

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM - 590 018



The Project Report on

**“ENGINE PERFORMANCE AND EMISSION CHARACTERISTICS OF
SINGLE CYLINDER DIESEL ENGINE WORKING ON LIQUID FUELS
PRODUCED FROM AGRICULTURAL PLASTIC WASTE”**

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Submitted by

NAVEEN KUMAR P
(USN: 4BD11MTP07)

UNDER THE GUIDANCE OF

Dr. S. KUMARAPPA
Professor & PG Coordinator
Department of Mechanical Engineering
B.I.E.T, Davangere.

Dr. B. M. KULKARNI
Professor
Department of Chemical Engineering
B.I.E.T, Davangere.



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DEPARTMENT OF MECHANICAL ENGINEERING
BAPUJI INSTITUTE OF ENGINEERING & TECHNOLOGY
DAVANGERE-577 004, KARNATAKA

ABSTRACT

Environmental concerns and fast depletion of petroleum fuels have caused the search for alternate fuels for internal combustion engines. Waste plastics are indispensable materials in the modern world and application in the industrial field is continually increasing. In this context, waste plastics are currently receiving renewed interest. As an alternative, non-biodegradable, and renewable fuel, waste plastic oil is receiving increasing attention. The waste plastic oil was compared with the petroleum products and found that it can also be used as fuel in compression ignition engines.

Plastics have been one of the materials with the fastest growth because of their wide range of applications due to versatility and relatively low cost. The duration of life of plastic products is relatively small, there is a vast plastics waste stream that reaches each year to the final recipients creating a serious environmental problem.

Increase in energy demand, stringent emission norms and depletion of oil resources have led the researchers to find alternative fuels for internal combustion engines. On the other hand waste plastic pose a very serious environment challenge because of their disposal problems all over the world. Plastics have now become indispensable materials in the modern world and application in the industrial field is continually increasing. In this context, waste plastic solid is currently receiving renewed interest. The properties of the oil derived from waste plastics were analyzed and compared with the petroleum products and found that it has properties similar to that of diesel. In the present work, waste plastic oil was used as an alternate fuel in a DI diesel engine without any modification.

In this project work an attempt has been made to investigate the conversion of agricultural waste plastic into liquid fuel by using pyrolysis process, a pyrolysis unit is designed, fabricated and evaluated for various kinds of plastic wastes, properties of liquid fuels obtained are determined. Blending with diesel fuel is done. Engine performance studies carried out in single cylinder diesel engine.