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Evaluation of different hybrids for floral and yield parameters of dahlia (*Dahlia variabilis* L.) grown under Allahabad agroclimatic condition

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Abstract

The present investigation entitled "Evaluation of different hybrids for growth, yield, and quality of Dahlia (*Dahlia variabilis* L.) under Allahabad Agro-climatic conditions" was undertaken at Department of Horticulture, during the year 2015-16. The experiment was laid out in simple randomized block design with three replication and nine treatments with a view to find out the overall evaluation of different hybrids of dahlia viz. Sourave, Puesona, Baba borakanakeari, Sahani, Indira, Romia, Devdas, Mohini, Bamakhefa, on the basis of different floral and yield parameters. In all parameters sourave was found most promising in terms of number of days required for first flower bud emergence from transplanting (39.06days), Diameter of flower (25.05cm), Weight of flower (106.47g), Shelf life of flower (15.66days), Total number of flower per plant (9.06), Flower yield per plant (881.42g), Flower yield per hectare (35.25t/ha).

Keywords: Sourave, Mohini, Diameter of flower, Romia

Introduction

Dahlia (*Dahlia variabilis* L.) is half hardy herbaceous perennials. Dahlia stems are mostly erect, branched, glabrous or scabrous and having tuberous root. It belongs to the Family Asteraceae having its origin in Mexico (Pandey *et al.*, 2017) [8]. In honor of the Swedish botanist Dr. Andreas Dahl (pupil of Linnaeus) it was named as Dahlia, from where it was first introduced into Madrid (Spain) in 1789 and other European countries. Dahlia was introduced to India as early as 1857 under the auspices of the Agri Horticultural society of India (formerly, Royal Agri – Horticultural society of India) Calcutta (Malik *et al.*, 2017) [7]. Apart from cultivation in ground, Dahlia in pots is very popular in most parts of the country. The other notable contributions of this society are the development of late cutting method of dahlia preservation and plant breeding Dahlia originated in Mexico, which received its name by Cavanilles in the year 1791, to commemorate the work of a Swedish Botanist Dr. andreas Dahl, a pupil of Linnaeus.

Dahlia is one of the most important garden plants. Multitude of colors, great variation in sizes (ranging from miniature, less than 2.5 cm across to giant over 40 cm in diameter), attractive shapes and many forms, profusion of flowering and easy cultivation has made them immensely popular. They are easy to grow both in ground and pot, and are extensively used for exhibition, garden display and home decoration and cut flowers of pompon and, miniature types stay fresh in flower vases for many day and also make moderately good garlands (Ajeet *et al.* 2015) [1]. To obtain more flowers / plant, stress should be given on the number of branches / plant during selection of cultivars and strains. Plant height and number of leaves also showed a slight positive effect on the number of flowers (Suman *et al.*, 1991) [9]. Dahlia hybridization has so far been done by the commercial dahlia growers and amateurs in different parts of the world, mostly in America, Newzealand, Holland and England. In India, Swami Vinayananda, a monk of the Ramakrishna order, has done a good deal of breeding work using hand – pollination technique. Some of their most popular hybrids are Bhikkus mother, Bhikkus vivek and Swami lakeswar nanda.

Materials and Methods

The experiment was conducted with 9 varieties of dahlia viz. Sourave, Pue sona, Baba Borakhna keari, Sahani, Indira, Romia, Devdas, Mohini and Bama khefa, were sown randomized block design with 3 replication. The experiment was conducted in the floriculture Research Farm, Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom

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University of Agriculture, Technology and Sciences, Allahabad (Uttar Pradesh). Observations were recorded on all characters viz. number of days required for first flower bud emergence from transplanting (days), Diameter of flower (cm), Weight of flower (g), Shelf life of flower (days), Total number of flower per plant, Flower yield per plant (g), Flower yield per hectare (t/ha), The data recorded during the course of investigation on growth components were subjected to two way classification analysis of variance (ANOVA), where the 'F' test was significant for comparison of the treatment means, CD values were worked out at 5% probability level.

Results and Discussion

The maximum flower duration (15.06) days to was found in hybrid sourave and followed by pue sona (14.98) days and sahani (14.13) days whereas minimum flowering duration (11.60) days was found in devdas. The maximum number of flowers per plant (9.06) was found in hybrid sourave and followed by pue sona (8.2) and indira (8.00) whereas minimum number of flowers per plant (5.6) days was found in devdas. The maximum diameter of fully opened flower (25.5 cm) was found in hybrid sourave followed by pue sona (23.94

cm) and bama khefa (22.83 cm) whereas minimum diameter of fully opened flower (19.30 cm) was observed in devdas. The minimum day taken for first bud appearance (39.06 days) was observed in hybrid sourave followed by pue sona (47.06 days) and indira (49.64 days) whereas a maximum day taken for first bud appearance (62.69 days) was observed in devdas. The maximum weight of single flower (106.47 g) was found in hybrid sourave followed by pue sona (92.97 g) and baba borakhana keari (92.61 g) whereas minimum weight of single flower (43.76 g) was observed in devdas. The maximum flower yield per plant (881.42 g) was found in hybrid sourave and followed by pue sona (720.37 g) and bama khefa (678.79 g) whereas minimum flower yield per plant (278.72 g) was found in devdas. The maximum flower yield (35.25 t/ha) was found in hybrid sourave and followed by pue sona (28.81 t/ha) and bama khefa (27.15 t/ha) whereas minimum flower yield per plant (11.14 t/ha) was found in devdas. These findings are closely inconformity with Dhane and Nimbalkar (2002) [3] found in Dahlia, Kumar *et al.*, (2009) [5] found in Dahlia, Mahawer *et al.*, (2010) [6], Damke *et al.*, (2006) [2] and Kanamadi and Patil (2002) [2] found in Dahlia.

Table 1: Evaluation of different hybrids for floral and yield parameters of Dahlia (*Dahlia variabilis* L.) grown under Allahabad Agro-climatic condition.

Hybrid Varieties	Number of days required for first flower bud emergence from transplanting	Diameter of fully opened flower (cm)	Weight of single flower (g)	Self life of flower (days)	Total number of flower per plant	Flower yield per plant (g)	Flower yield per hectare (t/ha)
Sourave	39.06	25.05	106.47	15.66	9.06	881.42	35.25
Puesona	47.06	23.94	92.97	14.98	8.2	720.37	27.15
Baba Borakhnakeari	62.89	19.41	92.61	12.94	7.73	526.73	28.81
Sahani	56.60	21.14	55.67	14.13	9.06	496.51	19.85
Indira	50.64	22.27	63.58	12.64	8.00	354.68	14.18
Romia	44.64	21.8	44.71	11.80	6.6	281.55	11.27
Devdas	62.69	19.30	43.78	11.60	5.6	278.72	11.14
Mohini	56.06	19.32	90.60	12.60	6.64	501.93	20.07
Bamakhefa	51.33	22.83	66.85	13.62	7.4	678.79	21.06
Mean	52.12	21.67	73.04	13.51	7.20	532.22	24.09
F- test	S	S	S	S	S	S	S
S.Ed ±	0.06	0.05	0.05	0.07	0.12	0.32	0.20
CD (5%)	0.13	0.11	0.10	0.14	0.25	0.69	0.42

Conclusion

On the basis of present investigation it is concluded that, out of nine hybrids, sourave was to be most promising hybrids in terms of floral and yield parameters of flowers of dahlia. As the study was undertaken only for one season, it needs further confirmation by conducting more trials.

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