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Project Report on
**“STUDY AND CHARACTERISATION OF WASTE VEGETABLE OIL
BLENDING WITH MINERAL TURPENTINE AND PERFORMANCE
TEST ON IC ENGINE”**

*Submitted in partial fulfillment of the requirements for the award of degree
of*

**BACHELOR OF ENGINEERING
IN
MECHANICAL ENGINEERING**

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ABSTRACT

Biodiesel is an alternative to conventional diesel fuel made from renewable resources, such as non-edible vegetable oils. Biodiesel is produced primarily from waste or used vegetable cooking oils utilizing a special process that changes the characteristics of the oil to finish with a product that will power a diesel engine without any modification. Bio-diesel is one of the most promising of the alternative fuels, which include bioethanol and hydrogen. It is produced from vegetable oil using fairly simple chemistry. It is non-toxic and rapidly biodegrades. It can be produced from either new or waste oil and offers good performance together with a number of environmental benefits compared to ordinary petroleum diesel. Vegetable oils, including filtered waste oil, can be used directly in diesel engines without processing to form bio-diesel – often referred to as straight vegetable oil or SVO - but they are likely to leave gummy deposits and acidic residues which can affect engine warranties. They also usually need to be pre-heated or mixed with thinning agents such as white spirit to reduce viscosity so usually require conversion kits.

The climate change is presently an important element of energy use and development. A large amount of the carbon dioxide released during consumption of biodiesel had been sequestered out of the atmosphere during crop growth. The use of biodiesel resulted in lower emissions of unburned hydrocarbons, carbon monoxide, and particulate matter. Biodiesel also increased catalytic converter efficiency in reducing particulate emissions. Chemical characterization also revealed lower levels of some toxic and reactive hydrocarbon species when biodiesel fuels were used. The fuel consumption in the world particularly in developing countries has been growing at alarming rate. Petroleum prices approaching record highs and they will deplete within few decades, it is clear that

Bio-diesel

more can be done to utilize domestic non-edible oils while enhancing our energy security. Vegetable oils and their derivatives (especially methyl esters), commonly referred to as “biodiesel,” are prominent candidates as alternative diesel fuels. They have advanced from being purely experimental fuels to initial stages of commercialization. They are technically competitive with or offer technical advantages compared to conventional diesel fuel.