

Characterization of naturally growing *Lantana camara* L. varieties found in Sri Lanka: a morphometric approach

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Abstract

Lantana camara L. (Family Verbenaceae) was introduced to Sri Lanka in 1826 to attract butterflies in sugarcane plantations in the southern province. It became well established throughout the country over the years and ultimately reached the invasive status. Six naturally growing varieties of *L. camara* have been reported in Sri Lanka. They are varieties *camara*, *splendens*, *aculeata*, *mista*, *varia* and *alba*. In this work morphometrics was used to characterize these varieties. A total of thirty one (floral and vegetative) characters of known *L. camara* varieties (except *varia*) were observed using fresh twigs collected from naturally growing populations in different geographical locations in Sri Lanka. A total of fifty specimens were studied and voucher specimens were prepared from each collection and deposited at the Herbarium at Department of Plant Sciences, University of Colombo. Characters were coded using variety name and the sampling number. The quantitative characters were arranged into character states while qualitative characters were also given either binary or multi state character states. Cluster analysis was performed with PC-ORD V4.0, for the coded data matrix to reveal differences, similarities or relationships among the test varieties in a dendrogram. A scatter plot was also produced by Principle Component Analysis to identify any groupings. Neither the dendrogram nor the scatter plot indicated clear groupings of *L. camara* varieties. Morphological characters other than the flower color could not differentiate *L. camara* varieties. According to the loading values produced by the principal component analysis, features such as number of teeth at leaf edge, leaf length and width, petiole diameter and length, length of the peduncle, diameter of the fruit, number of florets in the inflorescence, bractlets length and width, diameter of the flower and the presence of prickles were identified as characters that were highly variable in *L. camara* varieties. Characters such as leaf shape, apex, texture, base symmetry, shape of petiole, hairs on leaf and stem, bractlets shape, number of stamens and the floral symmetry were did not vary among the varieties. Morphometric approach was not sufficient to characterize naturally growing *L. camara* varieties in Sri Lanka. This study also provides evidences for its high hybridization potential and phenotypic plasticity. Hence, a molecular approach is suggested for further investigations to characterize naturally growing *L. camara* varieties in Sri Lanka.