

Morphological Variation and Species Boundaries of the Genus *Monochoria* (Pontederiaceae) in Sri Lanka

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The genus *Monochoria* C.Presl belongs to the family Pontederiaceae and is represented in Sri Lanka by two native species, namely, *M. vaginalis* (Burm. f.) Presl, and *M. hastata* (L.) Solms-Laub. Field observations suggest the taxonomic keys and characters listed for identifying the two species overlap and, populations with distinct sets of characters exist, especially in *M. vaginalis*. Therefore, a detailed morphological and anatomical study was carried out to evaluate the species limits of the genus *Monochoria* in Sri Lanka.

Live plants from *M. vaginalis* and *M. hastata* were collected from all possible locations. The specimens were examined for different morphological characters in detail and anatomical studies were carried out with leaves of *M. vaginalis*. Fifty seven individuals were studied in detail and forty eight characters representing vegetative morphology, anatomy and reproductive morphology were identified for the study. The characters included 31 quantitative characters and 17 qualitative characters. Characters were coded into discrete character states and entered into a data matrix using the Microsoft Office Excel (2007) computer package. A cluster analysis was carried out using PCORD version 4.

The dendrogram that resulted from the cluster analysis initially identified two phenetic groups, separating one phenetic group of *M. vaginalis*. The larger cluster further divided into *M. hastata* and two separate phenetic groups that included members of *M. vaginalis*. Re-evaluating the three *M. vaginalis* clusters on the basis of the characters of the individuals grouped, several characters could be identified supporting the clusters. The leaf width, leaf base, leaf shape, leaf texture, absence/ presence of red pigmented glands in the mesophyll layer, leaf petiole length at the point of inflorescence emergence, number of flowers per inflorescence, distance between flowers on the peduncle, peduncle length, number of flowers open at a given time, flower diameter, shape of the inner tepal, arrangement of the persistent tepals around the ripe capsule and shape of the seed provided distinct variations among the clusters. Since the characters supporting the phenetic groups are features that are stable and do not change with the environment, the results strongly suggest that *M. vaginalis* encompasses an assemblage of different species or need recognition of below species level taxa.