

Effect of Growth Hormones and Subsequent Detopping in

Cordyline terminalis ‘Red edge’

D.A.M.N. Chamini¹, H. K. L. K. Gunasekera¹ and S. A. Krishnarajah²

¹ Department of Agricultural and Plantation Engineering, Faculty of Engineering Technology, The Open University of Sri Lanka

² Department of National Botanic Gardens, Peradeniya, Sri Lanka

ABSTRACT

Cordylines are excellent pot plants in their juvenile state and commercially propagated by stem cuttings. However scarcity of quality planting material becomes a limiting factor for commercial cultivators. Hence present study was aimed to optimize the auxiliary shoot formation of *Cordyline* in order to make the propagation feasible and economical. The experiment was laid out in a Completely Randomized Design (CRD) with six treatments randomized in three replicates. Treatments were the four different Gibberellic acid (GA₃) concentrations (mg l⁻¹), i.e. 25, 50, 75 and 100 applied in combination with constant level of BAP (75 mg l⁻¹). Hormone was applied (three times) to the cut end of the stem cuttings in ten days interval. Two treatments were maintained as control, i.e. sole application of 75 mg l⁻¹ of BAP and non hormone treatment. Rooting hormone applied stem cuttings were planted in black polythene bags (10 cm × 8 cm) filled with sand: coir dust (1:1 ratio in weight) medium and rooted cuttings were detopped one month after planting. Once a week measurements were taken on number of new shoots, length of new shoots, number of leaves per plant, length of the new leaves and time taken for new shoots formation. The data obtained were tabulated and analyzed subjected to the Analysis of Variance (ANOVA) procedure of Statistical Analysis System (SAS). Duncan's New Multiple Range Test (DNMRT) was performed to compare the differences among treatment means at p=0.05. Number of shoots per plant as well as length of the shoots did not show any significant difference (p>0.05) in sole application of 75 mg l⁻¹ of BAP and non hormone treatments. However significantly highest number of lengthy shoots was manifested from 75 mg l⁻¹ of BAP applied treatment and lowest from 75 mg l⁻¹ of BAP + 50 mg l⁻¹ and 75 mg l⁻¹ of GA₃ applied treatments. Leaf length was significantly different (p<0.05) in non hormone treatment and sole application of 75 mg l⁻¹ of BAP whilst number of leaves per plant did not show any significant difference (p>0.05) in both treatments tested. On the other hand, 75 mg l⁻¹ of BAP + 100 mg l⁻¹ of GA₃ applied treatment took long time (days) to initiate first shoot whilst sole application of BAP (75 mg l⁻¹) recorded the lowest time. Furthermore application of different concentrations of GA₃ did not show any significant impact on new shoots initiation and development. Hence 75 mg l⁻¹ BAP and subsequent detopping can be considered as the most effective treatment for auxiliary shoots initiation and development of *Cordyline terminalis* in order to make the propagation feasible and economical.

Key words: *Cordyline terminalis*, detopping, BAP, Gibberellic acid, shoots initiation

1* Corresponding Author: hkgun@ou.ac.lk