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Evaluation of some eggplant hybrids grown under low plastic tunnels in the desert areas of southern Iraq.

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ABSTRACT
The study was conducted during the 2023–2024 winter agricultural season as part of the Tomato Cultivation Techniques Project of the Basrah Agriculture Directorate in the Khor Al-Zubair area. It aimed to evaluate four eggplant hybrids in terms of growth and yield under low plastic tunnels in the desert regions of southern Iraq. The results showed significant differences among the hybrids in both growth and yield parameters. The hybrids *Lucia* and *Bolt* exhibited significantly greater plant height (98.0 cm and 97.3 cm) and stem diameter (2.*34* cm and 2.*40* cm), respectively. The *Lucia* hybrid also recorded the highest number of branches (6.33), fruit weight (260.0 g), and fruit diameter (7.93 cm). The *Jawaher* hybrid had the highest number of leaves (118.3), dry matter percentage in the vegetative system (28.36%), and number of fruits per plant (14.3). The *Jawaher* and *Bolt* hybrids were superior in leaf area, with values of 44.4 dm^2 and 43.5 dm^2, respectively. The *Bolt* hybrid demonstrated significant advantages in yield per plant (2.600 kg), total yield (22.88 tons ha^{-1}), fruit length (20.33 cm), dry matter percentage in fruits (26.17%), and vitamin C content (11.25 mg per 100 g fresh weight), as well as in total soluble solids (6.46%).

Keywords: *Eggplant; hybrids; low-lying plastic tunnels; desert areas; growth; quantitative and qualitative yield.*

INTRODUCTION

Eggplant (*Solanum melongena* L.) is a warm-season vegetable crop classified under the Solanaceae family. Its fruits are consumed in various forms, including cooked, pickled, canned, or fresh. Noted for its high nutritional value, eggplant contributes significantly to dietary energy. Per 100 grams of ripe fruit, it provides approximately 24 calories, containing 92.7 g of water, 4 g of carbohydrates, 1.4 g of protein, 1.3 g of fiber, and 0.3 g of fat. It is also a source of essential micronutrients, including 0.4 mg of vitamin B1, 0.1 mg of vitamin B2, 12 mg of vitamin C, and notable amounts of potassium and iron[1]. Due to its low caloric content, eggplant is considered beneficial for health, particularly in the prevention of obesity and the management of atherosclerosis. It plays a role in reducing fat accumulation and limiting cholesterol absorption from the digestive tract to the bloodstream. Additionally, it contains a substantial level of anti-carcinogenic compounds [2], and has shown therapeutic potential in conditions such as bronchitis, asthma, diabetes, and hypercholesterolemia [3].

Eggplant is grown as a summer crop in open fields as well as in greenhouse cultivation systems, which have witnessed a wide expansion in its production. It comes in third place after tomatoes and cucumbers among crops grown in greenhouses due to the consistent demand in the local market throughout the year [4]. The cultivated area of it in Iraq for the year 2020 amounted to about 54.500 dunums with a total productivity of 207.200 tons and a production rate of 3.802 tons per dunum [5]. Due to the importance of this crop, the need to increase its productivity was among the primary rationale for identifying the varieties suitable for cultivation inside greenhouses according to its cultivation areas, especially since it needs a warm atmosphere for seed germination and plant growth. The seeds germinate within 10 days at a suitable temperature of 24-30°C. The best temperature for plant growth is 20-27°C at night and 27-32°C during the day. Growth stops at a temperature lower than 17m and it causes severe damage if exposed to frost, even if it is light and for a short period, and the fruit set is severely weakened when the night temperature drops to 10-13m [4].

Therefore, studies have shifted toward its production using protected cultivation techniques, including the implementation of low plastic tunnels in the arid regions of southern Iraq, which offer protection against adverse climatic conditions such as low temperatures, strong winds, frost, and heavy rainfall during winter and spring seasons. Most of the currently available eggplant varieties and hybrids differ in terms of their earliness, yield potential, fruit size, shape, color, glossiness, texture, aroma, and flavor. These variations are largely attributed to differences in the plant's genetic composition [6]. The cultivar plays a fundamental and pivotal role in plant development, growth performance, and productivity within the specific agro-environment in which it is grown, thereby exerting a direct influence on the overall yield within that cultivation area [7].

