Pak. j. life soc. Sci. (2024), 22(1): 3885-3899 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.1.00285

RESEARCH ARTICLE

The Effect Of Some Treatments On The Vegetative Growth Characteristics Of Two Varieties Of Daffodils Narcissus Tazeta L.

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ARTICLE INFO

Received: Apr 24, 2024

Accepted: Jul 5, 2024

Keywords

Vegetative growth
Daffodils
Narcissus Tazeta L.

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ABSTRACT

The experiment was carried out in the wooden canopy of the Department of Horticulture and Landscape Engineering/College of Agriculture and Forestry/University of Mosul during the period (2023-2024). To study the effect of spraying with different concentrations of the organic fertilizer Greener (0, 2, 4) mg L-1 and spraying with salicylic acid at concentrations of (0, 250, 25) mg L-1 and the interaction between them on vegetative and flowering growth and the yield of bulbs and bulbs for two varieties of Narcissus bulbs. tazeta L. are the white-flowered Semper avanti and the yellow-flowered Dutch master. Using a factorial experiment in a randomized complete block design (RCB D), the study was carried out in a factorial experiment with in split plot, with three replicates and 10 plants per replicate. The results indicated that the white variety * The white variety Semper Avanti recorded the highest rates in all the studied traits. The number of leaves per plant was 8,268 leaves per plant-1, the number of branches was 2,666 branches per plant-1, and the leaf area of the plant was 133,880 (cm^2), while the plants of the variety recorded The yellow Dutch master recorded the highest rates for the following traits: plant height of 33.420 cm, the highest level for the leaf length trait was 22.820 cm, and dry weight of leaves was 2.838 gm plant-1.

INTRODUCTION

Scientific name of the narcissus plant *Narcissus tazeta* Narcissus belongs to the family Amaryllidoideae and is one of fifteen genera of the Amaryllidaceae family, which contains 80 to 100 wild species of perennial bulbous plants (Hanks, 2002, Barkov et al., 2009). Its original homeland is Asia, Europe, and the Mediterranean region, and it is widespread in Iraq. The wild daffodil, Narcissus tazeta L., grows in the northern regions of Iraq (1992 ADAS.) Narcissus is considered a winter annual bulb. It is one of the beautiful clustered cut flowers. It is a potted and arranging plant. Gardens, especially in natural garden landscaping. It is also considered an important medicinal and aromatic plant, as essential oils are extracted from its flowers on a commercial scale, which are used in the manufacture of perfumes, cosmetics and for medicinal purposes. A number of chemical compounds were isolated, including Cinnamyle Alcohol: Eugenol: Benzaldehyde and Benzoic acid Guenther (1975). It has been found to have an effect against some types of cancer because it contains the compound Benzaldehyde, which is transformed in the tissues of the human body into the substance Laetrile-Like, which is known for its effect in reducing the growth of cancer cells (Morris, (2000) Narcissus plants reach a height of more than 50 cm and their leaves appear long before flowering. The leaves are thick and ribbon-shaped, approximately the length of the flower stand. The flowers are white with a yellow cup-shaped crown in the middle. In wild species, Mahmoud et al. (1989) The

bulb is symmetrical or oval in shape, containing thick fleshy leaves in which nutrients are stored, and the bases of the leaves are coleoptile. The buds are located in the axils of the fleshy leaves, which develop to form bulblets, and after they grow and reach their final size, they form what are known as offsets. The growing apex occupies the center of the bulb and unfolds into leaves or a flower bud (Hartmann et al., 1997). Recently, the importance of using liquid organic fertilizers has emerged as one of the most important Sources of nutrients that plants need because they contain some organic and amino acids and other substances that are characterized by their cheapness, ease of use, lack of pollution to the environment, and their contribution to improving the physical, chemical and biological characteristics of the soil, which is reflected positively in plant growth (Alwan and Al-Hamdani, 2012). Organic fertilizers are divided into plant materials and animal materials that contain one or more nutrients. Plant leaves have the ability to absorb nutrients, especially under conditions in which the absorption of nutrients through the soil is difficult, as in the case of heavy metals such as iron, zinc, manganese, and copper, where these elements are attached to soil particles, which reduces their readiness for the plant (Al-Naimi, 2000). Foliar nutrition plays an important role in plant growth. It means spraying the plant's shoots with nutrients in the form of dissolved solutions. Macro- and micro-nutrients have an important role in the growth and development of plants, and their presence in concentrations less than what the plant needs may weaken its growth. The leaf is considered the basis for the process of photosynthesis, so a lack of nutrients It appears on the leaf, and nutrients must be sprayed on the leaves in a homogeneous manner compared to fertilization (Hamad and Jumah, 2000 and Al-Zurfi, 2009). One of these fertilizers is liquid organic fertilizer Greener, which contains 19 amino acids in addition to organic carbon and nitrogen. Organic fertilizers are prepared from different sources. They may be plant, animal, or industrial waste. They are added to plants in different ways and in quantities estimated depending on the type of crop, soil, prevailing environmental conditions, and the ratio of solid materials to the ratio of liquid materials in the organic fertilizer (Samar et al. 2001, Al-Zurfi, 2009).

