

MORPHOLOGICAL CHARACTERIZATION OF SELECTED *DIOSCOREA* ACCESSIONS

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Dioscorea, commonly known as yam, is one of the most important staple crops in the tropics, crucial for economic stability and food security. The Plant Genetic Resource Centre (PGRC) in Sri Lanka has conserved 215 *Dioscorea* accessions as of 2024, which have not been fully characterized yet. The main objective of this study was the morphological characterization of selected *Dioscorea* accessions conserved in the PGRC germplasm. All accessions were cultivated under standard homogeneous conditions for characterization during the period from June 2024 to November 2024. International standardized descriptors for yams were used to characterize 84 morphological characters from 25 accessions during the vegetative phase of *Dioscorea*, each grown in duplicate. The cluster analysis, cluster variations and descriptive statistics were obtained using SAS JMP Pro 18. No duplications of conserved germplasm at PGRC were observed, thus each accession was unique under morphological characters. Three distinct clusters were identified, while cluster 1 consisted of three accessions: BTD - 6, BTD - 67, and BTD – 243, all belonging to *Dioscorea bulbifera*. Cluster 2 contained six accessions belonging to *Dioscorea esculenta*, while cluster 3, *Dioscorea alata* was represented by 16 accessions and the cluster analysis explained 73.2% of variation using qualitative characters and 69.6% using quantitative characters. When both qualitative and quantitative characters were for clustering 72.6% of variation in the collection was explained without altering the clustering pattern. Clustering was largely based on young stem color, young stem wing color and hairiness on the mature stem as qualitative and young stem length, leaf measurements and number of branching (above ground) as quantitative characters. The finding of this study is useful for systematic germplasm conservation and the utilizing of prominent traits in yam varietal improvement programs. Future studies should aim to include reproductive and storage characteristics to broaden the application of these results.

Keywords: Cluster analysis, Conserved germplasms, *Dioscorea alata*, *Dioscorea bulbifera*, *Dioscorea esculenta*