

Plant Genetic Resources

Gowri, R.1, Jagathpriya, W.1, Kumudu, F2. And Liyanage, A.3

¹ Institute of Biochemistry Molecular Biology and Biotechnology, University of Colombo, Colombo, Sri Lanka

² Agricultural Biotechnology Centre, Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka

³ Plant Genetic Resources Centre, Gannoruwa, Peradeniya, Sri Lanka

Abstract

Sri Lanka has a valuable repository of germplasm collection due to the availability of a large number of different traditional and improved rice varieties. Molecular techniques can increase the effectiveness of traditional technologies in assessing genetic diversity. Amplified fragment length polymorphism (AFLP) was used to evaluate the genetic diversity among rice varieties available in the germplasm collection of Plant Genetic Resources Centre, Sri Lanka. AFLP analysis of rice varieties using ten different primer combinations yielded a total of 772 polymorphic bands (98.4%). Genetic similarities were estimated using Jaccard's (J) similarity coefficient. Unweighted pair group method with arithmetic mean (UPGMA)-based dendrogram was constructed. Genetic similarities varied from 0.073 to 0.565. Cluster analysis by genetic similarity divided the accessions into four main groups. The Cophenetic correlation with $r = 0.781$ indicated high confidence of AFLP data to group the varieties in UPGMA clusters. Principal component analysis further confirmed the patterns obtained by the cluster analysis. The results revealed very high genetic diversity at molecular level among the Sri Lankan rice varieties used in this study.