J. Agric. Sci. Mansoura Univ., 33 (11): 8029 - 8038, 2008

EFFECT OF SPRAYING OF THOMPSON SEEDLESS GRAPEVINES WITH HYDROGEN CYANAMIDE ON YIELD AND FRUIT QUALITY

Deieu, L.K.* and R. M.F.A.El alem **

*** The University of Agronomic Sciences and Veterinary Medicine, Bucharest, Romania**

****Hort. Res. Inst., Agric. Res. Center, Kafr El-Sheikh, Egypt.**

ABSTRACT

During 2006 and 2007 on 15 years old Thompson Seedless grapevines sprayed dormant buds with three concentrations of hydrogen cyanamide at 2, 3 or 5% and (control) and three dates of applications (1, 7 and 14 Jan.). All hydrogen cyanamide treatments increased yield generally. Meanwhile increased number of cluster, berry weight of 100 berries (g) and perry size. Total sugars and total soluble solids (TSS) with increasing hydrogen cyanamide concentrations. Whereas total acidity and chlorophyll was reduced, whereas early application increased with increasing hydrogen cyanamide (TSS) and total sugars, wherease total acidity was reduced. Moreover late hydrogen cyanamide application significantly increased the yield generally of Thompson Seedless grapevines compared to the control. Hydrogen cyanamide treatments significantly decreased total phenols, as compared with the control.

INTRODUCTION

In Egypt, the most locally widespread table grape cultivare is Banati (Thompson Seedless). Fertility distribution along Banati fruit-canes is charachterized by unfruitfulness of the basal 3-4 buds (Samish, 1954).

In Egypt, grapes (Vitis vinifera L.) are considered one of the most important and favourable fruit crops and the main cultivar grown is Thompson Seedless (Banati).As more specified, grape is the second fruit crop in Egypt, only after citrus. Although, the chilling requirements of grapevine is generally thought to be less than that of most deciduous fruit species, yet, grapevines suffering from inadequate winter chilling exhibit delayed and erratic budbreak (Pouget, 1972 and George et al., 1988).

Production of two grape crops in the same year was always the aim of growers. Realization of this goal depends on behaviour of buds on the current seaseon shoots, i.e., the date in which they become fruitful, the onset of their deep dormancy and consequently budburst capacity in summer, their response to dormancy breaking treatments in summer, and behaviour of buds in the subsequent year, etc. According to (Smit, 1985).

Because of the high net return gained by growers. Deciduous fruit trees, including grape, in temperate climates, enter a period of endo dormancy in autumn and remain dormant, till dormancy is ended after the accumulation of requirement sufficient cold. However, if these cold requirement in not met, fruit bud opening is delayed and leaf and flower buds open synchronously, followed by flower abscission and poor fruit set (Schaffer and Andersen 1994).

The area under vineyards in Egypt has been greatly expanded during

the last two decades. However, a considerable part of the Egyptian vineyards, are in the newly reclaimed lands, where the production expenses are relatively high and the growers have to maximize the obtained yield. (Sourial *et al.* 1998).

In subtropical regions of the world, a considerable number of grape buds fail to grow due to insufficient winter chilling. Various cultural practices such as defoliation, holding irrigation and / or fertilization, and severe pruning have been successfully used to terminate dormancy in those warm winter regions. Nevertheless, these practices are laborious, time consuming, expensive and may depress the vine vigour. (Abbas *et al.* 1999).

MATERIALS AND METHODS

The present study was carried out during two successive seasons of 2006 and 2007 on 15 years old vines of Thomposon Seedless grapevines grow in a private vineyard in Egypt. in clay soil at El gharabya Governorate, Egypt. planted at 2 X 2 meters and the head traning system was used for the vines. The main objectives of the investigation was studing the effects of different concentration of the commercial compound (49% hydrogen cyanamide) applide at different spraying dates yield and fruit quality interms of berry physical properties and juice chemical constituents on the vines of the studied cultivar .

