

The effect of spraying with Zolfast on some physical qualities of three hybrids of eggplant solanum melongena L. growing under protected cultivation

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Conclusion :

The current study was conducted in the plastic House during the growing season 2021_2022 at the research station belonging to the Faculty of Agriculture and marshes / Dhi Qar University / mustafiya area in order to study the effect of spraying with Zolfast on the growth and yield of three hybrids of eggplants and the overlap between them under protected cultivation (plastic house), the varieties (black,Barcelona and Black Beauty) were planted ,where they were treated with five concentrations(0, 0.5, 1, 1.5 and 2) MLL1, and spraying five sprays and every two weeks a spray, and its effect on the physical qualities (number, weight, length and diameter of the fruit) of the eggplant plant was studied. Use the design of complete random sectors (R.C.B.D) for a one-time split factor experiment, where the items are placed in the main pieces of the Main_Plot and the concentration of zolfast is the second factor of the Sup_Plot, where it was distributed to three repeaters for each item in one warehouse, thus the number of experimental units reached 45 units . And the adoption of statistical analysis of results using the SPSS system and the L test.S.D to test the averages at the probability level of 0.05 (narrator and khalafullah, 2000). The results showed the superiority of the Barcelona variety in terms of the number of fruits and their length, as it reached (25.12) plant fruit⁻¹, (16.90)CM fruit⁻¹, respectively, and the superiority of the Black Beauty variety in terms of fruit weight by (202.63) G fruit⁻¹ per experimental unit . The Barcelona variety exceeded the diameter of the fruit and reached a value of (6.53) CM fruit⁻¹.

I. INTRODUCTIONS

Eggplant (*Solanum melongena* L. Eggplant is a crop of vegetable crops and belongs to the Solanaceae Solanaceae family , as it is one of the economically important plant families , and includes more than 75 genera and 200 plant species spread throughout the world.eggplant is one of the main crops in Iraq and the tropical and subtropical regions , and eggplant has an important nutritional value for vegetable crops, (required et al., 1989),



(al-Sayed, 2009)and(Boras et al., 2011). Eggplant is grown for its fruits, which are eaten cooked or in the manufacture of pickles, where they are preserved by freezing, and its fruits contain alkaloids and anthocyanins, in addition to containing small amounts of vitamins A and BOC, in addition to some medical benefits (Daunay et al., 2002). Fertilization is one of the important crop service processes and one of the most important means of agricultural production in increasing qualitative and quantitative production, as it has a crucial role in regulating the feeding conditions of the plant, especially the abundance of major nutrients, including sulfur, which the plant needs in large quantities , Studies have shown that foliar spraying of fertilizers is one of the modern agricultural techniques that ensures the access of nutrients to the crop directly and quickly in the event that they cannot reach through the roots , and thus foliar feeding is one of the most efficient methods of fertilization, as it processes nutrients for the plant when there are problems in absorbing elements from the soil (Ling and Silberbush, 2002), it is worth noting that vegetable plants are uneven in the need for nutrients, and this depends on the nature of growth and genetic composition, as eggplant is one of the soil-stressed crops for a long time his growth .

II. MATERIALS AND WORKING METHODS

The experiment was conducted during the growing season 2021_2022 at the research station belonging to the Faculty of Agriculture and marshes / Dhi Qar University / mustafia region to study the effect of spraying with Zolfast on the growth and yield of three hybrids of eggplant under protected cultivation (plastic house), and its effect on physical qualities (number of fruits, fruit weight, fruit length and fruit diameter) is studied in one experimental unit of eggplant plant . Six fruits were selected from each experimental unit to make the required measurements

Number of fruits the fruit of a plant⁻¹ :

This was done by dividing the number of fruits for the plants of the experimental unit and for all the fairies by the number of plants of the experimental unit.

Fruit weight⁻¹ GM fruit:

Calculated from dividing the quotient of one plant (GM) by the number of fruits of the plant .

The length of the fruit is 1 cm:

The length of the fruit was measured by the micro vernier foot in measuring the length of the fruit from the base of the cup to the top of the fruit was randomly selected from each experimental unit and then its rate was recorded.

The diameter of the fruit is 1 cm:

The diameter of the fruit was measured by micro vernier, as the diameter was calculated from the widest area of the fruit at each pound .



