Effect of Auxin in Combination with Gibberellic Acid and Light on Spiral Production of *Dracaena sanderiana* var. White canes as value Added Product

H. P. T. L. Sewwandi[1], H. K. L. K. Gunasekera[1] and S. A. Krishnarajah[2]

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

Dracaena sanderiana var. "white" (Lucky bamboo) is a very popular foliage plant due to value added products made by their spirals. But the problem associated to produce value added plants is more time taken for spiral formation as well as low smoothness of spiral. Therefore present study was aimed to optimize the spiral formation of *Dracaena sanderiana* with improving the smoothness of spirals in order to make value added products more feasible. The experiment was arranged as a Completely Randomized Design (CRD) with six treatments randomized in three replicates. Treatments were the five different concentrations (ppm) of Auxin, i.e. 50, 100, 150, 200, 250 combined with 100ppm of Gibberellic acid (GA3) applied pot plants rotated once a week at the angle of 45 degrees. Application of 100ppm of Gibberellic acid and rotation (45 degrees) of plant stalks in front of the sun light at once a week was considered as the control of the experiment. Pots filled with coir dust: soil: top soil: compost medium (1:1:1:1 ratio in weight) mixed with 3% Indole-3-butyric were placed vertically in a net house. Two stones placed either side of pots to prevent rolling. Black polythene boxes which had 10cm long strip on top were used to cover the pot plants. Once a week measurements were taken on spiral growth, plant height, internodel length, number of new leaves per plant and smoothness of the spiral. After the hormone treatment *Dracaena* spirals were rooted and reduced smoothness of the canes. Hence the roots were removed from the spirals and pots were rotated with the same angle (45 degrees) in two times per week as a second experiment. Once a week same measurements were made without applying hormones. 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 $p=0.05$. Plant height and internodel length did not show any significant differences ($p>0.05$) in different treatments tested. However the highest plant heights and long internodes were manifested from GA3 (100ppm) + 45 degrees rotated plants and the lowest from GA3 (100ppm) + Auxin (250ppm) + 45 degrees rotated treatments. When correlation analysis performed for a overall data set, there was a significant ($p < 0.01$) positive correlation between internodel length and the smoothness of spiral. However, application of 100ppm of GA3 + 50ppm Auxin with 45 degrees rotated plant stalks in front of the light at two times per week showed a positive impact on spiral growth as well as the smoothness of *Dracaena* canes.

Key words: *Dracaena sanderiana,* Auxin, Gibberellic acid, spiral production, value added products

---

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