Effects of Arbucular Mycorrhizal Fungi Applications On Eggplant Seedling Development

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Abstract: The purpose of this research was conducted to determine the effects of arbuscular Arbuscular Mycorrhizal Fungi applications (*Gigaspora margarita and Glomus intraradices)* on seedlings growth parameters of Aydın siyahı, Faselis F_1, Fabina F_1, Topan, Vezir F_1, Kemer, Uzun patlıcan 50896, Uzun patlıcan 50516, Kara patlıcan 50710 and Pala eggplant seedlings grown into the plastic greenhouse in Selçuk University. In results, hypocotil lenght of Aydın siyahı and Kara patlıcan 59710, cothyledone width of Uzun patlıcan 50896, cothyledone length, shoot lenght and diameter of Vezir F_1, number of leaves of Aydın siyahı, shoot fresh weight of Topan and Uzun patlıcan 50516, root fresh weight of Topan patlıcan seedlings were found to be higher than the other eggplant cultivars. In the results of AMF applications, hypocotil length, cothiledone width, cothyledone length, shoot length, number of leaves, root fresh weight had been increased by *G. margarita* applications. Also, *G. intraradices* applications had been increased the shoot fresh weight. In cultivar x Arbuscular Mycorrhizal Fungi interactions, *G. margarita* exhibited better results on the hypocotil length of seedlings of Aydın siyahı, cothyledone width of Uzun patlıcan 50896, shoot length and number of leaves of Fabina F_1, Kemer and shoot fresh weight of Uzun patlıcan 50516, root fresh weight of Topan. Consequently, it was shown that it is necessary to determine the proper cultivar materials and proper Arbuscular Mycorrhizal Fungi rage interactions to get a better success in seedling development of eggplant.

Keywords: *Glomus intraradices, Gigaspora margarita*, eggplant cultivars, seedling development.

Introduction

It is a more realistic approach in terms of environmental health and using natural sources to benefit from the vegetable nutrient elements in an effective way instead of fertilizing with easy-taken nutrient elements to the soil. It is a fact that one of the best ways of benefiting from the unit area is evaluating the microorganism activity of soil. One of the microorganism formations that provide a better benefiting of soil for the plant is mycorrhizal. Until now, it was thought that nutrient elements were taken by only roots. Recent researches have shown that beside roots, vegetable nutrient elements are also mostly taken by fungus types which are called mycorrhizal and produce plenty of hyphe (Ortaş et al. 2000). Researchers searched the effects of three different mycorrhizal fungus, *G.fasciculatum,G. monospromu* and *G. mossea*, under field conditions by inoculating into tomato, eggplant and pepper seedlings. The parameters that they used to measure the effects of mycorrhizal fungus on vegetable development are; vegetable length, shoot fresh weight, total yield, fruit sizes and leaf length. Shoot fresh weight for eggplant with *G. mossea, G. monosporum* and *G. fasciculatum* inoculations showed 47%, 28% and 29% increases, respectively, and total yield of the same plant showed 60%, 43% and 7% increases. The most affective fungus type among the three plant types inoculated to increase the development of the plant is *G. mosseae*. However, *G. fasciculatum* is determined as the most effective fungus in the context of root colarisation of eggplant and pepper plants. Mikorizal trials were conducted on a plenty of vegetable types among horticulture.

Carrot (Smith and Read, 1997), tomato (Demir, 1998), pepper (Türkmen et al. 2005) are some of the examples of these studies. The effects of mikorizal fungi on vegetable types can variable. This effect can be summed up in the following way (Ortaş and Akpınar, 2004). Yield and fruit number increased for the eggplant inoculated by AMF, and meaningful differences appeared among the mycorrhizal types in this increase. Especially, it was determined that the spread of Verticillilum disease the eggplant inoculated by *G.etinicatunium* and *G. margarita* spore were prevented (Matsubara and et al., 1995). According to Şen (2008), a positive effect was observed through the *G.intraradices* application on eggplant seedling shoot length, shoot diameter, number of leaves, shoot fresh weight, shoot dry weight, root fresh weight and root dry weight. All of these studies represent that mycorrhizal is important for plant nutrition.

In this study, the purpose was to determine the effects of mycorrhizal specious (*G. intraradices* and *G. margarita*) on seedling development and growing up of the eggplant cultivar.

