

Study of Genetic and Phenotypic Variability among Somaclones Induced by BAP and TDZ in Micropropagated Shoot Tips of Banana (*Musa* spp.) Using RAPD Markers

ABSTRACT

The effects of different concentrations of BAP and TDZ on somaclonal variation based on genetic and phenotypic variability among micropropagated shoot tips of banana cultivars; 'Berangan Intan', 'Berangan' and 'Rastali' were studied. With the highest concentrations of both BAP and TDZ up to 44.4 μ M and 7.5 μ M, respectively, most shoots were curled and other morphological changes such as hyperhydricity and undifferentiated shoots were observed. Detectable genetic changes to reveal stable variations among 27 micropropagated variants produced by BAP and TDZ were confirmed using RAPD markers. The percentage of polymorphism among somaclones of cultivars; Berangan Intan, Berangan and Rastali regenerated by TDZ was 24.4, 27.3 and 29.5, respectively which was higher than BAP with the percentages of 16.7, 24.2 and 24.7, respectively. The number of scorable bands among the RAPD profiles obtained with 19 primers tested in this study varied from 6 for opa11 and opk03 to 18 by opc01 in somaclones derived from BAP and 4 for opk03 to 14 with opa04, opb18 and opc04 in the case of TDZ. Cluster analysis of the somaclones regenerated with each BAP and TDZ resulted in the formation of two major groups, one belonging to Berangan Intan and Berangan (AAA) and the other to Rastali (AAB). From each dendrogram caused by BAP and TDZ, it could be concluded that regenerated somaclones by higher concentrations of both BAP and TDZ accumulated much genetic variation compared to control and lower concentrations of each BAP and TDZ.

Keyword: Banana, Cytokinins, RAPD, Shoot tip culture, Somaclonal Variation