Assiut Journal of Agricultural Sciences 56 (3) 2025 (224-232)
ISSN: 1110-0486 / EISSN: 2356-9840
Website: http://ajas.journals.ekb.eg/
E-mail: ajas@aun.edu.eg

(Original Article)

Trials for Improving the Productivity in Flame Seedless Grapevines by Using Some Amino Acids and Seaweed Extracts

Alaa A.B. Masoud[1*]; Mohamed A. M. Abada[2] and Omnia S. A. Sagheer[1]

[1]Pomology Department, Faculty of Agriculture, Assiut University, Assiut, Egypt.
[2]Horticulture Research Institute, Agriculture Research Center, Giza, Egypt.

[*]Corresponding author e-mail: alaa1000el@gmail.com
DOI: 10.21608/AJAS.2025.367590.1471

Abstract

In 2023 and 2024 seasons, Flame seedless grapevines were applied with a total of three times amino acids (Tryptophan + Methionine + Cysteine) and/or seaweed extracts at a concentration of 0.05 to 0.2 percent. The aim of this research was to analyze the effect of single and combined amino acids and seaweed extracts at various concentrations on the yield and berries quality of Flame seedless grapevines in new reclaimed soils. Applying a combination of amino acids and/or seaweed extracts at the specified rates three times each significantly increased the yield, cluster characteristics, the percentage of berries coloration, and berries physical and chemical properties compared to the control treatment. The increase was more pronounced with higher application rates. The use of amino acids alone far exceeded the use of seaweed extracts for all parameters. Furthermore, combination treatments were exceptionally better than single treatments in all cases.

The best yields, berry coloration percentage, and berry quality for the Flame seedless grapevines were obtained by applying a mixture of some amino acids (Tryptophane, Methionene, Cysteine) and seaweed extracts at 0.2% thrice on growth start, immediately after berry setting and a month later.

Keywords: *Amino acids, Berries quality, Flame seedless, Seaweed extracts, Berry colouration %.*

Introduction

Flame seedless grapevines , cv grown under Middle and Upper Egypt conditions in most cases does not reach the commercially acceptable level of red colour with negative consequences of the grower. Application some antioxidants like some amino acids and seaweed extracts could be a tool for overcoming this problem.

Amino acids have an important function in plant defense against oxidative stress due to unfavourable conditions because of their antioxidative properties. Application of amino acids was accomponied with enhancing proteins biosynthesis as well as shielding the plant cells from senescence and death, averting the free radicals from lipid peroxidation of the plasma membrane which is coupled with loss of permeability and regulation of pathophysiological disorder (Orth *et al*., 1993). These include natural hormone precursors such as ethylene, IAA, GA_3, and cytokinin, as well as cell division, organic food, enzymes, DNA and RNA. These beneficial impacts were without a doubt

Received: 13 March 2025/ Accepted: 13 June 2025/ Published online: 16 July 2025

positively reflected on producing vigorous trees (Vianello and Marci, 1991, and Elade, 1992).

The mean productivity of crops is enhanced by boosting carbohydrate synthesis, protein, and chlorophyll as well as photosynthesis with seaweed extract which also work as a plant growth stimulant (Aitken and Senn, 1965 and Jensen, 2004). Spraying seaweed extract which contains some micronutrients Co, B, Mo, Zn and Cu, as well as macronutrients GA_3, Auxins, and cytokinin's, resulted in lower stem thickening, which is accompanied by a vigorous root and stem growth and better ability of the roots to grow and absorb nutrients. The extracts have also been shown to improve seed germination, growth, yield, and nutrient uptake. Seaweed extracts have been reported by different names and are commercially available now (Jeanin *et al*., 1991). The extract also contained hormones IBA and IAA, cytokinin, vitamins, trace nutrients (Mn and Ni) and amino acids (Challen and Hemingway, 1965).

The objective of this study was elucidating effect of some amino acids and seaweed extracts on yield and both physical and chemicals characteristics of the berries of Flame seedless grapevines grown under Assiut region climatic conditions.

