



Plant Archives

Journal homepage: <http://www.plantarchives.org>

DOI Url : <https://doi.org/10.51470/PLANTARCHIVES.2026.v26.supplement-2.223>

EVALUATION OF CHRYSANTHEMUM CULTIVARS FOR POT CULTIVATION

Kommu Pavan Kumar^{1*}, Tapas Kumar Chowdhuri¹, Raghunath Sadhukan² and P. Arun Kumar³

¹Department of Floriculture and Landscape Architecture, Bidhan Chandra Krishi Viswavidyalaya, West Bengal, India.

²Department of Genetics and Plant Breeding, Bidhan Chandra Krishi Viswavidyalaya, West Bengal, India.

³Department of Horticulture, Agricultural College, Polasa, PJTSAU, Jagtial 505 529, Telangana, India

*Corresponding author E-mail: pavankommu19@gmail.com

(Date of Receiving : 02-04-2026; Date of Revision : 22-05-2026; Date of Acceptance : 07-06-2026)

ABSTRACT

The present investigation entitled “Evaluation of chrysanthemum cultivars for pot mums under West Bengal conditions was carried out at the Horticultural Research Station, Mandouri, Faculty of Horticulture, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal, India, during two consecutive years from 2016-2017 to 2017-2018. The experiment was conducted in a Completely Randomized Design with twelve treatments in three replications. The cultivars taken in the experiment are Bidhan Mum, Pusa Chitraksha, A-18/122, BC 14-1 (A-1/123), Bidhan Rupanjali, C-6/11, Bidhan Rajat, Bidhan Purna, Bidhan Pratima, Bidhan Sweeta, Pink star, NBRI Kaul, NBRI Little Kusum, Red Ball, White Anemone, Mother Teresa, Yellow baby, Himanshu. Significant differences were obtained among the cultivars. The plant height ranged from 23.3 cm in Yellow Baby to 69.7 cm in Pusa Chitraksha. Pink Star recorded maximum plant spread (60 x 55cm) which was very closely followed by A-18/122 (60x55 cm). Maximum plant spread in Pink Star was also reflected in maximum number of Flowers (588 flowers per plant). Pusa Chitraksha, and BC 14-1 also recorded a greater number of flowers per plant. Pink Star recorded maximum number spray production (89.5) followed by BC-14-1 (88.00) and Pusa Chitraksha. Overall, Pusa Chitraksha, BCH-14-1 and Pink Star may be recommended for pot production of Chrysanthemum.

Keywords : Cultivar, flowering duration, No. Flowers /spray, Wilting of flowering (days).

Introduction

The floral industry has been greatly impacted by changes in lifestyle and urbanization. The market for gardening pots was estimated to be worth USD 18.33 billion in 2023 and is expected to expand at a compound annual growth rate (CAGR) of 4.7% between 2024 and 20230. Potted plants are becoming a more productive technology from an environmental, social, and economic standpoint, and flowering pot plants have a unique demand. The demand for pot mums as decorations for weddings, exhibits, flower displays, and other events has skyrocketed in recent years. Chrysanthemum is the most versatile, interesting and perhaps the oldest one among the ornamental plants. It is one of the most important floricultural crops in the cut flower, flowering potted plants and herbaceous perennial markets of the world. Pot mum production has become the most profitable form of

commercial chrysanthemum growing. Pot mums are getting popularity due to their fascinating appearance, long lasting nature, vibrant flowers as well as their overall presentability and easy portability to use at any place. Chrysanthemum is an important flower crop of family Asteraceae (Anderson, 1987). It is commonly known as Queen of East, Autumn Queen and Guldaudi. It is one amongst the top most cut flowers as well as pot plants of the world and ranks second after rose in cut flower trade and fifth as pot plant (Desh Raj, 2006). It is one of the most traditional flowers of India mainly used as a potted plant, loose flower, cut flower and as border plant in the garden. In India, chrysanthemums hold immense commercial value for cut flowers, loose flowers and pot culture, playing a vital role in both domestic and export markets. Morphologically diverse, chrysanthemum varieties exhibit considerable variation in plant architecture, leaf traits, inflorescence types and flowering behavior,

