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EFFECT OF COMPOST, SALICYLIC AND ASCORBIC ACIDS TREATMENTS ON VEGETATIVE GROWTH AND FLOWERING OF *GLADIOLUS GRANDIFLORUS* CV. WHITE PROSPERITY

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ABSTRACT: A field experiment was carried out during the two successive seasons of 2012/2013 and 2013/2014. The aim of this study was to investigate the effect of compost at four levels (0, 7.5, 10.0 and 12.5 ton/fed) in combination with salicylic and/or ascorbic acids, each at 100 and 200 ppm, in addition to the control on growth and flowering of *Gladiolus grandiflorus* cv. White Prosperity.

Results showed that leaf length, leaf area, number of leaves/plant, leaves dry weight/plant, length of spike, rachis length, spike diameter, number of florets/spike, lower floret diameter and single floret fresh weight were gradually increased by increasing the levels of compost with significant differences were detected between successive treatments. Also, all salicylic and/or ascorbic acid treatments significantly increased all vegetative growth and flowering parameters in comparison with the control. Salicylic plus ascorbic one at 100 ppm for each, followed by ascorbic acid alone at 200 ppm were more effective in this concern. It was found also that the use of compost (12.5 ton/fed) in combination with salicylic acid + ascorbic acid, each at 100 ppm or with ascorbic acid at 200 ppm noticeably improved the different vegetative growth characters and flowering parameters of gladiolus plants.

Key words: *Gladiolus grandiflorus*, cv. White Prosperity, compost, salicylic acid, ascorbic acid, vegetative growth, flowering.

INTRODUCTION

Gladiolus is derived from the native plants of South and Central Africa, as well as, the Mediterranean region. Gladiolus (Family Iridaceae) is a valuable and economic flowering bulb plant used as a landscape plant in the home gardens and in decoration as a lovely and rich colored cut flower spike with relatively long vase life (Hogan, 1990). In this study corms of *Gladiolus gradiflorus* cv. White Prosperity were chosen for its adaptability to the Egyptian environmental conditions, besides the possibility of exporting of its flowers could be increased.

Organic, salicylic and ascorbic acids are among the important agricultural treatments which have been proved to improve the vegetative growth and flowering aspects of gladiolus plants.

Many investigators revealed the importance of organic fertilization on the growth and flowering of gladiolus such as, Conte *et al*. (2001), Zaghloul and Moghazy (2001), Khan *et al.* (2002), Atta-Alla *et al.* (2003), Dongardive *et al.* (2007), Hassanein and El-Sayed (2009), Leonardo and Barbara (2011), Chandar *et al.* (2012) and Abdou *et al.* (2013).

The role of salicylic acid in improving vegetative growth and flowering parameters was revealed by Sajjad *et al.* (2014) on gladiolus, Khandaker *et al.* (2011) on red amaranths, Hajizadeh and Aliloo (2013) on *Lilium longiflorum* and Anwar *et al.* (2014) on tuberose.

The role of ascorbic acid in improving vegetative growth and flowering characters was also mentioned by Abdel Aziz *et al.* (2009), Abo Leila and Eid (2011) on gladiolus and Kasim and Adil (2014) on *Freesia hybrida*.

The aim of this work was to study the effect of compost, salicylic and ascorbic acids treatments on the vegetative growth and flowering of gladiolus cultivar, White Prosperity.

MATERIALS AND METHODS

A field experiment was carried out during the two successive seasons of 2012/2013 and 2013/2014 at the Nursery of Ornamental Plants, Faculty of Agriculture, Minia University to figure out the response of the *Gladiolus grandiflorus* cv. White Prosperity plants to plant compost, salicylic acid and ascorbic acid treatments.

The corms of gladiolus were obtained from Holland by Basiony nurseries, Cairo, Egypt. Average corm diameter was 2.8 and 3.1 cm and corm weight was 9.6 and 10.1 g for the first and second seasons, respectively. Corms were planted on October 1st for both seasons in 1.5 × 2.2 m plots containing 3 ridges, 50 cm apart. Corms were planted in hills, 20 cm apart (10 corms/ridge). Physical and chemical properties of the soil used are listed in Table (a). The split plot design with three replicates was followed in this experiment.

