



Research Paper

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Evaluation of gerbera (*Gerbera jamesonii* Bolus ex. Hooker F.) genotypes for flower quality traits under naturally ventilated polyhouse

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ABSTRACT : The present investigation was carried out to evaluate the performance of ten genotypes for flower quality characters under naturally ventilated polyhouse in RBD with three replications during the year 2011-12 and 2012-13. Data of both the years were pooled and analyzed statistically. Significant differences were observed for all thirteen characters studied. The results revealed that genotype Soleada recorded earliest days to bud burst (61.88 days) and first flower opening (67.14 days). Maximum flower diameter (11.17 cm) and disc diameter (3.12 cm) was recorded in Kyllian. Maximum leaf breadth (19.80 cm) and flower stalk length was recorded in Vilassar (66.39 cm), whereas, maximum number of leaves/plant (18.14) and number of suckers per plant (3.33) was recorded in Manizales. Longest leaf length (42.58 cm) and plant spread (E-W, 73.85 cm) was recorded in Laurance. Highest number of flowers/plant/month was recorded in Renee (3.63), which was at par with Laurance and Kyllian. On the basis of pooled analysis, genotypes Kyllian and Vilassar were found promising for flower quality characters and recommended for growing under naturally ventilated polyhouse.

KEY WORDS : Gerbera, Evaluation, Genotypes, Cut flower, Polyhouse

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Gerbera (*Gerbera jamesonii* Bolus ex Hooker F.) belonging to the family Asteraceae, is one of the important cut flower grown for domestic as well as for export purpose. There is a great demand for gerbera particularly in European markets during the winter season and almost throughout the year in India. To meet the quality standards, gerbera should preferably be grown under protected conditions. Performance of gerbera genotypes varies with the region, season and growing conditions. There is introduction of new gerbera genotypes every year as there is change in growing market demand. This necessitates the performance evaluation of new genotypes for their quantitative and qualitative characters when grown under polyhouse. Evaluation of gerbera genotypes under polyhouse has also been reported by earlier workers (Magar *et al.*, 2010 and Kumar *et al.*, 2012). Hence, ten genotypes of gerbera were evaluated for vegetative and flower quality traits under naturally ventilated polyhouse to identify the most suitable ones.

RESEARCH METHODS

The present study was carried out under AICRP on Floriculture with ten gerbera genotypes under naturally ventilated polyhouse in RBD with three replications at Indian Institute of Horticultural Research, Hesaraghatta Lake Post, Bangalore during 2011-12 and 2012-13. Ten genotypes *viz.*, Arianna, Figaro, Kyllian, Laurance, Manizales, Pasto, Pocho, Renee, Soleada and Vilassar were evaluated for vegetative and flower quality characters. An internal shadenet (50%) was employed to reduce light intensity during summer season. Fogging was used to regulate the day temperature (25° to 28° C) and humidity (60-70%) inside the polyhouse, whenever required. Four to five leaves tissue cultured plants of 10 genotypes were planted at 30 x 40 cm spacing accommodating 6 plants/m². Uniform cultural practices were followed to all the genotypes. The data were recorded on six plants from each genotype in each replication for 13 characters *viz.*, number of leaves/plant, leaf length (cm), leaf

breadth (cm), plant spread (E-W and N-S) (cm), number of suckers/plant/year, days to bud burst, days to first flower opening, flower diameter (cm), disc diameter (cm), flower stalk length (cm), flower stalk diameter (mm) and number of flowers/plant/month. Data of both the year were pooled and statistically analyzed with the help of package 'Biostat IHR, version 1.0'.

RESEARCH FINDINGS AND DISCUSSION

The results obtained from the present investigation are summarized below :

Vegetative characters:

The perusal of data presented in Table 1 indicated that genotypes showed significant variation for vegetative characters. Among the genotypes studied, Manizales recorded maximum number of leaves per plant (18.14) followed by Vilassar (14.84) and Pocho (14.79), whereas

Figaro recorded minimum number of leaves per plant (11.08). Maximum length (42.58 cm) and breadth (19.80 cm) of leaf was recorded Laurance and Vilassar, respectively while, these were minimum in Arianna (33.50 cm) and Soleada (11.95 cm), respectively. Maximum plant spread (73.85 cm, E-W and 73.93 cm, N-S, respectively) was recorded in Laurance and Pocho, however, Figaro recorded minimum plant spread (58.03 cm, E-W and 57.57 cm, N-S). Multiplication in terms of number of suckers per plant was recorded maximum in Manizales (3.33) followed by Kyllian (3.00) and Pasto (2.86) while Soleada recorded minimum number of suckers per plant (2.22). The variation observed in different vegetative growth in different genotypes might be attributed to their genetic make up (Chobe *et al.*, 2010). Such variation in vegetative growth characters in gerbera genotypes under polyhouse has also been reported (Vasudevan and Rao, 2010; Kumar and Deka, 2012).

