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Genetic Diversity Analysis of Maintaining Lines for Kenyan Sunflower (Helianthus annus L.) Using Allele Specific SSR Markers

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In any crop breeding program Selection and use of genetically diverse genotypes to develop cultivars with a broad genetic base is important. Molecular markers play a major role in selecting diverse genotypes. Molecular breeding programs of the crop can be made more efficient by use of molecular markers .The present study was done with an aim of analyzing genetic diversity and the population structure in 24 accessions of sunflower (Helianthus annus L.) from Kenya genetic diversity using 35 EST-SSR and gSSR primers.Out of the 35 markers 3 were not polymorphic as they indicated Polymorphic Information content(PIC) of value 0.00 and so the data analysis was done using 32 markers . The 32 set of markers used produced 29 alleles ranging from 2 to 7with a mean of 3.0 alleles per locus.The average value of polymorphic information contents(PIC) were 0.3 .Genetic diversity analysis using these markers revealed 3 major clusters. This result could be useful for designing strategies to make elite hybrid and inbreeding of crossing block for breeding and future molecular breeding programs to make elite variety.

Keywords: Sunflower, EST-SSR, genetic diversity, population structure