The four levels of compost fertilization treatments were considered as main plots and the seven treatments of salicylic and/or ascorbic acids the sub plots. The four levels of compost treatments were 0.0, 7.5, 10.0 and 12.5 ton/fed. The compost was added before planting during the soil preparation. Compost analysis is shown in Table (b).

The sub plots were as follows: control, salicylic acid at 100 or 200 ppm, ascorbic acid at 100 or 200 ppm, salicylic acid + ascorbic acid (each at 100 or 200 ppm). Salicylic and ascorbic acids were sprayed three times, one month and two months after planting and after flower cut.

The following data were recorded:

1- Vegetative growth characters just before flowering: leaf length (cm), leaf area (cm^2), number of leaves/plant and dry weight of leaves/plant (g).

2- Flowering characters: length of spike (cm), rachis length (cm), spike diameter (mm), number of florets/spike, lower floret diameter (cm) and single floret fresh weight (g).

The data of the two experiments were subjected to the statistical analysis of variance using MSTAT-C (1986). L.S.D. test at 5% was used to compared the average means of treatments.

Table a. Physical and chemical properties of the used soil in both seasons.

Soil Character	Value		Soil Character		Value	
	2012/2013	2013/2014			2012/2013	2013/2014
Sand %	28.98	28.90	**Available P %**		15.67	15.58
Silt %	29.87	30.64	**Exch. K^+ mg/100 g**		2.85	2.64
Clay %	41.15	40.46	**Exch. Ca^{++} mg/100 g**		31.12	31.43
Soil type	Clay loam	Clay loam	**Exch. Na^+ mg/100 g**		2.51	2.50
Organic matter %	1.54	1.59		**Fe**	8.23	8.11
Ca CO_3 %	2.11	2.10	**DTPA Ext. ppm**	**Cu**	2.01	2.00
pH (1: 2.5)	7.75	7.71		**Zn**	2.87	2.89
E. C. (m mhos/cm)	1.08	1.06		**Mn**	8.11	8.15
Total N %	0.08	0.06				

Table b. Chemical analysis of the compost used in the two seasons.

Properties	Value	Properties	Value
Organic carbon	25.1	Total P (%)	0.5
Humidity (%)	25	Total K (%)	1.0
Organic matter (%)	44	Fe (ppm)	1750
C/N ratio	17.5	Zn (ppm)	60
pH (1:2.5)	8.0	Mn (ppm)	125
E.C. (m. mhos/cm)	5	Cu (ppm)	200
Total N (%)	1.5		

RESULTS AND DISCUSSION

1- Vegetative growth characters:

Data presented in Tables (1 and 2) showed that leaf length and leaf area, number of leaves/plant and leaves dry weight/plant of gladiolus were significantly increased, in both seasons, due to the use of 7.5, 10.0 and 12.5 ton/fed compost in comparison with those of control plants. Moreover, the increase was gradually by the gradual increase in compost level. The increase in vegetative growth traits due to compost at levels of 7.5, 10.0 and 12.5 ton/fed over the control reached 5.67, 11.27 and 16.17% for leaf length, 11.75, 56.86 and 73.16% for leaf area, 13.05, 14.78 and 17.44% for leaf number and 12.89, 14.90 and 17.48% for leaves dry weight, respectively, in the first season and by 5.55, 10.99 and 16.29% for leaf length, 33.38, 55.55 and 71.67% for leaf area, 11.73, 14.64 and 15.99% for number of leaves and 11.84, 14.61 and 17.13 for leaves dry weight, respectively in the second one. Similar results were found by Conte *et al.* (2001), Khan *et al.* (2002), Chandar *et al.* (2012) and Abdou *et al.* (2013) on gladiolus.

The increase of vegetative growth resulting from using compost as organic fertilization might be due to that organic matter is considered an important factor for improving the physical, chemical and biological properties of the soil and consequently, increasing plant growth (Maynard, 1991).

