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Potential to Produce Biodiesel from Locally Available Non Utilised Oil Seeds

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Abstract

As an alternative fuel for diesel engines, Plant originated biodiesel are renewable. It will certainly become an important part of the future energy sector with the increasingly drying up of the terrestrial fossil fuel. The focus of this study was to identify the potential of the different non edible oil seeds to produce biodiesel. Rudolf Diesel tested and demonstrated his very first engines with peanut oil over 100 years ago. The five types of non utilised oil seeds which are named as Kaneru (*Strychnos micrantha* Thw), Telambu (*Sterculia foetida* L), Kottamba (*Terminalia catappa* L) Rambutan (*Nephelium lappaceum* L) and Imbul (*Eriodendron anfractuosum* Dc) were used for extracting the plant oil. The plant oil were extracted in a soxhlet extractor with ether as the solvent. The sample were collected randomly and replicated three times. All seeds were air dried to reduce the moisture content. The properties of the oil were measured for testing the suitability of oil for biodiesel production. The free fatty acid value of the oil was estimated if the value is too high for alkaline transesterification as it can react with the catalyst to form soap which can inhibit methyl ester yield. The highest oil content was observed as 49.6% (db) in Kaneru and lowest oil contents were observed as 35-37% (db) in Imbul and Rambutan. It was found that the lowest free fatty acid value of the oil was observed in Kottamba and Kaneru. Imbul had highest amount of free fatty acid content and it can inhibit methyl ester yield. Oil from Thelambu has high viscosity. The extracted oil from Kaneru and Kottamba has high potential to produce biodiesel.

Keywords: Non utilised plant oil, Biodiesel, Free fatty acid content