Material and Methods

This research was conducted to determine the effects of two *Arbucular Mycorrhizal Fungi* and ten eggplant genotypes and cultivars in the greenhouse which belongs to Selçuk University Silifke Taşucu Vocational High School. Aydın siyahı, Faselis F_1, Fabina F_1, Topan, Vezir F_1, Kemer, Uzun patlıcan 50896, Uzun patlıcan 50516, Kara patlıcan 50710 and Pala eggplant genotypes and cultivars were used as plant materials. The soil mixture used in the trial was supplied with the mixture of garden soil and torf in the ratio of 1:1. Heat and humidity values were recorded data with microlog regularly. According to these records, maximum temperature, average temperature and minimum temperature were measured 30 and 35 ^{o}C, 20 and 26 ^{o}C, 16 and 22 ^{o}C. Relative humidity was measured between 55% and 56%. The soil mixture to grow seedlings was sterilized at 121 ^{o}C in autoclave for two hours. The trial was planned and carried out in the consideration of factorial trial pattern. This researched was designed with the notion of three replications, and in each parcel of the research, there were 10 pots (10 plants) in each plot. Each pot had a 300 ml volume and had no drainage, and pots were filled with soil mixture with was in the ratio of 1:1 soil and torf. The mixture including that had the average 25 spore/g was added in 5 g to each pot in the same dept and at the same time with the seeds. The nutruint solution melted in the pure water was added in 5 ml into each pot only once at the time of sowing. Three seeds were planted into the each pot, and after they grew up, two of them were taken out. Each pot was watered with pure water. Two Arbucular Mycorrhizal Fungi **(***G. intraradices* and *G. margarita*) were applied in the trial. In the control plants, mycorrhiza was not applied. The date of sowing seed which was the beginning of the research was recorded. Hypocotyl length, cotyledon length, cotyledon width, period of real leaf appearance, shoot length, shoot diameter, number of leaves, shoot fresh weight, root fresh weight were determined. Determined research data were analyzed by Minitab program and means compared by Tukey Test.

Results and Discussion

The highest hypocotyls length was found out in Aydın siyahı and Kara patlıcan 50710 cultivar (2.89 mm) among the differences of cultivars in Table 1. The lowest hypocotyls lengths among the eggplant cultivars were assessed as Fabina F_1 (1.87 mm), Vezir F_1 (1.90 mm), and Kemer (1. 95 mm) respectively. When the effects of AMF applications on hypocotyls length were considered, the longest hypocotyls length was found out in *G. margarita* (2.29 mm) and the shortest hypocotyls length was determined in *G. Intraradices* (2.23 mm). The hypocotyls length of Aydın siyahı x *G. margarita* (3.23 mm) interaction was the highest and hypocotyls length of Fabina F_1 into *G. margarita* and *G. intraradices* was the lowest among to the AMF x eggplant genotypes interactions. Consequently Al-Momany (1987) and Türkmen et al. (2008) have got similar results in their researches.

The cotyledon length was observed in Vezir F_1 cultivar (24.71 mm), and this was followed by Kara patlıcan (22.77 mm). The shortest cotyledon length was found in Fabina F_1 eggplant cultivars. The cotyledon length in *G. margarita* (22.55 mm) took the first degree (Table 2). Menge and et al. (1978) appeared to support our studies in their research results.

While the highest cotyledon width among the eggplant cultivar was observed in Uzun 50896 (11.19 mm) eggplant cultivar, the lowest cotyledon width was in Kemer eggplant (7.57 mm). According to the effects of AMF applications on cotyledon width, the highest cotyledon width was detected in *G. margarita* applications (8.58 mm), the lowest cotyledon width, on the other hand, was determined in *G. intraradices* (8.16 mm) (Table 3). Mosse (1981), Harley and Smith (1983) also found similar results with us.

When the effects of AMF applications on real leaves appearance duration were taken into consideration, early real leaves appearance duration was determined in the control group (25.48 days). The longest real leaves

appearance period appeared in *G. intraradices* as 26.59 days. As seen in interaction results, early real leaves appearance was detected in control application with the eggplant cultivar of Aydın siyahı (24.96 days), Uzun patlıcan 50896 (25.16 days), *G. margarita* Vezir F_1 (25.31 days). In the longest *G.intraradices* application, Aydın siyahı was determined as 27.56 days (Table 4). These findings are in accordance with the literature reports which emphasize that proper cultivars specious interaction must be determined in order to get the purposed result in AMF applications (Türkmen et al., 2008, Menge and et al., 1978).