Table 1: Evaluation of gerbera genotypes for vegetative characters under polyhouse (pooled data of two years)

Genotypes	No. of leaves/plant	Leaf length (cm)	Leaf breadth (cm)	Plant spread (cm)		No. of suckers/plant
				E-W	N-W	
Arianna	11.37	33.50	15.68	65.72	66.00	2.41
Figaro	11.08	34.07	13.46	58.03	57.57	2.60
Kyllian	13.82	37.32	13.82	61.51	62.24	3.00
Laurance	13.33	42.58	19.33	73.85	73.20	2.63
Manizales	18.14	36.92	16.54	66.91	67.46	3.33
Pasto	13.00	36.57	15.47	61.99	59.90	2.86
Pocho	14.79	40.05	19.02	69.56	73.93	2.36
Renee	12.69	37.12	14.11	66.18	65.76	2.36
Soleada	14.46	33.99	11.95	61.15	58.02	2.22
Vilassar	14.84	37.64	19.80	63.27	64.36	2.60
S.E.±	0.67	1.01	0.60	1.56	1.69	0.12
C.D. (P=0.05)	1.66	2.48	1.48	3.83	4.16	0.28
C.V.	5.60	3.00	5.02	2.47	3.27	5.21

Table 2: Evaluation of gerbera genotypes for flowering characters under polyhouse (pooled data of two years)

Genotypes	Days to bud burst	Days to first flower opening	Flower diameter (cm)	Disc diameter (cm)	Flower stalk length (cm)	Flower stalk diameter (mm)	Number of flowers/plant/ month
Arianna	63.27	69.60	10.60	2.93	50.08	5.40	2.38
Figaro	70.11	75.85	10.05	2.07	51.19	5.86	2.88
Kyllian	75.99	81.49	11.17	3.12	65.22	5.88	3.45
Laurance	74.21	80.55	10.11	2.58	63.80	6.17	3.46
Manizales	68.94	68.50	10.41	3.03	55.84	5.75	3.02
Pasto	64.82	70.41	10.18	2.53	61.11	6.73	3.07
Pocho	65.22	72.05	10.21	2.91	56.88	6.43	2.86
Renee	76.88	82.28	9.62	1.96	48.09	5.55	3.63
Soleada	61.88	67.14	9.73	2.63	51.02	4.82	2.73
Vilassar	67.94	73.88	10.80	2.12	66.39	5.83	3.34
S.E.±	1.77	3.95	0.08	0.04	0.77	0.14	1.33
C.D. (P=0.05)	3.72	8.30	0.21	0.10	1.90	0.34	2.72
C.V.	3.14	6.53	0.97	1.71	1.91	2.88	2.64

Flower quality characters:

The perusal of data presented in Table 2 indicated that genotypes showed significant variation for flowering and quality characters. The earliest days to bud burst (61.88 days) and first flower opening (67.14 days) was recorded in Soleada, however, delayed bud burst (76.88 days) and first flower opening (82.28 days) was recorded in Renee. Similar variation in days to bud burst and first flower opening were reported in 17 cultivars of gerbera (Kumar and Deka, 2012).

The flower diameter, flower stalk length and stalk diameter are of vital importance as they determine the quality of cut flowers in gerbera. Flower diameter was recorded maximum in Kyllian (11.17 cm) followed by Vilassar (10.80 cm) and Arianna (10.60 cm), while minimum flower diameter was recorded in Soleada (9.73). Maximum disc diameter was recorded in Kyllian (3.12 cm), whereas it was recorded minimum in Renee (1.96 cm). Variation in flower diameter in ten genotypes of gerbera under polyhouse has also been reported by Ahlawat *et al.* (2012).

Maximum flower stalk length (66.39 cm) was recorded in Vilassar, followed by Kyllian (65.22 cm), Laurance (63.80 cm) and Pasto (61.11 cm), however, minimum flower stalk length was recorded in Renee (48.09 cm). Genotype Pasto recorded maximum flower stalk diameter (6.73 mm) followed by Pocho (6.43 mm) and Laurance (6.17 mm). Similar variation in flower stalk length and stalk diameter has also been reported in gerbera by Kumar *et al.* (2012).

Maximum number of flowers per plant per month was recorded in Renee (3.63), which was at par with Laurance and Kyllian. The similar differences in cut flower yield in thirteen genotypes of gerbera have also been reported by Wankhede and Gajbhiye (2012). The increase in flower yield

can be attributed to greater plant spread which could have resulted in production and accumulation of more photosynthesis, thereby leading to the production of more number of flowers (Ahlawat *et al.*, 2012).

Conclusion:

On the basis of pooled analysis, genotypes Kyllian and Vilassar found promising for flower quality characters and recommended for growing under naturally ventilated polyhouse.

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