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IN VITRO PROPAGATION OF *CORDYLINE TERMINALS*

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ABSTRACT

Shoot tips of *Cordyline terminalis* were subjected to different cold periods, medium types, anti-oxidant treatments, adenine sulphate concentrations, and natural additives during establishment stage. Also, cytokinin types and concentrations were evaluated during proliferation stage. In addition, medium strength and GA_3 concentrations were studied at shoot elongation phase. In the meantime, auxin types were taken in consideration during root formation phase. It appears that subjecting shoot tips to cold pretreatment for four days in the refrigerator (5°C) and culturing on modified Murashige and Skoog medium after immersing the explants in an anti-oxidant solution and addition of 40 mg/L cystin as well as 40 mg/L adenine sulphate and 5.0 of banana fruit juice to the culture medium enhanced establishment stage. Meanwhile, supplementation of the culture medium with 2.0 mg/L BAP was effective on increasing proliferation, while 4.0 mg/L BAP encouraged the highest callus production. Moreover, using half strength medium supplemented with 0.5 mg/L GA_3 and 1.0 mg/L IBA_3 maximized shoot elongation and root formation phases.

INTRODUCTION

Cordyline terminalis is an attractive ornamental plant used for indoor decoration. *In vitro* propagation produce large number of healthy, homogenous, and identical plants in short and exact time. Also, reduce expenses and losses in plant materials which resulted in maximizing producers profitability.

Murashige (1974) indicated that soaking tobacco explants in ascorbic acid and citric acid or adding them to the culture medium succeeded in reducing the harmful effect of phenolic compounds.

Kunisaki (1975) reported that modified Murashige and Skoog medium supplemented with 0.5 ppm 6-benzylaminopurine was preferred for *in vitro* propagation of *Cordyline terminalis*. However, Beruto *et al.* (1983), Welander (1988); and Tui-Ray *et al.* (2006) recommended using of Murashige and Skoog for *in vitro* propagation of *Cordyline terminalis*. Proliferation of *Cordyline terminalis* was enhanced when 2.0 mg/L BA was added to the culture medium (Evaldsson and Welander, 1985).

Stoehr and Zsuffa (1990) found that cold pretreatment (4°C) for 4 days encouraged callus production and development of *populous maximowiczii*. Also, Atta-Alla *et al.* (1996) stated that large numbers of shoots and leaves were obtained when 0.5-40 mg/L BA was used instead of both kinetin or 2-ip at the same concentrations. Rooting was improved by adding 2.0 mg/L IBA to the culture medium (Beruto *et al.*, 1983). Moreover, Tui-Rag *et al.* (2006) pointed out that the best elongation of shoots was found on half MS basal medium. Also, rooting was achieved on half strength medium supplemented with IBA.

MATERIALS AND METHODS

This study was carried out in the Tissue Culture Laboratory, Horticulture Department, Faculty of Agriculture Moshtohor, from 2003 to 2004.