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Efficacy of Bonzi™ and Photoperiodicity of *Clerodendrum quaduloculare* as a Flowering Potted Plant

Jeff S. Kuehny and Annina Delaune, Department of Horticulture,
Louisiana State University AgCenter, Baton Rouge, LA 70803-2120.

American Floral Endowment

Phone: 703-838-5211
Fax: 703-838-5212
Email: afe@endowment.org
Website: www.endowment.org

BACKGROUND

C. quadriloculare is a semi-woody spreading shrub that flowers naturally in the winter months in USDA hardiness zones 9 or 10. Due to its vigorous growth habit and results from previous studies (see Special Research Report #519) with *C. ugandense*, the applications of PGRs and photoperiod were studied. The objectives of this study were to determine a) the efficacy Bonzi™ (paclobutrazol) drench applications at 0, 5, or 10 mg a.i./pot and b) the appropriate photoperiod required for flower initiation and development.

MATERIALS & METHODS

Semi-woody rooted cuttings of *C. quadriloculare* with 4-6 leaf pairs were planted in May 2004. All cuttings were planted one per 6-inch container filled with Promix. Plants received ambient light levels in the greenhouse with temperature set points of 86° F day/73° F night. Photoperiod treatments consisted of 8, 12, or 16-h of supplemental HID lighting (latitude 30.43N). Plants were fertilized at every irrigation with Peters™ 20-10-20 water-soluble fertilizer at the rate of 200 ppm N. All plants were pinched on 20 May 2004 to four leaf pairs. All PGR treatments were applied 2 weeks after pinching.

RESULTS

Bonzi™ had significant effects on plant growth and flowering (Table 1 and Figure 1) of *C. quadriloculare*. Days to flower (DTF) were reduced with all Bonzi™ treatments by a range of 36 or 45 days. Plant height was also reduced by Bonzi™ treatments by a range of 4 or 9.5 inches. Plant width was reduced by 10 or 17 inches from that of the control.

Table 1. Effect of Bonzi™ drenches on growth and flowering of *C. quadriloculare*.

Bonzi (mg a.i.)	DTF	Plant Height (inches)	Plant Width (inches)
0	289	21.7	34.3
5	253	17.7	24.4
10	244	12.2	17.3

Flower initiation and development only occurred under 8 or 12 hour photoperiods. Thus, this species should be classified as an obligate short day plant.

Figure 1. Effect of Bonzi™ drenches at 0, 5 or 10 mg a.i./pot on growth and flowering of *C. quadruloculare* under an 8 h photoperiod.

Figure 2. Effect of Bonzi™ drenches at 10 mg a.i./pot drench on growth and flowering of *C. quaduloculare* under an 8 h photoperiod.

CONCLUSIONS

C. quaduloculare was found to be an obligate short day plant. The effective application rates of Bonzi™ were: 5 mg a.i./pot drench for larger potted plants and the 10 mg a.i./pot for smaller plants. This was based upon reduction of plant size to 1.5 to 2 times the height of the pot and visual quality. Days to flower was significantly reduced by the Bonzi™ drenches. Therefore, a shorter production period was obtained which is highly desirable.

IMPACT TO THE INDUSTRY

1. Bonzi™ drenches at 5 or 10 mg a.i./pot produced marketable plants of *C. quaduloculare* (Figures 1 and 2).

2. *C. quaduloculare* was found to be an obligate short day plant.

For additional information contact Jeff S. Kuehny at jkuehny@lsu.edu.