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Short communication

Evaluation of post harvest quality of some cultivars of chrysanthemum

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ABSTRACT

A study was conducted to evaluate the performance of ten chrysanthemum cultivars for better post harvest quality under open field condition at University of Agricultural Sceinces, Bangalore. Flowers were harvested at fully open stage or nearly so. The results showed that the maximum stalk girth (0.32 cm) was recorded in Cv. Cassa and the maximum flower diameter (8.14 cm) was recorded in cv. Ravikiran, Cultivar Cassa recorded the maximum flower weight (3.59 g). Maximum number of ray florets were recorded by cv. Nilima (253.2). The maximum length of ray florets were recorded in cv. Ravikiran (3.96 cm). Maximum fresh weight, final weight and water loss (88.33, 40.63 and 47.67g respectively) from the spray type flowers were recorded in cv. Arka Swarna. Longer vase life of 16 days was also recorded in cv. Arka Swarna. Based on the performance studies it was observed that Arka Swarna, Ravikiran, Red gold, Nilima and Arka Ravi performed better post harvest quality and may be selected for cut flower production.

Key words: Chrysanthemum, post harvest quality, vase life

Chrysanthemum (*Dendranthema grandiflora* Tzvelev.) has earned tremendous popularity as an ornamental flower crop. It is valued as a potted plant and is the commercially cultivated cut flower crop in many countries and widely grown in open fields in India for their loose flowers. Chrysanthemum has longer post harvest life and it continues to look attractive even when semi dry. It has wide range of colours, shape and sizes. However, mainly for the sake of decoration of surroundings and participating in flower shows, there is a need for evaluation of chrysanthemum cultivars, suitable for post harvest quality.

The present experiment was carried out at Horticultural Research Station, Department of Horticulture, Gandhi Krishi Vigyan Kendra, University of Agricultural Sciences, Bangalore during the year 1999 – 2000. Ten varieties namely Ravikiran, Chandrika Yellow Star, Red Gold, Nilima, Kasturishaventigae, Cassa, Arka Swarna, Arka Ravi and Button type local were used for this experiment and it was laid out in a Randomized Complete Block Design (RCBD) replicated thrice. Fully opened flowers were harvested. Flower stems were cut atleast four inches above the soil line to avoid taking woody plant tissues. Immediately after harvest, stems of the flowers were graded based on their flower stalk length. Post harvest quality was evaluated under room conditions. On every alternate day, stem ends were cut. Observation on flower stalk length, stalk girth, flower diameter, flower disc diameter, number of ray florets per head, length of ray florets, fresh weight of spray, final weight of the spray, water loss of the spray and total vase life were recorded. Vase life was considered to be terminated when colour fading or petal wilting was noticed. Flower colours were identified by using the Royal Horticulture Colour Chart (Anon, 1938). Data were recorded and statistically analysed.

Significant differences were observed for the various quantitative traits (Table 1). The maximum length of the stalk was observed in Nilima (17.52 cm) and the minimum length was observed in Button Type Local (4.67 cm). Stalk length variation among different cultivars may be due to their genetic characters. This has been reported by Halevy and Mayak (1981). The maximum stalk girth was observed in cv. Cassa (0.32 cm) and the minimum was in Button Type Local (0.11 cm). The highest flower diameter (8.14 cm) was recorded in cv. Ravikiran and the

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Table 1. Mean performance of Chrysanthemum cultivars for different quantitative traits

