

NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY

(An autonomous Institute affiliated to VTU, Belgaum; Accredited by NBA (AICTE), New Delhi)

YELAHANKA, BANGALORE-560 064



PROJECT REPORT ON

**"EXPERIMENTAL STUDY ON PERFORMANCE OF DIESEL ENGINE USING
BIO-DIESEL (METHYL ESTER OF COTTON SEED OIL)"**

Submitted in partial fulfilment of the requirement for the award of the degree
or

BACHELOR OF ENGINEERING

BY

ARAVIND.S.DESAI

(1NT08ME007)

SHRINATH.N.V

(1NT08ME053)

PRATHAN AIYAPPA.M.R

(1NT08ME037)

VISHWANATH.V.K

(1NT08ME060)



Under The Guidance Of

KNOW Prof. MADHUSUDHAN UNITY

Dept of MECHANICAL ENGINEERING



KNOWLEDGE * CHARACTER * UNITY

Department of Mechanical Engineering

NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY

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ABSTRACT

Diesel fuel is the single largest source to power the vehicles both in transportation and agriculture sectors. The increasing demand on the use of fossil fuel leads to its scarcity. And also the burning of fossil fuel is associated with emissions like CO₂, CO, SO_x, NO_x and particulate matter, which are currently the dominant global source of emissions. most appealing alternative energy sources for automobile are those fuels which can be used with minimum modifications in existing engines and hence it become imperative fuels to replace conventional fossil fuels. Many types of alternative fuel sources, such as solar energy, electrical energy, hydrogen fuel cells as well as vegetable oils have been tried. Later Jatropha, Pongamia, Soyabean, Rapeseed and Cotton seed and others have proved to be effective.

The economical analysis suggests good scope for Cotton seed oil methyl ester (biodiesel) in comparison to diesel. Biodiesel is an environmentally friendly fuel that can be used in any diesel engine without modification. The dependency on the diesel can be reduced by use of biodiesel instead of diesel in the applications where it is possible which will save the environment as well as our foreign exchange. Therefore cotton seed oil and its methyl ester becomes good source of energy.

This works deals with the experimental investigations carried out in studying the performance analysis of 4-stroke diesel using Methyl Ester of cotton seed oil (MECSO) and its blends with diesel. Bio-diesel (MECSO) has been prepared transesterification process. Performance tests on single cylinder 4-stroke compression ignition engine have been conducted using pure bio-diesel and its blends as fuel and performance parameters are compared by diesel as fuels. various graphs like Brake thermal efficiency, BSFC, total fuel consumption rate, speed Vs loads ranging from 0 to 16 Kg have been plotted. The study shows that there will be a slight improvement in Brake thermal efficiency, so Methyl Ester Of Cotton Seed Oil can be a alternative fuel.