

Original Research Article

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## Pot Presentability of different Chrysanthemum Cultivars for Pot Mums based on Vegetative Attributes

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### ABSTRACT

Chrysanthemum occupies one of the most important traditional flower and a place of pride, both as commercial flower crop and as pot plant. Though it is a commercially cultivated crop in our country, the location specific cultivars are not available. This experiment was to evaluate the performance and adaptability of different chrysanthemum genotypes under Hyderabad condition and to identify the genotypes suitable for pot mums. For this purpose, Completely Randomised Design with twelve treatments and three replications was established. Significant differences were obtained among the cultivars for all the vegetative parameters. Among the vegetative parameters the cultivars recorded ideal plant height were BidhanMadhuri (32.40 cm), Silver white (32.07 cm), Shova (31.60 cm), Red Stone (30.40 cm), Silver Yellow (28.60 cm), Red gold (27.67 cm), BidhanSwapna (26.67 cm), HYDC-2 (26.53 cm) and HYDC-8 (24.53 cm). Cultivars which produced optimum branches per plant were Red Stone (8.00), BidhanPurna (7.60), HYDC-2 (7.53), Red Gold (7.20), BidhanSwapna (6.13), Shova (5.93). Pot presentability score was highest for HYDC-2 (36.67 out of 40).

#### Keywords

Queen, flowers, pot mums, chrysanthemum genotypes, dark green foliage

#### Article Info

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### Introduction

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.

Chrysanthemum cultivars are most suitable for pot mum culture as they exhibit required

characteristics. As chrysanthemum plants form a well-shaped plant, branch easily, produce flowers quickly on relatively short stems and have flowers in the desired shape, size and various colours, they are well prepared as pot mums.

There are no standard grades for pot mums throughout the world, however, it is usually considered that the plant grown as pot mum should be 1.5 to 2.5 times taller than its pot, bushy with dark green foliage and free of insects and diseases, with a well-developed and actively growing root system. Kher (1989). There should be minimum of 15 flowers and a plant with 20-25 flowers of good size is considered to be more desirable pot mum.

### **Materials and Methods**

The present study was conducted at Floricultural Research Station, Agricultural Research Institute, Rajendranagar, Hyderabad. Twelve genotypes of chrysanthemum collected from Floricultural Research Station were evaluated during 2018 and 2019.

Twelve cultivars were BidhanMadhuri, BidhanPurna, HYDC-2, HYDC-4, HYDC-8, Plants and Seeds Choice, Red Gold, Red Stone, Shova, Silper White, Silper Yellow, BidhanSwapna. The experiment was laid out in Completely Randomized Design with three replications.

The potting media used is soil+cocopeat +vermicompost in the ratio of (2:1:1). The rooted cuttings were planted in the pot size of 6 inches at 15cm spacing. Uniform recommended package of practices were followed along with nutritional application and normal irrigation. The data on plant height (cm), plant spread (cm), number of lateral branches/plant, pot presentability. The observations were statistically analysed.

### **Results and Discussion**

#### **Plant height (cm)**

The maximum plant height (32.40 cm) was recorded by Cv. BidhanMadhuri which was on par with Cv. Silper White (32.07 cm), Shova (31.60 cm) and Red Stone (30.40 cm), the minimum plant height (21.40 cm) was recorded by Cv. Plants and Seeds Choice.

According to Kher (1989) the plant height should be 1.5 to 2.5 times the height of the pot. As the plants of all cultivars were grown in 15.24 cm pots, the optimum height of the plant should be in the range of 22.86 cm to 38.1 cm. The cultivars which fall in this range were BidhanMadhuri (32.40 cm), Silper White (32.07), Shova (31.60 cm), Red Stone (30.40 cm), Silper Yellow (28.60 cm), BidhanPurna (28.13 cm), Red Gold (27.67 cm), HYDC-4 (27.60 cm), Bidhanswapna (26.67 cm), HYDC-2 (26.53 cm) and HYDC-4 (24.53 cm).

#### **Plant Spread (E-W) (cm)**

Plant spread (E-W) ranged from 12.80 cm (Plants and Seeds Choice) to 17 cm (Red Stone), maximum plant spread (E-W) (17.00 cm) was recorded by Cv. Red Stone which was on par with Cv. BidhanMadhuri (16.80 cm) and BidhanPurna (16.67cm) and minimum plant spread (E-W) (12.80 cm) was recorded by Cv. Plants and Seeds Choice.

