**Mass propagation of *Zingiber officinale* Roscoe. (ginger) through *in vitro* shoot tip culture**

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With the popularity for the use of herbal products as medicine and for beauty culture purposes, the demand for *Zingiber officinale* (ginger) shows an increasing trend in the local market. The slow progress in the expansion of the cultivations when compared with the demand has led to the import of ginger. Thus, the potential exists to cultivate ginger as an intercrop in the drier parts of the country. Constrains in expansion largely stem from conventional propagation by rhizome multiplication which is laborious, time consuming, relatively inefficient and transmits diseases causing heavy losses. In this study "*in vitro* shoot tip culture" was examined to obtain mass production of planting material, with its added advantage of obtaining virus free planting material. Main objective of the study was to develop a propagation protocol and to carry out histological studies of morphogenesis *in vitro*.

An efficient disinfestation procedure was established for ginger by varying the concentration and the time period in contact with disinfectants. More than 80% successful results were obtained when 50% (v/v) Ethanol for 5 min and 20% Clorox® (NaOCl) for 15 min were used. *In vitro* initiation and multiplication of ginger was achieved by culturing 0.5-1.0 cm long axillary buds on semi-solid MS medium supplemented with BAP (5.0 mg/ L) and IAA (2.5 mg/ L). Two consecutive subculturing was carried out. The study indicates an increase in the number of buds in the two subculturing performed, suggesting that further subculturing would increase the rate of multiplication, resulting in mass production of shoots at a given time.

Histological studies of the explants and of proliferating shoots were carried out. The presence of many shoots in the latter, which was not present in the former, showed the histological differences that have taken place during shoot proliferation. Sections taken through the proliferating tissue showed the development of new meristems. Histological studies reveal that shoot multiplication is achieved through growth of hidden axillary buds already present and also due to development of new shoots.

The present study reveals the potential to produce a mass number of disease free, true-to-type planting material to over come constrains in the expansion of ginger cultivation towards commercial level.

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