

Gas exchange, growth and flowering of *Lagerstroemia indica* treated with different concentration and application techniques of paclobutrazol

ABSTRACT

Background and objectives: *Lagerstroemia indica* is a fast growing landscape shrub that require frequent pruning. The pruning process is a costly operation, temporary and partially successful in controlling tree growth. This study reports the effect of different concentration and application techniques of paclobutrazol, a growth and development of the plant in view of its management in height control and flowering enhancement. Materials and Methods: The study involved four different concentration (0 (control), 1500, 3000 and 4500 mg L⁻¹) and two application techniques (foliar spray and soil drenching) of paclobutrazol (PBZ) on 2 month-old plants which were raised from semi hardwood cuttings. Changes in leaf photosynthesis, vegetative growth and flowering were measured. Results: Increasing PBZ rate to 3000 and 4500 mg L⁻¹ reduced leaf photosynthesis and differ the rates markedly from plants of other treatments. The PBZ application, given as foliar spray and soil drenching reduced plants height. Among the two application techniques, the respective reduction in plant height for foliar sprayed and soil drenched plants were almost 75 and 90% compared to the control plants. The PBZ at 1500 mg L⁻¹, given as soil drenching increased the number of flowers by 25% and at 3000 mg L⁻¹ in foliar spray increased the number of flowers by 21% over the non-treated plants. Foliar PBZ sprayed plants produced significantly more leaves compared to those produced by the soil drenched plants. Paclobutrazol applications inhibited extension growth of stem thus reduced the overall height of plants which is linked to shorted internode but at the same time increased branch, leaf and flower number. Conclusion: These effects of PBZ observed here could be regarded as positive effects as the treatments would produce shorted statured plants which are normal desirable to landscape enthusiasts.

Keyword: Paclobutrazol; Plant growth regulator; Landscape shrubs; Crape myrtle