making them a suitable candidate for ornamental breeding. Chrysanthemum (*Chrysanthemum morifolium* Ramat) ranks 2nd in national loose flower market. The genus comprises of huge biodiversity in their growth habitat, flowering behavior, flower and foliage colour, shape and size. Based on the flower head size, it is classified into three major groups viz., large flowered (eight types), small flowered (ten types) and mini chrysanthemums. The dwarf and compact growing once on the other hand, were suitable for front row planting or as pot mums.

Pot mum production has become the most profitable form of commercial chrysanthemum growing. Economy of time, space and material has made this style of growing very promising. An excellent range of colour, form, long lasting quality of blooms and ease of handling make them most popular. Pot plants are valued for their foliage beauty, compactness of size and ability to survive under shady condition. Pot plants are the group of plants which can provide freshness even in small spaces. The pot mums can be planted with the plants like chrysanthemum, lantana, helianthus, Nerium etc.

This crop is classified into standard and spray types based on floral architecture, with standard types preferred for cut flowers and spray types for loose flowers and pot culture. The success of chrysanthemum cultivation relies heavily on selecting genotypes best suited to regional agro-climatic conditions. Systematic work on chrysanthemum breeding has been taken up at various research institutes and the objective of breeding is mostly on regional preferences. The present investigation was therefore initiated to select a stable genotype for yield under local conditions and to obtain clear picture on various characters which affect the yield.

Materials and Methods

The experiment was conducted with 18 genotypes of chrysanthemum viz. Bidhan Mum, Pusa Chitraksha, A-18/122, BC 14-1 (A-1/123), Bidhan Rupanjali, C-6/11, Bidhan Rajat, Bidhan Purna, Bidhan Pratima, Bidhan Sweeta, Pink star, NBRI Kaul, NBRI Little Kusum, Red Ball, White Anemone, Mother Teresa, Yellow baby, Himanshu were planted according to randomized block design with three replications number of plants per replication 30 cuttings were planted with a spacing of 45 cm x 30 cm. This experiment was conducted at Horticultural Research Station, Mandouri, Faculty of Horticulture, Bidhan Chandra Krishi Vishwavidyalaya, Nadia. The site of experiment is situated at 23°N latitude and 89°E longitudes at an elevation of 9.75 meters from mean sea level. All planting materials were collected from

AICRP on Floriculture, BCKV. Data were recorded for both vegetative and flowering attributes. Observations were recorded on all the indicating characters viz. Plant height (cm), Plant spread (cm), No. of primary branches/plant, No. Of secondary branches/plant, No. of spray/plant, No. Flowers /spray, No. of days taken to flower bud appearance, No. of days to 50% flowering, wilting of flowering (days), No. of flowers/plant, Weight of flower/plant (g), Diameter of flower (cm), Reaction to pest and diseases, colour of flower as Per RHS. All agro-techniques were followed as per recommendations of this University.

Result and Discussion

The data on growth characters such as plant height, plant spread, number of branches per plant were recorded in 2016-17 and 2017-18.

Plant height (cm)

Plant height is one of the prominent and significant characteristics of a pot mum for determining the suitability of any cultivar for pot culture. The mean data pertaining on plant height of chrysanthemum cultivars is presented in Table 1.

The chrysanthemum genotypes exhibited significant variation for all the traits studied under West Bengal condition. The plant height should be 1.5 to 2.5 times the height of the pot Kher (1989). The plant height ranged from 23.3 cm in Yellow Baby to 69.7 cm in Pusa Chitraksha. Raghava *et al.* (1992) reported that better vegetative growth will significantly contribute towards the flower yield of chrysanthemum. Shankar and Tewari (1993) suggested plant height as an important criterion for screening chrysanthemum varieties. Increase in plant height was associated with rapid meristematic activity, probably due to rapid cell division and elongation during the tender growth period (Sharova *et al.*, 1977).

