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A Novel Approach to produce Oil Extraction from Non-edible seed *Indigofera Colutea*

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ABSTRACT

In this present investigation, lipid extraction was performed from non-edible seed *Indigofera colutea* using soxhlet apparatus technique. The ultrasonic pre-treatment method was carried out to evaluate the maximum yield of oil extraction. Different solvents were been used for the extraction of oil from the biomass such as n-hexane, Chloroform, Methanol, Isopropanol, Acetone and Dichloromethane. From the various solvent system studies n-hexane was found to be suitable for the high yield of oil extraction. Different parameters such as different solvent, mean particle size, temperatures, mean time and solvent-to-solid ratio have been examined. The high yield of oil extraction was obtained at 6 % moisture content, 0.15 mm particle size, 90 °C, 210 min and 6:1 solvent-to-solid ratio using n-hexane as solvent. The maximum yield of oil extraction 38.5 % was obtained from 75 g of *Indigofera colutea* biomass. The obtained oil was characterized using Fourier Transform Infrared spectroscopy (FTIR) analysis. From this analysis the methyl groups-CH₃ bond that indicates the presence of asymmetric stretch which is the major fatty acid present in the non-edible oil that can be used for the biodiesel production. The fatty acid profile of the optimized *Indigofera colutea* oil was analyzed using Gas Chromatography Mass Spectroscopy (GC-MS) analysis. The saturated fatty acid (SFAs) was found to be very high of 84.43 %. From the results obtained in the investigation, *Indigofera colutea* biomass was proved to be a suitable source for the biodiesel production.

Key words: *Indigofera colutea*, Non-edible seed, Oil Extraction and FTIR and GC-MS.