ABSTRACT

In vitro propagation in Banana (Musa acuminata, AAA): Improvements to the technique.

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A series of investigations was conducted to improve the micropropagation technique in banana with the aim of reducing the potential degree of variability and the cost of plantlet production. Floral apices were cultured on MS_5 medium supplemented with BAP and IBA. The male (♂) flower primordia on the distal portion of the peduncle reverted to the vegetative state and produced small green shoot-like primordia which eventually developed large shoot with leaves. Culture media requirements varied with the genomic group.

Two per cent sucrose with 469.73 mMoles KNO_3 and 515.37 mMoles of NH_4NO_3 were found to be optimum for better shoot growth and root development.

Post-transplant performance of *in vitro* plantlets showed that peat moss + sand(1:1), among the different potting mixes tried, was better for *ex vitro* hardening-off of plantlets. A combination of coconut fibre + sand + soil (2:1:1) significantly improved the post-transplant performance comparable with peat moss and vermiculite.

Growth of plantlets can be influenced rapidly by a twice-weekly application of 1 g l^{-1} fertilizer mixture (30:10:10)(nutrex), through root drench method.

Incorporation of ABA and triadimefon to the rooting medium for *in vitro* hardening was seen to improve resistance to wilting and thus to obviate the need for hardening-off at stage IV of micropropagation.

Hardiness and survivability of plantlets on *extra vitrum* transplanting was significantly increased with an exogenous application of ABA, triadimefon and uniconazole. Root drench application was found to be more effective and required lower concentrations compared to foliar application.

Histological comparison of the site of shoot initiation showed that shoots originating from vegetative apices are of adventitious origin. In case of floral apices, ♂ flower primordia in the axil of the bracts reverted to vegetative shoot buds, suggesting that these are not irreversibly programmed.