Data in Tables (1 and 2) indicated that, leaf length, leaf area, number of leaves/plant and leaves dry weight of gladiolus were significantly increased, in both seasons, due to the use of salicylic and ascorbic acids, each at 100 or 200 ppm either used separately or together in comparison with control. The combined treatment of salicylic acid (100 ppm) plus ascorbic acid (100 ppm) followed by treatment of ascorbic acid (200 ppm) seemed to be more effective than other treatments. In conformity with these results were those detected by Sajjad *et al.* (2014) on gladiolus and Anwar *et al.* (2014) on tuberose regarding the effect of salicylic acid. Moreover, Abdel Aziz *et al.* (2009) and Abo Leila and Eid (2011) on gladiolus concerning the influence of ascorbic acid.

Ascorbic acid is the most abundant antioxidant which protects plant cells, or antioxidant defense, photoprotection and regulation of photosynthesis and growth (Blokhina *et al.*, 2003). The ameliorative effect of salicylic acid on growth of plants under a biotic stress conditions may have been due to role in nutrient uptake, water relations, stomatal regulation, photosynthesis and growth (Arfan *et al.*, 2007).

The interaction between compost, salicylic and/or ascorbic acids treatments was significant in the two seasons for all previous characters. The maximum values were obtained due to fertilizing the soil of gladiolus with high level of compost (12.5 ton/fed) and spraying plants with salicylic acid (100 ppm) + ascorbic acid (100 ppm) or ascorbic acid at 200 ppm.

2- Flowering parameters:

Data presented in Tables (3 and 4) indicated that all compost levels caused a significant increase in length of spike, rachis length, spike diameter, number of florets/spike, lower floret diameter and single floret fresh weight, in the two seasons, in comparison with those of untreated plants. The means of flowering parameters were gradually increased according to the increase in levels of compost fertilizer. The application of compost at high level (12.5 ton/fed) resulted the highest values of various flowering traits. These results are in close with those obtained by Zaghloul and Moghazy (2001), Pimpini and Zanin (2002),

Table 1. Effect of compost, salicylic and ascorbic acid treatments on leaf length (cm), leaf area (cm^2) and number of leaves/plant of *Gladiolus grandiflorus* cv. White Prosperity plants during 2012/2013 and 2013/2014 seasons.

