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**EFFECT OF SOME ANTITRANSPIRANTS SPRAYS ON QUALITY AND
STORABILITY OF "CANINO" APRICOT FRUITS**

BY

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ABSTRACT

In 2002 and 2003 seasons, "Canino" apricot trees were treated in order to improve their crop quality and storability. The applied treatments were: spraying with Jojoba oil at a concentration of 0.25 %, Lin Seed oil at 0.50 % and Vapor Gard at 0.50 %. The treatments were done after fifteen or thirty days from fruit set. All the treated fruits were picked at maturity stage. Fruits were stored at 0 °C and Relative Humidity 95 % for 30 days. The results indicated that, fruits treated with Vapor Gard spray after fifteen days from fruit set (V1) and after thirty days from fruit set (V2), Jojoba oil (J2), sprayed after thirty days from fruit set and Linseed oil (L2) sprayed after thirty days from fruit set gave the best results, showing a significant decrease in the percentages of weight loss, decay, fruit softening, and total acidity, beside an increase in total soluble solids and the development of yellow color (b* values), than other treatments and untreated fruits. Fruits treated with Vapor Gard (V1 & V2), Jojoba oil (J2) and Linseed oil (L2) gave the best treatments and prolonged the storability of the fruits up to 30 days at 0 °C and minimized decay incidence, weight loss and maintained texture at a simulating marketing period of 3 days.

INTRODUCTION

Apricot fruits are considered to be one of the most desirable fruit crops in Egypt. The crop is classified under the family *Rosaceae*, genus *Prunus* and species "*armeniaca*". The total acreage of apricot trees in Egypt is about 18564 feddans Ministry of Agriculture Statistics, 2001) producing about 71191 tons of fruits (5.82 ton per feddan). Fruit are used fresh, or dried, or processed as juice or dried sheets known in Egypt as Kamar El – Deen. The cultivar *Canino* (Synonym *Rahmana*) was introduced to Egypt in 1985. This cultivar plantation succeeded in the new reclaimed desert lands, and a late cultivar generally matures in June. *Canino* apricot is one of the most precious fruit crops suitable for both local and foreign markets. Some treatments are used in this research in order to improve and maintain fruit quality after harvest. Vapor Gard (poly-1-p-menthen-8-9-diyl) is a water emulsifiable organic concentrate to be used on plants to reduce water transpiration. The soft, flexible film formed after spray application, was found to reduce moisture loss by plant foliage. Application of Vapor Gard for at least one hour, during day light, before an anticipated rain. Sunlight for this period is needed for the protective film to form a clear, glossy film, on the plants and this

help to retard normal moisture loss without interfering with growth or normal respiration of the plants. Applying Vapor Gard 4-6 weeks before harvest, improved size, reduced fruit drop, sunburn incidence, stayman cracking, Golden Delicious leaf Blotch (Scorch), and improved color in some varieties of apples and pears (Miller 1983). The mode of action of Vapor Gard on red pigments is not known, but may relate to the effect of sunlight (Charles *et al.*, 1974).

Jojoba oil (liquid wax) has anti – foam properties which render the fermentation media, the same when using antibiotics. In addition, the wax can be easily hydrogenated to produce a solid, hard, white solid wax having a melting point slightly lower than that of carnauba wax. It may be a suitable substitute for carnauba and bees waxes, because of its high costs. Nawal M. (1989).

Jojoba oil did not prevent the loss of water vapor through a semi permeable membrane compared with silicon and mineral oils effect. Linseed oil (Liquid) has a similar effect to the above mentioned oils in reducing the rate of water penetration through a polycarbonate membrane. Abd-El-Rhman (2000).

The aim of this investigation is to study the effect of using Vapor Gard, Jojoba oil and Linseed oil treatments as a preharvest application, on maintaining quality of Canino apricot fruits during prolonged cold storage, and later marketing.

MATERIALS AND METHODS

This investigation has been carried out on six years old Canino apricot trees during two successive seasons of 2002 and 2003 trees were grown in Elbehira governorate in a sandy reclaimed soil and drip irrigation was applied, treatments were done on the selected trees in a complete random blocks design with a single tree plot replicated for 3 times for each treatment. Six treatments in addition to control were applied as follows:

1-Control (untreated fruits).

