

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Abstract

During the last decade the use of alternative fuels for Diesel Engines has gained importance. The interdependence and uncertainty of petroleum based fuel availability have created a need for investigating the possible use of alternate fuel. In recent years, the emphasis to reduce emission from petroleum fueled Engines have motivated Researchers towards the development of several alternate fuel. Vegetable oil and animal fats in their raw form have high viscosity and this makes them unsuitable as fuel in Diesel Engines. Transestrification is one of the well known process for which fats and oils are converted into bio-diesel. Reaction often makes use of an acid or a base catalyst.

An attempt is made on Kirloskar Make Four-Stroke Single Cylinder water Cooled Direct Injection Diesel Engine with Electrical loading. The experiment was carried-out to investigate the performance characteristics using Palmester oil for different Blends such as Brake Power, Mechanical Efficiency, Volumetric Efficiency, Specific Fuel Consumption and Exhaust Gas Temperature. The values are compared with Diesel fuel for different Blends (B20, B40, B60 ,B80 and B100). The experimental results shows that the specific fuel consumption is lower than that of DESIEL. The Blend Sshows Mechanical efficiency higher than that DESIEL. As the Diesel content in blend increases the volumetric efficiency is also increases. The Load increases for all the Blends the Exhaust Gas Temperature has increases with that of Diesel. Finally, the investigation proved that the performance of Palmester oil can be considered as the better than Diesel fuel.