Salicylic acid Salicylic acid (SA) is one of the plant growth regulators of a phenolic nature, as it regulates many functional activities, including flowering induction and ion uptake (Hartmann et al., 2014; Nazar et al., 2017; Rashid et al., 2023). It plays an important role in regulating plant response, hormonal balance, and influencing plant growth. The mechanism of operation of stomata and photosynthesis processes, and it also plays a role in resisting environmental stress (Hartmann et al. 2002). It has been noted that salicylic acid delays aging through its strong relationship with preserving cell membranes and preserving the energy needed for vital processes in plants (Hayat et al. 2010, Khan et al. 2012, Hamza et al. 2015, Nazar et al. 2017, Muthulakshmi et al. 2017). Salicylic acid has an important role in water relations. Plant growth, stomatal movement, transpiration, photosynthesis, and plant growth (Arfan et al., 2007), absorption of nutrient ions, permeability of cell membranes, and activation of enzymes related to plant growth and development (Arberg, 1981), in addition to its role in the formation of photosynthetic pigments represented by chlorophyll and carotene, which contributes to increasing the efficiency of the plant process. Photosynthesis (Hayat and Ahmad, 2007), increasing total anthocyanins and impeding ethylene synthesis (Huang et al., 2004). In addition, salicylic acid contributes to the biosynthesis of quinine, which is one of the most important components of the cell wall in plants (Al-Khafaji, 2014, in the study conducted). By Al-Sharifi (2023) on two varieties of L. Gladiolus grandiflorus bulbs: White Prosperity, which has white flowers, and Plumtart, which has purple flowers, when sprayed with the organic fertilizer NutriCrane at three concentrations: 0, 1, 2 ml. L^{-1} three times. It was found that spraying White Prosperity plants with NutriCrane organic fertilizer at a concentration of 2 ml. L^{-1} led to recording the highest significant values for plant height, number of florets, diameter of the first floret, fresh weight of the flower florets, length of the flower florets, diameter of the flower stand, duration of florets remaining on the plant, flowering age, wet weight of the corms, wet weight of the corms, diameter of the corms, diameter of the corms, size of the corms, size of the corms and number of corms. The percentage of nitrogen, phosphorus, potassium, total chlorophyll, carbohydrates and protein. Altaee and Saeed

(2020) found, during their study of the growth and flowering of two types of tulip spp. Tulipa, upstar and van eijk, that the effect of spraying with the organic fertilizer untrigrin at a concentration of (4) ml. L^{-1} produced a significant increase in plant height, number of leaves, leaf area, and percentage of nitrogen, phosphorus, and potassium. It also recorded a significant increase in the percentage of chlorophyll compared to the comparison treatment, according to Al-Sharifi (2023) during the study on two varieties of Gladiolus grandiflorus L. bulbs, namely: White Prosperity with flowers. White and Plumtart with purple flowers when sprayed with salicylic acid at three concentrations: 0, 500 and 1000 mg. L^{-1} sprayed on the vegetative system three times. Treatment with salicylic acid at a concentration of 1000 mg/L led to a significant increase in all the traits studied. Amin and Al-Saad (2020) explained that treating Iris bulbs with varying concentrations of salicylic acid was positive in most of the vegetative and flowering traits, and that the treatment At a concentration of 150 mg L^{-1} of salicylic acid, it gave the longest flower stand (65.01 cm), while the treatment with a concentration of 300 mg L^{-1} gave the longest leaf (131.34 cm, the flower diameter is 12.20 cm, and the longest flower life is 9.55 days.