Many studies on eggplant have shown that the variety has an effect on vegetative and floral growth indicators, quantitative and qualitative yield. [8] obtained, when planting four varieties of eggplant in a greenhouse during the autumn season in Baghdad city, namely (Bead Alagl, Black Beaut, Long Red, Yashel), the Bead Alagl variety was significantly superior in the number of leaves, leaf area, and total yield of the greenhouse compared to other varieties. [9] observed, when planting three varieties of eggplant in a greenhouse under the conditions of Diyala city, namely (Barshelona, Ashbilia, Paris), the Paris variety was significantly outperformed in plant height, number of leaves, leaf area, stem diameter, chlorophyll, fruit length, diameter, weight, and early yield of the plant compared to other varieties.

[10] indicated that the cultivation of eggplant hybrids in a greenhouse under the conditions of Basra city, namely (Barshelona, Marshal), showed that the Barshelona hybrid was significantly superior in plant height, number of leaves and fruits, fruit weight, yield per plant, fruit content of vitamin C, and percentage of dry matter in fruits compared to the Marshal hybrid.[11] showed that when two eggplant varieties were cultivated in a greenhouse under the conditions of Hilla city, namely (local and Black Beauty), the Black Beauty variety outperformed in plant height, number of leaves, number of branches, leaf area, fruit weight, and yield per plant compared to the local variety.[12]noted that when four eggplant hybrids were cultivated in two systems, open cultivation and protected cultivation in a greenhouse under Egyptian conditions, namely (Black Berry, Amedo, Petra, Sawad El-Laiel), the Amedo hybrid excelled in plant height and percentage of dry matter. Dry matter in leaves and their chlorophyll content Spad and fruit diameter, while the hybrid Sawad El-laiel was significantly more productive in the total yield, while both hybrids Amedo Sawad and El-laiel were significantly stronger in the number of branches, fruit weight and diameter. Open cultivation showed a significant advantage in the number of branches, percentage of dry matter in leaves, fruit weight and diameter, and the total yield compared to protected cultivation, which in turn was significantly more effective in plant height.[13] obtained when planting three varieties of eggplant in a plastic house under the conditions of Nasiriyah Governorate, namely (Black, Barcelona, Black Beauty), with Barcelona significantly exceeding in the number of fruits and fruit length, while Black Beauty was significantly better in fruit weight, and both varieties Black Beauty and Barcelona were significantly greater in fruit diameter.

This study aims to identify eggplant hybrids suitable for cultivation under low-plastic tunnels in the desert areas of southern Iraq, which maintain high productivity and possess desirable fruit traits preferred by consumers. The goal is to promote this cultivation method and contribute to bridging the production gap during the winter and spring seasons.

Materials and Methods

The experiment was conducted during the winter agricultural season 2023-2024 at the tomato cultivation techniques site affiliated with the Onion Cultivation Directorate in Khor Al-Zubair. To evaluating four eggplant hybrids grown under low plastic tunnels in terms of growth and yield. Table 1 shows the physical characteristics of the soil and the irrigation water used, which relies on well water using a drip irrigation system. The experimental field was prepared by plowing, smoothing, leveling and dividing it into 12 lines with a length of 25 m and a distance between each line of 2 m, a line width of 0.4 m and a depth of 0.3 m. Decomposed cattle manure was applied at a rate of 10 m³ per dunam^{-1}, along with triple superphosphate fertilizer at a rate of 40 kg/m² dunam^{-1}. Furrows were sterilized with the fungicide Ridomil, applied at a height of 15 cm above the soil surface. A drip irrigation system was installed along the center of each furrow and subsequently covered with black plastic mulch.

