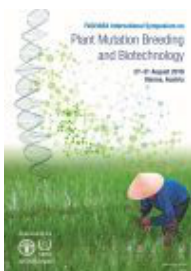


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DEVELOPMENT OF POLYPLOIDS OF SOME CITRUS SPECIES BY IN-VITRO COLCHICINE TREATMENTS AND EARLY SELECTION BY FLOW CYTOMETRY

Developments in citrus biotechnology, especially in callus cultures have opened new opportunities to develop new rootstocks and cultivars. Polyploidy is one of the main breeding goals in order to obtain new genotypes with improved characteristics to develop citrus germplasm. Flow cytometry is a highly developed early and rapid selection technique that aims to analyze mutant cells and its components like total genome sizes in mutant population. In this research, embryogenic callus lines of six Citrus species including orange (*Citrus sinensis*), lemon (*Citrus limon*), mandarin (*Citrus reticulata*), kinkoje (*Citrus obovoidea*), hyokan (*Citrus ampullaceae*) and sanbokan (*Citrus sulcata*) were investigated. Colchicine as a chemical mutagen applied with different concentration (0.0%, 0.01%, 0.05% and 0.1%) on embryogenic callus lines cultured on Murashige and Tucker (MT) medium supplemented with 500 mg/l malt extract during 8 weeks. Callus lines were transferred to MT medium without colchicine and subcultured during 12 weeks after treatment. Somatic embryos arising from the callus in petri dishes were transferred for germination to tubes containing MT medium with 5 mg/l GA3. Obtained plantlets were evaluated for genome sizes for ploidy determination by flow cytometry analysis. According to the obtained results colchicine treatments were resulted different polyploidy ratios in different Citrus species. The highest polyploidy ratio (27%) was obtained in oranges from 0.1% colchicine treatment followed by lemon (22%) from the same concentration of colchicine.

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