



Effect of Injection Pressure and Injection Timing in Performance and Emission Characteristics in DI Engine using Blend of Methyl Esters of Jatropha

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Abstract : The petroleum products play an important role in our modern life. The costs of these products depend on international markets and petroleum reserves. Rising petroleum prices, increasing threat to the environment from exhaust emissions and global warming have generated an intense international interest in developing alternative non-petroleum fuels for engines. In recent years, research has been directed to explore plant-based fuels and plant oils and fats as fuels.

Methyl esters of Jatropha (MEJ) are one of the best alternative fuels for diesel engine. In this project combustion, performance and emission characteristics of blends of methyl esters of Jatropha will be studied by varying the injection pressure and injection timing using direct injected constant speed diesel engine.

Performance characteristics such as brake thermal efficiency and brake specific fuel consumption at various loads will be calculated by varying injection pressure and injection timing. Emission characteristics such as NO_x, CO, CO₂ and HC at various loads will be calculated by varying injection pressure and injection timing. Various blends of methyl esters of Jatropha are b20, b40, b60, b80, b100 and the results will be compared with diesel. Injection pressure will be from 200 to 250 bar .i.e.) 180 bar, 195 bar, 210 psi. Injection timing will be 33° btdc, 30° btdc, and 27° btdc.

Keywords : Methyl esters of Jatropha (MEJ), injection pressure and injection timing, NO_x, CO, CO₂ and HC.

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