Every four adjacent rows were considered a single sector, with one of the hybrids used in the study planted along each row, at a density of 50 plants per row. This planting arrangement resulted in a plant density of 8,800 plants per hectare. Seedlings were raised in seedling trays containing 209 cells, each filled with German peat moss (Klas-man), and sown on September 25, 2023, at a rate of one seed per cell. The trays were kept under a canopy covered with green Saran shade netting. All standard agronomic practices required for seedling production—such as irrigation, fertilization, and pest control—were properly implemented. Prior to transplanting to the main field, the seedlings were grouped accordingly and transplanted on November 1, 2023, after developing 4–5 true leaves .

All standard agricultural operations required for crop production—including patching, irrigation, fertilization, pest control, harvesting, and covering—were fully implemented. Low tunnels were covered with a transparent polyethylene film, 150 microns thick, on November 25, 2023. Harvesting commenced on February 14, 2024, and was scheduled to conclude on the same date. The experiment was laid out as a simple trial using a randomized complete block design (RCBD) with three replicates, resulting in a total of 12 experimental units [14]. The treatments consisted of four hybrids, namely:

1- *Lucia*, Spanish, produced by Meridiem Seed
2- *Bolt*, Dutch, produced by Holland Zaden
3- *Wesam*, Iraqi, produced by the Horticulture Department of the Ministry of Agriculture
4- *Jawaher*, Dutch, produced by Westfrisian Seed

Table (1). Some physical and chemical properties of soil

Soil Properties	2023
Electrical Conductivity EC (deciemens m-1)	7.40

Reaction Level Ph		7.55
Dissolved ions (mmol L-1)	Na^+	30.0
	Ca^{++}	20.00
	Mg^{++}	10.5
	SO_4^{--}	23.14
	Cl^-	65.00
	HCO_3^-	2.8
Ready Nitrogen	mg kg-1	170
Ready Phosphorus		7.540
Ready Potassium		185.4
Ready Silicon	mg kg-1	1.952
Organic matter (g kg-1)		5.08
Sand		830
Silt		36
Clay		134
Soil texture		Loamy sand

Vegetative growth parameters were assessed at the end of the season by randomly selecting six plants from each experimental unit. The plant height (cm), stem diameter (cm), number of leaves and branches, leaf area (dm2); fresh and dry weights of the vegetative mass (g) were measured. The leaf content of total chlorophyll pigments was estimated according to the method described by[15)] and carotene according to [16]by taking the fourth leaf before the growing tip and 60 days after transplanting. The period from planting to the first pound (day) was calculated, as were the number of fruits, the weight of one fruit (g), the yield of one plant (kg), the total yield (ton ha-1), the length and diameter of the fruit, the percentage of dry matter and vitamin C, and the percentage of total soluble solids in the fruits (TSS) according to what was mentioned in[17]. The results were statistically analyzed according to the followed design and based on the statistical program Genstat, and the Least significant difference (LSD) test to compare the arithmetic means of the hybrids at a significance level of 0.05 and to estimate the simple correlation coefficient (r) between some of the studied traits.

Results and discussion

It is clear from Table (2) that the hybrid *Lucia* differed significantly in achieving the highest plant height compared to the other hybrids Bolt Wesam and Jawaher, with an increase rate of (0.72, 11.36 and 20.09)%, respectively, while the hybrid Bolt achieved a significant increase in stem diameter compared to the hybrids Lucia, Wesam, Jawaher, with an increase rate of (2.56, 14.28, 42.85)%, respectively. The hybrids Lucia and Jawaher showed a significant superiority in increasing the number of leaves compared to the hybrids Bolt and Wesam, with an increase rate of (27.05, 13.03)% for the hybrid Lucia, and an increase rate of (33.37, 18.65)%, respectively. The hybrids Bolt and Jawaher also showed a significant increase in the number of leaves compared to the hybrids Bolt and Wesam, with an increase rate of (27.05, 13.03)% for the hybrid Lucia, and an increase rate of (33.37, 18.65)%, respectively. The Bolt and Jawahar hybrids exhibited superior leaf area compared to the Lucia and Wesam hybrids, with respective increases of 42.62% and 27.19% for Bolt, and 45.57% and 29.82% for Jawahar. However, no significant difference was observed between the two superior hybrids.

