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Influence of GA_3 on leaf nutrient content in anthurium cv. HONDURA

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ABSTRACT

Anthurium plants were treated with five levels of GA_3 (0, 75, 150, 225 and 300 ppm) at bimonthly interval for three times commencing from 2nd month after planting. The leaf tissue nutrient content was determined 20 months after planting. Results revealed that irrespective of concentrations, both macro and micronutrient content in the leaf tissue did not differ significantly. However, GA_3 300 ppm recorded maximum P (0.5%), K (2.56%), Ca (1.31%) and Fe (574.6ppm) content compared to other treatments. Maximum N (1.81%), Mg (0.87%), Cu (15.78 ppm), Zn (42.3 ppm) and Mn (436.25 ppm) content were noticed with plants treated with 225 ppm GA_3.Minimum macro and micro nutrient content in the leaf tissue was found in untreated plants.

Key words : Anthurium, Nutrient, Tissue, Gibberllic acid.

Gibberllins (GA) are a group of diterpenoid acids that function as plant growth regulators influencing a range of developmental processes. Gibberllins alter the growth and development in plants, when applied exogenously. Growth, differentiation and reproduction in higher plants can only proceed normally if the acquisition of all the essential elements is accomplished. Anthurium plants sprayed with NPK @ 30:10: 10 at 0.2% in combination with GA_3 100 ppm produced good quality flowers (Jawaharlal *et al.* 2001). With this background in view, the present experiment was undertaken to study the influence of Gibberellins (GA_3) on leaf tissue nutrient content in anthurium cv. HONDURA.

MATERIALS AND METHODS

The investigation on effect of GA_3 on leaf nutrient content in anthurium cv. HONDURA was conducted under 75% protected shade net on the Farm of Rockwood Estate Madekeri, Kodagu Karnataka. The plants were grown in the raised beds containing normal media (1:1:1 proportion of sand: FYM: Soil) along with the equal proportions of coconut coir pith. The experiment was laid out following the Randomized Complete Block Design with four replications. GA_3 at different concentrations (0, 75, 150, 225 and 300 ppm) were prepared and the solution was applied as a foliar spray at bimonthly interval starting from 2nd month three times during the experimental period. Leaf tissue nutrient content was analysed 20 months after planting. Leaf N, P, K, Ca and Mg content in the leaf tissue were estimated as per the procedure as described by Jackson (1973). The minor elements, *viz.* Iron, Manganese, Zinc and Copper were determined by digesting the leaf samples with triacid digestion mixture and the extract was fed to atomic adsorption spectrophotometer (Lindsay and Norvell, 1978).

RESULTS AND DISCUSSION

The N content in the leaf was not significantly influenced by GA_3 concentrations (Table 1). The maximum value (1.81%) was recorded with GA_3 225 ppm while minimum value (1.31%) was recorded in untreated plants. It was probably due to higher photosynthetic rate, which led to the better growth of plants and absorption of nutrients under the direction of GA_3. These results are in conformity with the reports of Mills and Scoggins (1998) and Salvi (1997) who reported that N content in the leaf of anthurium is between 1.6 to 3 per cent. None of the treatments significantly influenced the P content in the leaf. The plants sprayed with 300 ppm of GA_3 produced the maximum P content (0.5%) whereas minimum (0.06%) was recorded with untreated plants. This is in conformity with the reports of Higaki *et al.* (1992) and Salvi (1997) who found that the P content in the leaf varies from 0.21 per cent to 0.58 per cent. GA_3 had no significant influence on K content in the leaf tissue. However, the maximum value was recorded with GA_3 300 ppm (2.56%). These results are in line with the reports of Mills and Scoggins (1998) who reported that K content in anthurium leaf range from 1.0 to 3.5 per cent. Ca and Mg content were not significantly influenced by GA_3. The plants sprayed with GA_3 300 ppm had the maximum Ca content (1.31%)