

PREDICTION OF HC & NO_x EMISSIONS OF MAHUA OIL IN VCR DIESEL ENGINE

CH. SIVA RAMA KRISHNA, K. S. RAGHURAM & D. AJAYKUMAR

Department of Mechanical Engineering, Vignan's Institute of Information Technology, Visakhapatnam, India

ABSTRACT

Due to modernization and faster industrialization, results increase in use of vehicles and engines are increased, but facilitated with only limited energy sources. This situation leads to seek an alternative fuel for engines. Vegetable oils offer an advantage of comparable fuel properties with diesel. Due to considerable pressure on edible oils in India, short term performance of diesel engine was evaluated using Mahua oil as a fuel and its blends with diesel. It was found that Mahua oil could be easily substituted up to 20% in diesel without any significant difference in power output. and thermal efficiency. The performance of engine with Mahua oil blends improved with the increasing compression ratio from 12:1 to 18:1. Alternate fuels should be economically attractive in order to compete with currently used fossil fuels. In this work, biodiesel (Ethyl ester) was prepared from Mahua oil. Ethyl alcohol with potassium hydroxide as a catalyst was used for the transesterification process. The biodiesel was characterized by its physical and fuel properties including density, viscosity, flash point according to ASTM standards.

The emissions evaluation of a single cylinder four stroke VCR diesel engine has been done when fuelled with different blends of diesel and biodiesel made of Mahua oil. It was found that HC and NO_x emissions of engine slightly decreases and with the increase in percentage of biodiesel.

KEYWORDS: Biodiesel, Transesterification, MahuaOil, Compression Ratio, VCR Engine, Emissions



Best Journals
Knowledge to Wisdom

Submit your manucript at editor.bestjournals@gmail.com

Online Submission at http://www.bestjournals.in/submit_paper.php