STIMULATION OF FLOWERING IN *DIEFFENBACHIA*

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Dieffenbachia breeding has been hindered by sporadic flowering and the small number of inflorexcences per plant. In attempting to surmount this problem we initiated experments to see if it would be possible to control flowering using the plant hormone gibberellic acid (GA_3). The study was conducted on full-sized plants of *Dieffenbachia maculata* 'Perfection' grown in 6-inch pots. Treated plants were sprayed on their upper and lower leaf surfaces until runoff with either 250, 500 or 1000 parts per million GA_3 while control plants were sprayed with water only. Ten plants were tested at each of the four GA_3 levels and plants were maintained in a greenhouse held at 65-90°F temperature range. GA_3 was tested because it had previously been shown to induce flowering in many crops as well as some aroids (1,2,3,4).

All of the 30 plants sprayed with GA_3 showed visible flower buds 8 weeks after being treated and within 13 weeks every plant had at least 1 open inflorescence. The treated plants flowered uniformly with mean days to flowering of 93, 90 and 92 at the 250, 500 and 1000 mg/l treatments respectively (Table 1). During the same period none of the 10 plants sprayed with water produced any visible signs of flowering. The experiment was started in September which meant that the treated plants were in bloom in late December and January. Normally most *Dieffenbachia* flower in the spring (April-June) under our growing conditions in central Florida. Spraying plants in September with GA_3 allowed us to begin pollination 3-4 months earlier than normal. Flower fertility was not affected as inflorescences produced pollen and set seed following self-pollination.

In addition, plants sprayed with GA_3 produced more flowers than normal. *Dieffenbachia maculata* 'Perfection' usually produce 3 or 4 and sometimes 5 inflorescences when flowering. However, plants treated with 250, 500 and 1000 ppm GA_3 averaged 6.6, 8.7 and 9.3 inflorescences respectively (Table 1). As many as 12 inflorescences were produced by some plants.

The stimulation of flowering in *Dieffenbachia* with GA_3 has several implications regarding breeding of this crop. Forcing plants to flower in December instead of April can save up to 4 months in the life cycle of the crop. If flowering can be controlled, it may be possible to maintain blocks of stock plants in bloom the year around which would spread out the period of crossing and enable one to hybridize with plants that flower at other times of the year. Increasing the number of inflorescences per plant would reduce the number of stock plants necessary and save greenhouse space. In summary, this would allow for much more flexibility and efficiency in a breeding program. We are continuing to study the effects of GA_3 on flowering of *Dieffenbachia* at different times of the year.

TABLE 1. Effect of gibberellic acid (GA_3) sprays on the number of days to flower and number of inflorescences per plant of *Dieffenbachia maculata* 'Perfection.'

GA_3 conc. (ppm)	Mean days to first bloom[z]	Mean number of inflorescences
0	-[y]	-
250	93	6.6
500	90	8.7
1000	92	9.3

[z]Days after treatment until the first inflorescence opened. 10 plants per treatment.

[y]Plants did not flower before the experiment was terminated after 180 days. Plants were sprayed September 17, 1979.

Literature Cited

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SHORT COMMUNICATIONS

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winter, ready for planting out again in the spring.

Nearly all of the 110 genera of aroids, and over half of the approximately 2,000 species, are in cultivation somewhere in the world, but many of the species are represented by only a few plants in a single collection. The wider dissemination of these materials is highly desirable, both as a guarantee against their accidental extinction and for the enjoyment their cultivation provides.

Formation of a plant bank for distribution of such materials to members of the society is of potentially great value for all of us, especially those members who are geographically remote from the main concentrations of members in south Florida, southern California and Queensland. The success of a plant bank will depend on the hard work and dedication of whoever volunteers to operate it, and on the generosity of members who have spare plantlets to share. In addition to a main office in the U.S., the plant bank will also need an office in Australia to direct the distribution of materials to our many Australian members. Volunteers, make yourselves known!

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