III.RESULTS AND DISCUSSIONS

Number of fruits the fruit of a plant⁻¹ :

Table 1 shows the effect of spraying with the Zolfasta Variety on the number of fruits fruit of Plant⁻¹ There are significant differences for the concentrations of zolfast, as the highest value was at a concentration of (1.5 ml L⁻¹), as the value reached 26.31 fruits of Plant⁻¹, as for the lowest value recorded by the comparison treatment (0 ML L⁻¹), where the value reached 13.99 fruits of Plant⁻¹, this table showed significant differences between the studied eggplant varieties, as the highest value was at the Barcelona variety and amounted to 25.12 fruits of Plant-1 compared to the lowest value, which was the Black Variety has 12.17 plant fruits⁻¹, and the table indicated that the value of the overlap between the concentrations and the Variety has a moral effect, as the Barcelona variety gave the highest value of 27.44 plant fruits-1 in terms of the number of fruits of the studied plant at a concentration of 2 ml L⁻¹, While the Black Beauty variety gave the lowest value in the quality of the number of fruits to the studied plant, it amounted to 7.78 fruits of the plant⁻¹, with a concentration of 0 .The reason may be due to the contribution of the nutrients forming the nutrient solution to increase the activity of enzymes and regulate the vital activities carried out by the plant, including stimulating flowering, increasing the number of flowers and increasing the percentage of nodes, which helped to increase the number of fruits, or it may be due to the result of increasing the size of the vegetative total by increasing the number of its branches and the number of leaves, which leads to an increase in the number of flowers and then increasing the number of fruits for the plant .These results are consistent with what was obtained by (Al-Sahaf and Al-Shukri, (1998), (al-tahafi et al., 2004) and (Al-tahafi et al.)• 2009) who pointed out that spraying nutrients on the eggplant plant led to a significant increase in the number of fruits, as they found a significant increase in the number of fruits on the eggplant plant .

Table (1) the effect of spraying with the Zolfasta Variety on the number of fruits the fruit of a plant-1 for an eggplant plant

ml/l Concentration of zolfast						Species
Average of species	2	1.5	1	0.5	0	
13.15	13.99	13.16	13.15	12.78	12.68	Black
16.90	17.72	17.34	16.67	17.37	15.37	barcelona
9.66	11.87	10.35	9.65	8.46	7.99	Black beauty
	14.53	13.62	13.16	12.87	12.01	Average of Zolfast
Inteferece		Of zolfast		Of species		L.S.D. _{.0.05}
0.45		2.55		0.68		

The average weight of the fruit is 1 g of fruit:



Table (2) shows the effect of spraying with Zolfast and the variety in the characteristic of the average weight of the fruit 1 g of fruit-that there are significant differences observed between the studied concentrations, as it exceeds the concentration of 1 ml L⁻¹ and the value reached 185.99 fruits of the plant⁻¹ compared to the lowest value with .

The comparative treatment of the concentration of 0 ML L⁻¹ is 131.11 fruits of Plant-1, while there were significant differences between the studied varieties in which the Black Beauty variety is superior, as the value reached 202.63 g of fruit⁻¹, while the lowest value of the black variety was 131.05 g of fruit⁻¹. The table showed that the value of the overlap between the concentrations and the Variety has a moral effect, as the Black Beauty variety gave the highest value of 235.13 g of fruit⁻¹ as the average fruit weight of the studied plant at a concentration of 1 ml L⁻¹ , While the black variety gave the lowest value in the quality of the average fruit weight of the studied plant amounted to 115.33 g of fruit⁻¹ at concentration 0. the reason for the increase in the average fruit weight is due to the fact that sulfur is a macronutrient, which helps in the effectiveness of enzymes and increase the photosynthesis process, and therefore the accumulation of carbohydrates and proteins, which leads to an increase in Vegetative and fruiting growth .these results agreed with both.(Fahd et al., 2017,, Al-Subaie ; 2021, Al-Sudani, 2021).

