Flowering of Anthurium following Treatment with Gibberellic Acid

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Anthuriums are becoming popular "flowering" foliage plants as growers look for new crops to expand their markets. Advantages of anthurium are that they can be grown in environments similar to many other foliage plants, liners from tissue culture are available year round, attractive inflorescences can be produced continually under greenhouse conditions, and new cultivars developed for pot culture are becoming available.

Anthurium inflorescences are normally produced by a dominant central stem initially and later by lateral stems, if produced. Cultivars with many lateral shoots, while desirable for pot culture, tend to flower later than those with strong apical dominance. Stimulating earlier flowering of lateral shoots could result in shorter production time and higher flower counts. Therefore, the following experiments were conducted using gibberellic acid (GA₃) in an attempt to increase flower production of anthuriums. GA₃ was chosen because it has been used previously to stimulate flowering of several other ornamental aroids (Henny, 1980, 1981, 1983).

The first experiment was conducted using 105 plants of *A. scherzerianum* 'Amazone', 28 weeks from tissue culture, $\approx$ 10 cm high, and growing in 10-cm-diameter (0.45-liter) pots filled with a 1 pine bark : 1 Vergro Container Mix A (v/v) (Verlite Co., Tampa, Fla.). Plants were placed in a randomized block design in a shaded greenhouse with a temperature range of 18 to 32C and 110 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ maximum light intensity under natural photoperiod in Apopka, Fla. Plants were fertilized with 2.5 g of 19-6-12 (N-P₂O₅-K₂O) Osmocote per pot applied on the soil surface. Gibberellic acid (ProGibb, Abbott Laboratories, North Chicago) was applied at 0, 12.5, 250, 375, or 500 mg a.i./

liter as a single foliar spray on 18 Nov. 1988. A total of 200 ml of solution was used to treat 21 plants at each GA₃ level. Final data regarding flowering were taken after $\approx$ 4 months (13 Mar.).

The second experiment involved 180 plants of *A. scherzerianum* 'Renate', 28 weeks from tissue culture, and growing in 10-cm-diameter (0.45-liter) pots. Ninety plants were placed in a randomized block design under natural photoperiod at a maximum light intensity of 170 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ and 90 plants at 280 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ in a shaded greenhouse with a temperature range of 18 to 32C. The potting medium was as noted, and fertilization consisted of 150 to 200 mg water-soluble 9-3-6 (N-P₂O₅-K₂O) fertilizer/liter applied at each watering. Plants received a single foliar spray of GA₃ at the same concentrations used in the first experiment; however, in this test 18 plants were sprayed with 200 ml of solution at each GA₃ level. Plants were treated 5 May 1989, and final data were collected 3 months later (8 Aug.).

In the first experiment, 'Amazone' treated with GA₃ produced significantly more flowers, but the increase was small (Table 1). There was little difference in bloom count due to treatment rate. In the second experiment, 'Renate' grown at low light intensity responded similarly to 'Amazone' by pro-

ducing a significant, although slight, increase in blooms. 'Renate' grown at high light and receiving high GA₃ levels (375 or 500 mg-liter⁻¹) had high bloom counts (Table 1).

In these experiments, 'Amazone' and 'Renate' grown at light levels of 110 or 170 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$, respectively, showed a small but significant increase in flowering following GA₃ treatment. This response was of little commercial value however. Growing 'Renate' at 280 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ light intensity before and after treatment resulted in higher bloom counts at all GA₃ levels; plants treated with 375 or 500 mg GA₃/liter averaged more than three blooms per pot. Blooms were produced by the central shoot and lateral shoots. *Anthurium andraeanum* Linden produced more blooms when grown under higher light intensity (Leffring, 1975), while a separate report showed that a spray of 100 mg GA₃/liter had no effect on flowering (Nakasone and Kamemoto, 1962). Those reports plus the results from the two experiments reported here indicate that light intensity and GA₃ concentration are important factors in regulating *Anthurium* bloom count.

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Table 1. Effect of light levels and GA₃ concentrations (applied as a single foliar spray) on the mean number of inflorescences produced by two *Anthurium scherzerianum* cultivars. The data presented are from two separate experiments.

Ga ₃ concn (mg·liter ⁻¹)	Cultivar		
	Amazone ^z	Renate ^y	
	Light intensity (μmol·m ⁻² ·s ⁻¹)		
	110	170	280
0	0.2	0.2	0.3
125	1.8	0.2	1.4
250	2.0	0.6	1.9
375	1.6	1.2	3.3
500	1.7	1.3	5.3
Significance			
Concn, linear	*	*	*
Concn, quadratic	*	NS	NS
Concn × light	---	*	*

²n = 21. Plants treated 18 Nov. 1988 and flowers counted 13 Mar. 1989.

³n = 18. Plants treated 5 May 1989 and flowers counted 8 Aug. 1989.

NS,*Nonsignificant and significant at $P = 0.05$, respectively.

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