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Multivariate discrimination of coconut germplasm using inflorescence morphological characters

A detailed characterization was carried out on twelve coconut accessions conserved ex situ using six inflorescence morphological traits. Thirty palms were randomly selected from each accession and the inflorescence morphological characters, peduncle length, peduncle diameter, no of spikeletes, no of female flowers, length of central axis and average length of 4 spikeletes were scored in inflorescences which were bearing female flowers at the receptive stage.

Consistent results were obtained by adopting the multivariate methods Principal Components and Canonical Discriminant Analyses differentiating, the accessions into two main groups Typica and Nana. The 7 accessions namely, Namalwatta, St. Annes, Margaret, Mahena, Ambakelle special, Melsiripura and Mangala eily aclearly differentiated from the Nana accessions, Brown dwarf, Cameroon red dward, and Kundasale dwarf. However, the accessions Clovis lies in between the two groups along with Moorock.

The Mahalanobis D2 distance between pairwise accessions recorded the widest distances between Brown dwarf, Kundasale dwarf, Cameroon red dwarf and Moorock in descending order with the rest for the accessions. The traits, no. of spikelet length, no. of female flowers and length of central axis accounted for the greatest portion of the variability in explaining the diversity emphasizing their importance in characterzing the coconut diversity. The present results elucidate that not only the breeding behaviour but also the morphological characters related to reproductive parts of the palm can be used for characterizing the diversity. Moreover, the Mahalanobis D2 distances reveal that accession brown dwarf is highly diversed from the tall accessions exceeding the distances between other dwarf types anlysed indicating the possibility of obtaining hybrid vigour in crossing with tall accessions.