Plant spread (cm)

The data on mean maximum plant spread Pink Star recorded maximum plant spread (60 x 55cm) which was very closely followed by A-18/122 (60x55 cm). Maximum plant spread in Pink Star was also reflected in maximum number of Flowers (588 flowers per plant). Increase in plant spread might be due to production of a greater number of branches and by the genetic nature of the plant. Variation in plant spread is due to additive gene effects (Vidalie *et al.*, 1985).

No. of primary branches /Plant:

Data pertaining to the variation in number of primary branches per plant is presented in Table 1.

Highest number of branches per plant (4.84) was recorded in ‘Bidhan mum’, followed by red ball (4.5). Least number of branches per plant (1.84) was observed in ‘C-6/11’ (Kumar and Chattopadhyay, 2002). Swaroop *et al.* (2008) also reported variation among varieties of chrysanthemum for number of branches. Increase in plant spread might be due to production of a greater number of branches and by the genetic nature of the plant. The genotype of the plant exerts the great influence with respect to the plant architecture which effects the formation of branches. The genetic makeup of the chrysanthemum cultivars may have a different contribution towards the formation of branches (Chezhian *et al.*, 1985).

No. of secondary branches/Plant

The data for plant spread based on two consecutive years of studies from 2016-17 to 2017-18 was presented in Table 1.

The maximum number of secondary branches per plant was recorded in ‘A-18/122’ (30.00 in 2016–17, 31.33 in 2017–18, and 30.67 in pooled data), followed by ‘BC 14-1 (A-1/123)’ (27.67 in 2016–17, 28.33 in 2017–18, and 28.00 in pooled data), while ‘NBRI Kaul’ recorded the lowest (5.33, 6.00, and 5.67, respectively). These variations can be attributed to the inherent genetic potential of the cultivars. A greater number of branches contributes to increased foliage, enhancing the plant’s source-sink relationship and overall yield potential (Guddaraddi and Mishra, 2021; Mandal, 2024).

Plant spread (cm)

The data for plant spread based on two consecutive years of studies from 2016-17 to 2017-18 was presented in Table 1. Maximum plant spread (60x55 cm, 62x55 cm) was observed in ‘Pink star’, followed by Pusa Chitraksha (55x57.6 cm, 58x57 cm). Minimum plant spread (14.23cm) was recorded in the variety ‘NBRI Kaul (26x28 cm, 30x28 cm)’ followed by Himanshu’ (28x26 cm, 30x29 cm). Plant spread is largely influenced by genotype and is indicative of vegetative vigour and efficient sunlight utilization. These results align with findings by Niki *et al.* (2016), Suvija *et al.* (2016), and Negi *et al.* (2020).

Floral and Quality Attributes

No. of flowers/plant

The variety pink star recorded a significantly higher number of flowers per plant (649.33, 527.33,

and 588.33) across both individual years and in the pooled analysis. The number of flowers produced per plant may be directly related to increase in plant height, number of branches and number of leaves and ultimately accumulation of more photosynthates which results in production of good number of flowers with bigger size. The similar results were observed in chrysanthemum by Srilatha *et al.* (2015).

Flower diameter

‘Bidhan Purna’ exhibited the largest flower diameter (8.07 cm in 2016–17, 8.40 cm in 2017–18 and 8.24 cm pooled), While lowest flower diameter was recorded in yellow baby (2.17 cm in 2016-17, 2.93 cm in 2017-18 and 2.55 cm pooled) which contributes significantly to overall yield and aesthetic quality. Similar variability in flower size was attributed to genotypic differences, as observed by Suvija *et al.* (2016) and Sarkar *et al.* (2024).

Flowering duration and Days to wilting of flowering

The amount of time flowers is available in the market depends on how long they bloom. Flowers will be more readily available on the market if they bloom for a longer period of time, and vice versa. For growers, both short and extended flowering times have benefits and drawbacks. Earliest 50% flowering (71.00, 92.00 and 81.00 days) was observed in ‘Pink star’ across both seasons and pooled data and Days to wilting of flowering (154.00, 154.33 and 154.1 days) was observed in BC 14-1 (A-1/123). These results reaffirm the genetic influence on flowering duration, in line with findings from Srilatha *et al.* (2015), Suvija *et al.* (2016) and Kumar *et al.* (2014).

