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067 Genetic diversity analysis of traditional Rice variety "Pachchaperumal" in Sri Lanka

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Assessing the genetic diversity for miniaturization of crop collections in the form of mini core approach will lead to greater utilization of germplasm to develop improved crop cultivars with effective maintenance of it. It is vital to perform this, subjecting traditional Rice (*Oryza sativa* L.) varieties with the current arising demand for their characters. This study was conducted to assess the genetic diversity of twenty 'Pachchaperumal' traditional Rice accessions along with two control varieties Bg360 and 'Suwandal' Rice, conserved at the Seed Genebank of Plant Genetic Resources Center, Gannoruwa, Sri Lanka. Morphological analysis was done using seven standard seed morphological descriptors of Rice and, Molecular analysis was done using 16 SSR primers. Statistical analysis was done for morphological and molecular data using MINITAB 15 and POPGENE 1.31softwares respectively. Strategy of bulking accessions was tested in the study relying on seed morphological clustering and it was a promising approach to use in the molecular analysis. Results revealed a significant degree of genetic diversity among tested accessions both morphologically and molecularly, and molecular results were more contributively reliable. Two distinct accessions were identified as potential off types of 'Pachchaperumal', accession numbers 3752 and 5547. Cluster analysis based on morphological traits generated seven major clusters at 1.62 relative distance. Depending on the pattern of clustering, ten bulks were formed. The molecular analysis of bulks based on SSR markers generated five clusters in a relative genetic distance of 9.0. Eleven accessions were explored as representative set out of all 20 accessions and according to passport data 3 of them were Bg accessions, 5550, 5549 and 5546.

Key words: *Oryza sativa*, genetic diversity, germplasm, Pachchaperumal, Sri Lanka