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A molecular characterization of some selected *Madhuca* spp. (Sapotaceae) in Sri Lanka

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The Genus *Madhuca* J.F.Gmel., distributed in the tropics including Sri Lanka, India, Vietnam, Pakistan, Nepal, Myanmar, etc., belongs to the family Sapotaceae. Species of *Madhuca* have reported a wide array of economic uses such as a source of food and nutrition, pharmaceutical ingredient, bio-fertilizer and bio-fuel. Seven *Madhuca* species are reported in Sri Lanka, out of four being endemic to the island. This study aimed to address the research gap present in genetic studies of the genus *Madhuca* in Sri Lanka. Samples were collected from Kanneliya Forest Reserve and Kitulgala Forest Reserve. Molecular authentication of each sample was done using the database of Basic Local Alignment Search Tool of The National Center for Biotechnology Information. The Nuclear Internal transcribed spacer 1 (ITS1) region, a highly polymorphic non-coding region was amplified, using specific primers in the following five *Madhuca* species, *Madhuca fulva* (Thwaites) J.F.Macbr.(endemic), *Madhuca microphylla* (Hook.) Alston (endemic), *Madhuca clavata* Jayas.(endemic), and *Madhuca longifolia* (J.Koenig ex L.) J.F.Macbr. and *Madhuca nerliffolia* (Moon) H.J.Lam. According to the ITS1 marker, two distinct clades were observed within the Ingroup of the genus *Madhuca* in Sri Lanka. All studied endemic *Madhuca* species have clustered as a single monophyletic group. The second clade only includes *Madhuca longifolia*, which has a wide geographical distribution. An unexpected sequence similarity, 99.57% in the ITS1 region was observed between *Madhuca clavata*, a point endemic species to Sri Lanka and *Madhuca bourdillonii*, a critically endangered species native to India. The results of this preliminary molecular phylogenetic study support the currently accepted morphological species concepts of the genus *Madhuca* in Sri Lanka. More sampling and multi-locus phylogeny will merit resolving the species delimitation issue between *Madhuca clavata* and *Madhuca bourdillonii*.

Keywords: *Madhuca*, Sapotaceae, Sri Lanka, Taxonomy, ITS1 marker