



Full Length Research Article

EFFECT OF DIFFERENT LEVELS OF SUCROSE IN VASE SOLUTIONS ON POST HARVEST SOLUTION UPTAKE, FLORETS DIAMETER, VASE LIFE OF SPIKE OF GLADIOLUS CV. AMERICAN BEAUTY

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ABSTRACT

The experiment was conducted at ASPEE, Agricultural Research and Development Foundation, Village Nare, Taluka Wada, District Palghar, Maharashtra, India. In this study, the effects of different levels of sucrose in vase solution treatments on post harvest solution uptake, florets diameter, vase life of spike of gladiolus cv. American Beauty were carried out. The 5.5 % vase solution treatment of sucrose resulted in maximum vase solution uptake (57, 56 and 56.50ml), florets diameter (6.22, 6.54 and 6.38cm), number of opened florets percentage (62.17, 65 and 63.58%), vase life of spike (12.04, 12.44 and 12.24 days) and minimum percentage of unopened florets per spike (37.83, 35 and 36.42%), respectively in the both trials under laboratory condition and also pooled study of gladiolus cv. American Beauty and then followed by treatment T₁₀.

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INTRODUCTION

Production of field grown cut flowers has become quite popular in recent years. The variety of flowers grown has also been increased dramatically. While, production of high-quality flowers is an important, it is equally critical to handle the flowers properly after they are harvested from the field. There are reports that improper postharvest handling accounts to 20 to 30% of cut-flower loss during marketing. Still an important commercial cut flower despite a substantial decline in production in recent years, gladiolus responds well to proper postharvest management. The smaller-flowered and 'butterfly' cultivars, as well as modern standards in a variety of colors and forms have helped transform this often stereotypic funeral flower into a contemporary favorite that can be an important accent flower in arrangements.

MATERIALS AND METHODS

The present trials were carried out at ASPEE, Agricultural Research and Development Foundation Lab, Village Nare,

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Taluka Wada, District Palghar, Maharashtra, India during the period of 4th January (1st trail) and 8th January (2nd trail) 2014-15. The aim of this study was to examine the effects of different levels of sucrose in vase solution that affects envisages on post harvest vase life of gladiolus cv. American Beauty. There were 11 treatments consisting of sucrose @ 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5 and 5.5 % along with control- (0 % sucrose) and also replicated three times. The gladiolus cv. American Beauty spikes were collected from ASPEE, Agricultural Research and Development Foundation Farm, Village Nare, Taluka Wada, District Palghar, Maharashtra, India during the period of January, 2014.

Method of treatments procedure application

Gladiolus spikes were placed in different levels of sucrose solutions overnight (about 24 hrs) and then transferred to solutions that do not contain sucrose. The two spikes per replication wise were treated with as per desired concentration of sucrose levels. The period of initial vase solution treatments was 24hrs. The treated soaked spikes were then transferred to solutions that do not contain sucrose on dated 5th January (1st trail) and 9th January (2nd trial) 2014-15. The experiments were



Photo plate I: - Effect of different levels of sucrose in vase solution on post harvest pulsing solution uptake, florets diameter, vase life of spike of gladiolus cv. American Beauty

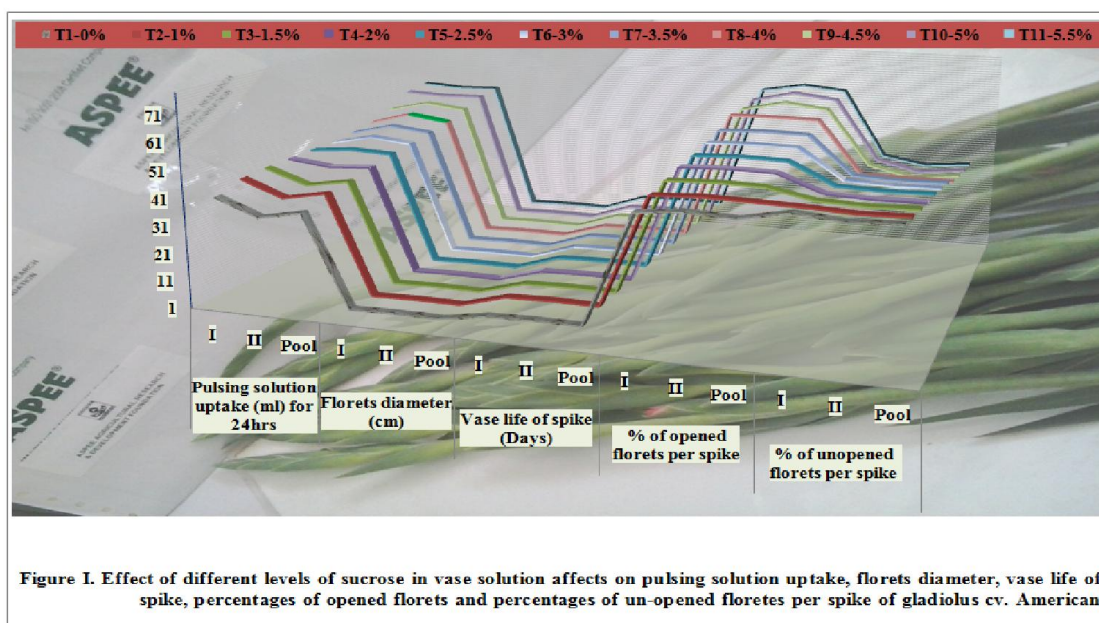


Figure I. Effect of different levels of sucrose in vase solution affects on pulsing solution uptake, florets diameter, vase life of spike, percentages of opened florets and percentages of un-opened florets per spike of gladiolus cv. American

