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THE CUMULATIVE EFFECT OF BIOREGULATORS AND NATURAL FOLIAR FERTILISERS WITH CO_2 OVER THE PRODUCTION OF EGGPLANTS CULTIVATED IN GREENHOUSES

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Abstract

Eggplant culture gets a particular attention in the western part of our country, being intended for it in the established vegetable basins from Arad and Timis counties considerable surfaces both in the field and in greenhouses and solariums or in other shelters made of plastic. In order to ensure the profitability of the culture on the background of the continuous increase of prices of any kind of energy (thermal, electrical, fuels, and so on) there have been many improvements in the culture technology: replacement of the natural culture substrate (soil) in greenhouses and solariums, utilizing at a large scale the drip irrigation and implicitly fertigation, introducing in culture new performant hybrids in terms of productivity and quality, the use in vegetation of some foliar bioactive products in the purpose of obtaining a better biding of flowers/ setting of flowers and faster growth of fruits, to achieve a better resilience to extreme temperatures (low after planting in the field and extremely high in the summer - July, August), and so on. There was a need of increasing the photosynthetic yield of plants in order to make the most of the entire productive potential of the hybrids used in culture. This paper presents the way to solve this aspect of the culture technology.

Key words*: bioregulators, culture, eggplant, greenhouse, technology.*

INTRODUCTION

The cultivation of eggplants by private cultivators it is practiced on considerable surfaces in Banat's Plain, especially in the vegetables basins consecrated for vegetable production from Arad and Timis counties, both in the field and especially in protected and intensive cultivation systems in solariums and greenhouses. Studies on the productivity and quality of arable field hybrids under different technological conditions have been published over the years (Becherescu et al., 2011), the technology of eggplant cultivation being approached and in specialized works (Horgos A., 2003).

Increasing production for unit area, both in field and greenhouses and solariums or other plastic shelters, along with a plus of quality, ensures a substantial profit to the producers.

The continuous increase of prices for any kind of energy forced the vegetable producers to search for newer and newer solutions to improve the cultivation technology both in the field and greenhouses and protected spaces (unheated greenhouses, low tunnels made of foil, solariums). Improvements have been made in what culture substrate is concerned, in greenhouses and solariums they even got to replace the natural substrate (soil) with organic or artificial (mineral wool) materials, this led to obtaining very high productions, incomparable with the ones obtained through applying cultivation technologies (Horgos A. et al., 2015).Also, plant fertilization was improved in vegetation as a basic technological link, by introducing modern and soluble chemical fertilisers at the same time with drip irrigation, a method known as fertigation.

Studies on the effect of organic fertilizers have been carried out in the last years and on the cultures of cabbage (Soare et al., 2017), eggplant (Becherescu et al., 2016; Dobrin E. et al., 2016) of tomatoes (Dinu et al., 2013; Dinu et al. 2015) or salad (Drăghici et al., 2012), to improve the quantity and quality of production.

In the management of soil fertility, both mineral fertilizers and organic fertilizers play an important role, but we cannot individually depend on one of them to supply all the nutrients and other growth conditions for the production of eggplants (Suge et al., 2011).
Study to investigate the effect of different mixes of organic fertilizers and different mulches colours (control, transparent and black) on growth and yield of eggplant have been made especially for arid areas (Ahmed M.S.M. et al., 2016)
No comprehensive reports exist on the combined effects of season, cultivation environment and genotype on eggplant (*Solanum melongena*) composition, studies being carried out in this regard by various researchers (San José et. al., 2014; Russo M.V., 1996).
Technological enhancement has also been achieved by introducing some performing hybrids in culture in terms of production and quality potential. To showcase the full production and quality potential of cultivated hybrids, improvements were brought to the cultivation technology in terms of intervention as well for a better biding in flowers through non-radicular way (foliar) of some bioregulators (bioactive products) which influence through their mode of acting fruit formation. This in the new climate conditions, in which temperatures are extremely high, with values of 35-45^{o}C, even 50^{o}C in the field, and in greenhouses and solariums or 45-55^{o}C.
About cultivation technology, grafting is a non-chemical alternative for overcoming the effects of intensive and continuous cropping that can modify plant and fruit characteristics (Moncada Alessandra et. al., 2013).
Yet to showcase the full production potential of the new modern hybrids in culture, it was felt the need to enhance the photosynthetic efficiency. It is known that for this the increase of CO_2 concentration in the atmosphere of the cultivated space is needed, which in greenhouses and solariums can be done through different methods, most of the times really expensive. For the field cultures, the specific methods from greenhouses and solariums cannot be applied, being necessary to find new ways (Havukainen J., 2018).This way a new generation of natural fertilisers based on CO_2, specifically bio foliar fertilisers which can increase the percentage of CO_2 from inside the plant from 0.04% to 0.1-1% having a double action (acceleration of metabolism and of photosynthetic process; slowing down respiration, closing the stomata and shutting down respiration).
This paper studies the cumulative effect of natural foliar fertilisers with CO_2 and bioregulators, on the background of using different methods of leading in vegetation the eggplants.