One sixtey two Thompson Seedless grapevines were chosen as uniform in vigour as possible and devoted to carry out this investigation.

The chosen vines were pruned during the last week of december 2005 and 2006 in the first and second seasons , respectively to leave 60 buds prevines (20 fruiting spurs X 3 buds / spur)and the suitable replacement spure (2 buds each) were left.

The present experiment was set in acomplete randomized block design in asplit – plot arrangement. The treatments were as the following:

1 . (Dormex) at 0.0% (water spraying " control ")
2. (Dormex) at 2%
3 . (Dormex) at 3%
4 . (Dormex) at 5%

1 : Measurements of yield and yield components :

Harvesting was carried out at the normal commercial harvesting time for this cultivar in the experimental region when total soluble solids percentage reached about 18% in the berries of control vines. The number of clusters per vine was recorded . The weight of each individual cluster was estimated , then the average weight of cluster (in grams) was calculated and the total yield in kilograms was delivered .

2: Measurements of the physicaland chemical properties of the berries :

five clusters were picked at random from each replicate as a composite sample for berry physical measurements and juice chemical analysis .

2-a. Berry physical properties :-

One hundred berries were picked randomly from each sample and the following measurement were carried out:

1. Weight of 100 berries (in grams) by the use of an analytical balance .
2. Volume of 100 berries on (ml)by the use of graduated cylinder .

3- Chemical constituents of the Berries:

A known weight of the berries were taken from each sample , blended by the use of an electric blender. The following constituents were estimated in the juice according to the corresponding methods :

1. Percentage of total soluble solids by using a Galileo hand refractometer .
2. Total titratable acidity by titration with a known normality solution of sodium hydroxide using phenolphtalein as indicator . Total acidity was calculated as grams of trataric as per 100 grams of juice .
3. Total sugars percentage using Lane & Eynon procedure that outlined in A . O . A . C .

RESULTS AND DISCUSSION

Berry size (ml):

As shown from the results in Table (1) the most significant increased in berry size was obtained by 2,3 and 5% H2CN2 in three dates. The revealed results were statistically assured on the studied trait in both seasons. The highest berry size was obtained in the first and the second season respectively when the vines received hydrogen cyanamide at the highest concentration (5%) at the first date of sprayed for the studied grapevine cultivar under the condition of the region where the experiment was conducted.

These data are in line with those obtained by Shehata (1996) on Flame Seedless table grapes, Abbas *et al.* (1999) on Thompson Seedless grapevine cultivar and Esmail *et al.* (2006) work on Figs,

Yield /vine (Kg):

Data presented in Table (1) showed that the highest significant yield during first sseason was obtained by 5% H2CN2 applied on 1st of Jan. followed by 3% in the some date which gave 11.22 Kg/ vine. Control recorded the smallest yield/ vine it was (7.5 Kg/vine) .

Data of yield during second season 2007 were paralled with the first season, the highest significant yield obtained by (Dormex) 5% 3rd sprays, (1st spray 9.85 Kg/vine, 2nd spray 9.6 Kg/vine and the thrice spray 9.3 Kg/vine). Whereas the least increment was with 2% applications (1st spray 9.25 Kg/vine, 2nd spray 9.1 Kg/vine and the 3rd spray 8.95 Kg/vine).)

The results obtained are in agreement with those of Zayan et al. (1989) on " Anna" apple trees, Sourial et al. (1993) on Thompson Seedless grapevine, Shehata (1996) on Flame Seedless grapevine and Sourial et al. (1998) on Flame Seedless grapevine.