Table I. Effect of different levels of sucrose in vase solution affects on pulsing solution uptake, florets diameter, vase life of spike, percentages of opened florets and percentages of un-opened florets per spike of gladiolus cv. American Beauty

Treat. Details	Pulsing solution uptake (ml) for 24hrs			Florets diameter (cm)			Vase life of spike (Days)			% of opened florets per spike			% of unopened florets per spike		
	I	II	Pool	I	II	Pool	I	II	Pool	I	II	Pool	I	II	Pool
T ₁ -0%	41.00	35.00	38.00	4.80	5.12	4.96	7.64	8.04	7.84	48.00	49.50	48.75	52.00	50.50	51.25
T ₂ -1%	44.33	38.33	41.33	5.00	5.32	5.16	9.64	10.04	9.84	50.00	50.83	50.42	50.00	49.17	49.58
T ₃ -1.5%	44.93	39.67	42.30	5.15	5.47	5.31	9.84	10.24	10.04	51.53	52.20	51.87	48.47	47.80	48.13
T ₄ -2%	45.13	43.33	44.23	5.29	5.61	5.45	10.04	10.44	10.24	52.87	53.53	53.20	47.13	46.47	46.80
T ₅ -2.5%	45.33	46.67	46.00	5.37	5.69	5.53	10.74	11.14	10.94	53.67	54.33	54.00	46.33	45.67	46.00
T ₆ -3%	45.33	48.67	47.00	5.52	5.84	5.68	11.01	11.41	11.21	55.17	55.83	55.50	44.83	44.17	44.50
T ₇ -3.5%	46.33	50.33	48.33	5.69	6.01	5.85	11.24	11.64	11.44	56.87	57.53	57.20	43.13	42.47	42.80
T ₈ -4%	48.00	52.33	50.17	6.00	6.32	6.16	11.27	11.67	11.47	60.00	60.17	60.08	40.00	39.83	39.92
T ₉ -4.5%	50.67	54.33	52.50	6.03	6.27	6.11	11.61	12.01	11.81	59.50	63.17	61.33	40.50	36.83	38.67
T ₁₀ -5%	55.67	55.00	55.33	6.06	6.38	6.22	11.74	12.14	11.94	60.57	64.40	62.48	39.43	35.60	37.52
T ₁₁ -5.5%	57.00	56.00	56.50	6.22	6.54	6.38	12.04	12.44	12.24	62.17	65.00	63.58	37.83	35.00	36.42
SEm±	1.60	4.68	0.83	0.17	0.49	0.25	0.67	0.63	0.65	1.80	1.75	1.38	1.80	1.74	1.38
C.D.@ 0.05	7.56	4.63	2.04	0.09	0.7	0.148	1.31	1.17	1.20	9.50	8.97	5.60	9.50	8.97	5.60

replicated 3 times with completely randomized design (Panse and Sukhatme, 1985). Data were compiled and analyzed statistically using appropriate statistical tools.

RESULTS AND DISCUSSION

From the Table I (Figure I and Photo plate I), the pulsing solution uptake, florets diameter (cm) were observed maximum in treatment T₁₁ in both trials and also pooled study at the end of experimentation, respectively then followed by treatment T₁₀ and T₉. Likewise, in both trials and pooled experimentation study, the vase life of spike (days) was observed higher in number in treatment T₁₁ and then followed by T₁₀, T₉, T₈, T₇, T₆ and T₅, respectively. The maximum percentage of opened florets per spike and minimum percentage of unopened florets per spike were obtained in T₁₁ and then followed by treatments T₁₀, T₉, and T₈, in 1st, 2nd trials and also pooled data study, respectively. Thus, results due to treatment presumably allow the accumulation of adequate sucrose in the leaves and stem during that time period to aids the development of flowers. When, Gladioli are pulsed (hold) overnight, a flower opening faster, maximum number open florets per spike, minimum unopened the florets per spike and the stem has a longer vase life (Mayak *et al.*, 1973 and Anonymous, 2014).

Conclusion

From the forgoing discussion, it can be concluded that, the immersing cut spike stems in vase solution of sucrose concentration (5.5 %) for 24 hours at 25°C that helps to the improved too the opening of the florets per spike and increased longevity of the florets spike and then followed by 5 % and 4.5 % of sucrose concentrations than control treatment.

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