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Intraspecific Diversity of *Elaeocarpus hedyosmus* Zmarzty in Sri Lanka using Molecular Data

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Abstract

Elaeocarpus hedyosmus Zmarzty is an endemic, tropical, evergreen flowering plant in Sri Lanka, in the family Elaeocarpaceae. It is an ecologically, economically, and medicinally useful species. Since it is an endangered species, conservation and sustainable management is essential. *E. hedyosmus* was described in 2001 by Zmarzty based on herbarium material, and therefore, a taxonomic study based on field collected samples is required. A recent morphological study of field collected samples revealed morphological variations within the taxa. The objective of this study was to re-evaluate the phenetic groupings identified in the morphometric analysis using molecular sequence data. A phylogenetic tree was constructed using DNA sequences from the non-coding gene regions of chloroplast *matK*, *trnH-psbA*, and *trnL-trnF*. Leaf DNA was extracted from field collected samples using a modified CTAB extraction protocol and a few other alternative procedures. PCR was optimized and the amplified DNA was sequenced. A phylogenetic tree was constructed using Bayesian Inference analysis. All gene regions were informative and the combined phylogenetic tree was in agreement with the morphological analysis, whereby a monophyletic group with intraspecific variation in *E. hedyosmus* was revealed. Further studies are needed to determine the true evolutionary relationship and the taxonomic placements of these populations utilizing both morphological and molecular data.

Keywords: Phylogenetic relationship, *matK*, *trnH-psbA*, *trnL-trnF*, Conservation