Bud appearance and Flowering initiation

The duration of apparent bud formation is a key indicator of early or late flowering, impacting flower availability. Variations in visible bud development time may be influenced by genetics and environmental factors. Significant differences were observed among varieties for flowering phenology. The earliest bud initiation was recorded in ‘bidhan Purna’ with 48.00 days in 2016–17, 53.33 days in 2017–18, and 50.67 days in pooled data. This earliness is likely a varietal trait, as supported by Behera *et al.* (2002), Srilatha *et al.* (2015) and Naikwad *et al.* (2019). The variance in the time to observable bud formation and flowering of different chrysanthemum genotypes was also found by Rao and Pratap (2006), and Singh *et al.* (2008) under different locations.

Table 1: Agro-morphological characters of new genotypes of Chrysanthemum (pot production)

Name of the genotypes	Plant height (cm)			Plant spread (cm)		No. of primary branches /Plant			No. Of secondary branches /Plant		
	I			II		III			IV		
	2016-17	2017-18	Mean	2016- 17	2017-18	2016-17	2017-18	Mean	2016-17	2017-18	Mean
Bidhan Mum	60.40	57.00	58.70	45x41.2	45x44	5.00	4.67	4.84	18.67	20.67	19.67
Pusa Chitraksha	69.73	64.00	66.87	55x57.6	58x57	3.00	3.33	3.17	21.00	22.33	21.67
A-18/122	35.20	36.67	35.94	58x55	58x59	2.67	2.67	2.67	30.00	31.33	30.67
BC 14-1 (A-1/123)	34.50	33.33	33.92	40x42.2	42x45	2.67	3.00	2.84	27.67	28.33	28.00
Bidhan Rupanjali	31.13	33.67	32.40	30x28	32x30	5.00	5.33	5.17	7.33	8.67	8.00
C-6/11	29.67	27.67	28.67	48x50	50x50	1.67	2.00	1.84	15.00	16.00	15.50
Bidhan Rajat	38.57	40.70	39.64	45x43.6	45x47	4.00	4.00	4.00	13.33	13.00	13.17
Bidhan Purna	37.20	39.00	38.10	40x38.9	42x40	3.67	3.67	3.67	21.67	22.67	22.17
Bidhan Pratima	29.13	29.33	29.23	32x34	35x34	2.33	2.67	2.50	15.00	16.33	15.67
Bidhan Sweeta	39.00	40.33	39.67	40x42.2	40x45	3.00	3.33	3.17	13.33	14.00	13.67
Pink star	28.00	26.67	27.34	60x55	62x55	3.33	3.67	3.50	13.00	14.00	13.50
NBRI Kaul	33.43	34.33	33.88	26x28	30x28	2.33	3.00	2.67	5.33	6.00	5.67
NBRI Little Kusum	25.33	26.67	26.00	42x44	45x44	4.00	4.33	4.17	10.00	11.00	10.50
Red Ball	24.00	26.67	25.34	45x45	45x45	4.67	4.33	4.50	20.00	20.00	20.00
White Anemone	26.00	28.33	27.17	35x36	39x3	3.33	3.67	3.50	6.00	6.67	6.34
Mother Teresa	32.33	33.67	33.00	40x38	40x40	3.33	3.00	3.17	15.33	16.00	15.67
Yellow baby	22.33	24.33	23.33	30x32	35x32	4.67	4.33	4.50	6.33	7.00	6.67
Himanshu	33.00	34.33	33.67	28x26	30x29	3.33	3.00	3.17	6.33	6.67	6.50
SE ($\pm$)	1.30	1.17				0.36	0.29		0.89	0.89	
CD at5%	3.86	3.48				1.07	0.86		2.65	2.63	
CV (%)	6.44	5.73				18.10	14.11		10.50	9.84	

Table 2: Agro morphological characters of new genotypes of Chrysanthemum (pot production).