The significant differences between hybrids in vegetative growth indicators may be due to the difference in compositions between hybrids, as each hybrid is controlled by a number of genes that are responsible for the nature of growth and production[18], or it may be attributed to the suitability of environmental conditions for the superior hybrids, which are one of the factors influencing changes in vegetative growth indicators [19]. These results are consistent with what was obtained by[8,10,9,11].

Table (2). Comparison of Vegetative Growth Performance Among Eggplant Hybrids Grown Under Desert Conditions

Hybrids	Plant height (cm)	Number of branches	Stem diameter (cm)	Leaves number	Leaves area (dm2)
Lucia	98.0	6.33	2.34	112.7	34.2
Bolt	97.3	4.33	2.40	99.7	43.5
Wisam	88.0	5.00	2.10	88.7	30.5
Jawaher	81.0	5.00	1.68	118.3	44.4
LSD 0.05	6.6	0.79	0.14	6.5	7.4

Table (3). Evaluation of Chemical Constituents in the Leaves of Eggplant Hybrids Cultivated Under Desert Conditions

Hybrids	Dry matter content of the vegetative group*(%)*	Total chlorophyll in leaves mg100g-1 fresh weight	Carotene in leaves mg/100g/1 fresh weight
Lucia	16.83	9.32	0.0366
Bolt	16.80	9.63	0.0368
Wisam	21.62	9.15	0.0348
Jawaher	28.36	9.23	0.0361
LSD 0.05	1.43	*N.S*	N.S

Table (3) showed that the hybrids differed significantly in the percentage of dry matter in the vegetative parts only, while no significant differences were observed in the total chlorophyll and carotene contents of the leaves. The Jawaher hybrid had the highest dry matter percentage in the vegetative parts, with increases of 31.17%, 68.80%, and 68.50% compared to the Lucia, Bolt, and Wesam hybrids, respectively. In turn, the hybrid Wesam was significantly superior in increasing the percentage of dry matter in the vegetative group compared to the two hybrids Lucia and Bolt. The significant difference between the hybrids in the percentage of dry matter in the leaves may be attributed to the genetic factors specific to the hybrids and their suitability to the climatic factors inside the plastic tunnel, and this result agrees with what was obtained by [12].

Table (4) indicates that the hybrids differed significantly in the studied quantitative yield components. The period from planting to the first harvest decreased in the hybrids Wesam, Jawaher, and Lucie compared to the hybrid Bolt, with decrease rates of (10.0, 9.20, and 9.63)%, respectively. The three hybrids did not differ significantly among themselves. The hybrid Jawaher was significantly superior in increasing the number of fruits compared to the hybrids Lucia, Bolt, and Wesam, with increase rates of (61.76, 7.84, and 54.59)%, respectively. In turn, the hybrid Bolt was significantly superior compared to the hybrids Lucia and Wesam, with an increase rate of (50.0 and 43.35)%, respectively. The hybrids Lucia and Wesam did not differ significantly among themselves. The hybrid Lucia showed a significant increase in the weight of one fruit compared to the hybrids Bolt, Wesam, and Jawaher, with an increase rate of (54.59, 7.84, and 61.76)%, respectively. (32.65, 41.53 and 48.57)% respectively, while the hybrid Bolt was significantly superior compared to the hybrid Jawaher, with an increase rate of 12.0%, and the hybrid Wesam was not significantly different from them. As for the yield of one plant and the total yield, the hybrid Bolt was significantly superior in their increase compared to the hybrids Lucia, Wesam, Jawaher, with increase rates for each of them reaching (13.04, 52.94 and 4.00)%, respectively.

The hybrid Jawaher was significantly superior compared to the two hybrids Lucia and Wesam, with an increase of (8.70, 47.06)%, respectively. The significant difference in the components of the quantitative yield between the hybrids may be attributed to the difference in the genetic compositions between the hybrids, which is controlled by a number of genes that show the hybrid characteristics responsible for the nature of growth and its yield [20]. Also, the superior hybrid (Bolt) adapted significantly to climatic factors and their effect on vegetative growth indicators, as there was a highly significant positive correlation between the number of fruits and leaf area, which reached 0.849, and with the number of leaves 0.580, while the correlation between fruit weight and plant height showed a significant positive correlation of 0.630, and with the number of branches 0.612, while the correlation between plant yield and leaf area was highly significant positive, reaching 0.771, and with the number of leaves 0.940. This means that increasing the leaf area and the number of leaves led to an increase in the efficiency of the photosynthesis process and thus an increase in the accumulation of manufactured nutrients and its reflection in the increase in the yield. These results are consistent with what was obtained by[[8,10,9,11,13].