MATERIALS AND METHODS

The experiment was carried out inside the wooden canopy of the Department of Horticulture and Landscape Engineering/College of Agriculture and Forestry/University of Mosul, during the period from November 1, 2023 to June 1, 2024, in order to study the effect of spraying with three levels of organic fertilizer Greener with concentrations of (0, 4,2) mg L^{-1} and three levels of salicylic acid (0, 250, 500) mg L^{-1} and the interaction between them in the characteristics of vegetative and flowering growth and the yield of bulbs and bulbs for two types of bulbs of the Narcissus tazeta L.

Studied attributes:

Number of days required for emergence (day):

It was calculated as the number of days from planting until the sprout appeared on the soil surface.

Percentage of emergence:

$$\text{The percentage of emergence was calculated} = \frac{\text{Number of sprouting plants}}{\text{Number of plants planted}}$$

Plant Height (cm):

The measurement of plant height was taken from the soil surface to the highest point of the flower stalk using a tape measure.

Sheet length (cm):

The leaf length measurement of the longest leaf was taken from the location of the leaf attachment to the stem to the end of the leaf apex using a tape measure.

Number of leaves (leaf^{-1}):

The total number of leaves of the plant was calculated when the flowers were harvested.

Plant leaf area (cm2).

It was calculated by taking nine discs of 1 cm^2 with a cork puncher CORK BORES from the treated plants, then the tablets and total leaves were dried in an electric oven at a temperature of 75°C for a period of 72 hours, until the weight was stable. Then the leaf area of the plant was calculated using a proportional method based on the dry weight of the tablets and leaves only, according to what was indicated by Muhammad (1985)).

Dry weight of leaves (g)

It was calculated using an electronic balance after complete drying of the leaves on the plants.

Results and discussion

Number of days required for emergence (day)

The results show that there is a significant effect on the number of days required for the emergence of vegetative growth, through early harvesting of the yellow variety. Dutch master emerged after 41 days, compared to 48 days, which was the number of days that the white Semper Avanti variety needed to emerge.

Table (1): Number of days required for emergence (day) for two types of bulbs *Narcissus tazeta* L

Items	Number of days required for emergence (day)
the White Semper Avanti	A48
Dutch master yellow	B 41

**Values with similar letters for each factor are not significantly different according to Duncan's multinomial test under the 5% probability level.

Emergence percentage:

It was found from the data in Table (4) that the percentage of emergence was 100% in all plants of the white variety Semper avanti and the yellow variety Dutch master.

Table (2): Percentage of emergence of two types of daffodil bulbs *Narcissus tazeta* L.

Items	Percentage of emergence
the White Semper Avanti	100%
Yellow Dutch master	100%

Plant Height (cm):

The results of the statistical analysis in Table (3) showed that the varieties differed significantly in plant height, as the yellow variety plants outperformed Dutch master significantly affected the plants of the white variety Semper Avanti, with a plant height of 33.420 cm for the yellow variety compared to 30.531 cm for the white variety. Treatment with Greener organic fertilizer at a concentration of 4 ml L^{-1} led to a significant superiority in the value of this trait, amounting to 36.815 cm compared to 26.298 cm for the treatment. Comparison: On the other hand, spraying with salicylic acid at a concentration of 500 mg L^{-1} resulted in a significant increase in plant height, with the concentration increasing to 34.764 cm compared to 28.834 cm for the comparison treatment plants. The highest values f height, which amounted to 38,298 cm, were recorded for the plants of the yellow variety when treated with the organic fertilizer Greener, and this value was reduced to 25,173 cm when treated with the comparison treatment. The largest values for plant height, which amounted to 36,311, were recorded for the yellow variety when treated with salicylic acid, and the lowest value was recorded, which amounted to 27,621 cm. In the plants of the white variety not treated with salicylic acid, while the plants treated with organic fertilizer (Greener) at a concentration of 4 ml L^{-1}, interspersed with spraying with salicylic acid at a concentration of 500 mg $_{L^{-1}}$, recorded the highest significant values of 40.210 cm versus 24.003 cm for the comparison treatment.

