Characterisation and differentiation of local mustard (*Brassica juncea* L.) germplasm in Sri Lanka

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Mustard (*Brassica juncea* L.), a member of the genus *Brassica* of the family Brassicaceae, is an important spice. It has been grown in the Indian subcontinent for hundreds of years as an oil seed crop. However, in Sri Lanka, mustard is grown comparatively in lesser extent compared to other crops and is widely used as a condiment as well as oil for cooking purposes and in Ayurvedic medicines.

It has been reported that there are about 60 mustard accessions available in Sri Lanka. However, the genetic diversity and the relationships among these mustard accessions were yet to be studied and documented. The objective of the present study was to assess the genetic divergence of locally available genotypes of *B. juncea* using numerical analyses of agro-morphological characters, for identification of genetically diverse and agronomically superior accessions of mustard which may generate putative transgressive segregates on hybridisation. The study included thirty (30) mustard accessions available locally and on which thirty five agronomic characters were measured and recorded.

Morphological data were analysed using different multivariate statistical procedures: Cluster analyses, Principle Component Analyses (PCA) and Discriminant Function Analyses (DFA). In cluster analysis, five clusters of mustard accessions were recognised at 60% dissimilarity level (60% phenon level). The PCA extracted eleven components explaining a cumulative variance of 69% of the total variance in the dataset and variance of 31% was not explained by PCA. Therefore, DFA was carried out on the dataset to characterise and differentiate the mustard accessions and to compare the DFA results with PCA. The scatter plots produced by plotting DFA 1 versus DFA 2 indicated that there were three distinct groups of mustard accessions. Comparison of PCA and DFA revealed that there was a difference in the grouping patterns of mustard accessions yield under different statistical procedures. The results revealed that morphological characters seem to be inadequate in tracing the morphological variation in the mustard accessions and other sources of information such as biochemical and molecular markers are of importance in characterisation of mustard accessions.

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