Table (4). Comparison of Eggplant Hybrids Based on Yield Components Under Desert Conditions

Hybrids	Time from planting to maturity (days)	Number of fruits	Fruit weight (g)	Yield per plant (kg)	Total yield tons.ha-1
Lucia	153.0	8.84	260.0	2.300	20.240
Bolt	163.0	13.26	196.0	2.600	22.880
Wisam	147.0	9.25	183.7	1.700	14.960
Jawaher	148.0	14.30	175.0	2.500	22.000
LSD 0.05	7.1	0.49	13.7	0.082	0.731

Table (5). Performance of Eggplant Hybrids in Terms of Qualitative Yield Components Under Desert Conditions

Hybrids	Fruit length (cm)	Fruit diameter (cm)	Dry matter content of fruits*(%)*	Vitamin C mg 100 g-1 fresh weight	Total dissolved solid percentage *(%)*

Lucia	16.33	7.93	16.79	7.50	3.80
Bolt	20.33	7.20	26.17	11.25	6.46
Wisam	17.67	6.36	12.81	11.23	4.90
Jawaher	*16.33*	6.33	17.12	7.50	5.70
LSD 0.05	1.96	0.53	1.08	0.02	036

Table (5) showed that the hybrids differed significantly in the components of the qualitative yield of the fruits. The hybrid Bolt demonstrated significant superiority in fruit length, dry matter percentage, vitamin C content, and total soluble solids (TSS) compared to the hybrids Lucia, Wesam, and Jawaher. The respective increases in fruit length were 24.49%, 15.05%, and 24.49%; in dry matter percentage, 52.86%, 104.29%, and 55.86%; in vitamin C content, 50.00%, 0.17%, and 50.00%; and in TSS percentage, 13.33%, 31.83%, and 70.00%. In contrast, the hybrid Lucia showed a significant increase in fruit diameter compared to Wesam and Jawaher, with increases of 25.27%, 24.68%, and 10.13%, respectively.

The observed differences among hybrids in fruit quality characteristics may be attributed to their distinct genetic makeup and their varying levels of adaptation to climatic conditions, which in turn influence vegetative growth parameters and quantitative yield. A significant positive correlation was found between dry matter percentage and leaf area (r = 0.622), number of leaves (r = 0.757; highly significant), number of fruits (r = 0.565), and plant yield (r = 0.787). Additionally, fruit diameter was highly positively correlated with plant height (r = 0.688), number of branches (r = 0.722), and fruit weight (r = 0.913). The percentage of total soluble solids (TSS) also exhibited a significant positive correlation with plant height (r = 0.657), number of fruits (r = 0.830; highly significant), and dry matter percentage (r = 0.676). These findings are consistent with those reported by [10,9,12] (Table 6)

Table (6). Simple correlation coefficient r between some of the studied traits

Attributes	Leaves area	Plant height	Branches numbers	Leaves numbers	Fruits numbers	Fruit weight	Plant yield	Fruit diameter	Dry matter percentage of fruits	TSS
Leaf area	1.0									
Plant height	-0.09	1.0								
Branches Number	-0.265	** 0.872	1.0							
leaves Number	** 0.711	0.317	0.152	1.0						
Fruits Number	** +0.849	-0.361	-0.458	0.580*	1.0					
Fruit weight	-0.334	0.630*	0.612*	0.259	-0.621*	1.0				
Plant yield	0.771**	0.140	0.035	** 0.940	** 0.712	0.099	1.0			
Fruit diameter	-0.18	** 0.688	** 0.722	0.465	0.400	** 0.913	0.329	1.0		
Fruit dry matter percentage	0.622*	0.438	0.442	** 0.757	0.565*	0.022	** 0.787	0.323	1.0	
TSS	0.657*	-0.174	-0.144	0.317	** 0.830	** -0.712	0.469	-0.431	** 0.676	1.0

*Significant at the 0.05 probability level

**Significant at the 0.01 probability level

Conculotions

It can be concluded from this study that the Bolt hybrid was the most suitable for cultivation under low plastic tunnels in the desert environment of southern Iraq, due to its overall superior performance.

