

PROJECT REPORT ON

PRODUCTION OF BIODIESEL

FROM UNCONVENTIONAL FEEDSTOCKS

OF UDUPI DISTRICT



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ABSTRACT

Due to the depleting reserves of fossil fuel and uncertainty in their availability as well as the environmental problems associated with them, considerable attention has been given to biodiesel production as an alternative to petro-diesel. However, as the biodiesel is produced from vegetable oils there is a concern that biodiesel feedstock may compete with food supply in the long-term. Hence, the recent focus is to find tree borne oil seeds (TBOS) that produce non-edible oils as the feedstock for biodiesel production. Production of biodiesel from non-edible oils like *Jatropha*, *Karanja* etc. has been well documented. In order to meet biodiesel demand, biodiesel production from cheaper sources of non-edible oils is need of the hour. In Udupi district, large numbers of trees are available yielding non-edible oil having no/less application. Of these some TBOS have been evaluated and it has been found that *Scleropyrum pentandrum* (Naikkuli), *Calophyllum inophyllum* (Sura Honne), *Hevea brasiliensis* (Rubber), which bear seeds rich in oil. Oil was extracted using Soxhlet apparatus with hexane as solvent. Batch experiments were conducted to produce biodiesel from extracted oil. Methanol with NaOH as catalyst was used for reaction at 60-65⁰C under magnetic stirring for 60 min. Major properties of the biodiesel such as density, viscosity, flash point, acid value, copper corrosion test were measured. Experimental analysis showed that these oils have great potential to be used as feedstock for biodiesel production. During investigation three tree species namely *Terminalia bellirica* (Shanti Kayi), *Vateria indica* (Dhoopa) and *Mimusops elengi* (Renjevu) are found to contain less than 20% oil and concluded that they are not feasible for biodiesel production.

Keywords: Biodiesel, Tree borne oil seeds (TBOS), FFA, Soxhlet extractor.