While the highest shoot length among the eggplant cultivars was observed in Vezir F_1 eggplant (18.61 cm), the lowest shoot length, on the other hand, was detected in Topan eggplant as 7.75 cm. When the effects of AMF applications on shoot length were taken into consideration, the longest shoot was found out in *G. margarita* with the length of 12.25 cm, but the shortest shoot length was assessed in the specious of *G. intraradices* with the length of 10.48 cm (Table 5). In the research of Şen (2008), it was observed that the shoot length of eggplant seedlings were between 13.62 and 11.48 cm. Al-Momany (1987) also found the same results.

While the highest shoot diameter among the eggplant cultivars was observed in Vezir F_1 eggplant (5.75 mm), the lowest shoot diameter was detected in Kemer cultivar (3.91 mm). If the effects of mycorrhizal specious on shoot diameter are examined, the highest shoot diameter is detected in the control application as 5.27 mm and the lowest shoot diameter is determined in *G. intraradices* as 4.67 mm (Table 6). Although, Tinker (1980) and Şen (2008) reported that seedling shoot diameters were increased through the AMF applications. According to us, this difference is caused by the differences between the AMF specious and the cultivars.

While the most number of leaves was found out in Aydın Siyahı (7.52), the fewest number of leaves was found out in Uzun patlıcan 50516 (7.08). When the effects of AMF applications on the number of leaves were examined, the most number of leaves was determined in *G.Margarita (*7.64) and the fewest number of leaves was observed in *G. intraradices* (6.87) (Table 7). Şen (2008) recorded an increase in the number of leaves through the *G.intraradices* on eggplant seedlings (4.97), but the number of leaves for the eggplant seedlings on which mycorrhizal wasn't applied, it was found as 3.84. The study results of Harley and Smith (1983) are parallel to our study results.

The highest shoot fresh weight among the eggplant cultivars was remarked in Topan (24.45 g) and Uzun Patlıcan 50516 types (24,45), whereas the lowest shoot fresh length was in Fabina F_1 (17.94 g) and Faselis F_1 (17.93 g). When the effects of mycorrhizal on shoot fresh weight were taken into consideration, the heaviest shoot fresh weight was detected in *G. intraradices* (22.68 g). The lowest shoot fresh weight was found in the control group (17.60 g) (Table 8). Al-Momany (1987) was discovered that the shoot fresh weight for eggplant increased with inoculations of *G.mossea, G.monosporum* and *G.fasciculatum* in the ratios of 47%, 28% and 29%, respectively, and the yield for the same plant increased in the ratios of 60%, 43% and 7%, espectively. Şen (2008) found the increase in terms of shoot fresh weight.

While the highest root fresh weight among eggplant cultivar was remarked in Topan genotype (8.80 g), the lowest root fresh weight was determined in Faselis F_1 cultivar (3.35 g), Uzun patlıcan 50516 (2.91 g) and Kemer (3.04 g) cultivar. When the effects of mycorrhizal on root fresh weight were examined, the harvest root fresh weight was noted as *G. margarita* (6.18 g) and the lowest root fresh weight was determined in the *G. intraradices* group as 4.67 g (Table 9). Şen (2008) obtained the increase in terms of root fresh weight through the application of *G. intraradices.* Onuğur and Demir (1988) concluded that shoot and root fresh and dried weights increased through the AMF applications.

Conclusion

In this research, according to eggplant materials, in the context seedling development change parameters, Aydın siyahı and Kara patlıcan 59710 in terms of hypocotyls length, uzun patlıcan 50896 in terms of hypocotyls width, Vezir F_1 in terms of hypocotyls l length enght, shoot l length, and shoot diameter, Aydın siyahı in terms of the number of leaves, Topan and Uzun patlıcan 50516 in terms of shoot fresh weight, Topan eggplant in terms of root fresh weight were found to be superior cultivar than the others. It was determined that in the context of AMF applications, through the *G. margarita* application hypocotyls length, cotyledon width, cotyledon length, shoot length, number of leaves, root fresh weight increased, the *G. intraradices* application, on the other hand, increased shoot fresh weight. To sum up, it is discovered that it is necessary to determine the proper vegetable materials and proper AMF specious interactions to get a better success in vegetable development of eggplant through AMF applications.