Name of the genotypes	No. of spray /plant			No. Of flowers /spray			No. of flowers /plant			Flower diameter (cm)		
	V			VI			VII			VIII		
	2016-17	2017-18	Mean	2016-17	2017-18	Mean	2016-17	2017-18	Mean	2016-17	2017-18	Mean
Bidhan Mum	50.67	51.67	51.17	5.00	5.33	5.17	269.33	274.33	271.83	5.03	5.23	5.13
Pusa Chitraksha	85.00	79.00	82.00	5.67	6.00	5.84	523.00	474.00	498.50	7.97	8.13	8.05
A-18/122	62.00	65.00	63.50	6.00	6.33	6.17	353.33	408.67	381.00	5.07	5.20	5.14
BC 14-1 (A-1/123)	90.00	86.00	88.00	5.33	5.67	5.50	448.67	487.33	468.00	4.90	5.00	4.95
Bidhan Rupanjali	40.00	42.00	41.00	4.67	5.00	4.84	210.00	213.33	211.67	5.37	5.17	5.27
C-6/11	75.00	72.67	73.84	4.67	5.00	4.84	351.33	363.33	357.33	4.70	4.93	4.82
Bidhan Rajat	79.00	77.67	78.34	3.33	3.67	3.50	225.33	286.00	255.67	7.47	7.60	7.54
Bidhan Purna	59.33	61.00	60.17	3.33	4.00	3.67	174.67	244.00	209.34	8.07	8.40	8.24
Bidhan Pratima	49.00	50.00	49.50	5.00	5.00	5.00	250.00	250.00	250.00	5.83	5.50	5.67
Bidhan Sweeta	36.33	37.67	37.00	4.00	4.00	4.00	180.00	150.67	165.34	5.70	5.43	5.57
Pink star	91.00	88.00	89.50	5.00	5.67	5.34	649.33	527.33	588.33	3.57	3.73	3.65
NBRI Kaul	21.00	23.33	22.17	4.33	4.67	4.50	77.67	109.00	93.34	5.60	5.77	5.69
NBRI Little kusum	42.00	44.00	43.00	5.67	6.00	5.84	300.00	264.00	282.00	3.67	4.00	3.84
Red Ball	64.33	62.00	63.17	6.33	6.67	6.50	300.00	414.00	357.00	4.80	4.90	4.85
White Anemone	31.33	32.33	31.83	8.33	8.67	8.50	257.33	270.00	263.67	4.83	4.93	4.88
Mother Teresa	52.00	50.00	51.00	5.33	6.00	5.67	296.67	306.67	301.67	3.67	4.00	3.84
Yellow baby	45.67	46.67	46.17	10.00	9.00	9.50	443.33	420.33	431.83	2.17	2.93	2.55
Himanshu	39.33	41.67	40.50	5.33	5.67	5.50	144.00	237.67	190.84	5.80	5.60	5.70
SE($\pm$)	2.14	1.53		0.41	0.26		8.52	16.43		0.19	0.13	
CD at5%	6.36	4.53		1.22	0.78		25.29	48.79		0.56	0.38	
CV(%)	6.59	4.71		13.19	7.96		4.87	8.98		6.26	4.17	

Table 3: Agro morphological characters of new genotypes of Chrysanthemum (pot production).