2-Spraying treatments with:

- A- Jojoba oil at 0.25 % applied after fifteen days from fruit set.
- B- Jojoba oil at 0.25 % applied after thirty days from fruit set.
- C- Linseed oil at 0.50 % applied after fifteen days from fruit set.
- D- Linseed oil at 0.50 % applied after thirty days from fruit set.
- E- Vapor Gard at 0.50 % applied after fifteen days from fruit set.
- F- Vapor Gard at 0.50 % applied after thirty days from fruit set.

All treated and untreated fruits were picked at maturity stage when half of the surface had attained a particular yellowish – green hue (Sümnü and Bayındırlı., 1995) and packed in carton boxes lined by polyethylene 30 micron, and stored at 0 °C and 90 – 95 % relative humidity (RH) for 30 days. Samples of 3 kg fruits from each replicate were taken every ten days intervals to be subjected to the following tests:

- 1- **physical changes and decay disorders:**
 - a-Percentage of decay: was determined for each treatment according to McCormack and Brown (1973).
 - b-Weight loss percentage: was recorded by weighing fruits periodically and the percentage of weight loss was calculated according to the initial weight.
 - c-Fruit texture was determined by using a modern texture analyzer instrument by penetrating cylinder (3 & 5 mm diameter) to constant distance with a constant speed (2 mm/second). The results were expressed as a resistance force of the skin (gm/cm^2) for initial and at every ten days interval during storage period.
 - d-Fruit color was quantified as a double stimulus colorimetric data (L^* & b^* values) using a Hunter Chromameter model DP - 9000. Color was represented by L^* (lightness) ranges from black = 0 to white = 100 darkness, b^* value (blue - yellow) scale readings (McGuire, 1992).
- 2- **chemical changes:**
 - a-Total soluble solids % was determined by using a hand refractometer.
 - b-Total acidity % was estimated according to (A.O.A.C., 1990).
- 3-Shelf - life after cold storage.

At the end of the storage period, three replicates from each treatment were left at ambient temperature to simulate the marketing environments in Egypt, for a period of three days. Changes in the physical and chemical characteristics of the fruits were recorded, i. e. decay %, weight loss %, fruit texture 3 & 5 mm, L^* & b^* values, T.S.S % and acidity %.

The statistical analyses of the present results were carried out according to Snedecor and Cochran (1990). Means of the results are compared using the L.S.D values at 5 % level.

RESULTS AND DISCUSSION

Physical properties:-

*** Weight loss %:**

Data tabulated in Table (1) showed that, the percentage of weight loss for all the applied treatments increased gradually as the storage period advanced, in both seasons. The least significant weight loss % was found in fruits treated with Vapor Gard at 0.50 % applied (in two dates) after fifteen and thirty days from fruit set (V1 & V2) followed by fruits treated with Jojoba oil (J2) at 0.25 % and Linseed oil at 0.50 % (L2) applied after thirty days from fruit set than other treatments in both seasons.

The untreated fruits showed the highest percentage of weight loss (1.17 & 1.13), in both seasons, respectively. Concerning the interaction within treatments, data reflected that, there were significant differences between all treatments until thirty days in cold storage, in both seasons.

Table (1): Effect of antitranspirants sprays on Loss of weight % of "Canino" apricot fruits after different periods of storage under 0°C during 2002-2003

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After 10 days	1.24	0.83	0.83	0.73	0.67	0.65	0.63	0.80
After 20 days	1.61	1.58	1.25	1.63	1.31	1.23	1.25	1.41
After 30 days	1.81	1.94	1.53	2.29	1.64	1.44	1.63	1.75
Mean	1.17	1.09	0.90	1.16	0.90	0.83	0.88	0.99
L.S.D at 5% level			A	B	AxB			
1 st Season			0.1694	0.2242	0.4483			
2 nd season								
Zero time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After 10 days	0.92	0.65	0.56	0.65	0.56	0.53	0.49	0.62
After 20 days	1.50	1.39	1.08	1.66	1.11	1.02	1.00	1.25
After 30 days	2.09	1.84	1.40	2.43	1.50	1.31	1.39	1.71
Mean	1.13	0.97	0.76	1.19	0.79	0.72	0.72	0.90
L.S.D at 5% level			A	B	AxB			
2 nd Season			0.2808	0.3715	0.7430			

Con.: untreated fruits.

