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Experimental Investigation on Performance and Emission Characteristics of a DI Diesel Engine Fuelled With Rice Bran Oil Methyl Ester And Methanol as an additive

K Prasada Rao, K Santarao*, P Govinda Rao

Department of Mechanical Engineering, GMR Institute of Technology, Rajam, India

Abstract: The rapid depletion of petroleum fuels and their ever increasing costs and concern for vehicular emissions have led to an intensive search for alternative fuels. Bio-diesel is an attractive alternative fuel which is renewable, non-toxic, reduces carbon monoxide and hydrocarbon emission due to higher content of oxygen. At present, biodiesel is commercially produced from the refined edible vegetable oils such as rice bran oil (RBO), sunflower oil, palm oil and oil, etc. by trans-esterification process. The various parameters that have been considered for the research in this direction with edible oil has yielded encouraging results with rice bran oil which is edible and has been considered as an alternative fuel. Along with this, biodiesel has high cetane number which is a measure of fuel's ignition quality. It replaces the exhaust odor of petroleum diesel with more pleasant smell of popcorn or French fries. RBO is the best biodiesel to use in the internal combustion engine and gives the better result when compared with the others. The lower blends of biodiesel increase the brake thermal efficiency and reduce the fuel consumption. The exhaust gas emissions are reduced with increase in biodiesel concentration. The experimental results proved that rice bran oil can be substituted for diesel without any engine modification as a fuel.

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