



Study on Variation in Seed Morphology, Oil Content and Fatty Acid Profile of *Madhuca longifolia* Grown in Different Agro-Climatic Zones in Sri Lanka

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To cite this article:

Mihiri Munasinghe, Jagath Wansapala. Study on Variation in Seed Morphology, Oil Content and Fatty Acid Profile of *Madhuca longifolia* Grown in Different Agro-Climatic Zones in Sri Lanka. *Science Research*. Vol. 3, No. 3, 2015, pp. 105-109. doi: 10.11648/j.sr.20150303.20

Abstract: The aim of this study was to determine the variation in morphology of seeds, seed oil content and the fatty acid profile of *M. longifolia* and, to find the relationship between oil content and fatty acid composition with environmental conditions. Seeds were collected representing four agro-climatic zones in Sri Lanka. The length (2.7333-3.4333 cm), width (1.0633-1.2967 cm) and the weight (0.9262-1.4018 g) were determined in seeds. Significant differences were there within agro-climatic zones. Oil from seed kernel was extracted with Soxhlet method using *n*-Hexane (bp. 65-70° C) and the fatty acid profile was determined using GC-MS (Gas chromatography-Mass spectrophotometry). Results reveal significant differences in oil content (50.07-53.85%) among agro-climatic zones. As the major fatty acids, Oleic, Stearic, Palmitic and Linoleic were resulted in all four agro-climatic zones. The total saturated fatty acid content (C18:0, C16:0, C14:0, C17:0, C19:0, C22:0, C24:0, C26:0, C20:0 and C8:0) varied from 40.87-47.20%. However the total unsaturated fatty acid content (C16:1, C18:1, C18:2, C20:1) was within the range of 49.6-53.86% (TMUFA+TPUFA), here the highest content was recorded in low country intermediate zone and the lowest in mid country intermediate zone. Oil content and the fatty acid composition were not correlated with the studied geographical parameters.

Keywords: Fatty Acid Composition, Seed Oil, Oil Extraction, Morphology
