Analysis of thermal behaviour and stability of different kind of Metallic Surfactants prepared from Non Edible Jatropha Oil.

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**Abstract**

Metallic Surfactants are considered promising industrial materials. They are widely used as additives in paint, stabilizers in polymers, thickening agents in grease and lubricants etc. In the present experimental work, metallic surfactants of Alkali metals and Transition metals were prepared by using Non-Edible Jatropha Oil in an aqueous medium. Jatropha Oil is rich in unsaturated fatty acids like oleic acid, linoleic acid and contains small amount of saturated fatty acids like palmitic and stearic acid. Surfactants from Jatropha Oil were analyzed for metal content using Flame photometric (for Na, K) and Atomic Absorption Spectrophotometric method (for Cu, Ni, Zn). The thermal stability of surfactant material was studied by Thermo Gravimetric Analyzer. Surfactants from Jatropha Oil are fairly stable over the range of 100 to 200 degree Celsius. The activation energy required to onset the thermal decomposition of these surfactants was determined by using the Broido and, Coats and Redfern Equation Model. Jatropha Oil based surfactants could prove to be a cost effective alternative, these surfactants can be utilized as an additive or thickening material for grease, lubricant and paint industries.

Keywords: Jatropha Oil, Metallic Surfactants, TGA, Lubricant

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