

POST HARVEST LIFE OF TUBEROSE AS INFLUENCE BY GA₃ AND VARIETIES

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Abstract: An experiment was conducted to evaluate the influence of GA₃ and varieties on post harvest life of tuberose. GA₃ was applied to plants at two concentrations (GA₃ 100 and 200 ppm) along with control (distilled water). Varieties comprised of two single cultivars namely Sikkim Selection, Phule Rajani and two double cultivars namely Vaibhav and Calcutta Double. GA₃ 200 ppm produced pronounced affect on post harvest characters of tuberose. All the varieties exhibited significant differences for all the attributes.

Keywords: Tuberose, GA₃, Cultivar, Growth, Yield.

INTRODUCTION

Tuberose is cultivated on large scale in France, Italy, South Africa, USA, India and many tropical and subtropical areas. It has great economic potential for cut flower trade and essential ail industry (Sadhu and Bose, 1973) due to their great demand. Bhaskar and Rao (1998) also reported that gibberellic acid, at concentrations of 50 or 100 ppm significantly improved the vase life of cut tuberose spikes. Gibberellic acid at 100 ppm was the most effective in improving the water uptake, maintaining a better water balance. GA₃ at 100 ppm was found most effective for increasing the fresh weight of flowers and percentage of opened florets per spike. Hence present study was conducted with aim to influence the post harvest life of tuberose varieties with the application of GA₃.

MATERIAL AND METHOD

The tuberose crop bearing both single and double flowers was raised at the Horticulture Experimental farm of the Banaras Hindu University, Varanasi during 2008 to 2009. Tuberose bulbs of uniform size were planted at a spacing of 25×25cm in 1m² plot. GA₃ was applied at two concentrations 100 and 200 ppm along with control using distilled water. First spraying was performed at 35 days after planting and second spraying was applied at 50 days stage. Varieties comprised of two single cultivars Sikkim Selection and Phool Rajani and two double cultivars Vaibhav and Calcutta Double. For recording of vase life parameters spikes were cut in the morning, above 20cm basal end. Basal 10cm stems were re-cut under water and the stems were put in distilled water for observations. Observations on various vase life parameters were taken carefully and

analyzed statistically each character is presented in table 1.

RESULT AND DISCUSSION

Vase life of tuberose was highly affected by GA₃ treatments and varieties. Variations in vase life may be attributed to the differential accumulation of carbohydrates due to varied leaf production and sensitivity of cultivars to ethylene. In turn variations in these aspects might be due to genetical makeup of plants (Kamble *et al.*, 2004). GA₃ 200 ppm significantly enhanced percentage of opened floret and water uptake however maximum vase life (days), days taken to 50% flowering. However, days taken to first floret withering was recorded maximum with GA₃ 100 ppm treatment. The earlier work was carried out by Bhaskar and Rao (1998), Nagaraja *et al.* (1998) in tuberose are also in congruence with these findings. GA₃ at 100 ppm concentration produced maximum vase life (days). Three Asiatic hybrid lily cultivars Vermeer, Vivaldi and Marseille exhibited longevity of spikes in vase and reduction of leaf chlorosis with GA₃ treatment (Ranwala and Miller 2002). Cultivar Vaibhav was found most effective to vase life. Cv. Calcutta Double had taken maximum days to 50% flowering. Cv. Sikkim Selection exhibited maximum percentage of opened floret and Cv. Calcutta Double consumed highest quantity of water under vase life and maximum days to lowest first wither. GA₃ influenced the water uptake, vase life, fresh weight and floret opening in tuberose cv. Pearl Double (Kumar and Singh 2004). Hence it can be concluded that all the post harvest parameters of tuberose were significantly affected by GA₃ treatments and varieties.

Table 1. Influence of GA₃ and varieties on vase life.

Treatment ppm	Vase life (days)	Days taken to 50% flowering	Percentage of opened floret	Total water uptake (ml)	Days taken to first floret in wither
GA ₃ 100	10.80	6.17	51.71	88.99	4.24
GA ₃ 200	9.30	7.56	54.39	90.79	3.17
Control	9.31	5.45	49.76	80.39	3.38
S.Em±	0.07	0.077	0.10	0.073	0.046
C Dat 5%	0.17	0.19	0.25	0.179	0.11
Cultivars					
S.Selection	7.77	5.61	56.37	27.99	2.41
Phule Rajani	9.07	6.28	46.90	83.19	2.87
Vaibhav	11.47	6.01	55.04	109.80	3.94
C.Double	10.9	7.66	49.51	125.31	5.17
S. Em ±	0.08	0.08	0.12	0.085	0.054
CD at 5%	0.19	0.21	0.29	0.206	0.13

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