J1: spraying Jojoba oil at 0.25 % after fifteen days from fruit set.

J2: spraying Jojoba oil at 0.25 % after thirty days from fruit set.

L1: spraying Linseed oil at 0.50 % after fifteen days from fruit set.

L2: spraying Linseed oil at 0.50 % after thirty days from fruit set.

V1: spraying Vapor Gard at 0.50 % after fifteen days from fruit set.

V2: spraying Vapor Gard at 0.50 % after thirty days from fruit set.

These results are in harmony with those obtained by Ibrahim (1994) on "Anna" apple fruits, who found that applying Vapor Gard at 6 % resulted in the lower values of weight loss during storage at 0 °C.

*** Decay percentage:**

From Table (2) it is evident that, no decay percentage was recorded until 20 days in fruits stored at 0 °C in all treated and untreated fruits, in both seasons.

Data showed that, fruits treated with Vapor Gard at 0.50 % applied either after fifteen or thirty days from fruit set (V1 & V2) resulted in the lowest percentage of decay during storage (2.08 %), followed by Jojoba oil (J2) at 0.25 % and Linseed oil (L2) at 0.50 % applied after thirty days from fruit set than other treatments. On the other hand, untreated fruits showed the highest percentage of decay than all other treatments. Concerning the interaction within treatments, data showed that, there was a significant difference between all treatments and storage period in both seasons.

Table (2): Effect of antitranspirants sprays on Decay % of “Canino” apricot fruits after different periods of storage under 0°C during 2002-2003.

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After 10 days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After 20 days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After 30 days	18.75	12.50	4.17	10.42	4.17	2.08	2.08	7.74
Mean	4.69	3.13	1.04	2.60	1.04	0.52	0.52	1.93
L.S.D at 5% level			A	B	AxB			
1 st Season			2.148	2.842	5.684			
2 nd season								
Zero time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After 10 days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After 20 days	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.05
After 30 days	14.58	8.33	6.25	8.33	4.17	4.17	2.08	6.85
Mean	3.65	2.08	1.56	2.08	1.37	1.04	0.52	1.72
L.S.D at 5% level			A	B	AxB			
2 nd Season			1.452	1.921	3.843			

Con.: untreated fruits.

J1: spraying Jojoba oil at 0.25 % after fifteen days from fruit set.

J2: spraying Jojoba oil at 0.25 % after thirty days from fruit set.

L1: spraying Linseed oil at 0.50 % after fifteen days from fruit set.

L2: spraying Linseed oil at 0.50 % after thirty days from fruit set.

V1: spraying Vapor Gard at 0.50 % after fifteen days from fruit set.

V2: spraying Vapor Gard at 0.50 % after thirty days from fruit set.

The obtained results are in agreement with the findings of Ibrahim (1994) found that Vapor Gard at 6 % on “Anna” apples, resulted in the lowest percentage of decay during storage at 0 °C.

*** Fruit texture:**

It is evident from Tables (3 & 4) that fruit texture (3 & 5 mm) decreased with advanced storage in all treated and the untreated fruits, in both seasons. It is obvious that fruit texture was an important pointer of possible storability and marketability of “Canino” apricot fruits. Fruits treated with Vapor Gard at 0.50 % applied after fifteen or thirty days from fruit set. (V1 & V2) recorded the highest texture values (3 & 5 mm), than other treatments in both seasons.

The treatments of Jojoba oil (J2) and Linseed oil (L2) applied after thirty days from fruit set showed the highest fruit texture (3 & 5 mm) than control in both seasons.

On the other hand, the untreated fruits recorded the lowest fruit texture (3 & 5 mm) than other treatments, in both seasons.

Table (3): Effect of antitranspirants sprays on Texture (3mm) of "Canino" apricot fruits after different periods of storage under 0°C during 2002-2003.