Materials and Methods

This study was conducted on 60 flame seedless grapevines, six-year-old, uniformly vigorous in 2023 and 2024 seasons. The selected vines came from a private vineyard in the western part of El- Kossia district, Assiut Governorate, Egypt. The soil was sandy (Table 1). Soil analysis was performed according to the described procedure (Wilde *et al*., 1985).

Table 1. Shows some physical and chemical analysis of the used soil

Physical properties	Values	Chemical properties	Values
Sand %	84.3	**pH (1: 2.5 extract)**	8.03
Silt %	11.7	**EC (1: 2.5 extract) (mmhos/ 1cm/ 25°c)**	2.02
Clay %	4.0	**$CaCO_3$ %**	11.6
Texture grade	Sandy	**Total N %**	0.03
O.M. %	0.25	**Available P (ppm)**	8.6
		Exchange K	1.8 mg/ kg soil

The selected vines are planted at 2.0 × 3.0 meters apart. The chosen vines were trained by using spur pruning method with Gable shape- supporting system by leaving 72 eyes/ vine on the basis of 15 fruiting spurs × four eyes plus 6 replacement spurs × two eyes. The selected vines were pruned during the last week of December in both seasons, vines were irrigated with drip irrigation system. In addition to the control treatment, this experiment also set up 9 amino acids and seaweed extracts for combined application and single application treatments. The specific arrangements are as follows:-

T1- Control treatment (sprayed with water).

T2- Spraying the vines with some amino acid at 0.05%.

T3- Spraying the vines with some amino acid at 0.1 %.

T4- Spraying the vines with some amino acid at 0.2%.

T5- Spraying the vines with seaweed extracts at 0.05%.

T6- Spraying the vines with seaweed extracts at 0.1 %.

T7- Spraying the vines with seaweed extracts at 0.2 %.

T8- Spraying the vines with some amino acids and seaweed extracts each at 0.05%.

T9- Spraying the vines with some amino acids and seaweed extracts each at 0.1 %.

T10- Spraying the vines with some amino acids and seaweed extracts each at 0.2 %.

The study included ten treatments. Each treatment was replicated three times with two vines each. Amino acids (tryptophan methionine + cysteine) and seaweed extracts were used. The selected vines received three sprays of these amino acids and/or algae extracts at the beginning of growth (first week of March), soon after berry setting (first week of April) and one month later (first week of May).

Triton B was used as a wetting agent for all amino acids and algae extracts at a dose of 0.5 ml/l. Spraying was performed until dripping occurred. A control treatment was performed by spraying water and Triton B (2.0 l/vine). A Randomized Complete Block Design (RCBD) was used for statistical analysis of this study.

The following measurements were performed in both seasons

- Yield/ vine (kg.), number of clusters per vine as well as weight (g.), length and width of clusters (cm.)

- Percentage of berry colouration.

- Some physical and chemical characteristics of the berries namely berry weight (g.) length and equatorial (cm), TSS %, reducing sugars (Lane and Eynone, 1965) and total acidity % (a as tartaric acid/ 100 ml juice) (A.O.A.C., 2000).

All obtained data were tabulated and statistically analyzed according to (Mead *et al*., 1993) and the averages were compared using New L.S.D. test at 5%.

Results and Discussion

1. Yield per vine and cluster aspects

From the data in Table (2), it can be seen that the yield per vine and grapes of Flame Seedless cultivar were significantly improved by the combined and individual application of some amino acids (tryptophan, methionine, cysteine) and/or seaweed extract at concentrations of 0.05% to 0.2% compared to the non-application treatment. The increase in effectiveness was proportional to the increase in concentration. The use of amino acids was superior to the use of seaweed extracts, and the combined application was more effective in increasing the yield per vine and grapes than the use of each substance alone. By treating the grapevines three times with amino acids and algae extracts at a concentration of 0.2%, the yield in both seasons was almost the maximum, i.e., 11.18 kg and 15.13 kg, respectively. The yield of untreated grapevines in the two seasons was 9.50 kg and 9.63 kg, respectively. Compared with the control treatment, the increase in the yield per vine of this commitment treatment in the two seasons reached 17.7% and 57.1%, respectively. Similar trend was noticed during 2023 and 2024

seasons. While number of cluster per vine in the first seasons was un-significantly affected.

