Exhaust Emission Reduction of Diesel Engine Fueled with Emulsified Palm Oil Methyl Esters

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ABSTRACT
An emulsion fuels is one of an alternative method that have been used to reduce exhaust emission from diesel engine. However, there were still not properly explored on the emulsified biodiesel. In this work, the effects of water concentration in palm oil diesel emulsions (POD) [POD is palm oil Methyl esters] on exhaust emissions of a 4-cylinder diesel engine were investigated. The engine speed was set at 2500 rpm and loads at 20, 40 and 60 %. Emulsions were prepared using ultrasound method by mixing POD fuel with 5, 10 and 20 % of water by volume. Results of exhaust emissions for POD and their emulsion were compared with OD fuel. The experimental results show that, the increasing water concentration in POD decrease the NOx and PM simultaneously. POD emulsions is a promising alternative fuels for reducing emissions from diesel engines without any engine modifications.

KEYWORDS: Biodiesel, Diesel Engine, Emission,Emulsified, Engine Load

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