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	51.00	53.67	69.67	61.00	70.67	84.67	67.67	65.48
After 10 days	29.00	27.33	32.33	29.00	32.67	28.33	36.67	30.76
After 20 days	20.33	20.33	20.67	22.00	23.33	30.00	28.33	23.57
After 30 days	35.33	37.33	41.67	30.00	27.00	33.67	60.00	37.86
Mean	33.92	34.67	41.08	35.50	38.42	44.17	48.17	39.42
L.S.D at 5% level		A			B		AxB	
1 st Season		3.787			5.010		10.02	
2 nd season								
Zero time	36.67	54.00	61.33	60.00	59.67	71.67	61.33	57.81
After 10 days	27.33	32.00	36.00	29.67	34.33	31.00	37.00	32.48
After 20 days	19.33	24.00	21.33	22.33	26.67	30.67	27.33	24.52
After 30 days	29.67	25.33	29.67	34.00	34.33	25.67	40.33	31.29
Mean	28.25	33.83	37.08	36.50	38.75	39.75	41.50	36.52
L.S.D at 5% level		A			B		AxB	
2 nd Season		3.389			4.483		8.966	

Table (4): Effect of antitranspirants sprays on Texture (5mm) of "Canino" apricot fruits after different periods of storage under 0°C during 2002-2003.

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	45.33	44.00	52.67	49.67	57.33	57.67	67.67	53.48
After 10 days	29.00	31.67	31.00	33.67	36.67	40.33	38.00	34.33
After 20 days	25.67	31.67	31.00	27.33	31.00	33.67	37.00	31.05
After 30 days	32.00	40.33	44.33	28.00	32.67	33.33	46.33	36.71
Mean	33.00	36.92	39.75	34.67	39.42	41.25	47.25	38.89
L.S.D at 5% level		A			B		AxB	
1 st Season		4.673			6.182		12.36	
2 nd season								
Zero time	42.67	43.00	51.67	49.00	56.67	56.67	67.00	52.38
After 10 days	30.33	32.67	31.67	32.00	38.00	38.67	36.67	34.29
After 20 days	37.00	38.00	27.33	32.67	33.00	39.67	34.33	34.57
After 30 days	25.00	30.33	39.00	31.67	28.33	32.67	31.33	31.19
Mean	33.75	36.00	37.42	36.33	39.00	41.92	42.33	38.11
L.S.D at 5% level		A			B		AxB	
2 nd Season		5.189			6.864		13.73	

Con.: untreated fruits.

J1: spraying Jojoba oil at 0.25 % after fifteen days from fruit set.

J2: spraying Jojoba oil at 0.25 % after thirty days from fruit set.

L1: spraying Linseed oil at 0.50 % after fifteen days from fruit set.

L2: spraying Linseed oil at 0.50 % after thirty days from fruit set.

V1: spraying Vapor Gard at 0.50 % after fifteen days from fruit set.

V2: spraying Vapor Gard at 0.50 % after thirty days from fruit set.

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The obtained results are in agreement with the findings of Ibrahim (1994) on "Anna" apples, who found that Vapor Gard at 6 % resulted in decreasing the rate of softening during cold storage at 0 °C.

However, Mansour *et al.*, (1986) found that, spraying Vapor Gard at 0.5 % 5 and 4 weeks prior to commercial maturity on Early Amber and Tejon peaches, produced less firm fruits.

On the other hand, Barmore and Albrigo (1974) reported that applying Vapor Gard 4 and 5 weeks before maturity on Early Amber peaches had no effect on the firmness during storage at 40 °F.

***Peel color:**

Tables (5 & 6) indicated that a gradual decrease of L* value (lightness) and b* value (yellow color) in all treatments and untreated fruits towards the end of 30 days storage period, in both seasons.

Fruits treated with Vapor Gard at 0.50 % (V1 & V2) applied after fifteen and thirty days from fruit set, respectively showed the highest lightness (L* values) and the development of yellow color (b* values) than other treatments and the control in both seasons.

Jojoba oil (J2) at 0.25 % and Linseed oil at 0.50 % applied after thirty days from fruit set showed higher L* and b* values than control.

The L* values showed less lightness of color and b* values indicated that darker yellow color appeared in cold storage in untreated fruits than other treatments in both seasons.

The obtained results are in agreement with the findings of Mansour *et al.*, (1986) on Early amber and Tejon peaches, as they found that spraying Vapor Gard at 0.5 % improved fruit color similar finding was obtained by Barmore and Albrigo (1973) who found that fruit color was slightly enhanced of Early Amber peaches treated with Vapor Gard 4 and 5 weeks before commercial maturity.

