

## Genetic diversity of *Ludwigia sedioides* in Sri Lanka: a potential invasive aquatic plant

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*Ludwigia sedioides* (Humb. & Bonpl.) H. Hara, a popular ornamental aquatic plant, is a perennial, herbaceous plant belonging to the family Onagraceae, and native to Brazil and Venezuela. A recent study revealed that the plant is naturalized in water bodies of the Gampaha and Colombo Districts in Sri Lanka. Due to its rapid growth, it could have a negative impact on agriculture, environment and recreational activities in the wet zone. Genetic diversity is a key factor for the survival of plants in a non-native ecosystem. Therefore, this study investigates the genetic diversity of *L. sedioides*, to provide information for management of this plant in future.

A total of 20 samples of *L. sedioides*, belonging to two natural populations collected from the Pugoda and Pahuru-ela areas, and two populations representing two ornamental plant outlets from Colombo and Kandy, were studied using Random Amplified Polymorphic DNA (RAPD) markers. The CTAB, DNA extraction protocol yielded 30 µg of *L. sedioides* DNA per 20 mg of leaf tissue, adequate for PCR amplification. Ten random primers, namely, OPK 1, OPK 8, OPK 18, OPK 19, OPK 20, OPC 4, OPE 1, OPS 2, OPY 6, and OPY 13 were selected from 38 primers to perform RAPD reactions. Thirty three polymorphic bands were scored from total of 52 bands. The RAP Distance software package was used to analyze the data obtained and to construct the dendrogram. The distance matrix revealed that the average genetic distance between all combinations of germplasm accessions was 0.09, indicating a close relatedness among the genotypes. However, the dendrogram shows two separate clusters where all the samples from plant outlets were clustered together. In this cluster, five samples collected from Pugoda and Pahuru-ela also included. The study showed that the genotypes were genetically closely related, as this species was observed to be propagated through vegetative means. Therefore, control methods needed to be implemented immediately before the development of genotypes adapted to the local environmental conditions.

**Key words:** Alien invasive plants, genetic diversity, *Ludwigia sedioides*, random amplified polymorphic DNA

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