



Short communication

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

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ABSTRACT

The present study was carried out to evaluate performance of two gerbera hybrids IIHR 3-34 and IIHR 8-45 along with their parents and check, for flower quality traits under naturally-ventilated polyhouse in Randomized Block Design, in the years 2014-15 and 2015-16. Both the hybrids had been developed through the half-sib method of breeding with IIHR-3 and IIHR-1, respectively, as parents. Data for the two years were pooled and analyzed statistically. Significant differences were observed in the quality traits studied. In the case of both hybrids IIHR 3-34 and IIHR 8-45, most of the quantitative traits were found to be on par with the check variety, Elite. They had novel flower colour (68D as per RHS Colour Chart), Red Purple Group (IIHR 3-34) and 50A Red Group (IIHR 8-45), with double type of flowers. These are suitable for cut-flower and flower arrangement purposes. These hybrids will prove useful for developing more gerbera hybrids with novel traits.

Key words: Gerbera, evaluation, novel hybrids, cut-flower, polyhouse

Gerbera (*Gerbera jamesonii* Bolus ex. Hooker F.), of the family Asteraceae, is one of the important cut-flowers grown for domestic and export markets. Total area under floriculture in India is 255,000 ha, of which cut-flower production stands at 543,000 MT. Gerbera is grown under 820 ha with productivity of 17,500 t/ha, amounting to the fourth most important cut-flower in India. Demand for gerbera is great, particularly in European markets during the winter season, and almost around the year in India. In view of the importance of the crop, two novel hybrids of gerbera, IIHR 3-34 and IIHR 8-45 (along with their parents and the check variety) were evaluated for flower quality traits under naturally-ventilated polyhouse.

For developing novel gerbera hybrids, hybridization was carried out during the year 2011-12 using the half-sib method of breeding where superior lines, IIHR-3 and IIHR-1, were crossed with pollen mixed from different varieties. During the year 2012-13, F₁ hybrids seeds obtained from these crosses were germinated *in vitro* on suitable media. During 2013-14, a large number of plants were obtained through tissue culture to initially evaluate for novel traits and flower quality. Two hybrids, IIHR 3-34 and IIHR 8-45, were selected on this basis. Both the hybrids, along with their parents and the check variety Elite, were evaluated in

replicated trial under naturally-ventilated polyhouse for two consecutive years 2014-15 and 2015-16. Observations were recorded on flower diameter (cm), flower-stalk length (cm), flower-stalk diameter (mm), number of flowers/ month, vase life (days), damage from thrips (% flowers damaged), white fly (fly number on the 3rd leaf), damage from mites (number/ leaf), and RHS Colour Chart. Data for both the years were pooled and analyzed statistically.

Data presented in Table 1 shows that hybrid/ genotype showed significant variation in flower quality traits in IIHR 3-34. It recorded flower diameter of 10.85cm, which was on par with the check variety, Elite (10.91cm); flower-stalk length (61.06cm) which was significantly higher than the check variety, Elite, or the parent; flower-stalk diameter (6.42mm) and number of flowers/ month (3.23) recorded were on par with the check variety, Elite. However, data on vase life, damage from thrips, white fly and mites was on par with the parent and the check variety. Hybrid IIHR 3-34 recorded novel flower colour (RHS Colour Chart) 68D, Red Purple Group, with double type of flowers. Earlier, Rajiv Kumar (2013) evaluated 10 gerbera genotypes for flower quality traits under naturally-ventilated polyhouse and found that genotypes 'Kyllian' and 'Vilassar' were suitable for cut-flower purpose under Bangalore conditions.

Table 1. Evaluation of gerbera hybrid IIHR 3-34 for flower quality traits under polyhouse

Hybrid/ Genotype	Flower diameter (cm)	Flower-stalk length (cm)	Flower-stalk diameter (mm)	No. of flowers/ month	Vase life (days)	Damage from thrips (% flower damaged)	White fly (Nos. on 3 rd leaf)	Mite damage (No./ leaf)	RHS Colour Chart
IIHR 3-34	10.85	61.06	6.42	3.23	7.30	17.75	7.15	5.35	68D, Red Purple Group
IIHR-3 (Parent)	11.41	49.75	6.74	2.83	7.05	17.05	7.30	5.67	52A, Red Group
Elite (Check)	10.91	60.38	6.62	2.96	7.47	18.85	7.40	5.27	24A, Orange Group
SEm±	0.18	1.85	0.04	0.12	-	-	-	-	-
CD (P=0.05)	0.55	5.55	0.16	0.36	NS	NS	NS	NS	-

Table 2. Evaluation of gerbera hybrid IIHR 8-45 for flower quality traits under polyhouse

Hybrid/ Genotype	Flower diameter (cm)	Flower-stalk length (cm)	Flower-stalk diameter (mm)	No. of flowers/ month	Vase life (days)	Damage from thrips (% flower damaged)	White fly (Nos. on 3 rd leaf)	Mite damage (No./ leaf)	RHS Colour Chart
IIHR 8-45	10.43	61.11	5.63	2.89	7.15	17.89	7.31	5.15	50A Red Group
IIHR-1 (Parent)	10.25	51.98	4.69	2.49	7.00	17.62	7.42	5.35	30A, Orange Red
Elite (Check)	10.91	61.38	6.63	2.96	7.25	18.85	7.41	5.25	24A, Orange Group
SEm±	-	0.93	0.06	0.14	-	-	-	-	-
CD (P=0.05)	NS	2.79	0.18	0.39	NS	NS	NS	NS	-

Aswath *et al* (1997) also studied genetic divergence in gerbera and found wide variation among genotypes.

Data presented in Table 2 indicates that hybrid IIHR 8-45 also showed significant variation in flower quality traits. This hybrid recorded flower diameter of 10.43cm, which was on par with its parent and the check variety, Elite; flower-stalk length (61.11cm) was significantly higher than in the check variety, and the parent (IIHR-1); flower-stalk diameter (5.63mm) was significantly higher than in the parent; and, number of flowers/ month (2.89) recorded was on par with the check variety. However, data on vase life, damage from thrips, white fly and mites was on par with the parent and check. Hybrid 8-45 recorded novel flower colour (RHS Colour Chart) 50A Red Group, with double type of flowers. Aswath and Rao (2006), Chobe *et al* (2010) and Patil and Kulkarni (2015) also studied performance of nine gerbera cultivars under naturally-ventilated polyhouse and concluded that the genotypes 'Sunway' and 'Blessing' were promising for flower quality traits. Patil and Kulkarni (2015) also studied performance of nine gerbera cultivars under naturally-ventilated polyhouse.

On the basis of two years of evaluation under naturally-ventilated polyhouse, gerbera hybrids IIHR 3-34 and IIHR 8-45 were found to be promising for novel flower colour and flower quality traits.

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