

A Project Report on
**“PRODUCTION OF BIODIESEL BY TRANSESTERIFICATION OF
WATERMELON SEED OIL”**



**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,
BELGAUM**

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ABSTRACT

Biodiesel is a low-emissions diesel substitute fuel made from renewable resources like vegetable oils. India is not self-sufficient in petroleum and has to import about two third of its requirements to introduce one of the solutions to the current oil crisis and toward off any future energy and economic crunch is to explore the feasibility of substitution of diesel with an alternative fuel which can be produced in the country on a massive scale to commercial utilization. Hence it has become imperative to find alternative fuels to replace the conventional fossil fuels.

This report outlines the studies done to find the optimal method for converting Watermelon oil to usable biodiesel and using this biodiesel to run the four stroke diesel engine. The amount of alkaline catalyst and ratio of methanol to fresh oil for the greatest conversion of fatty acid methyl esters are reported. In addition, the optimal reaction was established. Finding the most efficient way to convert Watermelon oil to biodiesel would allow for this biodiesel to be produced as economically as possible. The performance test was conducted on a 4 stroke diesel engine in our EC laboratory. The pollution levels came down drastically and performance was better with various blends of Watermelon and diesel.

The thermo physical properties like density, specific gravity, flash point, fire point and calorific value are determined. These properties found to be comparable with the properties of diesel. Even though the cost of oil is high and the oil content in the seed is less, only 30% aim is to consider watermelon oil is also one of the substitute for diesel. Performance test is conducted to determine the various parameters like Brake power, brake thermal efficiency, brake specific fuel consumption etc. These parameters are found to be very closely matching with the properties of diesel.