Table 2. Effect of single and combined application of some amino acids and seaweed extracts on number of cluster per vine and yield per vine as well as weight, length and shoulder of cluster of Flame seedless grapevines during 2023 and 2024 seasons.

Characters / Treatments	No. of cluster / vine		Yield/ vine (kg.)		Cluster weight (g.)		Cluster length (cm.)		Cluster width (cm.)	
	2023	2024	2023	2024	2023	2024	2023	2024	2023	2024
T_1 – Some amino acids at 0.05 %	25.0	29.5	9.95	11.83	398.0	401.0	26.2	27.0	14.5	15.0
T_2 – Some amino acids at 0.1%	25.0	30.5	10.13	12.52	405.0	410.5	27.4	28.0	15.2	16.0
T_3 – Some amino acids at 0.2%	25.0	31.0	10.26	12.96	410.5	418.0	29.0	29.5	16.0	16.4
T_4 – Seaweed extracts at 0.05%	26.0	27.0	9.75	10.26	375.0	380.0	22.6	23.0	13.0	13.5
T_5 – Seaweed extracts at 0.1 %	26.0	28.5	9.93	10.98	382.0	385.5	24.0	25.0	13.8	14.5
T_6 – Seaweed extracts at 0.2 %	26.0	29.0	10.14	11.40	390.0	393.5	25.5	26.2	14.1	14.8
T_7 – Some amino acids and seaweed extracts each at 0.05%	26.0	32.0	10.66	13.31	410.0	416.0	29.0	29.8	16.2	17.0
T_8 – Some amino acids and seaweed extracts each at 0.1 %	26.0	33.5	10.92	14.41	420.5	430.0	30.5	31.0	17.0	17.6
T_9 – Some amino acids and seaweed extracts each at 0.2 %	26.0	34.0	11.18	15.13	430.8	445.0	32.0	32.6	18.4	19.0
T_{10} –Control	26.0	26.0	9.50	9.63	365.0	370.5	21.5	22.0	12.3	12.6
New L.S.D. at 5%	NS	1.1	0.4	0.8	11.2	11.6	0.7	0.9	0.2	0.4

2. Percentage of berry colouration

It is clear from the data in Table (3) that single and combined applications of some amino acids (Tryptophan, Methionine, Cysteine) and seaweed extracts each at 0.05 to 0.2% succeeded significantly in enhancing berry colouration% rather than non-application. There was a gradual promotion on these berry colouration% with increasing concentrations of amino acids and seaweed extracts. Using some amino acids was significantly superior to using seaweed extracts in enhancing berry colouration%. Combined application of amino acids and seaweed extracts was significantly favorable for enhancing berry colouration% relative to using each alone. The maximum percentage of berry colouration were recorded on the vines that received three spays of a mixture of some amino acids and seaweed extracts each at 0.2% during both seasons.

3. Quality of the berries

One can state from the data in Tables (3 and 4) that treating the vines with some amino acids (Tryptophan +Methionine + Cysteine) and/ or seaweed extracts each at 0.05 to 0.2% was significantly very effective in enhancing quality of the berries in terms of increasing berry weight, berry dimensions (length and diameter), and TSS%. Reducing sugars% and TSS/acid% ratio and decreasing total acidity% relative to the control treatment. The promotion was depended on increasing concentrations of each material. Application of amino acids surpassed the application of seaweed extracts in this connection. Combined applications were significantly preferable than using each alone in enhancing quality of berries. The best results with regard to quality of the berries were recorded on the vines that received three sprays of a mixture of some amino acids and seaweed extracts each at 0.2%.

Table 3. Effect of single and combined application of some amino acids and seaweed extracts on some physical characteristics of the berries of Flame seedless grapevines during 2023 and 2024 seasons.

