



Studies on the effect of different levels of shade on the growth and yield of Anthurium (*Anthurium andreanum*) cv. Tropical.

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ABSTRACT

Investigation was carried out to study the effect of different levels of shade on the production of Anthurium (*Anthurium andreanum*) cv. Tropical. The experiment was conducted with nine levels of shade under shade net conditions. The treatments were replicated thrice. Among the different treatments, (T₆) shade level of 75 per cent envisaged maximum plant height, plant spread, number of flowers per plant, flower stalk length, spathe length and spathe breadth. The number of days taken for flower bud appearance was also earlier in this treatment.

Key words : Shade management, Anthurium

INTRODUCTION

Anthuriums are tropical plants grown for their showy cut flowers and attractive foliage. It has gained the importance as major cut flower of the modern world. Anthurium growing is a potential source of commercial farming and it makes best use of ready market for cut flowers with high returns both for its cut flower and whole plant. Anthurium is a slow growing perennial that requires shady, humid conditions as found in tropical forests. It includes more than 100 genera and about 1599 species, chiefly from tropics (Higaki *et al*, 1994). The Anthurium plant possesses an underground rhizome with adventitious roots, with low creeping habit of growth, using aerial roots for anchorage. Anthuriums are shade loving plants and grow best with shade or an optimum light intensity of 18,000-25,000 Lux of light encourage their growth and development (ICAR report, 2013). They require 60 to 80 per cent relative humidity. An excessively low relative humidity will reduce the rate of photosynthesis. Anthuriums are grown under green house with shading from direct sunshine and a humid condition. Temperature also significantly influences growth, development and post harvest behaviour of anthuriums. Bright but filtered light is essential for abundant flowering. A symptom of too much light on the leaves lead to bleaching in the centres which would lead to scorching and would have brown tips with a reduction in plant growth and a sharp decline in flower yield (Singh *et al.*, 2011).

The plant produces blooms throughout the year, one bloom emerging from the axil of every leaf. Flowers are usually harvested once a week at three quarters maturity. Anthurium production in traditionally growing countries has declined since 1986, due to bacterial blight (Laws and Galinsky, 1996) and the new production centres in other geographical areas are now contributing to the production of Anthurium cut flowers. Even though Anthurium is grown by many planters, there is very less scientific information on shade

requirement for various regions. Standardization of shade management is most important to obtain higher yield and quality of the flowers. Therefore, the present work is carried out with a view to find the optimum shade level for enhancing the growth and flowering.

MATERIAL AND METHODS

The present study was carried out in Flora-tech floriculture unit at Kottarakara, kollam Dist , kerala state, India during 2007- 2009. The experiment was conducted with nine levels of shade under shade net conditions. The treatments with three replications were carried out in completely randomized design. The Anthurium (*Anthurium andreanum*) cv. Tropical was used for the study with 9 different treatment combinations given here, T₁ (50% shade), T₂(55% shade), T₃ (60% shade), T₄(65% shade), T₅ (70% shade), T₆(75% shade), T₇(80% shade), T₈(85% shade) and T₉(control). Plant height, plant spread, number of flowers per plant, flower stalk length, spathe length, spathe breadth and number of days taken for flower bud appearance were observed and recorded at 480 days after planting.

RESULTS AND DISCUSSION

The result evinced significant influence in overall performances of Anthurium plants due to *per se* and interaction effect of different shade levels. Among the different treatments, the maximum plant height (35.56cm), plant spread (48.84cm), number of flowers per plant (2.72), flower stalk length(27.21 cm), spathe length(6.88 cm) and spathe breadth(7.06 cm) were recorded in T₆ (75% shade), this was followed by T₅ (70% shade) with plant height of 31.82 cm, plant spread of 42.55 cm, 2.13 flowers per plant, Flower stalk length of 22.39 cm ,spathe length of 6.47 cm and 6.66 cm of spathe breadth. Days taken for flower bud initiation were also early in T₆ with 109.67 days, followed by T₅ with 117.91 days. The least plant height (10.37 cm), plant spread (19.47 cm), number of flowers per plant (0.89), flower stalk length(10.43 cm), spathe length(4.50 cm) and spathe breadth(4.63 cm) were recorded in T₉ (control). Days taken for flower bud initiation were late in T₉, which took 158.65 days for bud appearance (Table-1).

The increased results in T₆ (75% shade) may be due to appropriate shade percent. The present results are inline with the following results. Early flowering in Dendrobium was recorded with shade was also reported by Cibes *et al.* (1957). Leffering(1975) concluded that Anthuriums grow best under shading of 73 to 80 % and flower production is significantly influenced by temperature and irradiance. According to Arumugam and Jawaharlal (2004) among the various shade levels, 75 % shade recorded maximum plant height, number of days taken for flowering, and length of spike. Similar kind of observations were also reported by Sabina George and Mohan Kumaran(1999). According to Nuchhungi khawlhing *et al* (2012) the Anthurium plants grown under shade house results in better consistant growth. Fan *et al*, (1998) reported that shaded plants showed increased growth and number of leaves as compared to open conditions. Generally, flowering pot plants species prefer net house and shade of tree for their growth and flowering, than open conditions Jadav *et al*, (1996). Considering the above facts and results of the present investigation it could be concluded that among the different shade levels the treatment with 75% shade gives the best result for the growth and yield of Anthurium (*Anthurium andreanum*) Cv. Tropical.

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Treatments	Plant height (cm)	Plant spread (cm)	Number of flowers per plant	Flower stalk length (cm)	Spathe length (cm)	Spathe breadth (cm)	Days taken for flower bud appearance
T ₁ - 50% shade 8	13.14	24.92	1.20	13.45	5.03	4.98	146.56
T ₂ - 55% shade 7	15.83	27.57	1.21	15.38	5.33	5.26	141.59
T ₃ - 60% shade 5	21.78	37.52	1.51	16.69	5.82	5.86	137.92
T ₄ - 65% shade 4	25.70	38.01	1.85	19.68	6.06	6.09	134.31
T ₅ - 70% shade 2	31.82	42.55	2.13	22.39	6.47	6.66	117.91
T ₆ - 75% shade 1	35.56	48.84	2.72	27.21	6.88	7.06	109.67
T ₇ - 80% shade 3	27.19	44.99	1.98	21.91	6.28	6.44	119.67
T ₈ - 85% shade 6	19.22	32.61	1.34	16.01	5.74	5.80	139.82
T ₉ – control 9	10.37	19.47	0.89	10.43	4.50	4.63	158.65
SE (d)	1.43	1.64	0.18	1.40	0.26	0.26	-2.98
CD (p=0.05)	2.96	3.38	0.37	2.89	0.53	0.54	-6.14