

# Genetic differentiation among Sri Lankan traditional rice (*Oryza sativa*) varieties and wild rice species by AFLP markers

Gowri, R., Jagathpriya, W., Kumudu, F. And Rangika, S.

## Abstract

Traditional rice varieties are one important component of the biodiversity of Sri Lanka. However, no proper studies have been performed on genetic diversity of the Sri Lankan traditional rice varieties used in our breeding programs. In the present study, the genetic diversity of 46 traditional rice (*Oryza sativa*) varieties and 5 wild rice species is assessed using Amplified Fragment Length Polymorphism (AFLP) markers. Ten primer combinations generated a total of 784 fragments. Of these, 772 fragments were polymorphic (98.4%). UPGMA analysis based on Jaccard's similarity separated the accessions into four major clusters. A cophenetic correlation with  $r=0.786$  strongly supported the clustering pattern of UPGMA dendrogram. A principal coordinate analysis (PCoA) also confirmed the UPGMA clusters. Accessions referred to the same cluster showed similar morphological characteristics (e.g. height, grain colour etc.) while accessions which are known to be morphologically distinct appeared genetically separated. In addition, the clustering pattern distinctly separated lowland and upland rice varieties. This genetic diversity assessment at the molecular level provides reliable information for selection of germplasm in the development of new rice varieties and in conservation of traditional rice genetic resources.