

Study of Coconut and Babassu Oils with High Acid Content and the Fatty Acids (C6 to C16) Obtained from These Oils

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Abstract : The vegetable oils have many applications in industrial processes and due to this potential have constantly increased the demand for the use of low-quality oils, mainly in the production of biofuel. This work aims to the physicochemical evaluation of babassu oil (*Orbinya speciosa*) and coconut (*Cocos nucifera*) of low quality, as well the obtaining the free fatty acids 6 to 16 carbon atoms, with intention to be used as raw material for the biofuels production. The babassu oil and coconut low quality, as well the fatty acids obtained from these oils were characterized as their physicochemical properties and fatty acid composition (using gas chromatography coupled to mass). The NMR technique was used to assess the efficiency of fractional distillation under reduced pressure to obtain the intermediate carbonic chain fatty acids. The results showed that the bad quality in terms of physicochemical evaluation of babassu oils and coconut oils interfere directly in industrial application. However the fatty acids of intermediate carbonic chain (C6 to C16) may be used in cosmetic, pharmaceutical and particularly as the biokerosene fuel. The chromatographic analysis showed that the babassu oil and coconut oil have as major fatty acids are lauric acid (57.5 and 38.6%, respectively), whereas the top phase from distillation of coconut oil showed caprylic acid (39.1%) and major fatty acid.

Keywords : babassu oil (*Orbinya speciosa*), coconut oil (*Cocos nucifera*), fatty acids, biomass

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