



International Journal of Research in Agronomy

E-ISSN: 2618-0618

P-ISSN: 2618-060X

© Agronomy

www.agronomyjournals.com

2024; SP-7(5): 17-19

Received: 28-04-2024

Accepted: 30-05-2024

Anand M

Agricultural Engineering College
and Research Institute, TNAU,
Coimbatore, Tamil Nadu, India

A Sankari

Horticultural College and Research
Institute, TNAU, Coimbatore,
Tamil Nadu, India

M Velmurugan

Tapioca and Castor Research
Station, Yethapur, Salem,
Tamil Nadu, India

K Kayalvizhi

Institute of Agriculture, AEC
& RI Campus, Kumulur,
Tamil Nadu, India

Evaluation of *Alstroemeria* varieties for cut flower production

Anand M, A Sankari, M Velmurugan and K Kayalvizhi

DOI: <https://doi.org/10.33545/2618060X.2024.v7.i5Sa.678>

Abstract

Seven cultivars of *Alstroemeria* were evaluated under open condition at horticultural research station, Tamil Nadu Agricultural University, Yercaud. Seven cultivars namely viz., Riana, Serena, Pink Panther, Tiara, Capri, Aladdin and Piantum with uniform sized rhizomes were planted at a spacing of 60 x 60 cm. Among the seven cultivars evaluated Aladdin exhibited the highest plant height (87.23 cm), rachis length (43.09 cm) and leaves per shoot (46.00), whereas number of flowers per stalk was high in Tiara (8.34) followed by Aladdin (8.11). Pink panther recorded maximum number of shoots per clump (39.9) and flower diameter (6.28). Tiara and Aladdin were found promising and suitable as cut flowers due to its long rachis length and appealing bright colour. With respect to post harvest characters, Aladdin recorded maximum vase life in water (6.43 d) and longevity in plant (5.43 d).

Keywords: *Alstroemeria* varieties, cut flower, Aladdin, Piantum

Introduction

In India, prominence of cut flower industry for aiding agro-based sectors was started with the commercialization of the flowers grown under greenhouse conditions in regions such as Pune and Bangalore due to the prominence of air freight. Later domestication of these technologies to the climatic conditions of India with similar standards of protected cultivation led to the export oriented production of cut flowers. Among major cut flower crops, bulbous and rhizomatous crops such as liliun, freesia, gladiolus, tulip, iris, bird of paradise and *Alstroemeria* are highly valued cut flowers in both international and domestic market.

Today the Indian floriculture is upgrading new and better varieties that are region specific. The Nilgiris in Tamil Nadu for instance has history of cultivation of cut flowers from mid. 90's. The fluctuation in tea prices has aided the farmers in growing cut flowers as an alternate source of income. Lately increase in the cost of production of cut flowers grown under protected conditions has led the farmers for open cultivation of flowers like *Alstroemeria*, liliun, bird of paradise and gladiolus etc.

Cut flower cultivation is a fast emerging enterprise and has a potential demand in the floriculture sector as the returns are higher per unit area of production. The total area of cultivation under floriculture in India is 253.65 thousand hectares under which loose flower production occupies 1.652 million tonnes and cut flower production of 76.73 million tonnes during the year 2015-16. The exported floriculture products of 22,518 metric tonnes during 2015-16 which valued around 479 crores (NHB 2016).

In the year 2001, Ministry of Agriculture, Government of India introduced *Alstroemeria* at three major model floriculture centres which are Ooty (Tamil Nadu), Srinagar (Jammu and Kashmir), Chiral (Himachal Pradesh) and its production has relatively spread over the period of years. The crop has a premium potential as a cut flower because it needs low temperature for its growth and development (Healy and Wilkins, 1977) which is a valuable property in the view of steadily rising market.

Alstroemeria L. also known as Peruvian lily or Lily of the Incas is an extensive cut flower and also a potted plant in international trade that ranks among top ten cut flowers. Belonging to the family Alstroemeriaceae, flowers vary in range of colours. With the advancement in greenhouse cultivation technologies, *Alstroemeria* is emerging as a competitive greenhouse cut flower crop

Corresponding Author:

Anand M

Agricultural Engineering College
and Research Institute, TNAU,
Coimbatore, Tamil Nadu, India

from the past two decades. Genus *Alstroemeria* is a well-known perennial monocot consisting of several species. The rhizomatous plant produces aerial shoots arising from an underground sympodial rhizome attached to thick fleshy roots. The rhizomes develop into vertical shoots and later generate lateral rhizomes which also produce flowering shoots.

Alstroemeria usually are of three types that are butterfly type consisting of shorter stems and peduncles, orchid types having longer stems and peduncles and most of the today's hybrids belong to the aurantiaca type which has intermediate length stem and peduncles. The plant is primarily valued for its attractive inflorescence which is actually a whorl of cymes at the apex of flowering stem consisting of primary, secondary and tertiary florets. The appearance of the flower along with its excellent keeping quality marks the renown of the flower. Due to the lack of experimental evidence performance of various cultivars /varieties were studied for the yield under yercaud condition.

Materials and Methods

Seven cultivars of *Alstroemeria* were evaluated under open condition at Horticultural Research Station, Tamil Nadu Agricultural University, Yercaud and the results were presented in table The experimental site is geographically situated between 11° 04" to 11° 05" North latitude and 78° 05" to 78° 23" East longitude and at an altitude of 1500 m above Mean Sea Level. The average maximum and minimum temperature was 31.0°C and 12.4°C. The mean annual rainfall of Yercaud was 1572.0 mm in 47 rainy days. The average relative humidity was 75 per cent. The soil of the experimental plot was laterite in texture with 0.5 to 1.5 m depth. The land was thoroughly pulverized and enriched with well decomposed farm yard manure. Seven cultivars with uniform sized rhizomes were planted at a spacing of 60 x 60 cm; five plants from each cultivar in each replication were used as tester for recording observations on characters like plant height (cm), rachis length (cm), number of Leaves per shoot, number of buds per stalk, number of shoots per clump,

flower length (cm), flower diameter (cm), longevity in plant(days), vase life in water(days). The data generated during the course of study was subjected to statistical analysis as prescribed by Panse and Sukhatme (2000)^[2].