MATERIALS AND METHODS

The researches who aim the cumulative effect of bioregulators and of natural foliar fertilisers with CO_2 on the background of using different methods of leading in vegetation had the purpose to bring enhances to the cultivation technology in terms of causing a better biding of flowers and an accelerated growth of fruits, in the new conditions with extremely high temperatures.
Also, the eggplants were observed under the effect of the interaction between the experimental factors, aiming the manifestation of production and quality potential (number of flowers/plant, percentage of binded flowers, number of completely developed fruits, average weight/piece, share of the total production of Istquality production, and so on).
The culture of eggplants in which the experiment took place was established in an unheated greenhouse in an extended cycle (8-10 May → 25-28 October 2017), at a density of 20000 plants/ha.
In this purpose a two-factor experience was established in which the experimental factors were:
Factor A - The method of leading plants on vegetation
a_1 - leading plants with 2 arms
a_2 - leading plants with 3 arms
a_3 - leading plants with 4 arms
Factor B - Products used non-radicular (bioregulators, foliar fertilisers based on CO_2
b_1- Mt - untreated witness
b_2 - Rodoleg–bioregulator for stimulating the biding of eggplant flowers
b_3 - Vifarex–bioregulator for stimulating the biding of eggplant flowers

b_4 - Lithovit with amino acids - natural fertiliser based on CO_2 - with 25% amino acids
Crop technology specific to greenhouses from all points of view (except for the delay in setting up the culture due to the impossibility of heating up the greenhouse) was applied to the eggplant culture. The hybrid used was Madonna.

RESULTS AND DISCUSSIONS

From the analysis of experimental factors (tables 1 and 2) in a first phase results the differentiation of the appearance of flowers on the plant, being materialized in the number of binded flowers, the number of normally developed fruits, their average weight and implicitly the potential for market valorisation, with the specification of their quality and the share of those of Ist quality. An increased variability of total production is noted, and therefore that of Ist quality, due to the interaction of the two factors, based on the constant plant density in culture and the average weight of fruits, variable with significant fluctuations around the average weight of experience and that of factor A (the method of leading plants in vegetation).
Both the number of fruits and their average weight is noted in the factorial interactions a_2b_3 (the leading with 3 arms - Vifarex), a_2b_2 (the leading with 3 arms - Lithovit with amino acids), a_3b_3 (the leading with 4 arms - Vifarex), a_3b_4 (the leading with 4 arms - Lithovit with amino acids), compared to the other factorial combinations specific to the methods of leading plants in vegetation and the bioregulator that was used.As a result of number of fruits/plant and of average weight/fruit, the average productions per plant vary within the limits 2.730 kg/pl (a_1b_1) and 4.510 kg/pl (a_2b_4), depending on the method of leading plants in vegetation and the bioregulator that was used.

