

PROMOTE ROOT AND LATERAL SHOOT DEVELOPMENT ON STEM CUTTINGS OF *DRACAENA MARGINATA* LAM

Hastening rooting and the stimulation of greater shoot development on cuttings is important to commercial plant producers.

Experiments were conducted on the use of growth substances to promote rooting and lateral shoot development of cuttings of *Dracaena marginata* Lam. The first experiment involved the effects of indolebutyric acid (IBA) on root initiation and development of 30 cm stem cuttings. The 5 levels of concentration of IBA used were 0, 1000, 2000, 3000 and 4000 ppm. Data were taken monthly over a period of 3 months on root development. Five stages of rooting were observed.

In a second experiment measuring the effects of the hormones on the rooting of cuttings, the 6 treatments tested were as follows:

1. Control that received no treatment.
2. IBA at 3000 ppm applied to the cuttings before striking.
3. IBA at 3000 ppm applied to the cuttings, with 6-(benzylamino)-9-(2-tetrahydropyran-9-yl)-9H-purine (PBA) applied at 1000 ppm to the stock plant 4 days prior to taking the cuttings.
4. PBA at 1000 ppm applied to the stock plant 4 days prior to taking the cuttings.
5. PBA applied at 1000 ppm to the upper portion of the cuttings at the time of striking.
6. PBA applied at 1000 ppm to the upper portion, with IBA at 3000 ppm applied to the lower portion of the cutting at the time of striking.

An experiment was conducted to examine the effects of growth substances on shoot development of fully rooted 30 cm stem cuttings. The growth substances tested were N_6 benzyladenine (N_6 BA), (PBA) and (2-chloroethyl) phosphonic

acid (ethephon), and each was applied at 5 concentrations 0, 100, 250, 500 and 1000 ppm. Data were taken over a 3 month period on the number of shoots initiated per cutting, the number of these shoots developing and the length of these shoots in cm.

There was an increase in the level of rooting with each increase in IBA concentration except at 4000 ppm where there was a slight decrease in rooting compared to the 3000 ppm concentration. PBA applied at 1000 ppm to the stock plant greatly inhibited the rooting of cuttings taken from these plants. PBA when applied to the cuttings at the time of striking had no apparent effect on root initiation or development. The application of PBA at 1000 ppm to the upper portion of the cutting, with IBA at 3000 ppm applied to the lower portion of the cutting at the time of striking had a very positive effect on rooting with a greater rooting index than all treatments.

The use of chemicals to stimulate lateral shoot development of cuttings appears quite effective. There was a general increase in the number of shoots developing with each increase in chemical concentration except with 1000 ppm, where PBA, and N₆BA showed a slight reduction in shoot development when compared to the 500 ppm concentration. Ethephon was the most effective chemical.

The effect of the treatments on the number of shoots initiated by the cuttings was not significant. The number and percentage of shoots developing were significantly effected by the treatments. The most effective concentration for ethephon was 1000 ppm, while both N₆BA and PBA were most effective at 500 ppm. The treatments did not significantly affect the length of the shoots.

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