Physical properties of fruits:

Cluster weight:

Data in table (1) illustrated that, the cluster weight in 2006 was significantly increased by spraying (Dormex) at 5% compared to control (470, 483.33 and 485 g) for 1st, 2nd and 3rd dates of spraying of H2CN2. Furthermore, the concentration of 3% in the three sprayed dates recorded (380, 391 and 399.33 g) resulted in more announced and highly significant

increment in the number of clusters per vine compared to the increment obtained from raising the concentration from 2% in the three date (270 , 281 and 327.33 g). It is clear that the differences among them failed to be approved from the statistical point of view in concern of their effect on this trait. Control value in this respect recorded (180, 150 & 230 g) during the first and second season, respectively as shown in Table (1). In the second season, applied hydrogen cyanamide at 5% on 1, 7 and14 January. Tended to increase cluster weight in three date (450, 458and 461g). Concentration of 3% was recorded (350, 361.67 and 371g). Effect of 2% recorded (250, 255 and 261g).

There results are in harmony with these obtained by Rizk et al. (1994) on Roomy Red grapevines.

Table (1): Effect of hydrogen cyanamide on berry size number of clusters per vine, weight of 100 berries (g), cluster weight and yield per vine of Thompson Seedless grapevine during 2006 and 2007 seasons.

Date of spraying	Dormex Conc. (%)	yield				Berry Size (ml)
		No. of cluters per vine	Weight of 100 berries (g)	Cluster weight (g)	Yield Kg/vine	
Season 2006 Jan., 1	0	5	169.8	180	7.5	0.99
	2	15	218.5	270	10.25	1.62
	3	16	220.4	380	11.22	1.71
	5	16	221.7	470	11.53	2.02
	F =	1.02	0.12	53.11	15.58	37.74
	LSD =	-	-	47.56	0.87	0.12
Jan., 7	2	9	224.7	281	10.1	1.64
	3	11	225.8	391	10.75	1.73
	5	13	231.7	483	11.1	2.07
	F =	3.29	3.04	53.27	21.48	18.59
	LSD =	3.23	-	48.02	0.87	0.18
Jan., 14	2	7	239.8	485	10.0	1.66
	3	9	234.9	399	10.6	1.75
	5	10	244.8	327	10.95	2.11
	F =	10.58	1.95	1.27	21.47	22.68
	LSD =	1.53	-	72.00	0.14	0.17
Season 2007 Jan., 1	0	7	164.1	150	6.2	0.91
	2	15	211.6	250	9.25	1.54
	3	17	215.2	350	9.7	1.68
	5	17	218.1	450	9.85	1.96
	F =	2.08	0.47	12.01	14.85	35.18
	LSD =	-	-	99.89	0.03	0.12
Jan., 7	2	12	892	225	9.1	1.57
	3	14	228.7	361	9.25	1.69
	5	15	221.5	485	9.6	1.99
	F =	1.49	0.99	97.71	36.258	28.08
	LSD =	-	-	17.61	0.08	0.14
Jan., 14	2	8	234.9	461	8.95	1.59
	3	10	235.7	371	9.1	1.72
	5	12	233.7	261	9.3	2.1
	F =	10.73	0.18	30.10	11.58	30.98

	LSD =	1.68	-	1.99	0.03	0.16

Weight of 100 berries:

Concerning weight of berries, data in table (1) Cleared that, in the first season H2CN2 sprayed on grape vine canes tended to significantly increase berry weight than control. The data indicated that all treatments significantly increased weight of 100 berries compared to the control and also, the vines that were sprayed with (Dornex) 2, 3 and 5% had significantly increased berry set% than control in the second season. This may be due to that the vines that were sprayed with (Dormex) reached to full set before the control vines especially the vines sprayed with H2CN2 at 2, 3 and 5%. The results are in agreement with those reported by Rizk et al. (1994) on Roomy grapevines, Seleem-Basma (1996) on Banaty Seedless, reported that 100 berries weight was increased in the treated vines as compared with control. These data are in hormany with those revealed by Abbas *et al.* (1999), El-Shazly (1999) and Abd-Elghany *et al.* (2001) working on Thompson Seedless grapevine. They are found that, spraying of H2CN2 increased weight of 100 berries.

