

(23)

*Lagenandra ovata*, *Lagenandra praetermissa* and their Genetic Intermediates Identify Unique Natural Populations

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**Abstract**

*Lagenandra* Dalz. is an aquatic genus belonging to the family Araceae. The genus is restricted to Sri Lanka, Bangladesh, and India. Nine *Lagenandra* species are recorded from Sri Lanka out of which eight are endemic. Two of the eight are Critically Endangered while the other six are endangered. Detailed taxonomic studies and correct identification enable determining species limits and effective conservation of the genus. Previous studies observed five distinct *Lagenandra* populations from Walikumbura (Lh1), Panagamuwa (Lh2), Wijeriyia (Lh3), Dapane (Lh4), and Kottawa (Lh5) with flower characters intermediate to *L. praetermissa* and *L. ovata* and questions the presence of natural hybrids. Morphological data does not provide sufficient evidence and further molecular study is needed. The aim of this study is to discriminate the morphological intermediates between *L. ovata* and *L. praetermissa* using ISSR markers. Samples of one individual, each from five intermediate populations, three randomly selected *L. praetermissa* populations and four randomly selected *L. ovata* populations were incorporated in the study. DNA extracted from fresh leaf samples. DNA samples were PCR amplified using ISSR primers of (AG)<sub>8</sub>C and (CT)<sub>8</sub>GC, and observed by Agarose gel electrophoresis. Samples were analyzed in duplicates. Data was analyzed using “PAST” software (Version 4). The five intermediate populations and the parents delineated into two distinct clusters. Sample Lh4 clustered with *L. praetermissa* whereas Lh1, Lh2, Lh3, and Lh5 clustered with *L. ovata*. Interestingly two sub clusters were discriminated within the *L. ovata* group, whereby while Lh5 clustered with *L. ovata* parent, and Lh1, Lh2, and Lh3 deviated from Lh5 and the parent indicating genetic deviation and diversity within this group. Therefore, the molecular analysis found further evidence supporting morphological diversity highlighting the need for careful evaluation and strategic plans to conserve these unique *Lagenandra* natural populations.

**Keywords:** Biodiversity, Taxonomy, Flower characters, Conservation, ISSR markers