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THE EFFECT OF THERMAL BARRIER COATING ON EXHAUST EMISSIONS AND COMBUSTION CHARACTERISTICS OF DIESEL ENGINE WITH RICE BRAWN OIL BASED BIODIESEL

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ABSTRACT

Vegetable oils are promising substitutes for diesel fuel in the scenario of depletion of fossil fuels. Exhaust emissions and combustion characteristics at full load operation were determined with engine with ceramic coated low heat rejection (LHR) combustion chamber, with its significance characteristics of higher operating temperature, maximum heat release and ability to handle the lower calorific value fuel etc., with different operating conditions of rice brawn oil based biodiesel (ERBO) with varied injection timing and injector opening pressure and compared with conventional engine. Biodiesel increased nitrogen oxides and decreased particulate emissions with LHR combustion chamber when compared with conventional engine at similar operating conditions.

KEYWORDS: Alternate Fuels for Diesel, Biodiesel, Low Heat Rejection, Exhaust Emissions and Combustion Characteristics