Characters / Treatments	Berry colouration %		Berry weight (g.)		Berry length (cm.)		Berry diameter (cm.)	
	2023	2024	2023	2024	2023	2024	2023	2024
T_1 – Some amino acids at 0.05 %	78.5	79.6	3.35	3.40	2.24	2.26	1.38	1.40
T_2 – Some amino acids at 0.1%	80.0	81.2	3.40	3.45	2.28	2.30	1.40	1.42
T_3 – Some amino acids at 0.2%	81.8	82.5	3.45	3.50	2.32	2.35	1.43	1.45
T_4 – Seaweed extracts at 0.05%	73.0	74.2	3.15	3.25	2.04	2.10	1.28	1.30
T_5 – Seaweed extracts at 0.1 %	74.5	77.0	3.25	3.30	2.11	2.15	1.33	1.35
T_6 – Seaweed extracts at 0.2 %	76.0	78.2	3.30	3.35	2.20	2.25	1.36	1.38
T_7 – Some amino acids and seaweed extracts each at 0.05%	82.2	84.0	3.50	3.60	2.36	2.40	1.45	1.47
T_8 – Some amino acids and seaweed extracts each at 0.1 %	86.0	87.9	3.60	3.70	2.42	2.48	1.48	1.50
T_9 – Some amino acids and seaweed extracts each at 0.2 %	91.0	92.5	3.65	3.75	2.50	2.60	1.52	1.55
T_{10} –Control	70.5	71.2	2.90	3.00	1.98	2.00	1.25	1.28
New L.S.D. at 5%	0.7	0.8	0.08	0.09	0.04	0.05	0.02	0.03

Table 4. Effect of single and combined application of some amino acids and seaweed extracts on some chemical characteristics of the berries of Flame seedless grapevines during 2023 and 2024 seasons.

Characters / Treatments	TSS%		Acidity %		TSS/ acids		Reducing sugars %	
	2023	2024	2023	2024	2023	2024	2023	2024
T_1 – Some amino acids at 0.05 %	19.0	19.2	0.645	0.640	29.5	30.0	16.8	17.0
T_2 – Some amino acids at 0.1%	19.6	19.8	0.630	0.625	31.1	31.7	17.5	17.7
T_3 – Some amino acids at 0.2%	19.9	20.2	0.610	0.605	32.6	33.4	17.8	18.0
T_4 – Seaweed extracts at 0.05%	18.2	18.5	0.675	0.670	26.9	27.6	16.0	16.3
T_5 – Seaweed extracts at 0.1 %	18.6	19.0	0.655	0.650	28.4	29.2	16.4	16.8
T_6 – Seaweed extracts at 0.2 %	19.0	19.4	0.645	0.640	29.5	30.3	16.9	17.2
T_7 – Some amino acids and seaweed extracts each at 0.05%	20.0	20.5	0.610	0.600	32.8	34.2	17.8	18.0
T_8 – Some amino acids and seaweed extracts each at 0.1 %	20.7	21.4	0.590	0.580	35.1	36.9	18.5	18.8
T_9 – Some amino acids and seaweed extracts each at 0.2 %	21.0	21.8	0.570	0.560	36.8	38.9	18.8	19.0
T_{10} –Control	17.8	18.0	0.690	0.680	25.8	26.5	15.6	15.9
New L.S.D. at 5%	0.4	0.5	0.013	0.011	0.7	0.8	0.2	0.3

From the data in Tables (3 and 4), it can be concluded that treatment of grapevines with certain amino acids (Tryptophan +Methionine + Cysteine) and/or seaweed extracts in concentrations ranging from 0.05% to 0.2% was significantly very effective in improving berry quality. Compared to the control treatment, the weight, length and diameter of the berries as well as the percentage of TSS increased, reducing sugars % and TSS / acid % ratio while decreasing total acidity % relative to the control treatment. The improvements depended on increasing the concentration of individual substances.

Application of amino acids surpassed the application of seaweed extracts in this connection. The combined use clearly improved berry quality more than the use of each substance alone. In terms of berry quality, the best results were obtained on grapevines sprayed 3 times with a mixture of some amino acids and seaweed extracts each at 0.2%, while unfavorable effect on quality of berries were observed on untreated the vines. These results were true during both seasons.