Table 1. Elements of production resulted from the application of bioregulators to eggplant plants cultivated in unheated greenhouses, in a extended cycle (May - October)

Experimental factors		Number of flowers per plant for:						Number of normally developed fruits usable for:				Average weight of a fruit for:		Average production				
		Factor		From which binded for:														
FactorA	FactorB			Factor				Factor				Factor		Factor B			Factor A	
Method of leading in vegetation	Bioregulators / Fertiliser based on CO_2	B	A	B		A		B		A		B	A	on plant:		for ha:	on plant:	for ha:
		pc.	pc.	pc.	%	pc.	%	PC.	%	pc.	%	g/pc.	g/pc	Kg/pl	% then b_1	t/ha	Kg/pl	t/ha
a_1- Leading with 2 arms	b_1 –Mt untreated	14.8	16.65	13.6	91.8	16.08	96.5	11.8	86.8	12.6	77.1	231.4	246.0	2.730	100.0	54.6	3.100	62,0
	b_2 - Rodoleg	17.1		16.7	97.4			12.0	71.8			246.7		2.960	108.4	59.2		
	b_3 - Vifarex	17.2		16.8	97.9			12.6	75.0			252.0		3.175	116.3	63.5		
	b_4 – Lithovitwith amino acids	17.5		17.2	98.3			13.9	76.7			254.2		3.533	122.9	67.1		
a_2– Leading with 3 arms	b_1 –Mt untreated	17.5	18.58	15.4	88.0	17.38	93.5	12.3	79.9	13.6	78.2	285.0	300.0	3.505	100.0	70.1	4.080	81,9
	b_2 - Rodoleg	18.3		17.0	91.7			13.5	79.4			301.5		4.070	116.1	81.4		
	b_3 - Vifarex	19.0		17.9	94.4			14.1	78.8			304.6		4.295	122.5	85.9		
	b_4 – Lithovitwith amino acids	19.5		19.2	98.6			14.6	80.4			308.9		4.510	128.7	90.2		
a_3–Lead-in with 4 arms	b_1 –Mt untreated	15.5	17.25	13.3	86.1	15.98	92.6	11.0	82.7	13.9	87.0	236.4	268.7	2.600	100.0	52.0	3.735	75.2
	b_2 - Rodoleg	17.3		16.1	92.8			14.4	89.4			276.6		3.983	153.3	79.7		
	b_3 - Vifarex	17.5		16.4	93.7			14.8	90.2			273.9		4.054	156.0	81.1		
	b_4 – Lithovitwith amino acids	18.7		18.1	96.9			15.3	84.5			287.8		4.403	169.4	88.1		
a_4–Average of the experience (Mx)	b_1 –Mt untreated	15.9	17.50	14.1	88.7	16..5	94.3	11.7	83.0	13.3	80.6	251.0	271.6	2.945	100.0	58.9	3.612	73.0
	b_2 - Rodoleg	17.6		16.6	94.3			13.3	80.1			274.9		3.656	124.1	73.1		
	b_3 - Vifarex	17.9		17.0	95.2			13.8	81.4			276.8		3.820	129.7	76.4		
	b_4 – Lithovitwith amino acids	18.6		18.2	97.8			14.6	80.2			283.6		4.149	140.9	83.0		
Average of the experience (Mx)		**17.5**	*	**16.5**	**94.3**	**16.5**	*	**13.3**	**80.6**	**13.3**	*	**271.6**	*	**3.652**	-	**73.0**	*	*

Table 2. Level of quality and quantity productions obtained from the eggplant culture in greenhouses in extended cycle under the effect of the interaction between the experimental factors

