

THE RESULT OF HOT EXHAUST GAS RECIRCULATION (EGR) ON THE PERFORMANCE AND EMISSION CHARACTERISTICS OF DIESEL ENGINE WITH PALM OIL METHYL ESTER

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ABSTRACT

Transesterified fuels (biodiesel) from vegetable oils are alternative fuels for diesel engines. They are renewable and offer potential reduction in CO and HC emissions due to higher O₂ contents in vegetable oil. Many research studies have reported that exhaust from biodiesel fuel has higher NO_x emissions while HC and PM emissions are significantly lower than operated with diesel fuel. The aim of the present investigation is to reduce NO_x emissions. Exhaust gas recirculation (EGR) is one of the most effective techniques for reducing NO_x emissions in compression ignition engines. A Single cylinder four stroke water cooled direct injection (DI) diesel engine was used for conducting test with (Palm methyl ester: PME) biodiesel blends with diesel fuel combined with EGR technique. The results showed that for a 7.5kW power output, B10 and B20 PME with 8% EGR rate produce less NO_x emissions compared to diesel fuel for the same level smoke emissions.

KEYWORDS: Diesel Engine, EGR, Palm Methyl Ester, NO_x, Pollution