Recommendations

[1]. The Technology Transfer and Extension Administration (TTEA) will inform farmers about the health risks linked to pesticides, ensuring they use suitable protective gear, maintain personal hygiene, and recognize early signs of pesticide exposure.

[2]. The TTEA will educate the general public about the dangers of improperly disposing of empty pesticide containers, including throwing them in the trash or leaving them in the fields.

[3]. Extension agents should support local leaders so they can receive training using the Farmer Field School (FFS) method to improve knowledge and the spread of farming techniques among smallholder farmers.
[4]. The TTEA should regularly offer educational and training programs on the safe use of pesticides for farmers.
[5]. The plant protection agency should supply protective gear to farmers at fair prices to encourage safety measures.
[6]. Agricultural extension officials should partner with mass media outlets to broadcast programs that focus on the safe application of pesticides.
[7]. Those who sell pesticides should only give them to individuals who have been adequately trained or licensed, and ensure that the full manufacturer's label is visible on the container.
[8]. There should be additional research to investigate health issues related to the safe use of pesticides.

References:

[1]. A.O.A.C. (1970). Official methods of analysis 11th ed. Wasting tiom, D. C. Association of official analytical chemists. P:1015.
[2]. Adhafa, Q. J. (2018). Effect of spraying with ascorbic acid and chelated iron on the growth and yield of a hybrid eggplant (*Solanum melongena* L.). Diyala Journal of Agricultural Sciences, 10(1): 73-80.
[3]. Alfayyadh, D. Z. Y.; A. A. Hasson; A. K. Hussein and R. K. Hassan (2020). Study of the effect of spraying by a nutrient solution (El-Nebras and king life) on the growth and yield of two varieties of eggplant (Local and Black beauty). Plant Archives, 20(2): 1094-1101.
[4]. Al-Mukhtar, F. A. (1988). Genetics and Breeding of Horticultural Plants (Translated Book). Bayt Al-Hikma. University of Baghdad, 232 pp.
[5]. Al-Rawi, K. M., and Abdul Aziz M. K. (1980). Design and Analysis of Agricultural Experiments. Dar Al-Kutub for Printing and Publishing, University of Mosul, Republic of Iraq, 448 pp.
[6]. Caradoso, M. D.; A. P. Oliveira; W. E. Pereira and A. P. Desouza (2009). Growth nutrition and yield of eggplant ad affected by does of cattle manure and magnesium them phosphate plus cow urine. Hort. Brasiliere, 27(3).
[7]. Central Statistical Organization (2021). Agricultural Statistics. Ministry of Planning, Republic of Iraq.
[8]. Chude, V. O.; E. Y. Oyinlole; W. J. Horst; M. K. Schenk and Burkest (2001). Yield and untritionel qualities of tow tomato (*Lycopersicon esculentum* Karst) varieties as influenced by boron fertilization in a tropical Hannover, Germany. pp: 358-359.
[9]. El-Sayed, S. F. and A. M. Mahmoud (2022). Performance of some spherical eggplant hybrids under plastic house and open field conditions. Scientific Journal of Agricultural Sci., 4(3): 1-18.
[10]. Goodein, T. W. (1976). Chemistry and biochemistry of plant pigments, Academic press.
[11]. Gopalan, C.; B. V. R. Sastrs and S. Balasubramanian (2007). Nutritive value of Indian foods of brinjal (*Solanum melongena* L.) puplished by national institute of nutrition (NIN), KMR.
[12]. Hallard, J. (1996). L`aubergine au Japan. PHM Revue Horticole, 374: 55-56.
[13]. Hsabah, S. A, and B. H. F. Al-Zubaidy (2022). The effect of spraying with zolfast on some physical qualities of three hybrids of eggplant (*Solanum melongena* L.) growing under protected cultivation university of Thi-Qar Journal of Agricultural Research, 11(1): 53-59.
[14]. Kashyap, V.; S. Kumar; C. Collonier; F. Fusari; R. Haicour; G. Rotion; D. Sihachakr and M. V. Rajam (2003). Biotechnology of eggplant, Scientias Horticulturae, 97: 1-25.
[15]. Khazaal, Z. H. and Z. S. Rashed (2018). Effect of cultivars and the spraying with seaweed effect (Tecamin Algae) in the growth and yield of eggplant (*Solanum melongena* L.). Euphrates Journal of Agriculture Science, 10(2): 1-6.
[16]. Mahdi, H. S., and W. A. Hussein. (2017). The Effect of Biohealth Fertilizer and Nutrients on the Yield of Four Eggplant Varieties. Al-Furat Journal of Agricultural Sciences, 9(3): 603-612.
[17]. Matloub, A. N. (1983). Vegetable Production in Air-Conditioned Environments. University Press Directorate, University of Mosul, Republic of Iraq, 253 pp.
[18]. Mennella, G.; G. L. Rotion; M. Fibiaui; A. D. Alessandro; G. Francese; L. Toppino; F. Cavallanti; N. Acciarri and R. L. Scaizo (2010). Characterization of health-related compounds in eggplant (*Solanum melongena* L.) lines derived from introgression of allied species. J. Agric. Food Chem., 58: 7597-7603.
[19]. Raig`on, M. D.; J. Prohens; J. E. Munoz-Falcon and F. Nuez (2008). Comparison of eggplant landraces and commercial varieties for fruit content of phenolics, minerals, dry matter and protein. Journal of Food Composition and analysis, 21(5): 370-376.
[20]. Zachringer, M. V.; K. R. Davis and L. L. Dean (1974). Persistent, green color snap beans (*Phaseolus vulgaris*). Colerelated constituenls and quality of cooked fresh beans. J. Amer. Soc. Hort. Sci., 99: 89-92.