Chemical properties:-

*** Total soluble solids (T.S.S %):**

Data presented in Table (7) showed a gradual increase in T.S.S % with prolonged storage in both seasons. Vapor Gard at 0.50 % applied after fifteen or thirty days from fruit set (V1 & V2) showed the highest values in T.S.S %, followed by Jojoba oil (J2) at 0.25 % and Linseed oil (L2) at 0.50 % applied after thirty days from fruit set in both seasons.

The untreated fruits showed the lowest values of T.S.S % compared with treatments in both seasons. Concerning the interaction within treatment, data reflected that, there were significant differences between all treatments until thirty days in cold storage, in both seasons. These results agreed with those obtained by Ibrahim (1994), who reported that applying Vapor Gard at 6 % of "Anna" apples resulted in significant higher values of T.S.S % during cold storage at 0 °C.

Table (5): Effect of antitranspirants sprays on L*value of "Canino" apricot fruits after different periods of storage under 0°C during 2002-2003.

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	53.49	56.75	54.96	60.07	59.60	58.17	58.91	57.42
After 10 days	57.28	54.37	54.39	58.39	56.93	55.76	56.33	56.21
After 20 days	56.79	59.02	60.44	50.17	57.96	60.02	59.17	57.65
After 30 days	54.15	53.74	55.60	53.80	50.44	56.02	55.12	54.12
Mean	55.43	55.97	56.35	55.61	56.23	57.49	57.38	56.35
L.S.D at 5% level			A		B		AxB	
1 st Season			1.544		2.042		4.085	
2 nd season								
Zero time	49.76	50.92	58.50	58.41	57.64	58.79	57.57	55.94
After 10 days	55.15	54.85	56.39	51.95	56.14	58.45	58.33	55.90
After 20 days	57.34	57.82	57.13	53.03	58.90	55.48	57.70	56.77
After 30 days	52.75	53.00	52.20	54.49	53.51	53.74	55.75	53.63
Mean	53.75	54.15	56.06	54.47	56.55	56.61	57.34	55.56
L.S.D at 5% level			A		B		AxB	
2 nd Season			1.996		2.640		5.280	

Table (6): Effect of antitranspirants sprays on b*value of "Canino" apricot fruits after different periods of storage under 0°C during 2002-2003.

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	36.99	37.78	39.54	39.17	38.47	38.65	37.86	38.35
After 10 days	34.60	33.80	37.10	37.41	37.02	37.93	37.21	36.44
After 20 days	33.92	33.77	36.86	33.03	35.80	34.56	33.92	34.55
After 30 days	30.08	33.01	28.34	29.61	30.73	32.03	33.50	31.04
Mean	33.90	34.59	35.46	34.80	35.50	35.79	35.62	35.10
L.S.D at 5% level			A		B		AxB	
1 st Season			2.593		3.431		6.861	
2 nd season								
Zero time	36.65	34.34	37.22	37.34	39.96	38.31	38.12	37.42
After 10 days	36.05	33.79	36.27	35.70	35.25	37.41	37.96	36.06
After 20 days	25.36	33.60	33.22	33.20	34.28	37.29	33.63	32.94
After 30 days	24.57	28.33	28.19	27.19	28.20	37.28	31.36	29.30
Mean	30.66	32.51	33.73	33.36	34.42	37.57	35.27	33.93
L.S.D at 5% level			A		B		AxB	
2 nd Season			2.947		3.899		7.798	

Con.: untreated fruits.

J1: spraying Jojoba oil at 0.25 % after fifteen days from fruit set.

J2: spraying Jojoba oil at 0.25 % after thirty days from fruit set.

L1: spraying Linseed oil at 0.50 % after fifteen days from fruit set.

L2: spraying Linseed oil at 0.50 % after thirty days from fruit set.

V1: spraying Vapor Gard at 0.50 % after fifteen days from fruit set.

V2: spraying Vapor Gard at 0.50 % after thirty days from fruit set.

Table (7): Effect of antitranspirants sprays on T.S.S % of "Canino" apricot fruits after different periods of storage under 0°C during 2002-2003.