Salicylic and ascorbic acids treatments (B)	Compost levels (ton/feddan) (A)									
	1st Season					2nd Season				
	0	7.5	10.0	12.5	Mean (B)	0	7.5	10.0	12.5	Mean (B)
	Leaf length (cm)									
Control	53.21	56.45	59.35	61.96	57.74	54.32	57.56	60.46	63.07	58.85
Sal. at 100 ppm	55.02	58.36	61.37	64.08	59.71	56.32	59.57	62.58	65.28	60.94
Sal. at 200 ppm	56.93	60.27	63.28	65.99	61.62	58.14	61.48	64.38	67.08	62.77
Asc. at 100 ppm	55.14	58.48	61.64	64.99	60.02	56.34	59.78	62.95	66.28	61.34
Asc. at 200 ppm	57.19	60.51	63.63	66.25	61.89	58.48	61.80	64.92	67.54	63.19
(Sal.+Asc.) at 100 ppm	59.38	62.82	65.83	68.44	64.12	60.69	64.13	67.14	69.75	65.43
(Sal.+Asc.) at 200 ppm	57.11	59.43	63.26	66.00	61.45	58.41	60.71	64.55	67.30	62.74
Mean (A)	56.28	59.47	62.62	65.38		57.53	60.72	63.85	66.90	
L.S.D. at 5%	A: 2.55	B: 1.10	AB: 2.20			A: 2.81	B: 1.12	AB: 2.24		
	Leaf area (cm^2)									
Control	46.2	60.6	70.6	77.5	63.73	46.7	61.3	71.3	78.3	66.65
Sal. at 100 ppm	49.6	67.4	78.5	86.4	70.48	50.1	68.1	79.3	87.3	71.20
Sal. at 200 ppm	55.5	75.1	87.6	96.7	78.73	56.1	75.1	88.5	97.7	79.35
Asc. at 100 ppm	51.8	70.2	81.7	89.6	73.33	55.7	70.9	82.5	90.5	74.90
Asc. at 200 ppm	59.9	81.3	93.7	105.1	85.00	60.5	82.1	94.6	106.2	85.85
(Sal.+Asc.) at 100 ppm	64.6	87.1	101.8	112.9	91.60	65.3	88.0	102.8	114.1	92.55
(Sal.+Asc.) at 200 ppm	50.8	68.3	79.7	87.1	71.48	51.3	68.9	81.0	88.0	72.30
Mean (A)	54.06	60.41	84.80	93.61		55.10	73.49	85.71	94.59	
L.S.D. at 5%	A: 4.83	B: 4.00	AB: 8.00			A: 5.66	B: 4.11	AB: 8.22		
	Number of leaves/plant									
Control	8.10	9.21	9.24	9.54	9.02	9.00	10.12	10.26	10.48	9.97
Sal. at 100 ppm	8.60	9.73	9.85	10.06	9.56	9.56	10.69	10.94	11.05	10.56
Sal. at 200 ppm	8.79	9.94	10.07	10.29	9.77	9.77	10.92	11.18	11.31	10.80
Asc. at 100 ppm	8.69	9.82	9.96	10.17	9.66	9.66	10.79	11.05	11.17	10.67
Asc. at 200 ppm	8.81	9.97	10.19	10.34	9.83	9.79	10.95	11.32	11.36	10.86
(Sal.+Asc.) at 100 ppm	8.96	10.15	10.41	10.63	10.04	9.95	11.16	11.55	11.67	11.08
(Sal.+Asc.) at 200 ppm	8.70	9.72	9.88	10.17	9.62	9.67	10.68	10.97	11.18	10.63
Mean (A)	8.66	9.79	9.94	10.17		9.63	10.76	11.04	11.17	
L.S.D. at 5%	A: 0.14	B: 0.16	AB: 0.32			A: 0.15	B: 0.16	AB: 0.32		

Sal.: Salicylic acid **Asc.: Ascorbic acid**

Table 2. Effect of compost, salicylic and ascorbic acid treatments on leaves dry weight (g) of *Gladiolus grandiflorus* cv. White Prosperity plants during 2012/2013 and 2013/2014 seasons.

Salicylic and ascorbic acids treatments (B)	Compost levels (ton/feddan) (A)									
	1st Season					2nd Season				
	0	7.5	10.0	12.5	Mean (B)	0	7.5	10.0	12.5	Mean (B)
Control	3.23	3.67	3.71	3.82	3.61	3.71	4.17	4.23	4.31	4.11
Sal. at 100 ppm	3.44	3.88	3.94	4.03	3.82	3.94	4.41	4.51	4.64	4.38
Sal. at 200 ppm	3.52	3.98	4.03	4.13	3.92	4.02	4.51	4.60	4.66	4.45
Asc. at 100 ppm	3.48	3.92	3.98	4.07	3.86	3.98	4.45	4.54	4.66	4.43
Asc. at 200 ppm	3.62	4.08	4.17	4.23	4.03	4.05	4.52	4.67	4.79	4.51
(Sal.+Asc.) at 100 ppm	3.69	4.18	4.29	4.38	4.14	4.10	4.62	4.76	4.81	4.57
(Sal.+Asc.) at 200 ppm	3.48	3.88	3.95	4.07	3.85	3.97	4.39	4.53	4.61	4.38
Mean (A)	3.49	3.94	4.01	4.10		3.97	4.44	4.55	4.65	
L.S.D. at 5%	A: 0.06		B: 0.08		AB: 0.16	A: 0.09		B: 0.06		AB: 0.12

Sal.: Salicylic acid   Asc.: Ascorbic acid

Hassanein and El-Sayed (2009) and Abdou *et al.* (2013) on gladiolus.