Number of cluster per vine:

The results in the above mentioned tables reveal that increasing the applied concentration of hydrogen cyanamide from 0.0% up to 5% was associated with progressive increment on the number of clusters per vine in the second experimental seasons. Furthermore, increasing the concentration from 2 to 5% resulted in more announced and highly significant increment in the number of clusters per vine compared to the increment obtained from raising the concentrations from 2% to 3% or from 0.0to 2% or 3%. However, when the three high concentrations were compared together, it was clear that the differences among them failed to be approved from the statistical point of view in concern of their effect on this trait. Using the highest concentration resulted in nearly thrice the number of clusters on water sprayed controls, since that concentrations gave the highest significant number of clusters per vine during the first and the second seasons was obtained by 5%, 3% and 2% respectively. Control recorded the smallest yield/ vine.The results harmony with those obtained by Shehata (1996),

El-Sabrout (1998) on Flame Seedless table grapes, Abbas *et al.* (1999) on Thompson Seedless grapevine and El-Sayed *et al.* (2002) on Roomy vines.

Fruit chemical properties:

Total soluble solids (T. S. S):

Data in Table (2) showed total soluble solids percentages in berry juice at successive sampling dates in the two seasons of investigation. Total soluble solids tend to be increased byspraying 2,3 and 5% hydrogen cyanamide during all the dates of samples throughout the second seasons as it advanced. Concerning the last date of sample, data during first and the second seasons showed that the highest significant increase was obtained by spraying 5% H2CN2 treatment (thrice sprays).

In the second season (2007), data revealed that, the most significant increase was recorded by 3rd spray at 5, 3 and 2% hydrogen cyanamide treatment respectively.

These data are in line with those obtained by Sourial et al. (1994) on fig trees and El- Shazly (1999) on Thompson Seedless Grapevine cultivar. They found that sprayed of hydrogen cyanamide increased T.S.S.% on grapevines. Such results are in harmony with those reported by Tourky *et al.* (1996) on Romi Red grapes, Abbas *et al.* (1999) on Thompson Seedless grapevine and El-Sabrout (1998) worked on Flame Seedless grapevines.

Table (2.a): Effect of hydrogen cyanamide on chemical contents of Thompson Seedless grapevine during 2006 and 2007 seasons.

Date of spraying	H2CN2 conc. (%)	TSS (%)	Acidity (%)	Total sugars (%)
Season 2006 Jan., 1	0	18.2	0.83	15.4
	2	19.6	0.71	17.1
	3	19.9	0.63	17.4
	5	20.9	0.63	18.6
	F =	4.65	0.22	11.58
	LSD =	1.67	0.12	0.0.34
Jan., 7	0	18.3	0.81	
	2	19.9	0.74	16.9
	3	20.1	0.69	17.1
	5	21.1	0.64	18.2
	F =	4.65	0.13	13.45
	LSD =	1.67	0.05	0.64
Jan., 14	0	18.3	0.84	
	2	20.1	0.76	16.8
	3	20.4	0.73	17.0
	5	21.9	0.70	17.9
	F =	24.47	0.08	12.48
	LSD =	0.97	0.03	0.11
Season 2007 Jan., 1	0	17.9	0.81	15.6
	2	19.2	0.68	17.2
	3	19.4	0.61	17.6
	5	20.2	0.62	18.7
	F =	10.39	0.20	16.15
	LSD =	0.96	0.01	0.12
Jan., 7	0	18.0	0.82	15.4
	2	19.4	0.71	17.1
	3	19.9	0.62	17.4
	5	20.4	0.63	18.3
	F =	17.52	0.21	11.89
	LSD =	0.90	0.01	0.71
Jan., 14	0	18.3	0.80	15.6
	2	19.5	0.74	16.8
	3	20.7	0.64	17.1
	5	14.65	0.63	16.8
	F =	1.08	2.07	15.87
	LSD =	0.97	0.01	0.65

Total sugars:

Regareding the effect of different concentrations of hydrogen cyanamide (namely 0.0, 2, 3 and 5%) when sprayed at one of the following dates: 1, 7 and 14 January data revealed that, high concentration (5%) caused the highest significant total sugars content in the first season (18.6, 18,2 and 17.9%). However at 3% (17.4, 17.1 and 17%) and at 2% (17.1, 16.9 and 16.8%) for 1st , 2nd and 3rd spray, respectively. Control recorded the lowest total sugars and was (15.4%).