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	12.8	12.8	14.7	14.7	14.8	15.0	16.0	14.4
After 10 days	13.0	13.4	13.4	13.6	13.5	13.9	13.5	13.5
After 20 days	13.3	12.8	13.2	13.0	12.8	14.7	13.6	13.4
After 30 days	11.0	11.8	11.5	10.5	11.5	11.2	12.2	11.4
Mean	12.5	12.7	13.2	13.0	13.2	13.7	13.8	13.1
L.S.D at 5% level			A		B		AxB	
1 st Season			0.4113		0.5442		1.088	
2 nd season								
Zero time	12.8	15.0	13.8	14.3	14.7	14.0	14.4	14.1
After 10 days	11.0	13.6	14.6	13.1	13.1	13.7	14.2	13.3
After 20 days	14.2	12.1	13.6	14.0	13.4	13.4	12.4	13.3
After 30 days	11.0	11.0	11.0	11.2	11.8	12.2	12.7	11.5
Mean	12.3	12.9	13.2	13.1	13.3	13.3	13.4	13.1
L.S.D at 5% level			A		B		AxB	
2 nd Season			0.3618		0.4787		0.9575	

Con.: untreated fruits.

J1: spraying Jojoba oil at 0.25 % after fifteen days from fruit set.

J2: spraying Jojoba oil at 0.25 % after thirty days from fruit set.

L1: spraying Linseed oil at 0.50 % after fifteen days from fruit set.

L2: spraying Linseed oil at 0.50 % after thirty days from fruit set.

V1: spraying Vapor Gard at 0.50 % after fifteen days from fruit set.

V2: spraying Vapor Gard at 0.50 % after thirty days from fruit set.

*** Total acidity %:**

It is clear from Table (8) that total acidity % decreased gradually towards the end of storage period in all treatments. It is noticeable that Vapor Gard at 0.50 % when applied after fifteen or thirty days from fruit set (V1 & V2) recorded more decrease of total acidity % followed by Jojoba oil (J2) at 0.25 % and Linseed oil (L2) applied after thirty days from fruit set in both seasons.

On the other hand, the untreated fruits showed the highest values of total acidity % than other treatments in the first season.

These results agree with those obtained by Ibrahim (1994), who reported that applying Vapor Gard at 6 % of "Anna" apples, resulted in significant lower values of total acidity content during cold storage at 0°C.

*** Fruit behaviour on shelf-life after cold storage:**

Fruit behaviour parameters during simulating marketing period for three days after removal from cold storage to ambient temperature is shown in Table (9). Decay and weight loss percentages of untreated fruits were higher than fruits of other treatments.

Table (8): Effect of antitranspirants sprays on Acidity % of "Canino" apricot fruits after different periods of storage under 0°C during 2002-2003.

1 st season								
Days from Storage (A)	Treatments (B)							Mean
	Con.	J1	J2	L1	L2	V1	V2	
Zero time	2.33	2.19	2.01	1.72	1.81	1.79	1.92	1.97
After 10 days	1.34	1.16	1.14	1.16	1.01	1.03	1.21	1.15
After 20 days	0.80	0.76	0.80	0.94	0.96	0.80	0.60	0.81
After 30 days	1.00	1.14	1.07	1.14	1.08	1.05	0.90	1.05
Mean	1.37	1.31	1.26	1.24	1.21	1.17	1.16	1.25
L.S.D at 5% level			A		B		AxB	
1 st Season			0.09783		0.1294		0.2588	
2 nd season								
Zero time	2.30	1.77	1.85	2.26	1.81	1.74	1.94	1.95
After 10 days	1.29	1.32	1.32	1.28	1.07	1.32	0.94	1.22
After 20 days	0.78	0.99	0.80	0.83	0.94	0.71	0.83	0.84
After 30 days	0.99	1.30	1.11	0.80	1.00	1.01	0.86	1.01
Mean	1.34	1.34	1.27	1.29	1.21	1.20	1.14	1.26
L.S.D at 5% level			A		B		AxB	
2 nd Season			0.09177		0.1214		0.2428	

Table (9): Fruit quality of "Canino" apricot fruits after removal from the end of cold storage to ambient temperature (20-23 °C) for 3 days during 2002-2003.

