

Abstract No: PP7

SSR Markers revealed genetic diversity of some finger millet accessions collected from six districts of Sri Lanka

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Finger millet (*Eleusine coracana* L.) is an important food crop widely cultivated in the arid and semi-arid regions of the world including Sri Lanka. The grains contain higher protein, fat and minerals than rice, corn and sorghum. Germplasm identification and characterization is an important link between conservation and utilization of plant genetic resources. The present study was conducted to reveal genetic diversity of twenty three finger millet germplasm accessions collected from six districts of Sri Lanka using 10 (SSR) primer markers. Out of these primers, eight primers (UGEP 05, UGEP 10, UGEP 15, UGEP 68, UGEP 78, UGEP 102, UGEP 106 and UGEP 110) were polymorphic and other two were monomorphic (UGEP 03 and UGEP 31). Calculation of gene diversity and Polymorphic Information Content (PIC), estimation of genetic distances and cluster analysis were performed using Power Marker version 3.25. Shared alleles were calculated and cluster analysis was performed with Neighbor joining method and TreeView software (version 1.6) to construct the tree diagram. Gene diversity varied from 0.0832 (with primer UGEP 78) to 0.7297 (with primer UGEP 15). PIC also varied from 0.0797 to 0.6862 with same primers (UGEP 78 and UGEP 15) respectively. Frequency based shared allele distance matrix exhibited distances between finger millet germplasm accessions ranging from 0.100 to 0.700. The highest distances were observed between accession Kurakkan 5 and Galbora Kurakkan (collected from Kurunagala Hambantota districts); Kurakkan 8 (collected from Kurunegala district) and Galbora Kurakkan; Kurakkan 8 and Thummas Kurakkan (collected from Anuradhapura district). Dendrogram constructed on the basis of SSR polymorphism revealed the pattern of genetic relatedness among 23 finger millet germplasm accessions grouping them into 2 main clusters (except 3 accessions). The identified genotypes could be used in breeding and conservation programmes of finger millet crop.

This work was supported by NSF grant number 2011/BT/09 and Plant Genetic resource Centre, Gannoruwa.