تقييم بعض هجن نبات الباذنجان المزروعة تحت الانفاق البلاستيكية الواطئة في المناطق الصحراوية جنوب العراق.

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الخلاصة

اجريت الدراسة خلال الموسم الزراعي الشتوي ***2023-2024*** في مشروع تقانات زراعة الطماطة التابع لمديرية زراعة البصرة في منطقة خور الزبير بهدف تقييم اربعة هجن من نباتات الباذنجان في النمو و الحاصل المزروعة تحت الانفاق البلاستيكية الواطئة في المناطق الصحراوية جنوب العراق .اظهرت النتائج وجود اختلافات معنوية بين الهجن في النمو و الحاصل اذ تفوقا الهجينين ***Lucia*** و ***Bolt*** معنويا في ارتفاع النبات (***97.3,98.0***) سم و قطر الساق (***2.40,2.34***) سم وعلى التوالي و الهجين ***Lucia*** في عدد الافرع (***6.33***) و وزن الثمرة ***260.0*** غم و قطرها ***7.93*** سم و تفوق الهجين ***Jawaher*** في عدد الاوراق ***118.3*** ورقة ونسبة المادة الجافة في المجموع الخضري ***28.36***% وعدد الثمار ***14.3*** ثمرة و تفوق الهجين ***Jawaher*** و ***Bolt*** في المساحة الورقية (***43.5,44.4***)دسم^2 وعلى التوالي واظهر الهجين ***Bolt*** تفوقا معنويا في حاصل النبات الواحد ***2.60*** كغم و الحاصل الكلي ***22.88*** طن هكتار$^{-1}$ وطول الثمرة ***20.33*** سم ونسبة المادة الجافة فيها ***26.17***% وفيتامين ***C 11.25*** ملغم لكل ***100*** غم$^{-1}$ وزن طري و النسبة المئوية للمواد الصلبة الذائبة الكلية ***6.46***% .

الكلمات المفتاحية: نبات الباذنجان، هجن، الانفاق البلاستيكية الواطئة، المناطق الصحراوية، النمو ،الحاصل الكمي و النوعي.