

A study of some factors affecting *in vitro* shoot proliferation of *Ananas comosus* (L.) Meer.

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Ananas comosus (pineapple) is a herbaceous, monocotyledonous plant which is the leading edible member of family Bromeliaceae. Pineapple is vegetatively propagated through different parts taken from the mother plant such as ratoon, sucker, slip and crown. The main objectives of the study were to identify some factors affecting *in vitro* shoot proliferation of *Ananas comosus* and histological analysis of shoot tip proliferation *in vitro*.

Field collected young and mature propagules of Kew and Mauritius varieties (ratoons, suckers, and crowns) were grown in green house to reduce contaminations. Shoot tips (apical and axillary buds) were taken as the explants. Most of the young propagules did not have prominent axillary buds. To obtain prominent axillary buds for culturing, green leaves were removed carefully from the propagules (suckers and ratoons) and were kept in the dark for 2 weeks for bud growth. A series of experiments were carried out varying the concentrations and the time of exposure to disinfectants on the explant, to determine an effective surface disinfestation procedure. A survival rate of 50-60% was obtained when explants were disinfected with captan[®] for 30 min 70% (v/v) ethanol for 5 min and 20% Clorox[®] (NaOCl) for 20 min. The growth of the apical tips was achieved for both Kew and Mauritius varieties one week after culturing on solid MS medium supplemented with Kinetin 71.7 mgdm⁻³ and IAA 58.4 mgdm⁻³. Initiation and proliferation were achieved on the same medium after 2 weeks of culturing. Proliferated cultures of Mauritius variety (from suckers and crowns) and Kew variety (from suckers) with 7-8 shoots were used for first sub culturing. Better shoot proliferation was observed in liquid MS medium supplemented with Kinetin 71.7 mgdm⁻³ and IAA 58.4 mgdm⁻³. One sub culture stage was carried out. Further quantification was not successful due to heavy contamination of cultures by both fungi and bacteria. Explants from mature mother plants showed higher contaminations than the younger mother plants. No growth was observed in cultured axillary shoots even after 3 months. Initiation was observed with 3-4 leaf primordia but was suppressed when leaf primordia were increased in number. Histological studies of the explants and of proliferation of shoots were carried out. Sections taken through the proliferated stems showed development of new meristems. The study revealed that shoot multiplication was achieved through the growth of hidden axillary buds already present and also due to development of new shoots.