Name of the genotypes	Days to flower bud initiation			Days to 50% flowering			Days to wilting of flowering			Reaction to pest and diseases	Colour of flower as Per RHS
	IX			X			XI			XII	XIII
	2016-17	2017-18	Mean	2016-17	2017-18	Mean	2016-17	2017-18	Mean	2016-17	
Bidhan Mum	72.00	68.00	70.00	117.67	108.33	113.0	158.67	147.67	153.1	Minimum	Orange(RHS-24A)
Pusa Chitraksha	71.33	74.33	72.83	125.00	111.67	118.3	160.00	145.33	152.6	Minimum	Purple(RHS-58A)
A-18/122	65.33	64.00	64.67	114.00	105.33	109.6	152.33	147.33	149.8	Minimum	Red Pink(RHS-48C)
BC 14-1 (A-1/123)	67.00	64.33	65.67	119.33	107.33	113.3	154.00	154.33	154.1	Minimum	Yellow(RHS-12A)
Bidhan Rupanjali	74.00	70.33	72.17	123.67	114.67	119.1	152.00	155.33	153.6	Minimum	Light yellow brown (RHS-163B)
C-6/11	68.67	65.33	67.00	115.00	107.00	111.0	140.00	145.67	142.8	Minimum	White(RHS-N155B)
Bidhan Rajat	71.33	59.33	65.33	126.00	100.00	113.0	152.00	135.00	143.5	Minimum	White(RHS-155C)
Bidhan Purna	48.00	53.33	50.67	106.67	95.33	101.0	140.00	135.00	137.5	Minimum	Yellow(RHS-6A)
Bidhan Pratima	65.33	63.00	64.17	117.33	106.33	111.8	158.00	142.33	150.1	Minimum	Red Brown(RHS-179B)
Bidhan Sweeta	66.00	61.00	63.50	116.67	103.33	110.0	150.00	140.67	145.3	Minimum	White
Pink star	58.67	55.00	56.84	70.00	92.00	81.0	131.67	127.33	129.5	Minimum	Purple pink(RHS-N74C)
NBRI Kaul	71.00	70.00	70.50	113.33	112.00	112.7	137.67	155.00	146.3	Minimum	Pink(RHS-70C)
NBRI Little kusum	71.00	68.33	69.67	71.00	114.67	92.8	111.67	156.67	134.1	Minimum	Off-White
Red Ball	70.33	68.33	69.33	115.67	108.00	111.8	146.67	146.33	146.5	Minimum	Red(RHS-45A)
White Anemone	81.67	80.67	81.17	110.00	120.67	115.3	145.00	159.00	152.0	Minimum	White(RHS-N155B)
Mother Teresa	60.00	62.00	61.00	91.33	104.00	97.6	135.00	138.00	136.5	Minimum	White(RHS-N 999D)
Yellow baby	51.00	54.33	52.67	114.00	94.00	104.0	150.00	134.67	142.3	Minimum	Yellow(RHS-12A)
Himanshu	78.67	71.67	75.17	114.00	114.00	114.0	150.67	150.00	150.3	Minimum	White(RHS-155C)
SE(±)	1.58	1.49		2.22	1.82		3.23	2.47			
CD at5%	4.70	4.43		6.58	5.42		9.60	7.33			
CV(%)	4.25	3.96		3.49	2.96		3.84	2.94			

Conclusion

In conclusion, statistically significant variations in all phenotypic character were observed in this study. Variations of all morphological character are determined by genetic makeup and even it influence of different cultivars performance. Pusa Chitraksha, BCH-14-1 and Pink Star may be recommended for pot production of Chrysanthemum.

