

R.A. patu.



## In vivo genomic duplication of interspecific hybrids from napier grass and pearl millet

Nunes, JD1; Azevedo, ALS1; Lédo, FJS1; Vander, AV1; Fonseca, EM2; Silva, TA3

1 Empresa Brasileira de Pesquisa Agropecuária, Embrapa Gado de Leite, Juiz de Fora, MG. 2 Universidade Federal de Juiz de Fora, UFJF, Juiz de Fora, MG. 3 Centro de Ensino Superior de Juiz de Fora, CES, Juiz de Fora, MG  
judornellas@gmail.com

**Key words:** Pennisetum, Polyploid, Flow cytometry, Colchicine, Interspecific hybrids

Hybrids between napier grass - *Pennisetum purpureum* ( $2n = 4x = 28$ ) and pearl millet - *Pennisetum glaucum* ( $2n = 2x = 14$ ) have great importance in *Pennisetum* genetic breeding. The triploid hybrid ( $2n = 3x = 21$ ) sterility limits its use and prevents the seeds production for pastures deployment. The fertility restoration of these hybrids can be achieved through cytogenetic technology that allows chromosome duplication using colchicine. In this work were tested nine treatments with colchicine, at 0.05%, 0.1% and 0.2% concentrations. Exposure times ranged from 18 hours to 2 hours and 30 minutes. Triploid hybrid seeds were used belonging to the Embrapa Dairy Cattle breeding program, whose parents are napier grass (Mineiro cv.) and pearl millet (BN2). The ploidy screening of plants was performed by flow cytometry. The reference standard used was Polanka cv. (Glycine max). The survival rate of plants after treatments was low, around 3 to 33%. The lowest survival rates occurred among the treatments with longer exposure to colchicine. Treatments one and five, with 12 and 10 hours of exposure, respectively, showed only 3.3% of surviving plants. The treatment nine, with four hours of exposure to colchicine, presented the highest percentage of survivors about 33%. The DNA mean content ranged from 4.85 to 5.49 pg. These amounts are expected for the triploid hybrid. The duplication rate was very low. Only in treatment six, 2 hours and 30 minutes of exposure to colchicine (0.2%), were obtained 3.33% of plants with doubled DNA content. The results showed that long times of exposure to colchicine were extremely toxic and therefore affected embryo development and plant survival. The treatments with low exposure time to colchicine, 2 to 4 hours, allowed a better development and survival of plants and hexaploid plants obtaining. Financial Support: CNPq, Fapemig and Unipasto

SP 5298  
P. 167