A possible explanation to the positive effect of compost fertilizer treatments might be attributed to its stimulative effects on different vegetative growth (Tables 1 and 2). Better vegetative growth should be directly reflected on various flowering aspects.

Regarding the effect of salicylic acid and/or ascorbic acid treatments, data in Tables (3 and 4) revealed that all six treatments significantly increased length of spike, rachis length, spike diameter, number of florets/spike, lower florets diameter and single floret fresh weight compared with untreated plants. The highest values for all flowering characters were obtained due to gladiolus plants sprayed with salicylic acid plus ascorbic one, each at 100 ppm followed by ascorbic acid at 200 ppm in both seasons.

This finding was similar to those obtained by Abdel Aziz *et al.* (2009) and Abo Leila and Eid (2011) on gladiolus and Kasim and Adil (2014) on *Freesia hybrida* regarding the influence of ascorbic acid treatments. Also, Sajjad *et al.* (2014) on gladiolus, Khandaker *et al.* (2011) on red amaranths and Hajizadeh and Aliloo (2013) on *Lilium longiflorum* regarding the effects of salicylic acid in this concern.

The interaction treatments was exhibited a significant effect for all flowering parameter, except for lower floret fresh weight in both seasons. The highest values were obtained with compost at 12.5 ton/fed in combination with salicylic acid (100 ppm) + ascorbic acid (100 ppm) or ascorbic acid (200 ppm).

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Table 3. Effect of compost, salicylic and ascorbic acid treatments on spike length (cm), rachis length and spike diameter (mm) of *Gladiolus grandiflorus* cv. White Prosperity plants during 2012/2013 and 2013/2014 seasons.

Salicylic and ascorbic acids treatments (B)	Compost levels (ton/feddan) (A)									
	1st Season					2nd Season				
	0	7.5	10.0	12.5	Mean (B)	0	7.5	10.0	12.5	Mean (B)
	Spike length (cm)									
Control	50.7	58.5	62.7	65.8	59.4	51.7	59.7	64.0	67.1	60.6
Sal. at 100 ppm	62.6	63.9	64.7	65.9	64.3	63.8	65.6	66.7	68.0	66.0
Sal. at 200 ppm	65.7	67.1	67.9	69.1	67.5	68.1	71.0	72.5	73.8	71.4
Asc. at 100 ppm	64.8	65.8	66.9	68.1	66.4	66.3	68.0	69.3	70.4	68.5
Asc. at 200 ppm	66.6	68.2	68.9	72.2	69.0	69.9	73.1	75.7	79.4	74.5
(Sal.+Asc.) at 100 ppm	68.9	70.6	71.4	74.8	71.4	72.4	75.6	78.3	82.1	77.1
(Sal.+Asc.) at 200 ppm	65.2	66.4	67.3	68.5	66.9	66.9	68.7	70.1	71.3	69.3
Mean (A)	63.5	65.8	67.1	69.2		65.6	68.8	70.9	73.2	
L.S.D. at 5%	A: 1.3		B: 1.4	AB: 2.8		A: 1.9		B: 1.8	AB: 3.6	
	Rachis length (cm)									
Control	30.4	35.1	37.6	39.5	35.7	31.0	35.8	38.4	40.3	36.4
Sal. at 100 ppm	38.2	39.0	39.5	40.2	39.2	38.2	39.3	40.0	40.8	39.6
Sal. at 200 ppm	40.2	41.0	41.5	42.2	41.2	40.9	42.6	43.5	44.4	42.9
Asc. at 100 ppm	39.5	40.1	40.8	41.5	40.5	39.7	40.8	41.5	42.0	41.0
Asc. at 200 ppm	40.8	41.7	42.2	44.3	42.3	42.1	44.0	45.6	47.8	44.9
(Sal.+Asc.) at 100 ppm	42.2	43.3	43.8	45.8	43.8	43.7	45.6	47.2	49.5	46.5
(Sal.+Asc.) at 200 ppm	39.8	40.5	41.1	41.8	40.8	40.1	41.2	42.0	42.7	41.5
Mean (A)	38.7	40.1	40.9	42.2		39.4	41.3	42.6	43.9	
L.S.D. at 5%	A: 0.7		B: 0.9	AB: 1.8		A: 1.1		B: 1.0	AB: 2.0	
	Spike diameter (mm)									
Control	7.4	9.4	10.1	10.3	9.3	8.1	9.1	9.6	10.0	9.2
Sal. at 100 ppm	9.5	11.6	12.4	12.7	11.6	11.3	12.4	12.9	13.3	12.5
Sal. at 200 ppm	10.3	12.6	13.8	14.5	12.8	12.1	13.5	14.1	14.7	13.6
Asc. at 100 ppm	10.0	12.2	13.1	13.5	12.2	11.5	12.7	13.1	13.6	12.7
Asc. at 200 ppm	10.6	13.0	14.2	15.0	13.2	12.2	13.6	14.4	15.3	13.9
(Sal.+Asc.) at 100 ppm	10.8	13.3	14.6	15.5	13.6	12.4	13.9	14.8	15.7	14.2
(Sal.+Asc.) at 200 ppm	10.1	12.3	13.4	14.0	12.5	11.8	13.1	13.6	14.2	13.2
Mean (A)	9.8	12.1	13.1	13.6		11.3	12.6	13.2	13.8	
L.S.D. at 5%	A: 0.5		B: 0.4	AB: 0.8		A: 0.06		B: 0.4	AB: 0.8	