Experimental factors		Average production obtained for:														
		Factor B (Bioregulator)							Factor A (Method of leading in vegetation)							
A (Method of leading in vegetation)	B (Bioregulators/ Fertiliser based on CO_2)	Average weight of fruit (g/pc.)	Average production			Of which Istquality			Average weight of fruit(g/pc.)	Average production				Of which Istquality			
			kg/pl	t/ha	% then $a_{1-4}b_1$	t/ha	%	% then $a_{1-4}b_1$		kg/pl	t/ha	%	% then a_1 şiMx	t/ha	%	% then a_1	% then Mx
a_1-Leading with 2 arms	b_1 –Mt untreated	231.4	2.730	54.6	100.0	28.8	52.7	100.0	246.0	3.100	62.0	100.0	84.9	40.8	65.8	100.0	95,5
	b_2 - Rodoleg	246.7	2.960	59.2	108.4	38.7	65.4	134.4									
	b_3 - Vifarex	252.0	3.715	63.5	116.3	43.8	68.9	152.1									
	b_4 – Lithovit	254.2	3.355	67.1	122.9	48.5	72.3	168.4									
a_2–Leading with 3 arms	b_1 –Mt untreated	285.0	3.505	70.1	100.0	36.2	51.6	100.0	300.0	4.080	81.9	132.1	112.2	51.3	62.6	125.7	120,1
	b_2 - Rodoleg	301.5	4.070	81.4	116.1	51.0	62.7	140.9									
	b_3 - Vifarex	304.6	4.295	85.9	122.5	55.7	64.9	153.9									
	b_4 – Lithovit	308.9	4.510	90.2	128.7	62.4	69.2	172.4									
a_3–Leading with 4 arms	b_1 –Mt untreated	236.4	2.600	52.0	100.0	23.2	44.7	100.0	268.7	2.735	75.2	121.3	121.3	36.1	48.0	88.5	84,5
	b_2 - Rodoleg	276.6	3.895	79.7	153.0	37.7	47.3	162.5									
	b_3 - Vifarex	273.9	4.053	81.1	156.0	39.7	48.9	171.1									
	b_4 – Lithovit	287.8	4.404	88.1	169.4	43.7	49.6	188.4									
a_4 – Average of the experience (Mx)	b_1 –Mt untreated	251.0	2.945	58.9	100.0	29.4	49.9	100.0	271.6	3.612	73.0	117.7	100.0	42.7	58.5	104.6	200,0
	b_2 - Rodoleg	274.9	3.656	73.1	124.1	42.5	57.9	116.0									
	b_3 - Vifarex	276.8	3.820	76.4	129.7	46.4	60.4	124.0									
	b_4 – Lithovit	283.6	4.149	83.0	140.9	52.7	64.1	128.5									
Average of the experienceMx		**272.6**	**3.652**	**73.0**	**124.0**	**42.7**	**58.5**	**145.2**	**271.6**	**3.612**	**73.0**	**117.7**	**100.0**	**42.7**	**58.5**	**104.6**	**100.0**

The productions obtained under the influence of Vifarex bioregulator (81.4-85.9 t/ha) and the ones of the natural fertiliser based on CO_2, Lithovit with amino acids (88.1-90.2 t/ha) stand out in all three methods of leading plants in vegetation.

The graph from figure 1 of table 2 presents very suggestively the differentiation of production under the combined influence of the two factors A (Method of leading plants in vegetation) and B (products administrated extraroot–bioregulators, natural fertilisers based on CO_2 - foliar administrated for a better biding of flowers and speeding up the metabolism), and the average production for the three graduations of factors A and B.

The following aspects under the influence of the graduations of factor A (the three methods of leading in vegetation) are noted:

- the highest obtained productions are in a_2 (leading on 3 arms) with an average of 81.9 t/ha (132.1%) and of 75.2 t/ha (121.3%) in a_3 (leading on 4 arms), the percentage ratio being compared to the average production obtained under the influence of a_1 (leading on 2 arms), of 62.0 t/ha (100.0%)
- the average productions per experience under the influence of the three methods of leading in vegetation is of 73.0 t/ha (117.7%) then a_1 (leading on 2 arms), of 62.0 t/ha (100.0%)
- under the influence of the graduations of factor B (foliar administrated bioregulators) the highest productions are registered in a_3b_4 (leading on 4 arms - Lithovit with amino acids), of 90.2 t/ha – 128.7%, then a_3b_1 (leading on 4 arms - Mt untreated), of 70.1 t/ha – 100.0% and in a_3b_4 (leading on 4 arms - Lithovit with amino acids), of 88.1 t/ha – 169.4%, then a_3b_1 (leading on 4 arms - Mt untreated), of 52.0 t/ha – 100.0%.
- in the second place, as level of obtained production, is located both in a_2 (leading on 3 arms), and in a_3 (leading on 4 arms), those under the influence of bioregulator b_3-Vifarex, of 85.9 t/ha – 122.5% in a_2b_3, and of 81.1 t/ha – 156.0% in a_3b_3, the ratio being done compared to b_1 – Mt untreated from a_2şi a_3.