On the other hand, in general, the results of the triple interaction of the factors under study showed that the treatment of yellow variety plants Dutch master with Greener organic fertilizer at a

Items	Organic fertilizer Greener (mg l^{-1})	Salicylic acid concentrations (mg L-1)			Overlapping of items X Organic fertilizer Greener	Item response
		0	250	500		
Semper Avanti White	0	22.820 K	25.336 j	27.363 i	25.173 E	30.531 b
	2	28.866 h	31.146 g	33.256 F	31.090 C	
	4	31.176 g	35.783 D	39.033 b c	35.331 b	
Dutch master Yellow	0	25.186 j	27.236 i	29.846 g h	27.423 D	33.420a
	2	30.880 g	35.033 Dh	37.700 c	34.537b	
	4	34.076 ef	39.433 b	41.386 A	38.298 A	
Overlapping of items X Salicylic acid	the White	27.621 D	30.755 c	33.217 b	Effect of organic fertilizer Greener	
	Yellow	30.047 c	33.901B	36.311 A		
Interfering with organic fertilizer Greener X Salicylic acid	0	24.003 h	26.286 g	28.605 f	26.298 c	
	2	29.873 E	33.090 D	35.478 c	32.813b	
	4	32.626 D	37.608 b	40.210 A	36.815a	
Effect of salicylic acid		28.834 c	32.328 b	34.764 A		

concentration of 4 ml L^{-1}, interspersed with spraying with salicylic acid at a concentration of 500 mg L^{-1}, led to recording the highest significant values for plant height, which amounted to 41.386 cm, while these values decreased to a minimum of 22.820 cm for the plants of the white Semper variety. Avanti not treated with organic fertilizer Greener and salicylic acid.

Table (3): Effect of organic fertilizer Greener and salicylic acid and their interactions in plant height for two varieties of narcissus plants. *Narcissus tazeta* L

*Values with similar letters for each factor or their interactions individually are not significantly different according to Duncan's multinomial test under probability level 5. %

Sheet length (cm):

The data shown in Table No. (4) indicate that there is a noticeable effect of the variety on the values recorded for the average leaf length for each plant, as the plants of the yellow variety recorded Dutch master The largest significant values reached 22.820 cm compared to 19.922 cm for the plants of the white variety Semper Avanti. Spraying with organic fertilizer (Greener) at a concentration of 4 ml L^{-1} led to a significant increase in leaf length, reaching 25.209 cm compared to 17.105 cm for the comparison treatment, while it Treatment with salicylic acid at a concentration of 500 mg L^{-1} resulted

in a significant increase in leaf length, amounting to 24.037 cm compared to 18.366 cm for the comparison treatment. By reviewing the results of the bilateral interaction between the variety and the organic fertilizer (Greener), it was found that there were significant differences in leaf length in the plants of the yellow variety when treated with a concentration of 4 ml L^{-1}, and it amounted to 26.842 cm compared to 15.777 cm for the plants of the comparison treatment of the white variety. On the other hand, The dual interaction between the variety and salicylic acid resulted in a significant difference in leaf length in the plants of the yellow variety at a concentration of 500 mg L^{-1}, amounting to 26.065 cm compared to 17.535 cm for the plants of the comparison treatment of the white variety. The results also showed that treating the plants with organic fertilizer (Greener) at a concentration 4 ml. L^{-1} combined with spraying with salicylic acid at a concentration of 500 mg L-1 led to the highest significant values recorded in leaf length, reaching 29.233 cm, while the lowest values were recorded at 15.335 cm for the control treatment plants. The results of the triple interaction between the variety, organic fertilizer, and salicylic acid show that treating the plants of the Dutch master yellow variety with organic fertilizer (Greener) at a concentration of 4 ml L^{-1}, mixed with spraying salicylic acid at a concentration of 500 mg L^{-1}, and that this was sufficient to record the largest significant values in length. The leaf size was 32.017 cm, while the lowest value was 13.853 cm for the comparison treatment plants of the white variety Semper Avanti.

Table (4): Effect of organic fertilizer Greener and salicylic acid and their interactions in leaf length of two varieties of narcissus plants. *Narcissus tazeta* L.

Items	Organic fertilizer Greener (mg l-1)	Salicylic acid concentrations (mg L-1)			Overlapping of items X Greener	Item response
		0	250	500		
Semper Avanti White	0	6.933 DE	7.276 Dh	7.616 CD	7.275 C	8.268 A
	2	7.183 DE	8.270 EGP	9.436 b	8.296 b	
	4	7.736 CD	9.366 b	10.600 A	9.234 A	
Dutch master Yellow	0	4.466 g	5.763 f	6.503 EF	5.577 D	6.579 b
	2	5.810 F	6.900 F	7.566CD	6.758 C	
	4	6.536 EF	7.500 CD	8.166 C	7.401 C	
Overlapping of items X Salicylic acid	the White	7.284 C	8.304 b	9.217 a	Effect of organic fertilizer Greener	
	Yellow	5.604 E	6.721 D	7.412 C		
Interfering with organic fertilizer Greener X	0	5.700 E	6.520 D	7.060 CD	6.426 C	
	2	6.496 D	7.585 C	8.501 b	7.527 b	
	4	7.136 C	8.433 b	9.383 A	8.317 A	

