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Genus *Landoltia* (Araceae): A Newly Recorded Aquatic Genus from Sri Lanka

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Abstract

Members of the genus *Lemna*, commonly known as duckweeds, have the capacity to produce huge biomass with a broad range of potential applications and are popular as ornamentals in the aquatic plant industry. However, the species identity of the *Lemna* that occur in Sri Lanka is questionable as various literature recognize different species as occurring in Sri Lanka. There has been no detailed taxonomic study carried out on the genus *Lemna* in the recent past. The conservation and sustainable utilization of biodiversity solely rely on the correct identification of the species. Hence, the present study was carried out to identify the species diversity of *Lemna* occurring in Sri Lanka. Fieldwork was carried out from October 2022 to August 2023, covering the wet, intermediate, and dry zones of the country as the genus *Lemna* is recorded to occur in these zones. Qualitative and quantitative vegetative characters were recorded in the field and in the laboratory by the naked eye or by using a Stereo microscope. The quantitative data included the number of roots, root length, frond length and width, and number of veins while the qualitative data included the shape of the root tip, the presence of prophyllum, frond shape, the presence of papilla, frond symmetry and the nature of frond surface. Morphological data were subjected to Hierarchical Cluster Analysis, using the PAST software. Based on the results, four distinct clusters were recognised, of which three clusters resembled morphological characters of *Lemna* species. However, a distinct cluster that separated at a distance of 0.56 resembled morphological characters different to *Lemna*, viz., the presence of a prophyllum, turions and multiple roots, characters considered as absent in the genus *Lemna*. The literature survey reveals that these characters are unique to the genus *Landoltia*, Hence the study confirmed the presence of a new genus *Landoltia* for the first time in Sri Lanka. The results of the present study would be useful in initiating further studies on the identification of the species. Due to the minute nature of these plants, molecular studies are recommended for confirmation of their species identity.

Keywords: Conservation, *Landoltia*, *Lemna*, Morphometric analyses, Species diversity