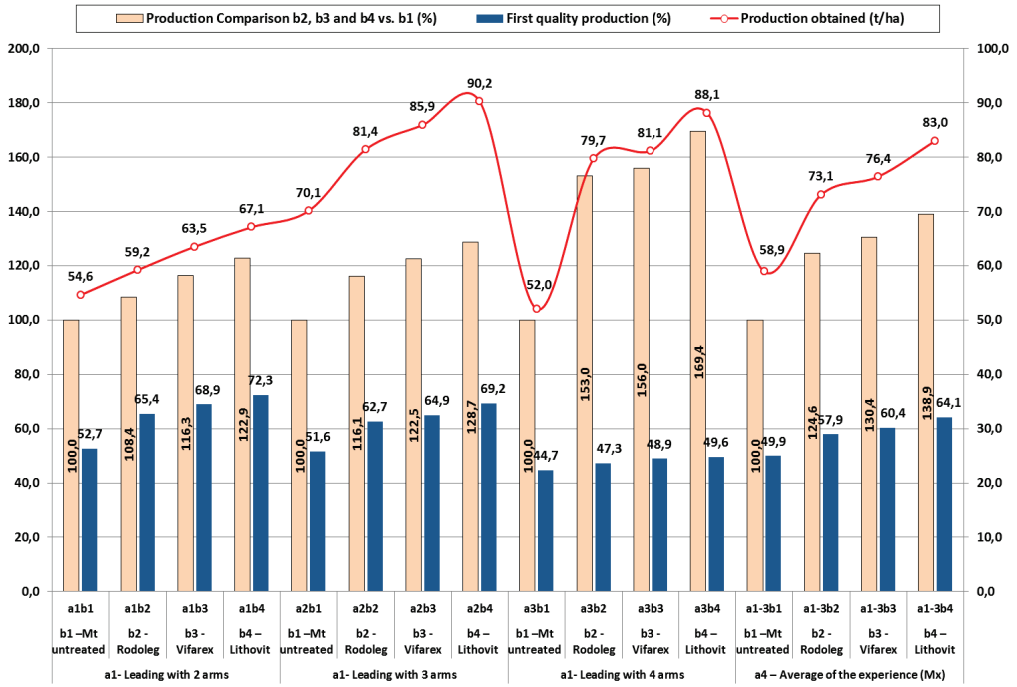

Figure 1. Level of quality and quantity productions obtained from the eggplant culture in greenhouses

- from the point of view of the average of experience, the graduations b_1-b_4 of factor B (bioregulators and natural fertilisers with CO_2) has a significant influence on differences of production, with particular emphasis on b4-Lithovit with amino acids graduation, with a production of 83.0 t/ha – 140.9%, then b_1-Mt untreated – 100.0%.
- in the descending order of production, it follows b_3-Vifarex, with a level of production of 76.4 t/ha – 129.74%, and b_2-Rodoleg, with 73.1 t/ha – 124.1%, b_1-Mt untreated standing at the level of 58.9 t/ha – 100.0%, against which the ratio reports were made.

We conclude that the highest average production was achieved under the influence of graduation a_2 – leading on 3 arms (81.9% - 134.1%). Under the influence of bio-stimulators, the highest production was achieved in graduation b4-Lithovit with amino acids (83.0 t/ha – 140.9%).

From the point of view of the quality of production, the highest percentage of production of Istqualityis found in a_1- leading on 2 arms (40.8 t/ha – 65.8%, from 61.1 t/ha, average production from a_1). It follows in order the production from a_2 – leading on 3 arms (51.3 t/ha – 62.6%, from 81.9 t/ha, average production from a_2) and that from a_3 – leading on 4 arms (36.1 t/ha – 48.0%, from 75.2 t/ha, average production from a_3).

Despite the fact that the percentage share of Ist quality production from a_1 - leading on 2 arms is the highest, of 65.8% in comparison to the one in a_2 - leading on 3 arms (62.6%), in absolute figures the highest Ist quality production is however in a_2 - leading on 3 arms, namely of 51.3 t/ha (62.6%), by comparison to the one from a_1 - leading on 2 arms, of 40.0 t/ha (65.8%). Average production of Ist quality from a_2 – leading on 3 arms (51.3 t/ha – 62.6%), in comparison to the one from a_1- leading on 2 arms (40.8 t/ha – 65.4%), represents 125.7%. The one from a4 - leading on 3 arms (36.1 t/ha – 48.0%) represents 88.5% in comparison with a1-leading on 2 arms (40.8 t/ha – 65.8%) – 100.0%.