Data of total sugars during second season 2007 were of the same trend as previously mentioned, the highest significant of total sugars showed by (Dormex) 5% (18.7, 18.3 and 18.2%), at 3% (17.6,17.4 and 17.1%) and at 2% (17.2, 17.1 and 16.8%) for 1st, 2nd and 3rd spray, respectively. Control recorded the least total sugars and was (15.6%). The obtained results were of statistically assured effect on the studied trait in both seasons. The highest of total sugars in the first and the second seasons, was found when the vines received hydrogen cyanamide at the highest concentration (5%). On the other hand, the lowest values were recorded by the control treatment. The data are in line with El-Shazly (1999), Omar-Girgis (2004) on Thompson Seedless grapevines and Esmail *et al.* (2006) on Figs. They showed that, spraying grapevines with Dormex increased total sugars compared to control.

Fruit acidity:

Data concerning spraying grapevine canes with different hydrogen cyanamide concentrations on juice acidity in berries of Thompson Seedless grapes (calculated as grams of tartaric acid per 100 grams of juice) during 2006 and 2007 seasons. The data, generally, showed clear reduction in juice acidity with (Dormex) treatments in comparison with the control. Differences among any of the tested treatments and the control, were statistically significant in most cases. It is clear from the obtained results for this trait and those for acidity percentage in the juice took an adverse trend compared to that in the second season. Furthermore, the obtained results indicated that varying the applied concentration of hydrogen cyanamide was the only effective factor on this trait in the second season. The graduation of data of acidity percentage during fruit development dates showed the same trend as acidity % decreased as time progressed in all treatments as well as the control. At harvest, data obtained that, all treatments of 2, 3 & 5% significantly decreased acidity percentage than control in the second season of study.The result are in agreement with those reported by Ayaad (1992) on Banaty Seedless, Seleem-Basma (1996) on Thompson Seedless, Tourky (1996) on Roomy Red grapevine and El-Shazly (1999) on Thompson Seedless grapevine cultivar. They found that, spraying of hydrogen cyanamide caused a slight decrease in acidity.

Total chlorophyll content:

Data in table (2) that spraying grapevines canes with H2CN2 in the three dates showed a significant reduction in total chlorophyll content as compared to the control. The greatest effect in this respect was obtained by hydrogen cyanamide 5% in the 3rd dates followed by 2nd and 1st dates of samples in the seasons of study.

Table (2.b): Effect of hydrogen cyanamide on Total chlorophyll of Thompson Seedless grapevine during 2006 season.

Date of spraying	H2CN2 Conc.%	Date of samples					
		24/6	1/7	8/7	15/7	22/7	29/7
1/1/2006	0	1.154	0.934	0.128	0.108	0.100	0.085
	2	1.023	0.672	0.097	0.076	0.068	0.059
	3	0.986	0.685	0.090	0.069	0.063	0.047
	5	0.841	0.622	0.88	0.061	0.057	0.044
	F =	21.14*	17.21*	15.22*	24.79*	15.21*	28.25*
	LSD 0.05=	0.15	0.22	0.37	0.32	0.87	0.39
7/1/2006	2	0.977	0.664	0.092	0.071	0.064	0.051
	3	0.870	0.656	0.084	0.065	0.053	0.040
	5	0.836	0.610	0.83	0.057	0.054	0.033
	F =	11.54*	10.38*	13.78*	25.79*	19.47*	18.54*
	LSD 0.05=	0.31	0.14	0.48	0.87	0.99	0.84
14/1/2006	2	0.911	0.241	0.086	0.069	0.061	0.047
	3	0.834	0.652	0.076	0.061	0.049	0.038
	5	0.807	0.598	0.79	0.050	0.048	0.032
	F =	17.11*	14.35*	21.17*	20.87*	37.12*	11.58*
	LSD 0.05=	0.10	0.65	0.57	0.94	0.51	0.87

Table (2.b): Effect of hydrogen cyanamide on Total chlorophyll of Thompson Seedless grapevine during 2007 season.