Discussion

The positive action of some amino acids on growth and fruiting of Flame seedless grapevines might be attributed to their essential roles on protecting the plant cells from senescence and disorders as well as the biosynthesis of natural hormones, The process of cell division can be significantly enhanced, and so can the uptake of nutrients and water, thanks to the antioxidative properties of certain amino acids. These compounds play a vital role in defending plants against the oxidative stress that can create unfriendly conditions. Furthermore, they're pivotal in kickstarting the biosynthesis of ethylene, proteins, cytokinins, vitamins, GA_3, DNA, and RNA. They also contribute to the creation of organic foods and vibrant plant pigments, showcasing just how crucial they are in the life of a plant (Vianello and Marci, 1991; Elade, 1992; and Orth *et al.,* 1993). Amino acids are basic ingredients in the process of protein synthesis. Using these compounds enhanced growth, yield and fruit quality of various grape cultivars (Belal *et al.,* 2016; Bassiony *et al.,* 2018; Mohamed and Qaoud, 2019; Abada and Ahmed-Basam, 2015; El- Sayed *et al.,* 2019, Abd El- Hakim, 2023; Masoud *et al.,* 2024a and Masoud *et al.,* 2025).

The remarkable effect of applying seaweed extracts on the growth and fruiting of Flame seedless grapevines can be traced back to several intriguing factors. First off, seaweed extracts boast a rich cocktail of essential nutrients, including nitrogen, phosphorus, potassium, magnesium, zinc, iron, and manganese. But that's not all! These extracts also contain a sprinkle of B vitamins and a variety of natural hormones—like indole-3-acetic acid (IAA), gibberellic acid (GA_3), and cytokinins. Let's not forget about the antioxidants they bring into the mix! All these elements combine to create a thriving environment for the grapevines, fueling their growth and enhancing their fruit production in a truly extraordinary way (Adam, 1999, and Kannaiyan, 2002). It takes on the crucial task of wiping out those pesky threats to plants, like annoying insects, stubborn weeds, and microscopic pathogens that can wreak havoc on growth (Planes-Leyva, 2003). Seaweed extracts have found their way into grapevine cultivation, playing a remarkable role in boosting not only the growth of the vines themselves but also the yield and quality of the berries from various grape cultivars. Numerous researchers have discovered that these extracts possess the intriguing ability to invigorate growth and encourage fruitful production in these plants (El- Saman 2010; Gad El- Kareem and Abd El- Rahman 2013; Taskos *et al.,* 2019; Amin- Sarah, 2020; Pessenti *et al.,* 2022, Abd El- Hakim, 2023; Masoud *et al* 2024b and Masoud and Alsanosy 2025).

Conclusion

Under the conditions of this experiment and resembling conditions, it is suggested to spray Flame seedless grapevines with a mixture of some amino acids (tryptophane

+methionene + cysteine) and seaweed extracts each at 0.2%, three times (growth start, just after berry setting and at one month later) for improving yield and quality of berries Flame seedless grapevines grown under sandy Soil.

References

Abada, M.A.M. and Ahmed- Basma, R. (2015). The beneficial effects of using Royal Jelly, Arginine and Tryptophane on fruiting of Superior grapevines. Egypt. J. Hort. 421: 345-354.

Abd El- Hakim, M.H. (2023). Effect of foliar application with some natural and chemical compounds on yield quality of Ruby seedless grape cultivar. Ph. D. Thesis Fac. of Agric. Assiut Univ.

Adam, M.S. (1999). The promotive effect of the cyanobacterium nostoc muscorm on the growth of some crop plants, Acta., Microbiological Polanica 48 (2): 163-171.

Aitken, J. and Senn, T. (1965). Seaweed products as a fertilizer and soil conditioner. Botanica Marina, 8: 144.

Amin- Sarah, M. (2020). Effect of spraying Algae extract and selenium on productivity of Early Sweet grapevines grown in sandy soil M.Sc. Thesis fac. of Agric. Minia Univ. Egypt.

Association of Official Agricultural Chemists (2000). Official Methods of Analysis (A.O.A.C), 12th Ed., Benjamin Franklin Station, Washington D.Q, U.S.A. pp. 490-510.

