Interspecific Variation in the Promoter Region of a Sucrose Synthase Gene in the Genus Saccharum. (C07-lingle084656-Poster)

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Abstract:

Sucrose synthase is an important enzyme of sucrose metabolism in sugarcane, a polyploid interspecific hybrid of the genus Saccharum. One of the genes for sucrose synthase (Sus2, homologous to maize Sh1) is more highly expressed in sucrose-storing hybrids than in low sucrose S. spontaneum. We amplified and cloned the promoter region for the Sus2 gene from 'Muntok Java' (MJ), a sucrose-storing S, officinarum x S. spontaneum hybrid, and 'PIN84-1' (PIN), a low-sucrose S. spontaneum. Four clones were sequenced from each genotype. All four MJ clones were different, and there were two distinct clones in PIN. The differences were characterized by large inserts of about 250 base pairs that were highly homologous to regions of the candystripe1 retrotransposon in sorghum. There were five different inserts among the six different clones, designated A through E. Inserts A and D were 93% identical, while inserts B, C and E were more than 90% identical. PCR with primers designed around the insertions produced polymorphic patterns in the genotypes. These differences may be useful for the selection of the highly expressed form of the gene.

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