#### **Plant Spread (N-S) (cm)**

Plant spread (N-S) ranged from 12.80 cm (Plants and seeds choice) to 15.73cm (Shova). The maximum plant spread (N-S) (15.73 cm) was recorded by Cv. Shova which was on par with Cv. Red Gold (15.40 cm). The minimum plant spread (N-S) (12.80 cm) was recorded by Cv. Plants and Seeds Choice. For pot culture of chrysanthemum, spread of the

flowering pot is to be in proportion to the size of the pot used. Generally, a spread of 1.5 to 2.5 times to the height of pot is more desirable. Therefore, for 15 cm pot, ideal pot spread should be in the range of 22.5 cm to 37.5 cm. None of the cultivars shown ideal pot spread.

**Table.1**

parameters	Description	Maximum point
<b>a) Appearance as whole plants</b>	i) Fresh appearance with no indication of senescence	10
	ii) No mechanical, insect, mite or disease damage on flowers and stem	10
<b>e) Form</b>	i) Plants in balance with pot neither too tall, nor too small, generally 2.5 times to the height of the pot.	10
	ii) Plant spread in balance with pot, neither too large nor too small, generally equal to the height of the plant (Kher, 1989)	10

**Table.2** Plant height, plant spread (E-W), Plant Spread (N-S), Number of branches, Pot presentability of different chrysanthemum cultivars for pot mums.

Cultivars (Treatments)	Plant height (cm)	Plant spread (E-W) cm	Plant spread (N-S) cm	No. of branches	Pot presentability score
<b>BidhanMadhuri</b>	32.40	16.80	14.87	8.20	34.33
<b>Bidhanpurna</b>	28.13	15.87	14.80	7.60	32.00
<b>HYDC-2</b>	26.53	16.67	14.73	7.53	36.67
<b>HYDC-4</b>	27.60	15.07	14.27	5.33	32.67
<b>HYDC-8</b>	24.53	14.40	14.27	3.60	30.67
<b>Plants and Seeds Choice</b>	21.40	12.80	12.80	4.97	28.33
<b>Red Gold</b>	27.67	15.93	15.40	7.20	35.00
<b>Red Stone</b>	30.40	17.00	14.53	8.00	36.00
<b>Shova</b>	31.60	15.60	15.73	5.93	31.67
<b>Silper White</b>	32.07	13.93	13.80	5.07	30.33
<b>Silper Yellow</b>	28.60	15.67	14.87	3.67	29.00
<b>BidhanSwapna</b>	26.67	15.33	14.33	6.13	33.67
<b>SEm±</b>	0.84	0.30	0.26	0.30	0.78
<b>CD</b>	2.48	0.88	0.76	0.89	2.28

### Number of branches per plant

Number of branches ranged from 3.60 (HYDC-8) to 8.20 (BidhanMadhuri), the maximum number of branches (8.20) was recorded by Cv. BidhanMadhuri which was on par with Cv. Red Stone (8.00), BidhanPurna (7.60), HYDC-2 (7.53) and Red Gold (7.20). The minimum number of branches (3.60) was recorded by Cv. HYDC-8.

In the present investigation, an increasing trend of number of branches was observed in BidhanMadhuri (2.80 to 8.20) and Red Gold (4.07 to 7.20). Maximum number of branches (8.20) were observed in Cv. BidhanMadhuri, whereas, Kumar and Chattopadhyay (2002) reported that maximum number of branches (10.32) in Cv. Red Gold.

### Pot Presentability Score

Pot presentability was evaluated on the basis of point system modified after Conover (1986). The parameters studied and points allotted to each parameter out of a maximum of 40 points, are as follows:

The pots, planted with cultivar HYDC-2, were found most presentable with a maximum score of (36.67 out of 40) which was on par with

Red Stone (36.00) and Red Gold (35.00). The least presentability score was recorded in Plants and Seeds Choice (28.33)

From the above results, it can be concluded that HYDC-2 with pot presentability score of 36.67 out of 40.00 among vegetative parameters is found to be suitable for pot mum cultivation.

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