

Original Research Article

VARIETAL EVALUATION OF ANTHURIUM (*Anthurium Andraenum*) UNDER PRAYAGRAJ AGRO – CLIMATIC CONDITIONS

ABSTRACT:-

An investigation was conducted at Horticulture Research Farm, Department of Agronomy, Naini Agricultural Institute, Sam Higginbottom University of Agriculture Technology and Sciences, Prayagraj. The experiment was laid out in a completely randomized design with six treatments and four replication. The variety under test was Tropical Red, Flame, Tropical Night, Esmeralda, Acropolis and Condor. The variety Tropical Red recorded maximum plant height(cm), days to first flowering, stalk length(cm), length of spathe(cm), spathe width(cm), diameter of spandix(cm), number of flower per plant and vase life, followed the variety of Condor. The variety of Esmeralda was found least flowers and the highest number of leaves. It was evident from the investigation the Cv. 'Tropical Red' had superior performance over all other varieties. The finding of the present investigation can be concluded that different varieties of under-test were significantly varied in their vegetative, floral, yield and post-harvest characters. Variety V₁ Tropical Red variety was performed best under this treatment and variety V₆ Condor performed best under this treatment. The Tropical Red was also found in the best treatment in Economics Such as Cost of cultivation of Rs 51707, gross return Rs. 115093, Net return of Rs. 63386, and BCR ratio were 2.23.

Keywords:- Tropical Red, Flame, Tropical Night, Esmeralda, Acropolis and Condor

INTRODUCTION:-

Flowers are nature's miracle, which is associated with humans from cradle to coffin. No fete, festival or ceremonial events are complete without flowers. Commercial Floriculture is an intensified form of Horticulture. It is the art and knowledge of growing flowers to perfection. Floriculture put its best foot forward to shift a considerable amount of capital into productive

chain every year. Indian floriculture industry stands in 2nd position in the world's production of floriculture produce after China with about 248.51 thousand hectares area with the production of 1,685 thousand tonnes of loose flowers and 472 thousand tonnes of cut flowers in 2014-15. But India's share in world trade is only 0.61 per cent in the year 2014 and 0.89 per cent in 2015 according to the Associated Chambers of Commerce and Industry of India (ASSOCHAM). It is growing at a compounded annual growth rate of about 30 per cent per year **(Punitha and Singh, 2012)**.

India is in the fortunate position of being able to get a diversity of climate and soil, unlike the severe winters prevailing in the West. This best reason created a greater need for the export of flowers and its products overseas and the demand for flowers both in domestic and International markets is increasing at a faster rate owing to the liberalization. The leading flowers which are in great demand are rose, chrysanthemum, carnation, gladiolus and anthurium **(Gantait and Mandal, 2010)**.

Anthurium (*Anthurium andreanum* Lind.) is a perennial herbaceous, semi-terrestrial plant with a somewhat creeping growth habit, using aerial roots for anchorage. These evergreen herbaceous epiphytes belong to the family Araceae and are native to Tropical America (Columbia) with chromosomes $n=15, 16, 18$. Whereas *Anthurium andreanum* is a diploid with $2n= 30$. The species are found in the new world tropics from Mexico to Northern Argentina and Uruguay, Central and Tropical America and some of the West Indian Islands. In 1889, S. M. Damon introduced the first anthurium to Hawaii from London. The anthurium flower trade became Hawaii's biggest source of income and this flower is famed as the national flower of Mauritius **(Islam et al., 2013)**.

The genus *Anthurium*, with 700 species is the largest genus of the family Araceae. It originated in South America. The word anthurium originated from the Greek words 'Anthos' which means 'flowering' and 'Oura' means 'tail'. The two known species having commercial importance are *Anthurium andreanum* Linden and *Anthurium scherzerianum* both have beautiful flowers and attractive foliage.

The anthurium species under cultivation are erect plants that have petiolated, lobed, cordate and heart-shaped green leaves of variable size. The leaf shows reticulate venation with a

prominent midrib, lateral veins and a well-defined leaf margin. The leaves are arranged spirally, either clockwise or anticlockwise. Its flower is a combination of the colourful modified leaf (spathe) and pencil like protrusion (spadix) borne on leafless stalk or peduncle. Hundreds of small hermaphrodite, insignificant, sessile flowers are densely packed on the spadix. Anthurium plant possesses an underground rhizome with adventitious roots. It requires a warm greenhouse and humid conditions for its growth and quality flowering (Agasimani *et al.*, 2011).

1. MATERIALS AND METHODS:-

2.1 Experimental Site and Location

The experiment was conducted during kharif season of the year 2021 – 22 at Horticulture Research Farm, Department of Agronomy, Naini Agricultural Institute, Sam Higginbottom University of Agriculture Technology and Sciences, Prayagraj.

Table 1. Details of anthurium varieties under experiment

S. No	Name of Variety	Treatments Details
V1	Tropical Red	5 % of cocopeat, 5% vermicolite
V2	Flame	2 % Neem Cake
V3	Tropic Night	2 % Nitrogen, 2 % Phosphorus
V4	Esmaralda	1% Potassium
V5	Acropolis	80 % Vermicompost
V6	Condor	3% Leefe Compost

3. RESULTS AND DISCUSSION:-

3.1 Vegetative growth parameters and flowering and flower quality parameters of various varieties of Anthurium

3.1.1 Plant height (cm)

The highest plant height of the treatments was found Tropical Red i.e. 35.03 cm and followed by Condor (34.82 cm). The minimum plant height of the treatments was found 21.23 cm with a variety of flame. Plant height increased with the increase in the age of the plants, irrespective of treatment.

