PERFORMANCE OF BIODIESEL FROM KARANJA OIL AS FUEL IN TRACTOR ENGINES

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ABSTRACT

In the present investigation, oil from Karanja (*Pongamia pinnata*) seeds was esterified, blended with diesel and tested on a three-cylinder variable speed tractor engine. Blends of varying proportions (5, 10 and 20% respectively by volume) of biodiesel or oil in diesel were used to run the engine and the performance was then compared with that using pure diesel. An engine was started on each blend and was observed to run smoothly for two hours per batch. A full throttle and a part throttle performance test were conducted on each of the blends. The test results indicated a 77% reduction in smoke level when compared to diesel and the torque produced was equal to or more than that produced by diesel. A 10% blend of biodiesel in diesel gave the best engine performance in terms of the torque produced, smoke level, exhaust gas temperature and specific fuel consumption. All blends tested produced a torque that agreed well with that produced by diesel. On the whole it is concluded that karanja methyl ester and diesel blends can significantly enhance the performance of a biodiesel fuelled tractor engine.

KEYWORDS: Biodiesel, Engine tests, Karanja Methyl Ester