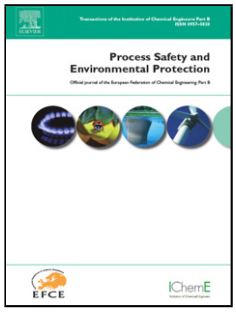

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PERFORMANCE AND EMISSION ANALYSIS OF A DIESEL ENGINE IMPLEMENTING POLANGA BIODIESEL AND OPTIMIZATION USING TAGUCHI METHOD

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Abstract

Diesel fuel emissions are the major source of air pollution and one of the main causes for the global warming worldwide. The present research is focused on the experimental study and input parameter analysis on polanga biodiesel blend, fuel injection timing, and fuel injection pressure on commonly used single cylinder 4-stroke direct injection diesel engine emissions (Unburnt Hydrocarbons-UHC, NO_x, and smoke) and thermal efficiency at full load condition. In the study, the effect of polanga blends on fuel injection timing and fuel injection pressure is considered as input factors to examine engine output parameters and minimum exhaust emission is found with the blends of polanga biodiesel. As per the thermal performance evaluation, it is observed that the operating conditions of the engine with 30 % polanga biodiesel blend at 220 bar injection pressure