Table (2) the effect of spraying with Zolfasta and the Variety on the average weight of the fruit 1-for a egg plant

Concentration of zolfast ml/l						Species
Averag of species	2	1.5	1	0.5	0	
131.05	146.00	138.53	128.76	126.63	115.33	black
170.55	177.72	175.06	194.07	155.37	150.18	Barcelona
202.63	200.10	233.43	235.13	216.66	127.83	Black beauty
	174. 60	182.34	185.99	166.34	131.11	Average of Zolfast
Inteferwnce		Of Zolfast		Of specices		L.S.D. _{.0.05}
15.68		31.13		19.06		

The length of the fruit is 1 cm:

Table (3) shows the effect of spraying with Zolfasta and the variety in the length of the fruit , the fruit⁻¹ cm indicates the presence of significant differences between the concentrations of zolfast, as it gave (2) ml-1 and its value reached 14.53 CM, the fruit⁻¹ compared to the lowest value recorded by the comparative treatment of the concentration (0) ML-1 and amounted to 12.01 CM, the table indicated the presence of significant differences between the studied varieties, as the highest value recorded by the Barcelona variety and it reached 16.90 CM fruit⁻¹, while the lowest value of the Black Beauty variety was 9.66 CM fruit⁻¹ , The table indicated that the value of the overlap between the concentrations and the Variety has a moral effect, as the Barcelona variety gave the highest value of 17.72 in the fruit length characteristic of the studied plant at concentration 2, while the Black Beauty variety gave the lowest value in the fruit length characteristic of the studied plant at 7.99 when the comparison treatment 0, as the role of sulfur lies in improving the qualities of vegetative growth, and then this leads to an increase in the plant's processing of carbohydrate substances and their transition from leaves to effective growth areas, which leads to this positively leads to an increase in the length of fruits and overall productivity and the quotient Kisko et al (2021) and these results are agreed with (Fahd et al., 2017; Sudani, 2021; Al-Subaie, 2021).

Table (3) the effect of spraying with zolfasta and the variety in the length of the fruit CM fruit

Concentration of zolfast ml/l						Species
Averag of species	2	1.5	1	0.5	0	
13.15	13.99	13.16	13.15	12.78	12.68	black
16.90	17.72	17.34	16.67	17.37	15.37	Barcelona
9.66	11.87	10.35	9.65	8.46	7.99	Black beauty
	14.53	13.62	13.16	12.87	12.01	Average Zolfast of
Inteferwnce		Of Zolfast		Of species		L.S.D. _{0.05}
0.45		2.55		0.68		

The diameter of the fruit is 1 cm:

Table (4) shows the effect of spraying with Zolfasta and the variety in the diameter of the fruit, cm-1 fruit, indicating that there are significant differences and exceeds the concentration of 2 ml L-1, with a value of 6.42 CM fruit⁻¹, while the lowest value of the concentration was 0 ML L-1 and a value of 4.73 CM fruit⁻¹. While the



results indicated for the studied varieties exceeded the Barcelona variety and its value was 6.53 CM fruit⁻¹ compared to the lowest value, which was affiliated with the black variety and its value was 4.22 CM fruit⁻¹, the table indicated that the value of the overlap between the concentrations and the Variety had a moral effect, as the Barcelona variety gave the highest value of 7.06 CM fruit⁻¹ in the characteristic of the fruit diameter of the studied plant at a concentration of 2 ml liter⁻¹, While the black variety gave the lowest value in the characteristic of the fruit diameter of the studied plant, it amounted to 2.98 CM fruit⁻¹ when the comparison treatment was 0. The significant effect of zolphasate is due to the importance of the sulfur element included in its composition, which is important in the formation of amino acids (tryptophan, methionine, cysteine and sestanine), which are the basic units in the construction of proteins and hormones in the plant, which leads to increased growth and cell divisions, and these results are agreed with (eltahafi et al., 2009).

Table (4) the effect of spraying with the Zolfasta Variety in the diameter of the fruit is cm-1 for eggplant fruits.

Average of species	Concentration of zolfast ml/l					Species
	2	1.5	1	0.5	0	
4.22	5.32	4.87	4.18	3.75	2.98	Black
6.53	7.06	6.95	6.85	6.23	5.58	Barcelona
6.39	6.89	6.71	6.66	6.06	5.62	Black beauty
	6.42	6.18	5.90	5.34	4.73	Average Zolfast Of
Interference		Of Zolfast		Of species		L.S.D.
0.21		0.92		0.43		%0.05

VI. REFERENCES

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