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Effect of Using Mahua as an Alternative Fuel in Diesel Engine

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Abstract

There is an increasing interest in India, to search for suitable alternative fuels that are environment friendly. This led to the choice of non-edible Mahua Oil (MO) as one of the main alternative fuels to diesel oil in India. The objective of the present work is to use MO as a partial renewable alternative substitute for diesel in the agricultural diesel engine. Since the viscosity of the MO is high, it was blended with conventional diesel oil in various proportions (M5, M10, M15 and M20 on volume basis) and fuel properties of the blends were determined and compared with the diesel. Engine tests were carried out on a single cylinder diesel engine at varying loads (0%, 25%, 50%, 75% and 100%), without making any modification in the fuel injection system and the results were compared with the diesel. The M5 and M10 blends resulted in performance and emission characteristics comparable to diesel operation and also emits lower carbon monoxide, hydrocarbon and smoke emissions as compared to other blends. From the analysis, it is concluded that the MO can be partially substituted for diesel oil in the diesel engine, without making any modification in the hardware of the engine.

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