References

- Anonymous (1987). Reclassification of the genus *Chrysanthemum* L. *HortScience*, **22**, 313.
- Behera, T. K., Sirohi, P. S., & Pal, A. (2002). Assessment of chrysanthemum germplasm for commercial cultivation under Delhi condition. *Journal of Ornamental Horticulture*, **5**(2), 11–14.
- Chezian, N., Ponnuswami, V., Thamburaj, S., Khader, T. M. A., Nangan, K., & Gunashekaran. (1985). Evaluation of chrysanthemum cultivars. *South Indian Horticulture*, **33**, 279–282.
- Raj, D. (2006). *Drying of attractive plant parts and flowers*. Pointer Publishers.
- Guddaraddi, A., & Mishra, A. (2021). Varietal evaluation and genetic variability of chrysanthemum (*Dendranthema grandiflora* Tzvelev). *The Pharma Innovation Journal*, **10**(12), 563–566.
- Kumar, M. A. R., & Chattopadhyay, T. K. (2002). Evaluation of chrysanthemum varieties for commercial cultivation. *Environment and Ecology*, **20**, 48–51.
- Kumar, R. (2014). Evaluation of chrysanthemum genotypes for flowering traits under open grown condition. *HortFlora Research Spectrum*, **3**(4), 388–389.
- Mandal, S. (2024). *Varietal evaluation of chrysanthemum (Chrysanthemum morifolium Ramat)* (Doctoral dissertation, Bidhan Chandra Krishi Viswavidyalaya).
- Naikwad, D., Kandpal, K., Hugar, A., Patil, M. G., & Kulkarni, V. (2019). Evaluation of China aster (*Callistephus chinensis* (L.) Nees) genotypes for flower yield and yield attributes. *Journal of Pharmacognosy and Phytochemistry*, **8**(4), 2382–2385.
- Negi, R., Dhiman, S. R., Dhiman, M. R., Gupta, Y. C., Dogra, R. K., & Gupta, R. K. (2020). Performance and flower characterization of newly evolved genotypes of chrysanthemum (*Dendranthema grandiflora* Tzvelev) for cut flower production. *International Journal of Chemical Studies*, **8**(4), 2921–2923.
- Dewan, N. D., Kumar, S. K., Sharma, S., & Chakraborty, S. (2016). Evaluation of chrysanthemum (*Chrysanthemum morifolium* Ramat.) genotypes under West Garo Hills district, Meghalaya. *HortFlora Research Spectrum*, **5**(3), 189–194.
- Raghava, S. P. S., Negi, S. S., & Nanchariah, D. (1992). Genetic variability, correlation and path analysis in

- chrysanthemum. *Indian Journal of Horticulture*, **49**, 200–204.
- Rao, A. M., & Pratap, M. (2006). Evaluation of chrysanthemum (*Dendranthema grandiflora* Tzvelev). *Journal of Ornamental Horticulture*, **9**(2), 221–223.
- Sarkar, D., Sarkar, I., Maitra, S., Chatterjee, R., Khalko, S., & Ojha, S. (2024). Assessment of standard chrysanthemum genotypes for morphological and floral attributes in Terai region of West Bengal, India. *Journal of Advances in Biology & Biotechnology*, **27**(10), 1493–1501.
- Shankar, V., & Tewari, G. N. (1993). Evaluation of chrysanthemum (*Chrysanthemum morifolium*) cultivars with special reference to their morphological characters. *Bioved*, **4**(1), 53–56.
- Sharova, N.L., Rybak, Y.G., & Marins, W.E. (1977). Development of gladiolus under the influence of micronutrients. *Referativnyi Zhurnal*, **6**(55), 1093.
- Singh, S., Kumar, R., & Poonam. (2008). Evaluation of chrysanthemum (*Dendranthema grandiflora* Tzvelev) open-pollinated seedlings for vegetative and floral characters. *Journal of Ornamental Horticulture*, **11**(4), 271–274.
- Srilatha, V., Kumar, S., & Kiran, Y. D. (2015). Evaluation of chrysanthemum (*Dendranthema grandiflora* Tzvelev) varieties in southern zone of Andhra Pradesh. *Agricultural Science Digest*, **35**(2), 155–157.
- Suvija, N. V., Suresh, J., Kumar, S. R., & Kannan, M. (2016). Evaluation of chrysanthemum (*Chrysanthemum morifolium* Ramat.) genotypes for loose flower, cut flower and pot mums. *International Journal of Innovative Research and Advanced Studies*, **3**(4), 100–104.
- Swaroop, K., Prasad, K. V., & Raju, D.V. S. (2008). Evaluation of chrysanthemum (*Dendranthema grandiflora* Tzvelev) germplasm in winter season under Delhi conditions. *Journal of Ornamental Horticulture*, **11**, 58–61.
- Vidalie, H., Laffaire, M., Rivere, L. M., & Charpentier, S. (1985). First result on the performance of gerbera cultivated on rockwool. *Revue Horticole*, **262**, 13–18.