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"Production of Fatty Acid Methyl Esters from Simarouba oil via Ultrasonic Irradiation process, effective utilization of byproducts. Testing and extraction of Phytochemicals from Simarouba oil and Cake"

BACHELOR OF ENGINEERING

In

MECHANICAL ENGINEERING

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ABSTRACT

Recent Rapid growth in transportation, industrialization and civilization from time to time causes increase in requirement of fuel and energy. Day by day depletion of liquid fossil fuels creates necessity to find out an alternative liquid fuel like biodiesel.

This project work deals with the production of methyl esters from Simarouba Glauca oil by transesterification process using Potassium Hydroxide as a homogeneous base catalyst and methanol as the alcohol. Ultrasonic Processor SONOPROS PR-250M with the power supply of AC-250V is used for transesterification process. The important properties of Methyl esters such as Flash point, Kinematic Viscosity, Density, Calorific Value, cloud point, pour point, ash content and carbon residue are tested and compared with Conventional diesel.

The oil extracted by using Mechanical expeller is purified to use in transesterification process as well as in Phytochemical tests. In this project work, Phytochemical test are done to study the presence of Phytochemical in the oil such as Flavonoids, Alkaloid, Carbohydrates, Proteins, Saponin, Glycosides, Steroids and Tannins.

Keywords: *Simarouba glauca, Ultrasonic processor, potassium hydroxide, phytochemicals*