Sal.: Salicylic acid **Asc.: Ascorbic acid**

Table 4. Effect of compost, salicylic and ascorbic acid treatments on number of florets and lower floret diameter and fresh weight of *Gladiolus grandiflorus* cv. White Prosperity plants during 2012/2013 and 2013/2014 seasons.

Salicylic and ascorbic acids treatments (B)	Compost levels (ton/feddan) (A)									
	1st Season					2nd Season				
	0	7.5	10.0	12.5	Mean (B)	0	7.5	10.0	12.5	Mean (B)
	Number of florets/spike									
Control	9.04	9.38	10.34	10.69	9.86	9.15	9.53	10.49	10.80	9.99
Sal. at 100 ppm	9.43	9.84	10.86	11.23	10.34	9.62	10.01	11.02	11.34	10.50
Sal. at 200 ppm	9.81	10.24	11.39	11.74	10.80	10.03	10.56	11.49	11.92	11.00
Asc. at 100 ppm	9.59	9.98	11.01	11.41	10.50	9.73	10.22	11.15	11.55	10.66
Asc. at 200 ppm	9.99	10.43	11.58	11.95	10.99	10.24	10.77	11.69	12.11	11.20
(Sal.+Asc.) at 100 ppm	10.29	10.74	11.89	12.27	11.30	10.57	11.09	11.99	12.48	11.53
(Sal.+Asc.) at 200 ppm	9.63	10.03	11.18	11.53	10.59	9.85	10.37	11.28	11.70	10.71
Mean (A)	9.68	10.09	11.18	11.55		9.88	10.36	11.30	11.70	
L.S.D. at 5%	A: 0.30		B: 0.18		AB: 0.36	A: 0.35		B: 0.24		AB: 0.48
	lower floret diameter (cm)									
Control	7.21	7.79	8.74	8.84	8.15	7.22	7.83	8.77	8.89	8.18
Sal. at 100 ppm	7.72	8.29	9.26	9.36	8.66	7.81	8.43	9.38	9.48	8.78
Sal. at 200 ppm	8.13	8.68	9.65	9.74	9.05	8.20	8.87	9.80	9.94	9.20
Asc. at 100 ppm	7.93	8.48	9.45	9.57	8.86	8.00	8.65	9.59	9.69	8.98
Asc. at 200 ppm	8.16	8.72	9.79	9.89	9.14	8.22	8.98	9.90	10.01	9.28
(Sal.+Asc.) at 100 ppm	8.19	8.83	9.88	10.01	9.23	8.24	9.01	9.95	10.16	9.34
(Sal.+Asc.) at 200 ppm	8.04	8.59	9.57	9.68	8.97	8.11	8.77	9.70	9.82	9.10
Mean (A)	7.91	8.48	9.48	9.58		7.97	8.65	9.58	9.71	
L.S.D. at 5%	A: 0.11		B: 0.06		AB: 0.12	A: 0.14		B: 0.09		AB: 0.18
	Lower floret fresh weight (g)									
Control	3.65	4.75	4.89	5.30	4.63	3.81	4.91	4.93	5.37	4.76
Sal. at 100 ppm	4.78	5.73	5.79	6.38	5.67	4.70	5.89	5.94	6.41	5.74
Sal. at 200 ppm	5.15	6.09	6.11	6.78	6.03	5.16	6.12	6.15	6.82	6.06
Asc. at 100 ppm	4.99	5.91	5.98	6.59	5.87	4.95	6.01	6.09	6.69	5.94
Asc. at 200 ppm	5.20	6.15	6.18	6.88	6.10	5.20	6.16	6.21	6.89	6.12
(Sal.+Asc.) at 100 ppm	5.28	6.22	6.25	6.96	6.18	5.27	6.24	6.30	6.99	6.20
(Sal.+Asc.) at 200 ppm	5.10	6.00	6.05	6.71	5.97	5.01	6.09	6.11	6.78	6.00
Mean (A)	4.88	5.84	5.89	6.51		4.87	5.92	5.96	6.56	
L.S.D. at 5%	A: 0.51		B: 0.20		AB: N.S.	A: 0.38		B: 0.18		AB: N.S.

