

**Leaf Anatomical Studies of the Genus *Monochoria*: As Evidence for Species Limits****Kalpani K.I.U., Yakandawala D.M.D.\****Department of Botany, Faculty of Science, University of Peradeniya, Sri Lanka**\*deepthiyakandawala@gmail.com***Abstract**

*Monochoria vaginalis* (Burm.f.) Presl and *Monochoria hastata* (L.) Solms-Laub. are both known by the common name 'Diya habarala' in Sinhala (Pontederiaceae). Diya habarala is a medicinal plant used as a remedy for many illnesses and, no distinction is made between the two species. A recent morphometric analysis recognised three phenetic groups within *M. vaginalis* and an interesting character that was recorded in one of these phenetic groups was the presence of red colour glands in the sub-palisade layer that gave a rough texture to the leaf lamina. These phenetic groups were also supported by molecular and phytochemical data. Splitting of taxa into new species should be based on many evidences which in turn would help in creating a stable entity. The present study was conducted with the aim of collecting leaf anatomical evidence in support of recognizing the taxonomic position of the phenetic groups identified within *M. vaginalis*. Both free hand and microtome sections of fresh leaves representing the three phenetic groups of *M. vaginalis* (1, 2 and 3 respectively) and *M. hastata* were examined under the light microscope. Characters showing variation among the groups; presence and abundance of red colour glands in the sub-palisade layer; triangle shaped, transparent, enlarged cells in between palisade layer and, raphides and styloids were recorded. Red colour glands were present only in the phenetic group 2 and 3, where the abundance was higher in the group 3 (2-3 glands/view under the mid power); triangle shaped, transparent, enlarged cells were present in all where it was less abundant in *M. hastata* and *M. vaginalis* group 1 (7-9 cells/view under the mid power) while they were high in group 2 and 3 (14-16 cells and 12-14 cells/view under the mid power respectively). Styloids were present only in *M. hastata* while raphides occurred in all but in high abundance in *M. hastata* and low in all groups of *M. vaginalis*. Absence of glands and presence of styloids separates *M. hastata* from the *M. vaginalis*. Within *M. vaginalis*, the absence of glands and less abundance of triangular cells separates the group 1 from both 2 and 3. Even though the occurrence of glands and triangular cells between the group 2 and 3 differ, both groups could be considered as possessing a similar leaf anatomy. This data would be of value during species limit determination of the three phenetic groups of *M. vaginalis*.

**Keywords:** *Monochoria vaginalis* species complex, Sub-palisade glands, Triangular cells, Styloids, Raphides