Salicylic acid					
Effect of salicylic acid		6.444 C	7.512 b	8.315 A	

*Values with similar letters for each factor or their interactions individually are not significantly different according to Duncan's multinomial test under probability level 5. %

Number of leaves (plant leaf^{-1}):

It is clear from Table (5) that the variety has a significant effect on the number of leaves, leaf-^{1}, as the white variety plants recorded Semper Avanti The highest significant values reached 8,268 leaves^{-1} compared to 6,579 leaves^{-1} for the Dutch master yellow variety. In the case of spraying with Greener organic fertilizer at a concentration of 4 ml L^{-1}, it led to a significant increase in the number of leaves, amounting to 8,317 leaves^{-1} compared to 6,426 plant leaves-1 for the comparison treatment, while treatment with salicylic acid at a concentration of 500 mg L^{-1} led to a significant increase in the number of leaves, which amounted to 8,315 plant leaves^{-1} compared to 6,444 plant leaves^{-1} for the comparison treatment. The results of the binary interaction between the variety and the fertilizer indicate Greener indicated that using a concentration of 4 ml L^{-1} led to significant differences in the number of leaves in the plants of the white variety, amounting to 9,234 leaves per plant^{-1} compared to 5,577 leaves per plant^{-1} for the comparison treatment plants of the yellow variety. On the other hand, the interaction between the varieties occurred. Salicylic acid showed a significant difference in the number of leaves in the plants of the white variety, as it recorded 9,217 leaves per plant^{-1} at the concentration of 500 mg L^{-1}, compared to 5,604 leaves per plant^{-1} for the plants of the comparison treatment of the yellow variety. The results appeared when the plants were treated with the organic fertilizer Greener at a concentration of 4 ml. L^{-1} combined with spraying with salicylic acid at a concentration of 500 mg L^{-1} led to the highest values recorded, reaching 9,383 leaves^{-1}, while the lowest values were recorded at 5,700 leaves^{-1} for the control treatment plants. On the other hand, through the results of the triple intervention, it was found that treating the Semper Avanti white variety plants with Greener organic fertilizer at a concentration of 4 ml L^{-1}, combined with spraying with salicylic acid at a concentration of 500 mg L^{-1}, led to recording the highest values in the number of leaves in the white variety plants, 10,600. Leaf^{-1}, while this value decreased to 4.466 leaf^{-1} for plants in the comparison treatment of the yellow variety Dutch master.

Table (5): Effect of organic fertilizer Greener and salicylic acid and their interactions in the number of leaves of two varieties of narcissus plants. *Narcissus tazeta* L.

Items	Organic fertilizer Greener (mg l-1)	Salicylic acid concentrations (mg L-1)			Overlapping of items X Organic fertilizer Greener	Item response
		0	250	500		
Semper Avanti White	0	13.853 L	16.623 K	16.857 Jk	15.777 D	19.922 b
	2	18.017 ijk	20.500 g ht	22.720 AEFg	20.412 C	
	4	20.737 FI	23.543 D E F	26.450 b c	23.576 b	
	0	16.817 Jk	18.423 HK	20.057 g h I	18.432 C	22.820 A

Dutch master	2	19.667 hi J	23.767 CDE	26.123b c d	23.185 b	
Yellow	4	21.110 EH	27.400 b	32.017 A	26.842 A	
Overlapping of items X Salicylic acid	the White	17.535 D	20.222 C	22.008b	Effect of organic fertilizer Greener	
	Yellow	19.197 C	23.196b	26.065 A		
Interfering with organic Greener X Salicylic acid	0	15.335 E	17.523 D	18.456 D	17.105 C	
	2	18.841 D	22.133 C	24.421b	21.798 b	
	4	20.923 C	25.471b	29.233a	25.209 a	
Effect of salicylic acid		18.366 C	21.709 b	24.037 A		

*Values with similar letters for each factor or their interactions individually are not significantly different according to Duncan's multinomial test under probability level 5.%

Number of branches: (plant branch^{-1}):

