

# CONTENTS

	Page
<b>INTRODUCTION</b> .....	1
<b>REVIEW OF LITERATURE</b> .....	6
<b>1. Effect of some pre-and postharvest treatments on fruit quality attribute and storability</b> .....	6
<b>a. Effect on fruit weight loss percentage (%)</b> .....	6
<b>b. Effect on fruit decay percentage (%)</b> .....	10
<b>c. Effect on fruit firmness (lb/inch<sup>2</sup>)</b> .....	15
<b>d. Effect on fruit color</b> .....	19
<b>e. Effect on marketing life</b> .....	21
<b>f. Effect on total soluble solid (TSS) content (%)</b> ....	23
<b>g. Effect on total acidity percentage (%)</b> .....	25
<b>h. Effect on TSS/acidity ratio</b> .....	28
<b>i. Effect on total sugars (%)</b> .....	29
<b>j. Effect on reducing sugars (%)</b> .....	31
<b>k. Effect on total phenols</b> .....	32
<b>MATERIALS AND METHODS</b> .....	35
<b>RESULTS AND DISCUSSION</b> .....	41
<b>1.Pre-harvest experiment</b> .....	41
<b>a. Cold storage experiment</b> .....	41
(1) Fruit weight loss percentage.....	41
(2) Fruit decay percentage .....	43
(3) Fruit firmness .....	46
(4) General appearance .....	48
(5) Hue angle.....	51
(6) Fruit lightness.....	51
(7) Total soluble solids content.....	54
(8) Titratable acidity.....	56
(9) T.S.S / T.A ratio.....	58
(10) Total sugar percentage.....	58

(11) Reducing sugar percentage.....	61
(12) Total phenols percentage.....	63
(13) Marketing life.....	65
<b>b. Marketing life experimen.....</b>	<b>67</b>
(1) Fruit weight loss percentage.....	67
(2) Fruit decay percentage .....	69
(3) Fruit firmness .....	70
(4) General appearance .....	70
(5) Hue angle.....	70
(6) Fruit lightness.....	71
(7) Total soluble solids content.....	71
(8) Titratable acidity.....	73
(9) T.S.S / T.A ratio.....	73
(10) Total sugar percentage.....	74
(11) Reducing sugar percentage.....	74
(12) Total phenols percentage.....	75
<b>2. Postharvest experiment.....</b>	<b>75</b>
<b>a. Cold storage experiment.....</b>	<b>75</b>
(1) Fruit weight loss percentage.....	75
(2) Fruit decay percentage .....	77
(3) Fruit firmness .....	80
(4) General appearance .....	82
(5) Hue angle.....	84
(6) Fruit lightness.....	86
(7) Total soluble solids content.....	86
(8) Titratable acidity.....	90
(9) T.S.S / T.A ratio.....	90
(10) Total sugar percentage.....	93
(11) Reducing sugar percentage.....	95
(12) Total phenols percentage.....	95
(13) Marketing life.....	98
<b>a. Marketing life experiment.....</b>	<b>100</b>

(1) Fruit weight loss percentage.....	100
(2) Fruit decay percentage .....	100
(3) Fruit firmness .....	102
(4) General appearance .....	103
(5) Hue angle.....	103
(6) Fruit lightness.....	104
(7) Total soluble solids content.....	104
(8) Titratable acidity.....	106
(9) TSS/T.A ratio.....	107
(10) Total sugar percentage.....	107
(11) Reducing sugar percentage.....	108
(12) Total phenols percentage.....	108
<b>SUMMARY</b> .....	<b>109</b>
<b>REFERENCES</b> .....	<b>120</b>
<b>ARABIC SUMMARY</b>	

## LIST OF TABLES

No.	Title	Page
1.	Effect of some pre-harvest treatments on weight loss % of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons.....	42
2.	Effect of some pre-harvest treatments on Decay % of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons.....	44
3.	Effect of some pre-harvest treatments on firmness (Ib/inch <sup>2</sup> ) of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons.....	47
4.	Effect of some pre-harvest treatments on General appearance (score) of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and seasons .....	49
5.	Effect of some pre-harvest treatments on hue angle ( $h^{\circ}$ ) of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons.....	52
6.	Effect of some pre-harvest treatments on lightness ( $L^*$ ) of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons.....	53
7.	Effect of some pre-harvest treatments on total soluble solid (TSS %) of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons .....	55
8.	Effect of some pre-harvest treatments on titratable acidity (TA %) of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons.....	57
9.	Effect of some pre-harvest treatments on TSS /TA Ratio of Early Swelling peach fruits stored at $0\pm 1^{\circ}\text{C}$ during 2014 and 2015 seasons.....	54