Cutivars	Stalk length (cm)	Stalk girth (cm)	Flower Diameter (cm)	Flower Disc Diameter (cm)	Flower Weight (g)	Number of ray florets per head	Length of ray floret (cm)
Ravikiran	14.62	0.28	8.14	0.28	3.27	231.00	3.96
Chandrika	11.22	0.17	4.49	0.62	1.28	213.70	1.49
Yellow star	15.05	0.23	5.85	0.75	2.46	248.00	3.05
Redgold	13.20	0.19	6.40	1.25	2.26	149.20	2.78
Nilima	17.52	0.26	5.32	0.19	3.08	253.20	2.36
Kasturi shaventige	7.89	0.19	3.28	0.41	0.80	204.83	1.23
Cassa	14.81	0.32	4.78	1.08	3.59	47.33	2.28
Arka Swarna	7.03	0.19	4.22	0.83	1.64	209.33	1.29
Arka Ravi	15.58	0.22	5.41	1.38	2.36	79.50	2.17
Button type local	4.67	0.11	2.01	0.11	0.48	116.33	0.74
Mean	12.16	0.22	4.99	0.69	2.12	175.24	2.13
S.Em±	0.92	0.01	0.25	0.08	0.30	13.27	0.09
CD *(P=0.05)*	2.75	0.03	0.75	0.25	0.89	39.44	0.29
CV (%)	13.21	9.34	8.79	21.52	24.48	13.12	7.95

lowest was in Button Type Local (2.07 cm). The diameter of the disc varied from 0.11 cm in button type local to 1.38 cm in cv. Arka Ravi. The highest flower weight (3.59g) was recorded in cv. Cassa, while button type local exhibited the lowest value (0.48g) among the cultivars studied. Number of ray florets per head showed a very wide range of variation ranging from a minimum of 47.33 in cv. Cadda and maximum of 253.20 in Cv. Nilima. The cultivars Button type local (0.74 cm) and Ravi Kiran (3.96 cm) recorded the lowest and highest length of ray florets respectively. Similar type of variations were observed in 324 cultivars of chrysanthemum collected from different sources (Negi *et al,* 1978).

Table 2. Performance of Chrysanthemum cultivars for vase life

Cultivars	Fresh weight (g)	Final weight (g)	Water loss (g)	Total vase life (days)
Ravikiran	29.27	22.27	7.00	10.00
Chandrika	26.43	11.53	14.90	6.00
Yellow star	24.53	17.43	7.10	8.00
Redgold	35.02	18.53	16.67	9.00
Nilima	29.43	19.53	9.90	9.00
Kasturi shaventige	12.33	9.46	2.87	8.00
Cassa	26.80	11.60	15.20	4.00
Arka Swarna	88.33	40.63	47.67	16.00
Arka Ravi	23.47	11.73	11.73	9.00
Button type local	22.40	9.43	12.97	9.00
Mean	31.82	17.22	14.60	8.70
CV(%)	2.58	2.09	6.33	11.68
SEm±	0.47	0.21	0.53	0.59
CD *(P=0.05)*	0.41	0.62	1.59	1.74

Table 2 revealed that cv. Arka Swarna recorded the maximum fresh weight, final weight and water loss (88.33, 40.63 and 47.67 g respectively) from the spray type flowers. Increase in fresh weight can occur only when the rate of water absorption is greater than the transpiration rate. (Rogers, 1973). Water loss due to decline in uptake of water coupled with transpiration leads to water deficit, which ultimately reduces turgidity in cut flower. This has been reported by Halevy and Mayak (1981). Cultivar Arka Swarna recorded longer duration of vase life with 16 days followed by cv. Ravikiran (10 days) and cv. Red gold (9 days). Shortest duration of vase life was recorded in Cv. Cassa (4 days). This might be due to varietal differences among the cultivars and may be an inherent trait (Gondhali *et al,* 1997). Zagory and Reid (1986) and Weitte *et al* (1991) reported that stem plugging due to microorganisms reduces the vase life of cut flowers.

Thus, the present study reveals that cultivars like Arka Swarna, Ravikiran, Red Gold, Nilima and Arka Ravi recorded better post harvest quality and may be selected for cut flower production. While cultivars like Cassa, Chandrika, Yellow star and Kasturi shaventigae exhibited least post harvest quality and so could be selected for loose flower purpose.

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