

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM



PROJECT WORK REPORT ON
“PERFORMANCE ANALYSIS AND EMISSION CHARACTERISTICS OF A
NEAT JATROPHA BIODIESEL FUELLED TURBOCHARGED CRDI
DIESEL ENGINE”

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ABSTRACT

The world is getting modernized and industrialized day by day. As a result vehicles and engines are increasing. But energy sources used in these engines are limited and decreasing gradually. This situation leads to seek an alternative fuel for diesel engine. Biodiesel is an alternative fuel for diesel engine. This paper investigates the prospect of making of biodiesel from jatropha oil. Jatropha curcas is a renewable non-edible plant. Jatropha is a widely growing hardy plant in arid and semi arid regions of the country on degraded soils having low fertility and moisture. The seeds of jatropha contain 30-40% oil. In this study the oil has been converted to biodiesel by the well known trans-esterification process and used it to diesel engine for performance evaluation. The increase in crude oil price, the problems associated with long term availability of conventional hydrocarbon fuels for automotive engines, and the continuous emission of combustion pollutants into the environment are cause for concern. These challenges have necessitated the need to investigate the performance of jatropha curcas oil methyl ester as diesel fuel extender in compression ignition engines.

The performance of CRDI engine using jatropha oil as the fuel was evaluated for its performance.

The objective of this study was to evaluate the various parameters such as brake power, peak pressure rise, break specific fuel consumption, brake thermal efficiency, and emission under varying operating conditions with diesel, biodiesel and blends of biodiesel were measured. The exhaust emissions from the engine were measured with exhaust gas analyzer.