Table (6) shows the effect of the studied factors on the number of branches. It was found that the variety has a significant effect on this characteristic, if the largest values for the number of branches were recorded for the white variety Semper Avanti 2,666 plant shoots-^{1}. The lowest values were recorded for the yellow variety Dutch Master, which amounted to 2,133 plant shoots^{-1}. Spraying with organic fertilizer (Greener) at a concentration of 4 ml liter^{-1} led to a significant increase in the number of branches, reaching 2,677 plant shoots$^{-1,}$ compared to 2,088 shoots. Plant-1 for the comparison treatment, while treatment with salicylic acid at a concentration of 500 mg L-^{1} led to a significant superiority in the number of branches, amounting to 2,633 branches plant^{-1}, compared to 2,150 branches plant^{-1} for the plants of the comparison treatment. The results of the bilateral interaction between the variety and organic fertilizer (Greener) at a concentration of 4 ml L^{-1} indicated that there were significant differences in the number of branches in the plants of the white variety, amounting to 2,988 branches per plant^{-1} compared to 1,822 branches per plant^{-1} for the plants of the comparison treatment for the yellow variety. On the other hand, the interaction between the variety and salicylic acid produced significant differences in the number of branches in the plants of the white variety, reaching 2,911 shoots per plant^{-1} at the concentration of 500 mg L^{-1}, compared to 1,855 shoots per plant^{-1} for the plants of the comparison treatment of the yellow variety. The results showed that when the plants were treated Organic fertilizer (Greener) at a concentration of 4 ml L^{-1}, interspersed with spraying with salicylic acid at a concentration of 500 mg L^{-1}, resulted in recording the highest significant values of 2.983 branches. Plant^{-1}, while the lowest values were recorded at 1,866 branches, plant^{-1}, for the comparison treatment plants. On the other hand, the results of the triple interaction of the factors subject of the study showed that treating the Semper Avanti white variety plants with Greener organic fertilizer at a concentration of 4 ml L$^{-1,}$ interspersed with spraying salicylic acid at a concentration of 500 mg L^{-1}, led to recording the largest significant values in the number of branches in the white variety plants. 3.333 plant leaves$^{-1,}$ while this value decreased to a

minimum of 1.433 plant shoots-1 for the comparison treatment plants of the yellow variety Dutch master.

Table (6) Effect of organic fertilizer Greener and salicylic acid and their interactions in the number of branches of two types of narcissus plants. *Narcissus tazeta* L.

Items	Organic fertilizer Greener (mg l-1)	Salicylic acid concentrations (mg L-1)			Overlapping of items X Organic fertilizer Greener	Item response
		0	250	500		
Semper Avanti White	0	2.300 DE	2.300 DC	2.466 C D	2.355 b c	2.666 A
	2	2.3666 D	2.666 C	2.933 b	2.655 a b	
	4	2.666 C	2.966 b	3.333a	2.988 A	
Dutch master Yellow	0	1.433 h	1.966 g	2.133FJ	1.822 D	2.133 b
	2	2.000 g	2.266 D E F	2.366 D	2.211 c	
	4	2.133 Efg	2.333 DE	2.633 C	2.366 b c	
Overlapping of items X Salicylic acid	the White	2.444 C	2.644 b	2.911 A	Effect of organic fertilizer Greener	
	Yellow	1.855 E	2.188 D	2.355 C		
Interfering with organic fertilizer Greener X Salicylic acid	0	1.866 f	2.133 E	2.266 DE	2.088 b	
	2	2.183 E	2.466 C	2.650 b	2.433 A	
	4	2.400 CD	2.650 b	2.983 A	2.677 A	
Effect of salicylic acid		2.150 C	2.416 b	2.633 A		

*Values with similar letters for each factor or their interactions individually are not significantly different according to Duncan's multinomial test under probability level 5. %

Plant leaf area (cm^2):

The results of the statistical analysis in Table (7) indicate that the studied varieties differ significantly among themselves in the leaf area of the plant, as the white variety plants recorded Semper Avanti had the largest significant values, reaching 133.880 (cm^2) compared to 126.242 (cm^2) for Dutch master yellow cultivar plants. Spraying with Greener organic fertilizer at a concentration of 4 ml L^{-1} led to a significant increase in the leaf area of the plant, reaching 145.993 (cm^2) compared to 114.599