Date of spraying	H2CN2 Conc.%	Date of samples					
		24/6	1/7	8/7	15/7	22/7	29/7
1/1/2007	0	1.147	0.922	0.119	0.976	0.965	0.082
	2	1.09	0.647	0.092	0.068	0.062	0.055
	3	0.972	0.675	0.087	0.062	0.059	0.043
	5	0.817	0.610	0.081	0.057	0.052	0.041
	F =	13.25*	15.23*	18.54*	19.22*	17.45*	21.84*
	LSD 0.05=	0.21	0.31	0.44	0.85	0.18	0.64
7/1/2007	2	0.966	0.615	0.083	0.068	0.061	0.048
	3	0.841	0.632	0.074	0.061	0.049	0.039
	5	0.793	0.591	0.080	0.053	0.050	0.033
	F =	11.75*	11.47*	11.87*	21.47*	13.78*	18.75*
	LSD 0.05=	0.79	0.84	0.18	0.91	0.54	0.86
14/1/2007	2	0.893	0.132	0.081	0.064	0.058	0.042
	3	0.816	0.623	0.072	0.058	0.043	0.035
	5	0.792	0.547	0.069	0.048	0.042	0.031
	F =	15.31*	21.48*	15.78*	26.45*	11.81*	14.59*
	LSD 0.05=	0.82	0.18	0.32	0.18	0.62	0.15

Also, it is clear from the results illustrated in the above table that leaf content of chorophylls was significantly increased with increasing the used concentrations of hydrogen cyanamide from 0.0 up to 5%. The increment took nearly a linear relationship in proportion to the increase in (Dormex) concentrations used in 2006 and 2007 In detail, the highest concentration of

(Dormex) (5%) resulted in the highest values of chlorophyll in the leaf.

In the contrary, the highest values of chlorophyll were obtained as a result of the water spraying. In the first and second season, respectively. Similar results, were reported by El-Sabrout (1998) on Flame Seedless grapevines. He indicated that, spraying grapevines with Dormex decreased total chlorophyll content compared to control.

REFERENCES

Abbas, M.T.; A.M. Melook and U.K.EL-Abassy (1999). Effect of some chemical treatments during dourment season on growth and fruiting of Thompson Seedless grapevine. Bull. Fac. Agric., Cairo Univ, Egypt. Res. 50(1999):558-574.

Abd-Elghany, A.A.; Mostafa,R.A.A. and A. M. A. El-Sese. (2001). Influence of hydrogen cyanamide and ammonium sulfate fertilizer on budbreak and fruit quality of Thompson Seedless grapes. Fac. Agric. Sci. Mansoura Univ., 26 (4): 2217- 2221, 2001.

Ayaad, H. M. (1992). Effect of hydrogen cyanamide (dormex) and Kno3 on bud break, fruit qoality and yield of Thompson Seedless grapevines Tanta Univ, Egypt. J. Agric. Res. 18(1) 171-181.

El-Sabrout (1998). Some physiolical and biochemical responses of Flam seedless grapevines to hydrogen cyanamide (Dormex) spray. Alex. J. Agric, Egypt. Res. 43 (3): 167-185,

El-Sayed.H.A,M.M.Shoaieb and M.M.EL-Mogy(2002). Acomparative study on some substances used inbreaking dormancy in Red Roomy vines. Minia. J. Agric, Egypt. Res. 1(22):115-127

El-Shazly.S.M. (1999). Effect of hydrogen cyanamide (Dormex) spray on bud brhaviour, growth, yield, fruit quality and leaf mineral composition of Thompson Seedless grapevines. Alex. J. Agric, Egypt. Rec. 44 (2): 221-235.

