

Variability Assessment of Morphological Characteristics of Selected Sri Lankan Traditional Rice (*Oryza sativa* L.) Varieties

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Rice is one of the most studied plants due to high genetic variation and being the major food for more than half of the world population. Sri Lankan traditional rice varieties are rich in genetic diversity and important characteristics. Before studying the genetic background of characters, a preliminary study on morphological characters is needed. This study was aimed to evaluate variability of selected Sri Lankan traditional rice varieties with respect to morphological characters. Seeds of 24 Sri Lankan traditional rice varieties and *IR64* were selected. A pot experiment with complete randomized block design was used and five replicates were prepared. Fifteen characters were measured using standard evaluation system for rice and descriptors for rice, published by International Rice Research Institute and analyzed by multivariate analyzing tools using principal component analysis (PCA) and single linkage cluster method provided by IBM SPSS 16.0 statistical software. Selected rice varieties were grouped into 5 clusters at 15 minimum distance between clusters. Cluster I comprises twenty one varieties and other four clusters comprise single variety in each. Clustering of 21 varieties (*Goda heenati*, *Thawalu*, *Al wee*, *Goda el wee*, *Pachchaperumal*, *Godamanel*, *Goda wee*, *Kottiyaran*, *Kara el*, *Batapola el*, *Pokkali*, *Hetada wee*, *Moddai karuppan*, *Vannam villai*, *Kalu heenaty*, *Sudu heenaty*, *Pola el*, *Kalu bala wee*, *Kahatawalu*, *Dahanala* and *Niyan wee*) into one cluster shows the homology of the varieties. Clustering of *IR64*, *Gonabaru*, *Rathl* and *Ma wee* in different clusters indicates their significant difference from cluster I. Five principle components (PCs) were identified as significant according to PCA. They account for 79% of total variation. PC1 accounts for 30% and PC1 and PC2 together account for 51% of variance. Selected varieties show a significant difference according to the clustering pattern. Out of descriptors used in this study, significant descriptors of PC1 to PC5 can be used to differentiate selected varieties.

Keywords: Morphological characters, Multivariate analysis, Traditional rice