

Crop Species Transportability of *Sorghum* Microsatellite Markers In *Sugarcane* and *Maize*

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Abstract

Simple sequence repeat (SSR) markers are valuable tools for many purposes, such as mapping, fingerprinting, and plant breeding. However, they are only available in some economically important crops because of the high cost and labor intensity involved in their development. Comparative mapping reveals a high degree of colinearity between closely related species and genera, which allows the exchange of markers between them. Our objective was to examine the transportability of sorghum SSR markers to sugarcane (*Saccharum spp*) and maize (*Zea mays*). Out of 29 sorghum SSR markers, 20.7% and 6.9% were amplified in sugarcane and maize, respectively. SSR markers were informative, even though only six varieties of each species were examined. The number of fragments amplified by the polymorphic primers ranged from 4 to 9 with an average of 6.2 and 2-3 with an average of 2.5 in sugarcane and maize, respectively. Fragments amplified revealed size variation in target species, as compared to the sorghum markers. One marker, amplified among three related species, suggests that these allelic regions of the primer binding sites are conserved. These markers with transportability between species can be used for breeding and genetics studies.

Keywords: *Crop Species Transportability, Microsatellite, Sugarcane, Sorghum, Maize.*