Esmail, Sohair E.M; A. M. Gowda and B.Abd El-Sabour (2006). Effect of pruning and spraying with hydrogen cyanamide (H2CN2) and ethrel on bud break, yield and fruit Quality of Figs. Mansoura, Egypt. J. Agric, Sci. 31 (3): 5235 – 5247.

Omar.A.H. and V.H. Girgis (2004). Early and Low-cost production of exportable Thompson Seedless table grapes. Minia. J. Of Agric, Egypt. Res. 1(24) 89 – 102.

Rizk. I. A. (1996). Chemical constituents of thompson seedless grape buds as affected by hydrogen cyanamide treatment. Bull. Fac. Agric., Cairo Univ, Egypt. 47: 273 – 294.

Shehata, M.M. (1996). Forcing uniformbud break in early maturigg Flame Seedless table grapes grown in Egypt by some budbreaking agents. Alex, Egypt. J. Agric. Res. 41(2): 313 – 322.

Sourial, G.F.; Al- Ashkar, R.A. ; Safaa, A. Nomier and Mahmoud, Z.E. (1998). Flame Seedless grapevines produce two crops in the same year in response to late summer defoliation, pruning and hydrogen cyanamide treatments. 2. Bud behaviour and vegetative growth. Zagazig, Egypt. J.

Agric. Res. 25 (3): 457-475.
Sourial, G.F.; Atteyat S. Abd El – Aziz, M.H. El-Kholi; S.M. El-Hefnawy and M.M. Banoub (1994). Response of Sultani fig trees to some hydrogen cyanamide treatments during the dormant season. 1. Bud Behaviour. Zagazing, Egypt. J.Agric. Res. 21 (2): 439 – 453.
Sourial, G.F.; M.H. Elkholi; Atteyat S. Abdel – Aziz; Faiz G. Nakhlla and Esam A. Lotfy (1993). Response of Banaty grapevines to some hydrogen cyanamide treatments. 1- Time of budburst, Flowering and berry ripening. Zagazig, Egypt. J. Agric. Res. 20(3) 1141 -1152.
Stino, R.G. and E.El-Fakharani (1995). Fruting of Conadria Fig trees as affected by type of pruning and hydrogen cyanamide application. Fac. Agric., Cairo Univ,Egypt. J. Hort. 22, pp. 193-211 (1995).
Tourky, M.N.; S.S. El-Shahat and M.H. Rizk (1996). Effect of Dormex on fruit set, berry quality and storage life of Romi Red grapes. J. Agric. Sci. Mansoura Univ, Egypt. 21(3): 1129 – 1141.

تأثير رش قصبات العنب (طومسون سيدلس)بعد التقليم على المحصول وخواص الثمار.

ليفيو كاريولان ديجو* و رفيق محمد فرحات عبد الله العالم**
*** جامعة العلوم الزراعية والطب البيطرى -بوخارست -رومانيا.قسم بحوث العنب**
**** معهد بحوث البساتين -مركز البحوث الزراعية -سخا -كفر الشيخ.قسم بحوث العنب**

أجريت هذه الدراسة خلال الموسمين ٢٠٠٦ و٢٠٠٧ على كرمات عنب عمرها ١٥ سنة استخدم الدورميكس بتركيز ٢ و ٣ و ٥% وتم الرش فى ثلاث مواعيد مختلفة وهى ١و ٧ و١٤ من يناير ومقارنتها بالكرمات الغير معاملة. كل هذه المعاملات أدت الى زيادة وزن المحصول النا تج بشكل عام. وفى نفس الوقت ذاد عدد العناقيد ووزن المائة حبة وحجم الحبة. كل المعاملات أدت الى زيادة السكريات ونسبة المواد الصلبة الكلية. وقللت من نسبتى الحموضة والكلوروفيل وأدت المعاملات فى الموعد المتأخر بسيانميد الايدروجين الى زيادة معنوية فى المحصول بشكل عام مقارنة بكرمات الكنترول. كما خفضت المعاملة بالدورميكس من نسبة الكلوروفيل مقارنة بكرمات الكنترول.