

Evaluation of *Pennisetum purpureum* outcrossing using molecular markers

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The Napier grass (*Pennisetum purpureum*) is a common grass used in animal feeding and nowadays it has become also important to energy production. Due to this high demand, it is mandatory the development of cultivars with high biomass production what requires detailed biological knowledge about this species, such as reproduction mechanisms and outcrossing rate. Molecular markers are effectively used as tools to monitor these traits in various plant species. In this work, six individuals of Napier grass belonging to the Embrapa Dairy Cattle Forage Breeding Program were selected to form half-siblings' families. Seeds were planted and 20 plants were chosen to form the progenies, totalizing a final population of 126 individuals. Fresh leaves were collected to DNA extraction and five microsatellites markers were chosen, based upon polymorphism among the progenitors, to check genetic variability. DNA amplified fragments were detected by capillary electrophoresis, using MegaBACE 1000 DNA sequencer. The fragment analyses detected that 72% of the progenies showed at least one allele not present in the maternal progenitor, what suggests that these individuals originated from outcrossing. A total of 11% of the progenies seems to be originated by self-pollination and the remaining 17% of were missing data due to PCR failure indicating the need to generate data in duplicates. Our data indicates the predominance of outcrossing in *Pennisetum purpureum* that could be related to protogyny previously detected in this specie. However, the Napier grass is known to possess a high number of inflorescences in different stages of development, and then, crossings could occur among different stage inflorescences in the same individual. In addition, it was not described in Napier grass any self-incompatibility mechanism, so it is possible the formation of seed through self-pollination. These preliminary results indicate the need of extending the family numbers and markers to increase the reliability of data.

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