International Journal on Recent Researches In Science, Engineering & Technology
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ISSN (Print) : 2347-6729
ISSN (Online) : 2348-3105
Volume 1, Issue 10, Oct. 2013
DIIF IF :1.46
SJIF IF: 1.329

Biodiesel from Pungan Seed Oil and its Effects on Engine Performance

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Abstract : Vegetable oil has become more attractive recently because of its environmental benefits and better quality exhaust emission. A well "known transect erification process made biodiesel pungan seed oil", was selected for biodiesel production. Pungan seed oil is non-edible oil, thus food versus fuel conflict will not arise if this is used for biodiesel production. A maximum of 75% biodiesel production with 20% methanol in the presence of 5 % sodium hydroxide is chosen. The experimental investigations were carried out in an engine that is coupled with an eddy current dynamometer. The engine is a single cylinder water –cooled, direct injection diesel engine developing a power output of 3.7 kw at 1500 rev/min. The crank angle encoder measured the engine speed, where as the piezo electric sensors measured the cylinder pressure and the fuel injection pressure. The experimental investigations were carried out for bio-diesel engines and the results were compared. From the experimental results, it is concluded that the use of bio-diesel as an alternate fuel leads to significant reduction in emissions and improved performance of diesel engines. An attempt is made in the paper to critically understand and to investigate whether bio-diesel can be a future alternative for diesel. Recent literature has shown that the results are very encouraging and bio-diesel will be a promising fuel for future. The major contribution of present work lies in analysing research findings on bio-diesel ,addressing the issues and challenges involved in bio-diesel engine analysis. The present study offers a good scope for future work on bio-diesel engines.