



Short communication

## Performance of tuberose (*Polianthes tuberosa* L.) cultivars in Goa

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### ABSTARCT

Tuberose is one of the popular cut flowers in Goa and holds great potential for cultivation in the state. The experiment laid out in randomized block design (RBD) with four replications was conducted at ICAR Research Complex, Ela, Old Goa, during 2003-04 to evaluate the performance of five tuberose cultivars under local agro-climatic conditions. Results were significant among cultivars for all characters except bulb production/plant. Maximum plant height was observed in 'Prajwal' whereas, the minimum was observed in 'Shringar'. Among the cultivars, 'Mexican Single' was found to be early, while, 'Suvasini' and 'Prajwal' were late in flowering. Highest number of florets/spike was recorded in 'Suvasini', closely followed by 'Vaibhav'. The best performance for spike length, number of spikes/plant, number of bulbs/plant, bulb weight and bulb diameter was observed in Mexican Single.

**Key words:** Cultivars, performance, tuberose

Tuberose (*Polianthes tuberosa* L.), a popular bulbous flower crop, is grown commercially for varied uses particularly in Eastern, Southern and Western parts of India. Tuberose needs warm and humid conditions for its luxuriant growth. Average range of annual temperature, relative humidity and rainfall of Goa are 22-33°C, 58-88% and 2700-3000 mm, respectively. There is a good demand for cut tuberose in Goa, which is totally dependent on neighbouring states for the supply. There is a huge potential for tuberose production in the state owing to the presence of congenial climate and good market. There are reports on the performance of tuberose varieties in different parts of the country (Biswas *et al.*, 2002). Though there are many varieties available in the country, location specific evaluation of varieties will help the growers to select the most suitable and high yielding variety. In this context, efforts were made to identify an ideal cultivar for commercial cultivation of tuberose in Goa.

Five cultivars namely Mexican Single, Shringar, Suvasini, Prajwal and Vaibhav were evaluated in randomized block design with four replications during August 2003 and September 2004 at ICAR Research Complex for Goa, Ela, Old Goa. Soil of the experimental site was lateritic in nature having 5.4 pH and 0.037 EC and available N (0.89%), P (98.1 kg/ha), K (604.8 kg/ha) status was high. Farmyard manure @30 t/ha was applied at the time of land preparation. Sampurna (19:19:19) @600 kg/ha was applied

in three equal splits. First dose was given at the time of planting, second dose in 4<sup>th</sup> month and third dose in 8<sup>th</sup> month after planting. Healthy and medium size bulbs of 2-3 cm were planted at a spacing of 35 x 30 cm on flat bed. Other standard cultural practices including earthing up were carried out during the crop period. Observations were recorded on plant height, days to flowering, yield components and characters of bulbs. The collected data were subjected to statistical analysis and presented in Table 1.

Results of the study revealed that differences among cultivars for various characters except bulb yield/plant were found significant (Table 1). Plant height which was measured before the emergence of spike was recorded the maximum in Prajwal (65.13 cm) and followed by Mexican Single (60.85 cm). Plants were dwarf in nature in Shringar (52.09 cm), which was found at a par with Vaibhav (54.92 cm). The difference between Mexican Single (60.85 cm) and Suvasini (58.27 cm) for plant height was found non-significant. Among the cultivars, earliness both in emergence of spike (101 days) and opening of first pair of flower buds (119.79 days) was observed in Mexican Single whereas, it was delayed in Prajwal and Suvasini. Marked difference between Shringar and Vaibhav for days to opening of flower buds was observed though they took almost the same period of time to reach the spike emergence stage. In tuberose, sturdy and lengthy spikes are preferred in cut flower trade. Spike length was significantly

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**Table 1. Performance of tuberose cultivars under agro-climatic conditions of Goa**

Cultivar	Plant height (cm)	Days to emergence of spike	Days to flower opening	Spike length (cm)	Rachis length (cm)	Florets/spike	Floret weight (g)	Floret diameter (cm)	No. of spikes/plant	No. of bulbs/plant	Bulb weight (g)	Bulb diameter (cm)
Mexican Single	60.85	101.00	119.00	103.79	34.15	42.65	1.18	3.34	5.73	16.86	11.98	2.20
Shringar	52.09	104.50	122.00	76.95	26.36	44.77	1.06	3.22	3.02	15.54	7.96	1.90
Suvasini	58.27	109.00	131.00	91.54	50.52	57.46	2.65	4.12	2.43	17.05	11.60	1.88
Prajwal	65.13	110.50	131.00	97.78	33.75	51.39	1.98	3.59	2.67	16.69	10.52	1.95
Vaibhav	54.92	104.00	126.00	91.25	56.03	55.65	2.26	3.58	3.02	16.53	8.88	1.79
CD ( $P=0.05$ )	5.67	1.62	1.32	5.95	6.94	5.55	0.30	0.20	0.54	NS	1.55	0.17

superior in Mexican Single (103.79 cm) when compared to other cultivars whereas it was shortest in Shringar (76.95 cm). Spike length was similar in Suvasini (91.54 cm) and Vaibhav (91.25 cm). Maximum rachis length was seen in Vaibhav (56.03 cm) followed by Suvasini (50.52 cm), while the minimum was observed in Shringar (26.36 cm). Spikes of Suvasini (57.46) had the highest number of florets while the lowest was recorded in Mexican Single (42.65), which was found at a par with Shringar (44.77).

Individual floret weight (Table 1) was maximum in Suvasini (2.65 g) whereas, it was minimum in Shringar (1.06 g). Similar trend among the cultivars was observed in respect of floret diameter. Cultivar Mexican Single (5.73) recorded the highest spike yield/plant, which was significantly superior to other cultivars. The present results are in conformity with the findings of Irulappan *et al* (1980) on tuberose. Results were found non-significant between Shringar (3.02) and Vaibhav (3.02). Spike yield/plant was lowest in Suvasini (2.43) followed by Prajwal (2.67). Non-significant results were observed among the cultivars for number of bulbs/plant. Both the bulb weight (11.98 g) and bulb diameter (2.20 cm) were happened to be the maximum in Mexican Single. The bulb weight was minimum in Shringar (7.96 g), followed by Vaibhav (8.88 g). Lower bulb size was observed in Vaibhav (1.79 cm) and Suvasini (1.88 cm), Shringar (1.90

cm) and Prajwal (1.95 cm). Similarly, Irulappan *et al* (1980), Bankar and Mukhopadhyay (1980), Patil *et al* (1987) and Murthy *et al* (1997) reported performance of tuberose cultivars under various agro-climatic conditions. It is concluded from the study that cultivar Mexican Single can be a good choice for commercial cultivation in Goa, as it excelled in performance for most of the characters.

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(MS Received 11 November 2008, Revised 5 June 2009)