(cm^2) for plants. The comparison treatment. Salicylic acid had a significant effect on the leaf area of the plant when treated with a concentration of 500 mg L^{-1}, which amounted to 140.793 (cm^2) compared to 116.583 (cm^2) for the comparison treatment. The results of the bilateral interaction between the variety and the organic fertilizer Greener indicate that there are significant differences in the leaf area of the white variety plant, amounting to 150.189 (cm^2) compared to 108.193 (cm^2) for the plants of the yellow variety control treatment. On the other hand, it is noted that the interaction between the variety and salicylic acid caused significant differences in the leaf area of the white variety plant, which amounted to 144.133 (cm^2) compared to 110.003 (cm^2) for the comparison treatment plants of the yellow variety. The results appeared when the plants were treated with the organic fertilizer Greener at a concentration of 4 ml L^{-1}. Interacting with spraying with salicylic acid at a concentration of 500 mg L^{-1} led to the highest significant values being recorded at 160.536 (cm^2), while the lowest values were recorded at 93.833 (cm^2), for plants in the comparison treatment. By looking at the table, the results of the triple interaction of the factors subject of the study showed that the treatment Semper avanti white variety plants with Greener organic fertilizer at a concentration of 4 ml L^{-1} mixed with spraying salicylic acid at a concentration of 500 mg L^{-1} led to recording the highest significant value for the white variety plants at 169.024 (cm^2), while this value decreased to a minimum of 77.429 (cm^2). Comparative treatment plants for the yellow cultivar Dutch master.

Table (7): Effect of organic fertilizer (Greener) and salicylic acid and their interactions in the leaf area of two varieties of narcissus plants, L. *Narcissus tazeta*.

Items	Organic fertilizer Greener (mg L^{-1})	Salicylic acid concentrations (mg L^{-1})			Overlapping of items X Organic fertilizer Greener	Item response
		0	250	500		
Semper Avanti White	0	110.239 j	123.576 h	129.202 f	121.005 D	133.880 A
	2	124.683 g h	132.479 AH	134.174 e	130.446 g	
	4	134.570 e	146.974 c	169.024 a	150.189 a	
Dutch master Yellow	0	77.429 K	120.728 t	126.421 g	108.193 e	126.242B
	2	123.083 hI	129.243 f	133.889 e	128.738 EGP	
	4	129,500 F	143.841 D	152.049 b	141.797B	
Overlapping of items X Salicylic acid	the White	123.164 e	134.342 C	144.133 a	Effect of organic fertilizer Greener	
	Yellow	110.003 F	131.270 D	137.452b		
Interfering with organic fertilizer Greener X Salicylic acid	0	93.833g	122.151f	127.811 e	144.599 c	
	2	123.883F	130.861 D	134.031 c	129.591b	
	4	132.035 D	145.407b	160.536 a	145.993a	
Effect of salicylic acid		116.583C	132.806B	3140.79 A		

*Values with similar letters for each factor or their interactions individually are not significantly different according to Duncan's multinomial test under probability level 5. %

Dry weight of leaves (g):

The results in Table (8) show that there is a significant difference between the varieties in the dry weight of the leaves, as the highest values were recorded for the yellow variety plants.Dutch master 2.838 (g) compared to 2.383 (g) for the plants of the white variety Semper Avanti. Spraying with the organic fertilizer Greener at a concentration of 4 ml L^{-1} led to a significant difference in the dry weight of the leaves, reaching 3.510 (g) compared to 1.667 (g) for the treatment. Comparison. While it was found that treatment with salicylic acid at a concentration of 500 mg L^{-1} led to a significant increase in the dry weight of the leaves, reaching 3.086 (g) compared to 2.141 (g) for the comparison treatment. As for the results of the binary interaction between the variety and the organic fertilizer (Greener) at a concentration of 4 ml L^{-1}, it led to significant differences in the dry weight of the leaves for the yellow variety plants, amounting to 3.786 (g) compared to 1.481 (g) for the comparison treatment plants for the white variety. On the other hand, the interaction Between the variety and salicylic acid at a concentration of 500 mg L^{-1} led to significant differences in the dry weight of leaves for the yellow variety plants, amounting to 3.444 (g) compared to 1.958 (g) for the plants of the control treatment of the white variety. The results indicate that when the plants were treated with Greener organic fertilizer at a concentration of 4 ml L^{-1}, interspersed with spraying with salicylic acid at a concentration of 500 mg L^{-1}, the highest significant values were recorded in the dry weight of the leaves, 4.290 (g), while the lowest values were recorded at 1.282 (g) for the treated plants. Comparison. In general, the results of the triple interaction of the factors subject of the study show that treating the Dutch master yellow variety plants with Greener organic fertilizer at a concentration of 4 ml L^{-1} combined with spraying salicylic acid at a concentration of 500 mg L^{-1} recorded the highest significant values in the dry weight of the leaves of the yellow variety plants, which amounted to 4.983 (g). While this value decreased to a minimum of 1.013 (g) for plants in the comparison treatment of the white variety Semper Avanti.