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Cultivars	Control	*G. intraradices*	*G. margarita*	Means
Fabina F_1	1,95±0.010**I**	1,84±0.032**m**	1,82±0.011**m**	1,87±0.061E
Faselis F_1	2,13±0.005**gh**	2,01±0.010**j-l**	2,12±0.340**g-ı**	2,09±0.059D
Vezir F_1	1,96±0.005**kI**	2,05±0.005**h-j**	1,70±0.052**n**	1,90±0.158E
Pala	2,04±0.005**ı-k**	2,03±0.010**j-l**	2,03±0.005**j-l**	2,03±0.007D
Kemer	2,02±0.010**j-l**	1,80±0.020**m**	2,03±0.011**j-l**	1,95±0.114E
Topan	2,11±0.015**g-ı**	2,05±0.011**h-j**	2,02±0.005**j-l**	2,06±0.043D
Aydın Siyahı	2,77±0.011**d**	2,65±0.010**e**	3,23±0.041**a**	2,89±0.267A
Uzun patlıcan 50516	2,41±0.011**f**	2,18±0.026**g**	2,44±0.020**f**	2,34±0.123C
Kara patlıcan 50710	2,87±0.011**c**	2,97±0.010**b**	2,84±0.020**cd**	2,89±0.061A
Uzun patlıcan 50896	2,38±0.068 **f**	2,76±0.020**d**	2,67±0.030**e**	2,60±0.173B
Means	2,26±0.324B	2,23±0.393C	2,29±0.473A	

$S\overline{x}_{0.01\ (cultivars)}$ =0.01354 $S\overline{x}_{0.01\ (Mycorrhiza)}$ =0.004282 $S\overline{x}_{0.01\ (cultivars\ x\ Mycorrhiza)}$ =0.01354

Table 1. The effects of AMF applications on hypocotyl length of eggplant cultivars (mm).

Cultivars	Control	*G. intraradices*	*G. margarita*	Means
Fabina F_1	21.07±0.1**j-o**	17.33±0.9**p**	20.44±0.0**l-o**	19.61±1.7F
Faselis F_1	20.72±0.3**k-o**	20.35±0.3**m-o**	21.58±0.1**h-m**	20.88±0.6DE
Vezir F_1	25.47±0.3**a**	24.49±0.2**a-c**	24.16±0.0**b-d**	24.71±0.6A
Pala	22.52±0.1**e-h**	20.25±0.0**no**	22.56±0.1**e-h**	21.78±1.1B-D
Kemer	21.11±0.0**i-o**	18.61±0.2**p**	21.46±0.0**h-n**	20.40±1.3EF
Topan	22.41±0.0**f-ı**	21.64±0.0**h-m**	23.32±0.0**c-f**	22.46±0.7BC
Aydın Siyahı	23.08±0.3**d-g**	21.21±0.0**ı-o**	23.29±0.5**c-f**	22.53±1.0BC
Uzun patlıcan 50516	21.72±0.0**h-l**	20.00±0.0**o**	21.81±0.5**g-k**	21.18±0.9DE
Kara patlıcan 50710	23.06±0.0**d-g**	22.20±0.6**f-j**	23.05±0.5**d-g**	22.77±0.5B
Uzun patlıcan 50896	15.96±0.3**q**	24.77±0.7**ab**	23.79±0.1**b-e**	21.51±4.2CD
Means	21.72±2.3B	21.09±2.2C	22.55±1.1A	

$S\ \overline{x}_{0.01\ (cultivars)}$=0.2008 $S\ \overline{x}_{0.01\ (Mycorrhiza)}$=0.06351 $S\ \overline{x}_{0.01\ (cultivars\ x\ Mycorrhiza)}$ = 0.2008

Table 2. The effects of AMF applications on kolitedon length of eggplant cultivars (mm).