1 st season								
Properties Treatments	Decay %	Loss in weight	Texture(mm)		Hunter		T.S.S %	Acidity %
			3	5	L*	b*		
Control	18.75	2.97	23.33	23.33	51.59	30.85	13.40	1.03
J1	10.42	2.64	25.67	26.00	52.00	33.16	15.43	0.91
J2	6.42	2.17	29.33	26.33	51.81	33.39	15.60	0.73
L1	9.42	2.55	29.67	28.00	53.24	33.60	14.67	0.88
L2	6.33	2.15	29.67	33.67	53.68	33.70	15.23	0.79
V1	5.33	2.13	45.00	38.33	53.92	34.43	15.67	0.76
V2	4.17	2.01	35.33	38.67	53.76	37.35	16.17	0.71
L.S.D at 5%	7.608	0.7463	10.56	10.71	7.535	13.39	0.6585	0.07956
2 nd season								
Control	18.75	3.40	20.00	21.00	51.01	29.59	13.87	1.00
J1	9.50	2.81	22.33	22.00	51.17	33.22	14.50	0.80
J2	6.58	2.73	24.33	24.67	54.02	33.81	15.60	0.84
L1	8.33	2.35	26.00	26.67	53.91	33.95	14.87	0.90
L2	6.25	2.20	27.00	26.67	54.30	34.50	15.90	0.85
V1	5.25	2.17	27.33	27.67	54.95	35.86	15.43	0.83
V2	4.17	2.17	32.33	35.67	56.31	38.69	16.33	0.80
L.S.D at 5%	8.261	1.076	9.195	11.44	4.236	4.765	0.8133	0.1258

Con.: untreated fruits.

J1: spraying Jojoba oil at 0.25 % after fifteen days from fruit set.

J2: spraying Jojoba oil at 0.25 % after thirty days from fruit set.

L1: spraying Linseed oil at 0.50 % after fifteen days from fruit set.

L2: spraying Linseed oil at 0.50 % after thirty days from fruit set.

V1: spraying Vapor Gard at 0.50 % after fifteen days from fruit set.

V2: spraying Vapor Gard at 0.50 % after thirty days from fruit set.

Fruits treated with Vapor Gard at 0.50 % applied after fifteen or thirty days from fruit set (V1 & V2), followed by Jojoba oil (J2) at 0.25 % and Linseed oil (L2) at 0.50 % applied after thirty days from fruit set showed the highest values of fruit texture (3 & 5 mm), deeper yellow color, more light, T.S.S % and lowest percentages of weight loss, decay, total acidity % during marketing for 3 days of shelf-life after cold storage, in both seasons.

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تأثير بعض مضادات النتج على الجودة والقدرة التخزينية لثمار مشمش الكاتينو

فاطمة عصمت إبراهيم

معهد بحوث البساتين - مركز البحوث الزراعية - الجيزة

أجريت الدراسة خلال عامي ٢٠٠٢ & ٢٠٠٣ على صنف مشمش الكاتينو أشجار عمر ٦ سنوات . بهدف الحفاظ على الجودة والقدرة التخزينية للثمار . أجريت المعاملات بالرش بزيت الجوجوبا بتركيز ٠,٢٥ % وزيت بذرة الكتان بتركيز ٠,٥٠ % وأيضا القابور جارد بتركيز ٠,٥٠ % وأجرى الرش في ميعادين الأول بعد خمسة عشر يوما من العقد والثاني بعد ثلاثين يوما من العقد (قبل مرحلة تصلب النواة) وتم القطف لجميع المعاملات في مرحلة إكمال النمو عندما تلون سطح الثمار باللون الأصفر بنسبة ٥٠ % ثم خزنت على درجة الصفر المئوى ورطوبة ٩٠ - ٩٥ % لمدة ثلاثون يوما.

أظهرت النتائج أن الثمار المعاملة بالقابور جارد رشا بعد ١٥ & ٣٠ يوما من العقد وأيضا الثمار المعاملة بزيت الجوجوبا وزيت بذرة الكتان رشا بعد ٣٠ يوما من العقد أعطت أحسن النتائج في تقليل النسبة المئوية للفقء في الوزن والتالف وأيضا الحموضة الكلية . كما أنها أدت إلى الحفاظ على قوام الثمرة خلال التخزين البارد بجانب أنها أدت إلى زيادة المواد الصلبة الذائبة الكلية وتطور اللون الأصفر بسطح الثمرة b* Value وأيضا اللعان L* Value وتقليل الفاقد بالثمار خلال الفترة التسويقية بعد الخروج من التخزين البارد للثمار والتعرض للجو العادى لمدة ثلاثة أيام .