Bassiony, S.S.; A.E. Zaghloul and M.H. Abd El-Aziz (2018). Effect of irrigation levels with foliar spray of silicon, calcium and amino acids on "Thompson Seedless" grapevines. I- Yield and fruit quality. J. Product. Dev., 23 (3): 429-452.

Belal, B.E.A.; El- Kenawy, M.A. and Uwakiem, M. Kh. (2016). Foliar application of some amino acids and vitamins to improve growth, physical and chemical properties of Flame seedless grapevines Egypt. J. Hort. 43 (1): 123-136.

Challen, S.B. and Hemingway, J.C. (1965). Growth of higher plants in response to feeding with seaweed extracts. Proc. 5th Ind. Seaweed Symp. Halifax August 25-28.

El- Saman, A.Y.E (2010). Response of Flame seedless grapevines growing under El-Mataana conditions to spraying seaweed extract M. Sc. Thesis Fac. of Agric. Minia Univ., Egypt.

El- Sayed, M.A.; Abdelaal, A.M.K.; Uwakiem, M.Kh. and Osman, N.H.A. (2019). Trials for enhancing berries maturation and grapes quality of grapevines cultivars Flame seedless grown under Minia region conditions. Research, 11 (2): 10-16.

Elade, Y. (1992). The use of antioxidants to control gray mold *(Botrytic cinerg)* and white mould *(Scletotinia sclerotiorum)* in various crops. Plant Pathol. 141:417.

Gad El- Kareem, M.R. and Abd El- Rahman, M.M.A. (2013). Response of Ruby seedless grapevines to foliar application of seaweed extract. Salicylic acid and roselle extract. Hort. Science Journal of Suez Canal Univ. 1: 294-303.

Jeanin, I.; Lescure, J.C. and Morot- Gaudry, J. F. (1991). The effects of aqueous seaweed sprays on the growth of Maize. Bot Mar. 34: 469-473.

Jensen, E. (2004). Seaweed fact or fancy: from the organic broad Caster, published by Moses the Midwest organic and Sustainable Education from the Broad Caster, 12(3): 164-170.

Kannaiyan, S. (2002). Biotechnology of Biofertilizers. Alpga. Sci. Inter. Ltd., P.O. Box 4067 Pang Bourne R. 68, UK. Pp. 1-275.

Lane, J. H. and Eynon, L. (1965). Determination of reducing sugars by means of Fehlings solutions with methylene blue as indicator. A. O. A. C. Washington D. C., U.S.A.

Masoud A. B. Alaa and Alsanosy A. Omar (2025). Effect of spraying seaweed extract applications on Vegetative development traits and leaves chemical content of Thompson seedless grapevines. Assiut Journal of Agricultural Sciences, 56 (2) 2025. DOI:10.21608/AJAS.2025.354792.1458.

Masoud A. B. Alaa; Mohamed K.A. Aiman; Iman A. Abdou Zaid and Abd El-Hakim H. Mohamed (2024a). Response of Ruby Seedless Grapevines to Application of Some Chemical Compounds, Assiut Journal of Agricultural Sciences 55 (4): 189-200.

Masoud A. B. Alaa; Mohamed K.A. Aiman; Iman A. Abdou Zaid and Abd El-Hakim H. Mohamed (2024b). Effect of Foliar Application of Some Natural Compounds on Growth and Fruiting of Ruby Seedless Grapevines, Assiut Journal of Agricultural Sciences 55 (4): 177-188.

Masoud A. B. Alaa; Nahed El. K. Mohamed and Ahmed M.M. Abdelghany (2025). Response of Thompson Seedless Grape Cultivar to some Foliar Application Treatments. Assiut Journal of Agricultural Sciences 56 (1): 200 -215.

Mead, R.; Currnow, R. N. and Harted, A. M. (1993). Statistical Methods in Agricultural and Experimental Biology. 2nd *Ed.* Chapman & Hall London, pp 10 - 44.

Mohamed, M.A.A. and Qaoud, E.M. (2019). Using Boron, Magnesium and Some amino acids to improve yield and fruit quality of Roomy Red grapevines. Hort. J. of Suez Canal Univ., 8 (1): 79-86.

