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Performance evaluation of Biodiesel-diesel-ethanol blends in a Diesel engine

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Abstract : This paper presents the study of Diesel-Palm Oil Biodiesel-Ethanol blends in a diesel engine for performance, combustion and emission. Firstly, solubility tests were done for various proportions of the fuel blends. Then, the stability of the fuel blends were checked at three different temperatures. The results of the solubility are also presented. Out of the stable blends, two blends were selected for property testing as per ASTM standards. Out of the two, one blend is selected for the investigation of performance, combustion and emission characteristics. The results were compared with diesel as base fuel. Results indicate that there is a decrease in CO, NO_x and Smoke emissions. The maximum pressure and HRR are higher than diesel. There is an increase of BTE along with load with slight increase in BSFC as compared to diesel.

Key words : Biodiesel, Ethanol, diesel-biodiesel-ethanol blends.

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