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Relationships among *Garcinia* L. (Clusiaceae) species in Sri Lanka: evidence from vegetative morphology

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The genus *Garcinia* L. (Family: Clusiaceae) embraces about 200 species, and is represented by ten species in Sri Lanka, including five endemic species. The species circumscriptions and the identification of Sri Lankan *Garcinia* species hitherto were primarily based on reproductive morphology and anatomical characters. However, identification of *Garcinia* has become practically challenging. Present study aims to show the relationship among *Garcinia* species in Sri Lanka and to construct a field identification key, based on vegetative morphological characters.

A total of ninety seven individual plants representing the eight native species were sampled and forty seven vegetative morphological characters were selected and analyzed using similarity methods. Bark and leaf architectural characters were used to prepare the dichotomous key.

Results recognized the previously circumscribed taxa, with few exceptions. The sampled species falls into two major groups characterized by leaf morphological features especially the leaf venation pattern. The first group comprises *G*. *hermonii*, *G*. *thwaitesii*, *G*. *echinocarpa* and *G*. *spicata* ('Hermonii' group) having coreacious leaves, white colour sap and the presence of an extra distinct parallel secondary vein. The second group includes *G*. *quaesita*, *G*. *zeylanica*, *G. morella* and *G*. *terpnophylla* ('Quaesita' group) characterized by non-coreacious and comparatively small leaves. Major groups further divided into sub-groups supported by bark colour and tertiary venation. Principle component analysis illustrates variations within species of *G*. *hermonii* and *G*. *terpnophylla* highlighting the presence of different morphotypes. One of the clusters of *G*. *hermonii* is closely related to *G*. *spicata* than the other individuals. The farthest interrelationship of the 'Hermonii' group is shown by *G*. *echinocarpa* and its uniqueness is supported by stilt roots and leaf shape. The 'Quaesita' group is composed of highly interrelated species. *Garcinia zeylanica* shows very close affinities with *G. morella*. *Garcinia quaesita* does not form a strong cluster due to its wide variation in leaf size and shape. *Garcinia terpnophylla* shows an isolated placement in the 'Quaesita' group, indicating its many shared characters with the members of the 'Hermonii' group. The relationships found in this study provide insights to the phylogeny of the species. The dichotomous key constructed using conspicuous vegetative characters, is a valuable tool for identification of Sri Lankan *Garcinia* species in the field.

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