Orth, A. B., Sfarra. A.; Pell, R J. and Tlen, M. (1993). Assessing the involvement of free radicals in fungicide toxicity using x- tocopherol analogs pesticide. Biochemistry and Physiology, 47: 134 - 141.

Pessenti, I.L.; Ayub, R.A.; Marcon, J.L.; Clasen, F.C.; Rombaldi, C.V. and Botelho, R.V. (2022). Influence of abscisic acid (Ascophyllum nodosum) and Aloe Vera on the phenolic composition and color or grape berry and wine of cabernet sauvignon, variety. Ciencia, tec, Vitiv, 37 (1): 1-12.

Planes-Leyva, M.; Uria-Borges, E.; Calderon-Aguero, J.O.; Terry Lamothe, A-O.; Figueroa-Santana, I. and Lores, A. (2003). Biotechnology for sustainable agriculture. Alimentaria 40(346): 61-65.

Taskos, D.; Stamatiadis, S., Yvin, J.C. and Jamois, F. (2019). Effects of an Ascophyylum nodosum L. Le Jole Extract on grapevine yield and berry composition of a merlot vineyard. Scientia Horticultuae, 250: 27-32.

Vianello, A. and Marci, F. (1991). Generation of superoxide anion and hydrogen peroxide at the surface of plant cells. J. Bioenergetics and Biomembranse, 23(2): 409-423.

Wilde, S. A.; Corey, R. B.; Layer, J. G. and Voigt, G. K. (1985). Soils and Plant Analysis for Tree Culture. Oxford and IBH publishing Co., New Delhi, India.

محاولات لتحسين الانتاجية في كرمات العنب الفليم اللابذرى باستخدام بعض الاحماض الامينية ومستخلص الاعشاب البحرية

علاء عبدالجابر بدوى مسعود[1*] ، محمد على مجاور عباده[2] ، أمنية صلاح أحمد صغير[1]

[1]قسم الفاكهة ، كلية الزراعة ، جامعة أسيوط ، مصر
[2]معهد بحوث البساتين ، مركز البحوث الزراعية ، الجيزة، مصر

الملخص

خلال موسمى2023 ، 2024 تم معاملة كرمات العنب الفليم سيدليس ثلاثة مرات ببعض الاحماض الامينية (التربتوفان والميثونين والسيستئين) ومستخلص الاعشاب البحرية بصورة فردية أو مشتركة بتركيز ما بين 0.05 الى 0.2% لكلا منهما: وكان الهدف هو اختبار التأثير الفردي والمشترك للاحماض الأمينية ومستخلص الاعشاب البحرية بالتركيزات المختلفة على كمية المحصول وجودة حبات العنب في كرمات العنب الفليم سيدليس تحت ظروف الأراضي المستصلحة حديثاً.

كانت معاملة الكرمات بالأحماض الأمينية ومستخلص الاعشاب البحرية ثلاثة مرات بتركيزات ما بين 0.05 الى 0.2% فعالا جدا في تحسين كمية المحصول وخصائص العنقود ونسبة تلوين الحبات والخصائص الطبيعية والكيميائية للحبات وذلك بالمقارنة بمعاملة الكنترول. وكانت الزيادة مرتبطة مع زيادة التركيزات ولقد تفوق استخدام الاحماض الامينية عن استخدام مستخلص الاعشاب البحرية في كل الصفات وكان الاستخدام المشترك أفضل من الاستخدام الفردي .

أمكن الحصول على أفضل النتائج بخصوص كمية المحصول للكرمة ونسبة تلوين الحبات في العناقيد وخصائص الجودة للحبات في العنب الفليم سيدليس وذلك عند رش الكرمات ببعض الاحماض الامينية (التربتوفان والميثونين والسيستئين) ومستخلص الاعشاب البحرية بتركيز 0.2% لكلا منهما ثلاث مرات خلال الموسم في بداية النمو وبعد العقد مباشرة وبعد العقد بشهر.

الكلمات المفتاحية: *الاحماض الامينية، جودة الحبات، العنب الفليم سيدليس، مستخلص الاعشاب البحرية، نسبة تلوين الحبات*