Sal.: Salicylic acid **Asc.: Ascorbic acid**

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تأثير معاملات الكمبوست وحامضي الساليسيلك و الأسكوربيك على نمو وإزهار نباتات الجلاديولس جراند فلورس صنف وايت بروسبرتي

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أجريت تجربة حقلية خلال موسمي ٢٠١٣/٢٠١٢ و٢٠١٤/٢٠١٣ وذلك بهدف دراسة تأثير الكمبوست (صفر – ٧,٥ - ١٠,٠ و ١٢,٥ طن/فدان) مع الرش بحمضي الساليسيلك والأسكوربيك كل منفردين أو مجتمعين بتركيزات صفر و١٠٠ و٢٠٠ جزء/مليون بالإضافة لمعاملة الكنترول.

أظهرت النتائج المتحصل عليها أن طول الورقة، مساحة الورقة، عدد الأوراق/نبات، الوزن الجاف للأوراق للنبات وطول الشمراخ الزهري، طول الجزء الحامل للأزهار من الشمراخ، قطر الشمراخ، عدد الزهيرات/شمراخ وقطر الزهيرة السفلى والوزن الطازج للزهيرة منفردة قد أزداد تدريجياً بزيادة مستوى الكمبوست دون فارق معنوي بين كل معاملتين متتاليتين.

أيضاً كل معاملات حمض الساليسيلك والأسكوربيك منفردين أو مجتمعين، أدت إلى زيادة معنوية في كل صفات النمو الخضري والزهري سالفة الذكر مقارنة بمعاملة الكنترول. معاملة حمض الساليسيلك عند تركيز ١٠٠ جزء/مليون + حمض الأسكوربيك عند تركيز ١٠٠ جزء/مليون تليها معاملة حمض الأسكوربيك عند تركيز ٢٠٠ جزء/مليون كانتا أكثر فاعلية في هذا الخصوص.

وجد أن استعمال الكمبوست (١٢,٥ طن/فدان) مع حمض الساليسيلك + حمض الأسكوربيك كل عند تركيز ١٠٠ جزء/مليون أو مع حمض الأسكوربيك عند تركيز ٢٠٠ جزء/مليون تؤدي إلى تحسين في مختلف صفات النمو الخضري والزهري لنباتات الجلاديولس وبذلك يمكن التوصية بهذه المعاملات للحصول على أفضل نمو خضري وزهري.