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GENETIC DIVERSITY OF SELECTED *Capsicum* ACCESSIONS DERIVED THROUGH MORPHOLOGICAL AND MOLECULAR CHARACTERIZATION

Capsicum chinense and *C. frutescens* are common cultivated chilli species in some parts of Sri Lanka. Genetic diversity of thirteen *Capsicum* accessions was assessed by morphological and molecular means. Plants were raised in a randomized complete block design with two replicates during yala 2016 and maha 2016/17 at the Field Crops Research and Development Institute, Mahailuppallama, Sri Lanka. Twelve morphological characters were recorded and analysed using analysis of variance (ANOVA) and multivariate methods. ANOVA revealed significant differences among genotypes. In a principal component analysis, the first 3 components explain more than 71% of total variability. Plant height, width, days to 50% flowering, pods per plant and yield were positively correlated with PC1. Pearson correlation coefficient showed a significant positive correlation with some of morphological traits. Dendrogram derived by morphological and molecular analyses given two and three clusters respectively at 0.1 similarity levels and both analysis showed comparable results. A total of 45 alleles were detected in 15 microsatellite markers for the 13 *Capsicum* accessions. Out of these 15 SSR loci 14 loci showed polymorphism. Genetic diversity ranged from 0.00 to 0.75 with an average of 0.51. The PIC value varied from 0.13 to 0.70 with the average of 0.44. To date molecular characterization data of *Capsicum* accessions is limited in Sri Lanka. Therefore, this study will facilitate more detailed characterization of *Capsicum* accessions using morphological and molecular markers.

Country or International Organization

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Track Classification: Mutation breeding for adaptation to climate change in seed propagated crops