Table (8): Effect of organic fertilizer Greener and salicylic acid and their interactions in the dry weight of leaves of two varieties of *narcissus tazeta* L.

Items	Organic fertilizer Greener (mg L^{-1})	Salicylic acid concentrations (mg L^{-1})			Overlapping of items X Organic fertilizer Greener	Item response
		0	250	500		
Semper Avanti White	0	1.013 I	1.556 h	1.873 g h	1.481 f	2.383 b
	2	2.150 F g	2.440 Dh	2.716 CDE	2.435 D	
	4	2.713 Cde	3.393 b	3.596 b	3.234 b	
Dutch master Yellow	0	1.552 h	1.800 g h	2.210 AH G	1.854 AH	2.838 A
	2	2.686 c d e	2.796 EGP	3.140 b c	2.874 EGP	
	4	2.733 c d e	3.643 b	4.983 A	3.786 A	
Overlapping of items X Salicylic acid	the White	1.958 D	2.463 b c	1.958 D	Effect of organic fertilizer Greener	
	Yellow	2.324 C	2.746 b	3.444 A		
Interfering with organic fertilizer Greener X Salicylic acid	0	1.282 g	1.678 f	2.041 E	1.667 C	
	2	2.418 D	2.618 EGP	2.928 C	2.655 b	
	4	2.723 C	3.518 b	4.290 A	3.510 A	
Effect of salicylic acid		2.141 C	2.605 b	A 3.086		

*Values with similar letters for each factor or their interactions individually are not significantly different according to Duncan's multinomial test under probability level 5.%

It is considered an organic fertilizer Greener One of the liquid organic fertilizers, consisting of organic nitrogen, organic carbon, and organic materials in addition to free plant acids, including aspartic, proline, glutamic, threonine, methionine, valine, cysteine, alanine, glycine, lysine, phenylalanine, triosine, leucine, isoleucine, histidine, Arginine, tryptophan, hydroxyproline, serine. The organic fertilizer helps the plant absorb nutrients, acts as a chelating agent and reduces the accumulation of salts in the soil And it works on Activating microorganisms in the soil is a vital stimulant for plant cells to form protein more efficiently. Fertilizers that contain amino acids improve the process of photosynthesis through the role of these elements in building chlorophyll and activating some important enzymes in this process (Alwan and Al-Hamdani, 2012). .

Many studies also indicate that treating plants with growth regulators improves the plant structure and the quality of the yield. Khalaf and Al-Rajbo (2006), including salicylic acid, which is a plant growth regulator that contributes to increasing systemic resistance to plant diseases (Al-Khafaji, 2014), and the plant is the living organism. What we know is the result of the integration of metabolic functions that are regulated by many factors, including hormones. The results also show the positive role of salicylic acid in increasing the characteristics of vegetative growth in line with the increase in concentration. The reason for this may be due to the role that salicylic acid plays in cell division and elongation as a result of the participation between auxin. And phenol Padmapriya and Chezhiyan 2002). In addition to the role of salicylic acid in increasing some plant hormones such as auxins and cytokinins, which lead to a rapid and significant increase in cell division in meristematic tissues, in addition to the role of auxin in expanding the cell wall by breaking the bonds that bind the wall components together, thus increasing the leaf area. Salicylic acid has the ability to increase the plant's ability to improve biological functions by increasing the efficiency and effectiveness of photosynthesis in the plant, which is reflected in the growth and development of the plant and increases the efficiency of water use and the resulting increased absorption of nutrients, whose effect is reflected in increased root growth. Najafabadi et al. Salicylates stimulate the plant to produce plant hormones, such as auxin and cytokinin, and prevent their oxidation (Sardoei et al., 2014, Ram et al., 2014), increasing the efficiency of water use and resulting in increased absorption of nutrients, the effect of which is reflected in increased root growth. Najafabadi et al., (2013) And increasing the number of root hairs and thus improving the characteristics of the root system, which reflects positively on increasing vegetative growth rates and thus increasing the wet weight of bulbs and bulbs, the size of bulbs and bulbs, the diameter of bulbs and bulbs, and the number of bulbs (Sardoei et al., 2014, Ram et al., 2014).

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