3.1.2 Number of leaves

The number of leaves per plant was increased at different stages of plant growth and all the observations significantly differed from each other. The highest number of leaves per plant of the treatments was found in Esmeralda i.e. 17.05 and followed by Acropolis (16.80). The minimum number of leaves per plant of the treatments was found 13.54 with the variety of Condor.

3.1.3 Stalk length (cm)

Stalk length increased continuously as the growing period progressed in all the treated plants. The highest stalk length of the treatments was found in Tropical Red i.e. 27.00 cm and followed by Condor (25.50 cm). The minimum stalk length of the treatments was found 20.30 cm with the variety of Acropolis.

3.1.4 Spathe length (cm)

Irrespective of the application of different plant varieties, the spathe length increased with the progress in the age of the plants. The highest Spathe length of the treatments was found in Tropical Red i.e. 14.82 cm and followed by Condor (13.80 cm). The minimum Spathe length of the treatments was found 10.08 cm with the variety of flame.

3.1.5 Width of Spathe

Irrespective of the application of different plant varieties, the spathe width increased with the progress in the age of the plants. The highest width of the spathe of the treatments was found in Tropical Red i.e. 10.59 cm followed by a condor (10.23 cm) and the minimum spathe width was found in Esmeralda (7.50 cm).

3.1.5 Diameter of Spandix

The highest diameter of Spandix of the treatments was found in Tropical Red i.e. 0.49cm and followed by Condor (0.45cm). The minimum diameter of Spandix of the treatments was found 0.25cm with the variety of Acropolis.

Table 2 Vegetative growth parameters and flowering and flower quality parameters of various varieties of Anthurium

S.No.	Name of Variety	Plant Height (cm)	Number of leaves per plant	Stalk length (cm)	Spathe length (cm)	Spathe width (cm)	Spandix diameter (cm)
1	Tropical Red	35.03	16.09	27	14.82	10.59	0.49
2	Flame	21.23	15.45	23.2	10.08	8.94	0.36
3	Tropic Night	28.98	16.89	24.6	11.24	8.9	0.39
4	Esmeralda	23.56	17.05	22.5	12.54	7.5	0.32
5	Acropolis	25.87	14.34	20.3	13.57	9.47	0.25
6	Condor	34.82	16.66	25.5	13.8	10.23	0.45
	General Mean	28.25	16.08	23.85	12.68	9.27	0.38
	Maximum	35.03	17.05	27	14.82	10.59	0.49
	Minimum	21.23	14.34	20.3	10.08	7.5	0.25
	SE+-	0.33	0.11	0.33	0.093	0.12	0.02
	Cd at 5 %	0.97	0.31	0.97	0.283	0.37	0.07
	CV%	2.64	4.78	2.64	3.4	4.47	4.89

3.2 Flower yield of various varieties of Anthurium

3.2.1 Number of flowers per plant

The highest number of flowers per plant of the treatments was found in Tropical red i.e. 3.01 followed by Condor (2.81) and the minimum number of the flower was found in Esmaralda (0.25).

3.2.2 Vase life

The highest vase life of the treatments was found in Tropical red i.e. 32.21 followed by Condor 30.67 and the minimum vase life of the treatments was found in Acropolis (19.70).

3.2.3 Number of days for the emergence of flower

The highest Number of days for the emergence of flower initiation of the treatments was found in Esmaralada i.e. 180.40, followed by Acropolis (173.60) and the minimum Number of days for the emergence of flower initiation was found in Tropical red i.e. 124.50.

Table 3. Flower yield of various varieties of Anthurium

S.No.	Name of Variety	Days for first flowering	Number of flowers per plant	Vase life (days)
1	Tropical Red	104.5	3.01	32.21
2	Flame	144.9	1.4	26.73
3	Tropic Night	156.4	1.3	26.9
4	Esmaralda	180.4	0.25	29.02
5	Acropolis	173.6	1.7	19.7
6	Condor	112.5	2.81	30.67
	General Mean	145.38	1.75	27.54
	Maximum	180.4	3.01	32.21
	Minimum	124.5	0.25	19.7
	SE+-	0.75	0.2	0.11
	Cd at 5 %	2.17	0.6	0.31
	CV%	0.96	9.95	4.78

3.3: Economics of various varieties of Anthurium

Initially more investment was needed in the establishment of anthurium crops. The economics of the plant of different varieties the cost of cultivation Rs.51707, Gross Return Rs.115093, Net Return Rs.63386 and B: C ratio 2.23 was found the best treatment T₁.

Table 4. Economics of integrated nutrient management of rice

Treatments	Cost of cultivation (Rs/ha-1)	Gross return (Rs/ha-1)	Net return (Rs/ha-1)	Benefit-Cost ratio
T ₁	51707	115093	63386	2.23
T ₂	48147	96570	48423	2.01
T ₃	49038	100814	51776	2.06
T ₄	47258	77449	30191	1.64
T ₅	50820	103513	52693	2.04
T ₆	49927	107965	58038	2.16

Conclusion:-

The finding of the present investigation can concluded that different varieties under test were significantly varied in their vegetative, floral, yield and post-harvest characteristics. Variety V₁ Tropical Red variety was performed best under this treatment and variety V₆ Condor is performed best under this treatment

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UNDER PEER REVIEW