Cultivars	Control	*G.intraradices*	*G. margarita*	Means
Fabina F_1	7.46±0.07**n-p**	7.11±0.03**p**	7.71±0.14**k-o**	7.42±0.27G
Faselis F_1	8.61±0.04**e-g**	7.95±0.06**ı-m**	8.42±0.15**f-ı**	8.32±0.30CD
Vezir F_1	9.28±0.06**d**	9.20±0.02**d**	8.860±0.05**d-f**	9.11±0.19B
Pala	8.04±0.01**h-l**	7.36±0.05**n-p**	7.51±0.076**m-p**	7.63±0.31E-G
Kemer	7.67±0.07**l-o**	7.25±0.10**op**	7.81±0.066**l-o**	7.57±0.26FG
Topan	8.07±0.04**h-l**	7.49±0.06**m-p**	8.34±0.055**g-ı**	7.97±0.38D-F
Aydın Siyahı	8.48±0.05**e-h**	7.40±0.07**n-p**	8.17±0.068**g-k**	8.01±0.48DE
Uzun patlıcan 50516	8.62±0.25**e-g**	8.22±0.04**g-j**	8.03±0.104**h-l**	8.29±0.29CD
Kara patlıcan 50710	8.95±0.04**de**	8.62±0.07**e-g**	8.42±0.026**f-ı**	8.66±0.23C
Uzun patlıcan 50896	9.96±0.09**c**	11.03±0.04**b**	12.58±0.52**a**	11.19±1.17A
Means	8.51±0.73A	8.16±1.16B	8.58±1.415A	

$S\ \overline{x}_{0.01\ (Cultivars)}$=0.07348 $S\ \overline{x}_{0.01\ (Mycorrhiza)}$=0.02324 $S\ \overline{x}_{0.01\ (Cultivars\ x\ Mycorrhiza)}$=0.07348

Table 3. The effects of AMF applications on kolitedon width of eggplant cultivars (mm).

Cultivars	Control	*G. intraradices*	*G. margarita*	Means
Fabina F_1	25.75±0.1 **c-e**	26.40±0.2**b-d**	25.68±0.1**c-e**	25.94±0.37
Faselis F_1	25.65±0.2**c-e**	27.23±0.2**ab**	25.71±0.1**c-e**	26.19±0.79
Vezir F_1	25.81±0.0 **c-e**	26.37±0.0**b-d**	25.31±0.0**e**	25.83±0.46
Pala	25.39±0.1**de**	25.71±0.6**c-e**	25.40±0.1**e**	25.50±0.40
Kemer	25.41±0.5**de**	25.93±0.1**c-e**	25.64±0.6**c-e**	25.95±0.53
Topan	25.42±0.5**de**	25.93±0.1**c-e**	25.64±0.6**c-e**	25.66±0.50
AydınSiyahı	24.96±0.2**e**	27.56±0.1**a**	25.41±0.6**de**	25.97±1.25
Uzun patlıcan 50516	25.68±0.0**cde**	27.28±0.0**ab**	25.35±0.0**e**	26.10±0.88
Kara patlıcan 50710	25.46±0.0**de**	25.54±0.0**de**	25.67±0.2**c-e**	25.55±0.15
Uzun patlıcan 50896	25.16±0.0**e**	27.25±0.0**ab**	24.99±0.0**e**	25.80±1.08
Means	25.48±0.3B	26.59±0.7A	25.49±0.3B	

$S\ \overline{x}_{0.01\ (Cultivars)}$ = Ö.D. $S\ \overline{x}_{0.01\ (Mycorrhiza)}$=0.0499 $S\ \overline{x}_{0.01\ (Cultivars\ x\ Mycorrhiza)}$=0.1579

Table 4. The period of real leaves appearance in AMF applications of eggplant cultivars.

Cultivars	Control	*G.intraradices*	*G. margarita*	Means
Fabina F_1	12.49±0.46 **gh**	9.47±0.03**I**	9.29±0.03 **I**	10.41±1.5E
Faselis F_1	15.29±0.10**d**	16.44±0.12**c**	15.68±0.07**cd**	15.80±0.51B
Vezir F_1	17.42±0.06**b**	18.06±0.05**b**	20.36±0.19**a**	18.61±1.34A
Pala	10.71±0.07**k**	10.93±0.10**jk**	11.93±0.16**hı**	11.19±0.57D
Kemer	7.71±0.25**no**	6.77±0.04**pq**	8.77±0.13**Im**	7.75±0.87G
Topan	7.33±0.05**o-q**	6.62±0.11**qr**	7.50±0.05**op**	7.15±0.40G