From the point of view of crop technology, leading on 2 arms offers in an absolute mode

optimum light conditions, which influences the obtaining of the highest production of I quality (65.8%), but from quality point of view leading on 3 arms determinates a much higher average production per hectare (a raise of 20.8 t/ha, from 81.9 t/ha – 132.1%) in comparison with leading on 2 arms (62.0 t/ha – 100.0%), which influences the quantity of I^{st} quality production to increase with 10.5 t/ha.

Under the aspect of the bio-stimulators influence over the quality of production, in all the 3 graduations of factor A (Method of leading in vegetation) the Lithovit with amino acids (b_4) determinates weights of I^{st} quality production of 49.6-72.6%, on the average of experience being of 64.1% (52.7 t/ha, from 83.0 t/ha average production). Compared to the Mt untreated (b_1), Lithovit with amino acids (b_4) and Vifarex (b_3) determinates percentage increases of I^{st} quality production of 128.5%, and 124.0%, respectively.

Table 3. Statistical calculation concerning the interaction of experimental factors over the production of eggplants cultivated in greenhouse

Variant	Average production (t/ha)		Relative production (%)	Difference (±t/ha)	Significance
I. Singular influences of experimental factors over the production of eggplants					
1. Of the method of leading the plants in vegetation over the production of eggplants					
a2-a1	81.90	62.0	134.04	19.9	***
a3-a1	75.23	62.0	123.12	13.2	***
a3-a2	75.23	62.0	91.85	-6.68	000
DL 5% = 1.59			DL 1% = 2.41	DL 0.1% = 3.87	
2. Of bioregulators and foliar fertilisers with CO_2					
b2-b1	73.43	58.90	124.67	14.53	***
b3-b1	76.84	58.90	130.45	17.94	***
b4-b1	81.81	58.90	138.89	22.91	***
b3-b2	76.84	73.43	104.64	3.41	**
b4-b2	81.81	73.43	111.41	8.37	***
b4-b3	81.81	76.84	106.47	4.97	***
DL 5% = 2.35			DL 1% = 3.23	DL 0.1% = 4.45	
II. Influences of the interactions between experimental factors over the production of eggplants					
2.1. From different methods of leading the plants in vegetation and the same or different bioregulators/foliar fertilisers with CO_2					
a2b1-a1b1	70.10	54.60	128.39	15.50	***
a3b1-a1b1	52.00	54.60	95.24	-2.60	-
a4b1-a1b1	58.90	54.60	107.88	4.30	-
a3b1-a2b1	52.00	70.10	74.18	-18.10	000
a2b2-a1b2	81.40	59.20	137.50	22.20	***
a3b2-a1b2	79.70	59.20	134.63	20.50	***
a3b2-a2b2	79.70	81.40	97.91	-1.70	-
a2b3-a1b3	85.90	63.50	135.28	22.40	***
a3b3-a1b3	81.10	63.50	127.72	17.60	***
a3b3-a2b3	81.10	85.90	94.41	-4.80	0
a2b4-a1b4	90.20	67.10	134.43	23.10	***
a3b4-a1b4	88.10	67.10	131.30	21.00	***
a3b4-a2b4	88.10	90.20	97.67	-2.10	-
a2b2-a1b1	81.40	54.60	149.08	26.80	***
a3b3-a1b1	81.10	54.60	148.53	26.50	***
a3b3-a2b2	81.10	81.40	99.63	-0.30	-
DL 5% = 4.36			DL 1% = 6.08	DL 0.1% = 8.54	
2.2. Of the same method of leading in vegetation and different bioregulators/foliar fertilisers with CO_2					
a1b2 - a1b1	59.20	54.60	108.42	4.60	-
a1b3- a1b1	63.50	54.60	116.30	8.90	**
a1b4- a1b1	67.10	54.60	122.89	12.50	***
a1b3- a1b2	63.50	59.20	107.26	4.30	-
a1b4- a1b2	67.10	59.20	113.34	7.90	**
a1b4- a1b3	67.10	63.50	105.67	3.60	-
a2b2- a2b1	81.40	70.10	116.12	11.30	***

