GC- MASS SPECTROSCOPIC CHEMICAL CHARACTERIZATION AND PHYSICO-CHEMICAL PROPERTIES OF OIL FROM SEED KERNELS OF FOUR CULTIVARS OF *MAGNIFERA INDICA*

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ABSTRACT

The objective of the study was to evaluate the chemical composition of oil from seed kernels of four cultivars of *Mangifera indica* by Gas Chromatograph -Mass Spectrometry, to study most important physico-chemical parameters, and identify some functional group of the seed oil using FT-IR Spectroscopy. *Mangifera indica* seed oils used for the analysis were obtained by soxhlet extraction method using n-Hexane as solvent. Individual components of the oil were identified by GC-MS. Functional groups of the seed oils were evaluated using Fourier Transform-Infra Red Spectroscopy. From the results of physicochemical analysis; refractive index (1.4528 -1.4600), viscosity (22-42.25Cst), specific gravity (0.86-0.92), free fatty acids (1.41-3.09%.), peroxide value (4.94 - 6.01 meq/kg), acid value (2.81-6.16 mg KOH/g fat), iodine value (48.15 to 50.88 mg I_2/100g,), saponification value (105.72 -125.56mgKOH^{-1}fat) and unsaponifiable matter (1.2-1.56 %). FT-IR spectral obtained showed absorption bands at 3405cm^{-1}, 2923cm^{-1}, 2853 cm^{-1}, 1746 cm^{-1}, 3004.5cm^{-1} -3 005.24 cm^{-1}, and 1656.3cm^{-1}. The results from GC-Mass Spectrometry showed that the major component of *Mangifera indica* seed oil for all the cultivars were cyclohexane (9.423-40.474%), palmitic acid (13.265-24.472%) and 2,5-dimethyl- tetrahydro- Furan (4.742-22.831%). Other compounds identified are Linoleic acid (14.573%), stearic acid (17.152%), and cis-Vaccenic acid (52.052%). It can be concluded that *Mangifera indica* seed oil can be further ultilized domestically and industrially rather than just been discarded as waste.

Keywords: *Mangifera indica*, seed oil, GC-Mass Spectrometry, FT-IR, physico-chemical parameters.