Aydın Siyahı	7.51±0.15**op**	8.41±0.03**mn**	9.55±0.38**L**	8.49±0.91F
Uzun patlıcan 50516	7.04±0.06**o-q**	5.90±0.10**r**	13.31±0.39**ef**	8.75±3.46F
Kara patlıcan 50710	12.67±0.19**f-h**	11.63±0.20**u**	13.49±0.61**e**	12.59±0.87C
Uzun patlıcan 50896	13.06±0.02**e-g**	10.64±0.32**k**	12.63±0.07**f-h**	12.11±1.13C
Means	11.12±3.54B	10.48±3.93C	12.25±3.69A	

$S\ \overline{x}_{0.01\ (Cultivars)} = 0.04$ $S\ \overline{x}_{0.01\ (Mycorrhiza)} = 0.12$ $S\ \overline{x}_{0.01\ (Cultivars\ x\ Mycorrhiza)} = 0.12$

Table 5. The effects of AMF applications on shoot lengths (cm) of eggplant cultivars

Cultivars	Control	*G. intraradices*	*G. margarita*	Means
Fabina F_1	4.19±0.02 **no**	3.90±0.13**op**	4.45±0.11**l-n**	4.18±0.25FG
Faselis F_1	5.42±0.07**f-h**	5.16±0.05**h-j**	6.07±0.02**a-c**	5.55±0.41A-C
Vezir F_1	5.55±0.10**e-g**	5.69±0.01**c-f**	6.03±0.02**a-d**	5.75±0.21A
Pala	4.99±0.11**ı-k**	4.78±0.02**j-l**	5.68±0.08**d-f**	5.15±0.41DE
Kemer	4.18±0.03**no**	3.81±0.17**op**	3.74±0.11**p**	3.91±0.02G
Topan	5.26±0.05**g-ı**	4.55±0.05**l-n**	4.68±0.10**k-m**	4.84±0.33E
Aydın Siyahı	6.37±0.27**a**	4.69±0.01**k-m**	4.75±0.04**kl**	5.27±0.83CD
Uzun patlıcan 50516	4.9±0.08**k-m**	3.85±0.12 **op**	4.35±0.30**mn**	4.30±0.40F
Kara patlıcan 50710	6.26±0.07**ab**	4.60±0.01**k-m**	5.39±0.01**f-h**	5.41±0.72B-D
Uzun patlıcan 50896	5.88±0.02**b-e**	5.16±0.03**h-j**	6.11±0.03**ab**	5.71±0.43AB
Means	5.27±5.281A	4.61±0.60 C	5.13±0.81B	

$S\ \overline{x}_{0.01\ (Cultivars)} = 0.06$ $S\ \overline{x}_{0.01\ (Mycorrhiza)} = 0.02$ $S\ \overline{x}_{0.01\ (Cultivars\ x\ Mycorrhiza\ )} = 0.06$

Table 6. The effects of AMF applications on shoot diameters (mm) of eggplant cultivars

Cultivars	Control	*G.intraradices*	*G. margarita*	Means
Fabina F_1	7.23±0.03**j-l**	6.62±0.11**qp**	7.95±0.13**a**	7.26±0.58B-D
Faselis F_1	7.40±0.05**f-j**	6.81±0.07**no**	7.87±0.06**ab**	7.36±0.46AB
Vezir F_1	6.91±0.01**mn**	7.53±0.03**d-h**	7.50±0.05**d-ı**	7.31±0.30BC
Pala	7.31±0.09**ı-l**	6.91±0.01**mn**	7.66±0.03**c-e**	7.29±0.32B-D
Kemer	7.35±0.05**g-k**	6.67±0.04**op**	7.86±0.03**a-c**	7.29±0.51B-D
Topan	7.22±0.02**j-l**	6.58±0.02**p**	7.69±0.02**b-d**	7.16±0.47C-E
Aydın Siyahı	7.60±0.04**d-f**	7.32±0.02**h-l**	7.66±0.01**c-e**	7.52±0.15A
Uzun patlıcan 50516	7.11±0.12**Im**	6.56±0.03**p**	7.55±0.05**d-g**	7.08±0.43E
Kara patlıcan 50710	7.60±0.04**d-g**	6.92 ±0.02**mn**	7.57±0.02**d-f**	7.36±0.33AB
Uzun patlıcan 50896	7.46±0.03**e-ı**	6.74±0.01**n-p**	7.16±0.03**kl**	7.12±0.31DE
Means	7.31±0.21B	6.87±0.31C	7.64±0.22A	

$S\ \overline{x}_{0.01\ (Cultivars)} = 0.03$ $S\ \overline{x}_{(0.01\ (Mycorrhiza)} = 0.01$ $S\ \overline{x}_{0.01\ (Cultivars\ x\ Mycorrhiza)} = 0.03$

Table7. The effects of AMF applications on the number of leaves of eggplant cultivars.

