

Cultivar-Specific SSR Markers as Revealed Through Fluorescence-Labeling and Capillary Electrophoresis in Sugarcane (*Saccharum* hybrids spp.)

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Genetic diversity in sugarcane was investigated using 21 fluorescence-labeled polymorphic SSR markers and capillary electrophoresis system. Sixty-one sugarcane varieties from the Philippines were included in the study including 21 commercial cultivars with 13 parental materials and 20 new hybrids. A total of 199 alleles were amplified, of which 90.45% were polymorphic. Number of alleles recorded per primer pair ranged 3 to 16 with an average of 8.57. Some alleles were uniquely present or absent in a particular cultivar that can be used as cultivar-specific markers for rapid discrimination. The percentage of polymorphic bands (PPB) per primer pair varied from 72.72 to 100 % with an average of 92.07 %. The polymorphism information content (PIC) value ranged 0.19 to 0.89 with an average of 0.80. An unweighted pair group method analysis was used to cluster the 61 sugarcane varieties into two major and three minor groups, which were in agreement with the results of principal component analysis except for a few cultivars that were loosely distributed distantly from the larger group. Twenty SSR primer pairs generated fingerprint markers that are useful in identifying commercial cultivars and other wild relatives of sugarcane in the germplasm collection in the Philippines. The results can be extended by using additional SSR primer pairs. The information generated from this study can also be employed in seed cane production certification, seed contaminant identification, and distinguishing among cultivars with similar phenotype.

Keywords: CE, fluorescence, hybrids, *Saccharum* spp, SSR