

EMISSION TESTING OF JATROPHA AND PONGAMIA MIXED BIODIESEL FUEL IN A DIESEL ENGINE

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Abstract:

The present investigation is based on the emission characteristics of mixed bio diesel fuel in a four stroke single cylinder compression ignition engine at constant speed. Refined oils of jatropha and pongamia are converted into bio diesel by acid catalyzed esterification and base catalyzed transesterification reactions. The jatropha and pongamia bio diesel were mixed in equal proportions with conventional mineral diesel fuel. Four samples of fuel were tested namely, diesel fuel, B10, B20 and B40. The emission analysis showed B20 mixed bio diesel fuel blend having better results as compared to other samples. There is 60% and 35% lower emission of carbon monoxide and in sulphur dioxide observed while consuming B20 blended fuel respectively. The test result showed NO_x emissions were 10% higher from bio diesel fuel, as compared to conventional diesel fuel. However, these emissions may be reduced by EGR (Exhaust Gas Recirculation) technology. Present research also revealed that that B20 mixed bio diesel fuel can be used, without any modification in a CI engine.

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