Cultivars	Control	*G. intraradices*	*G. margarita*	Means
Fabina F_1	16.16±0.125**I**	18.17±0.186**k**	19.51±0.076**j**	17.94±1.466 E
Faselis F_1	15.61±0.061**I**	20.57±0.064**ı**	17.62±0.026**k**	17.93±2.161 E
Vezir F_1	20.42±0.094**ı**	25.04±0.010**d**	19.23±0.015**j**	21.56±2.655 C
Pala	15.68±0.325**I**	16.38±0.637**I**	17.48±0.425**k**	16.51±0.889 F
Kemer	17.39±0.138**k**	25.16±0.485**cd**	27.02±0.540**a**	23.19±4.438 B
Topan	22.38±0.023**gh**	24.30±0.110**de**	26.67±0.026**ab**	24.45±1.859A
Aydın siyahı	13.98±0.553**n**	23.87±0.107**ef**	24.42±0.068**de**	20.75±5.096 D
Uzunpatlıcan50516	19.86±0.140**ıj**	26.07±0.030**bc**	27.43±0.034**a**	24.45±3.496A
Kara patlıcan 50710	19.28±0.160**j**	22.12±0.046**h**	19.85±0.157**u**	20.41±1.306D
Uzun patlıcan 50896	15.20±0.172**m**	25.13±0.034**d**	23.11±0.036**fg**	21.14±4.544C
Means	17.60±2.647C	22.68±3.192A	22.24±3.824 B	

$S\ \overline{x}_{0.01\ (Cultivars)} = 0.14$ $S\ \overline{x}_{0.01\ (Mycorrhiza)} = 0.04$ $S\ \overline{x}_{0.01\ (Cultivars\ x\ Mycorrhiza)} = 0.14$

Table 8. The effects of AMF applications on shoot fresh weight in eggplant cultivars

Cultivars	Control	*G. intraradices*	*G. margarita*	Means
Fabina F_1	7.50±0.02 **cd**	6.08±0.03**ef**	4.47±0.02 **g**	6.01±1.31CD
Faselis F_1	3.45±0.06 **g-j**	3.15±0.03**h-j**	3.45±0.05 **g-u**	3.35±0.15F
Vezir F_1	6.14±0.01**ef**	4.26±0.01**gh**	6.14±0.01**ef**	5.51±0.94DE
Pala	5.66±0.03**f**	6.51±0.01**def**	6.30±0.01**ef**	6.15±0.38C
Kemer	2.61±0.04**jk**	2.41±0.03 **jk**	4.11±1.31**gh**	3.04±1.03F
Topan	9.33±0.10**ab**	6.79±0.01 **d-f**	10.29±1.0 **a**	8.80±1.65A
Aydın Siyahı	6.98±0.02**de**	3.41±0.06 **g-j**	5.86±0.01**ef**	5.41±1.58E
Uzun patlıcan 50516	2.92±0.07**ı-k**	1.85±0.17 **k**	3.98±0.02**g-ı**	2.91±0.92F
Kara patlıcan 50710	7.49±0.01**cd**	6.24±0.01**ef**	8.96±0.05**b**	7.56±1.17B
Uzun patlıcan 50896	7.52±0.03**cd**	6.01±0.03**ef**	8.30±0.02**bc**	7.27±1.01B
Means	5.96±2.19B	4.67±1.79 C	6.18±2.28A	

$S_{\bar{x}\ 0.01\ (Cultivars)}$ =1.04 $S_{\bar{x}\ 0.01\ (Mycorrhiza)}$ =0.06 $S_{\bar{x}\ 0.01\ (Cultivars\ x\ Mycorrhiza)}$ =0.18

Table 9. The effects of AMF applications on root fresh weight in eggplant cultivars (g).