Results and Discussion

Observation on growth parameters were recorded and presented Table 1. Cultivar Aladdin recorded the highest plant height (87.23 cm) followed by Riana (87.03 cm), Capri (82.35 cm) and Pink Panther (82.10 cm). While the least plant height was noticed in Piantum (75.13 cm). Variation may be due to the temperature differences which highly influence the normal growth pattern of the plant reported by Labeke and Dambre (1993)^[4] in *Alstroemeria*. The rachis length ranged between 18.9 and 43.09 cm. The rachis length was maximum in Aladdin with 43.09 cm, while the Riana produced the shortest rachis (18.9cm). The number of leaves ranged between 26.66 to 46 Nos. Cultivar Aladdin produced maximum number of leaves per shoot (46) followed by Piantum (40.08), Tiara (35.39) and leaf number was minimum in Riana (26.66) was also reported by Singh, M.K. (2006)^[3] and Agasimani, A.D *et al.*, 2011^[1].

The pooled mean analysis of the floral parameters are presented in table 2 Number of flowers per stalk ranged from 6.35 to 8.34. Highest number of flowers per stalk was recorded in Tiara (8.34 nos) followed by Aladdin (8.11 nos), Riana (7.51 nos) and Capri (7.15 nos) and minimum was observed in Piantum (6.35 nos) Sujit Rai and Manju Rana *et al.*, 2019^[5]. The shoots per clump was maximum in Pink Panther (39.39 nos) and minimum was observed in Serena (25.16 nos). The length of flower was higher in Tiara (6.38 cm) and it was lower in Riana (5.34cm). The flower diameter ranged from 4.05 to 6.28 cm. The maximum flower diameter was noticed in pink panther (6.28 cm) followed by Serena (6.08 cm) and minimum in Capri (4.05 cm). With respect to post harvest characters, Aladdin recorded maximum vase life in water (6.43 d) and longevity in plant (5.43 d).

Table 1: Evaluation of *Alstroemeria* cultivars for vegetative parameters

Cultivars	Plant height (cm)	Leaf length (cm)	Leaf breadth (cm)	Rachis length (cm)	Number of Leaves
Riana	87.03	6.0	2.0	18.19	26.66
Serena	81.56	7.0	2.0	30.80	31.58
Pink panther	82.10	8.0	1.7	28.30	34.50
Tiara	79.29	6.0	1.4	39.84	35.39
Capri	82.35	7.0	2.1	31.76	33.20
Aladdin	87.23	5.0	1.7	43.09	46.00
Piantum	75.13	6.5	2.5	36.31	40.08
SEd	2.80	0.11	0.06	1.44	1.52
CD (P=0.05)	6.11	0.25	0.14	3.13	3.30

Table 2: Evaluation of *Alstroemeria* cultivars for Floral parameters

Cultivars	Number of shoots/Clump	Flower length (cm)	Flower diameter (cm)	Number of flowers/Stalk (No.)	Longevity in plant (d)	Vase life in water (d)
Riana	33.18	5.34	4.90	7.51	3.10	5.40
Serena	25.16	5.41	6.08	6.63	3.17	5.00
Pink panther	39.39	6.00	6.28	6.39	3.10	5.93
Tiara	34.25	6.38	6.05	8.34	4.00	5.33
Capri	34.25	6.33	4.05	7.15	4.17	5.60
Aladdin	35.50	6.30	5.85	8.11	5.43	6.43
Piantum	27.31	5.54	4.83	6.35	5.50	5.70
SEd	1.42	0.20	0.24	0.31	NS	NS
CD (P=0.05)	3.09	0.44	0.52	0.68		

Conclusion

In conclusion, the growth parameters of different cultivars of *Alstroemeria* were meticulously observed and documented. Cultivar Aladdin exhibited notable superiority in plant height, rachis length, and number of leaves per shoot. This variance in growth characteristics could be attributed to temperature fluctuations, as highlighted in previous studies. Moreover, the floral parameters varied among cultivars, with Tiara demonstrating the highest number of flowers per stalk and superior flower length. Additionally, post-harvest analysis revealed Aladdin's exceptional performance in vase life and plant longevity. These findings underscore the importance of cultivar selection and environmental management in optimizing *Alstroemeria* cultivation for desired traits and post-harvest quality. Further research in this domain could enhance our understanding and contribute to the improvement of cultivation practices for this commercially valuable ornamental plant.

References

1. Agasimani AD, Harish DK, Imamsaheb SJ. Anthurium varieties performance and economics under greenhouse. *Research Journal of Agricultural Sciences*. 2011;2:226-229.
2. Panse VG, Sukhatme PV. *Statistical methods for agricultural workers*. New Delhi: Publication and Information Division of ICAR; c2000.
3. Singh MK. Performance of *Alstroemeria* cultivars under polyhouse conditions. *Indian Journal of Horticulture*. 2006;63(2):195-198.
4. Van Labeke MC, Dambre P. Response of five *Alstroemeria* cultivars to soil cooling and supplementary lighting. *Scientia Horticulturae*. 1993;56(2):135-145.
5. Rai S, Rana M. Comparative Evaluation of Growth and Flowering Characteristics of *Alstroemeria* Varieties under Sikkim Condition. *International Journal of Current Microbiology and Applied Sciences*. 2019;8(08):929-933.