

**GENETIC DIVERSITY AMONG POPULATIONS OF *MONOCHORIA VAGINALIS* DETECTED BY RANDOM AMPLIFIED POLYMORPHIC DNA (RAPD) VALIDATES THREE PHENETIC GROUPS FOUND IN SRI LANKA**

**U.S. Gunaratne<sup>1</sup>, P. Samaraweera<sup>1</sup> and D.M.D. Yakandawala<sup>2\*</sup>**

<sup>1</sup>*Department of Molecular Biology and Biotechnology, Faculty of Science, University of Peradeniya, Sri Lanka*

<sup>2</sup>*Department of Botany, Faculty of Science, University of Peradeniya, Sri Lanka*  
*\*deepthiyakandawala@gmail.com*

*Monochoria vaginalis* (Burm.f.) Presl is an annual marsh herb of the family Pontederiaceae. The species has medicinal properties and food values and also a weed in paddy cultivation. Three phenetic groups within *M. vaginalis* have been identified within Sri Lanka by a previous morphological study. These groups display morphological variations which are found to be stable and do not change with the environment. RAPD (Random Amplified Polymorphic DNA) analysis using eight random primers has also revealed that there is a genetic difference among the populations of the three phenetic groups of *M. vaginalis* in Sri Lanka.

In the current study 21 random primers were used to assess the genetic variation among six populations representing the three morphologically different groups of *M. vaginalis*; Group A, Group B and Group C. Leaf samples were collected from six locations; *Panama* (PA), *Makandura* (MA), *Midigama* (MD) which represented Group A, *Penideniya* (PD) which represented Group B, *Thirappane wewa* (TR), *Maradankadawela* (MR) representing Group C. Genomic DNA was extracted and used in PCR amplification with random primers. Two random primers were used to check intra-population variation. Out of 21 RAPD primers only fourteen have given polymorphic bands which were used in inter-population analysis. Average linkage and Euclidian distance were used in constructing the dendrogram by Minitab 14.

The dendrogram conferred three phenetic groups agreeing with the previous studies. According to the resulting dendrogram, plants of Group A initially separated from the rest at 8.72% similarity level and at a distance of 6.83. The other two groups also separated from each other at a distance of 6.36 and 14.99% similarity level. The inter-population cluster analysis of RAPD markers illustrated the high inter-population variation in *M. vaginalis* whereas no notable RAPD variation was observed at intra-population level of *M. vaginalis* in Sri Lanka. Since the weed management and medicinal aspects require accurate identification of plants, the recognition of species level or below species level taxa within Sri Lankan *M. vaginalis* is important.