Variant	Average production (t/ha)		Relative production (%)	Difference (±t/ha)	Significance
a2b3- a2b1	85.90	70.10	122.54	15.80	***
a2b4- a2b1	90.20	70.10	128.67	20.10	***
a2b3- a2b2	85.90	81.40	105.53	4.50	-
a2b4- a2b2	90.20	81.40	110.81	8.80	**
a2b4- a2b3	90.20	85.90	105.01	4.30	-
a3b2- a3b1	79.70	52.00	153.27	27.70	***
a3b3- a3b1	81.10	52.00	155.96	29.10	***
a3b4- a3b1	88.10	52.00	169.42	36.10	***
a3b3- a3b2	81.10	79.70	101.76	1.40	-
a3b4- a3b2	88.10	79.70	110.54	8.40	**
a3b4- a3b3	88.10	81.10	108.63	7.00	**
DL 5% = 4.70			DL 1% = 6.47	DL 0.1% = 8.90	

From the analysis of table 3 where are presented the effects of unilateral influences and of the interaction between experimental factors over the production resulted from the statistical calculation variance analysis are as it follows:

- the method of leading in vegetation on 3 arms (a_2) stands out, the meanings of the differences of production from this one and a_1 (Method of leading plants in vegetation on 2 arms) and a_3 (Method of leading plants in vegetation on 4 arms) being very significant positive in the first case and very significant negative in the second case; once again is confirmed the superiority of the method of leading plants in vegetation on 3 arms against the methods of leading plants in vegetation on 2 or 4 arms (section 1.1.);
- from the point of view of unilateral influences of the bioactive product over the production, it is noted significance of production differences very significant positive, also confirmed by the statistical calculation their hierarchy order resulted from the previous tables based on the size levels of obtained physical production; on the first place is b_4 – Lithovit with amino acids, followed by b_3 - Vifarex (section 3); significance of production differences between the productions obtained under their influence and the productions obtained under the influence of the other bioactive products foliar administrated are very significant positive, and in one single case distinctly significant positive.
- the influences of the interaction have highlighted the superiority of the association method of leading plants in vegetation on 3 arms with any of the used the bioactive products (sections 2.1. and 2.2.);
- the meanings of the differences of production from section 2.1. (Influence of the interaction between different methods of leading plants in vegetation and the same or different bioregulators) are in their vast majority very significant positive and distinctly significant negative.
-at section 3.2. (Influence of the interaction between the same method of leading in vegetation and different bioregulators) the meanings of the differences of production in most cases of comparison are very significant positive or distinctly significant positive, and in some cases without significance, which demonstrates the powerful influence of the interaction between the experimental factors.

CONCLUSIONS

1. Leading on 3 and on 4 arms the eggplant plants in vegetation proved its efficiency through the high level of the obtained productions, as well as their quality.
2. By leading plants on 3 arms were obtained 81.9 t/ha, and by leading on 4 arms 75.2 t/ha, these productions being higher by 32.1% and 21.3% respectively, then the production obtained by the alternative of leading on 2 arms.
3. The productions obtained as an effect of foliar administration of the Rodoleg and Vifarex bioregulators, and the natural fertiliser with CO_2 - Lithovit with amino acids, are incomparable higher than in the case of the witness to which these productions have not been applied, with percentages which vary between 24.1-40.9%, depending on the method of leading in vegetation of plants.
4. The most striking influence over the production of eggplants was realised in the case of applying Lithovit with amino acids (on the average experience 83.0 t/ha – 140.9%, through

comparison to the witness 58,9 t/ha - 100.0%); the level of productions under the influence of Lithovit varies by the method of leading in vegetation of plants.

5. Rodoleg and Vifarex bioregulators have considerable influences over the obtained productions, influences that were materialized on the average of experience with increases of 24.1-29.7%.

6. Ist quality production varies within the limits of 65.8% (40.8 t/ha) and 48.0% (36.1 t/ha), depending on the method of leading plants in vegetation, leading on 3 arms being the one recommended: the biggest share of Ist quality production is obtained by applying Lithovit with 25% amino acids in all the three methods of leading in vegetation (73.6%; 69.2%; 49.6%), in average experience this one stands at 64.1%.

7. It is recommended, based on the results obtained, leading in vegetation on 3 arms and applying on extraroot way of Lithovit with 25% amino acids, since the obtained total production and the one ofIstquality is at its highest level (81.9 t/ha – 132.1%, and 51.3 t/ha – 62.6%, respectively).

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