10.	Effect of some pre-harvest treatments on total sugarcontent (%) of Early Swelling peach fruits stored at $0\pm 1$ °C during 2014 and 2015 seasons.....	60
11.	Effect of some pre-harvest treatments on reducing sugar (%) of Early Swelling peach fruits stored at $0\pm 1$ °C during 2014 and 2015 seasons.....	62
12.	Effect of some pre-harvest treatments on total phenols (mg/100gm) of Early Swelling peach fruits stored at $0\pm 1$ °C during 2014 and 2015 seasons.....	64
13.	Effect of some pre-harvest treatments on some physical parameters of Early Swelling peach fruits after 4 days of storage at room temperature during 2014 and 2015 seasons .....	68
14.	Effect of some pre-harvest treatments on some chemical parameters of Early Swelling peach fruits after 4 days of storage at room temperature during 2014 and 2015 seasons.....	72
15.	Effect of some postharvest treatments on weight loss % of Early Swelling peach fruits stored at $0\pm 1$ °C during 2014 and 2015 season.....	76
16.	Effect of some postharvest treatments on Decay % of Early Swelling peach fruits stored at $0\pm 1$ °C during 2014 and 2015 seasons.....	78
17.	Effect of some postharvest treatments on firmness (Ib/inch <sup>2</sup> ) of Early Swelling peach fruits stored at $0\pm 1$ °C during 2014 and 2015 seasons..	81
18.	Effect of some postharvest treatments on General appearance (score) of Early Swelling peach fruits stored at $0\pm 1$ °C during 2014 and 2015 seasons.....	83
19.	Effect of some postharvest treatments on hue angle (ho) of Early Swelling peach fruits stored at $0\pm 1$ °C during	

2014 and 2015 seasons.....	85
20. Effect of some postharvest treatments on lightness (L*) of Early Swelling peach fruits stored at 0±1 °C during 2014 and 2015 seasons.	87
21. Effect of some postharvest treatments on total soluble solid (TSS %) of Early Swelling peach fruits stored at 0±1 °C during 2014 and 2015 seasons.....	88
22. Effect of some postharvest treatments on titratable acidity (T.A %) of Early Swelling peach fruits stored at 0±1 °C during 2014 and 2015 season.....	91
23. Effect of some postharvest treatments on (TSS / TA ratio) of Early Swelling peach fruits stored at 0±1 °C during 2014 and 2015 seasons.....	92
24. Effect of some postharvest treatments on total sugar (%) of Early Swelling peach fruits stored at 0±1 °C 2014 and 2015 seasons.....	94
25 Effect of some postharvest treatments on reducing sugar (%) of Early Swelling peach fruits stored at 0±1 °C 2014 and 2015 seasons.....	96
26 Effect of some postharvest treatments on total phenols (mg/100gm) of Early Swelling peach fruits stored at 0±1 °C 2014 and 2015 seasons.....	97
27. Effect of some postharvest treatments on some physical parameters of Early Swelling peach fruits after 4 days of storage at room temperature during 2014 and 2015 seasons.....	101
28 Effect of some postharvest treatments on some chemical parameters of Early Swelling peach fruits after 4 days of storage at room temperature during 2014 and 2015..... seasons.....	105

## LIST OF FIGURES

No	Title	Page
1.	Effect of some pre-harvest treatments on marketing life (days) of Early Swelling peach fruits after 35 days of cold storage at $0\pm 1$ °C during 2014 and 2015 seasons.....	66
2.	Effect of some postharvest treatments on marketing life (days) of Early Swelling peach fruits after 35 days of cold storage at $0\pm 1$ °C during 2014 and 2015 seasons.....	99

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## ABSTRACT

Studies related with the storage of peach fruits have great relevance in many fruit-growing countries, among which Egypt. The effects of pre-harvest sprays with calcium chloride and chitosan, separately and in combination, as well as post-harvest treatments with chitosan and ozone, on quality attributes, storability and marketability of 'Early Swelling' peach fruits were studied throughout the 2014 and 2015 seasons. In pre-harvest experiment, peach trees were sprayed twice with 1% or 2% calcium chloride. The 1<sup>st</sup> spraying was at pea stage, while the 2<sup>nd</sup> one was performed 10 days before fruit harvesting. Chitosan sprays were performed at 0.5% or 1%, alone or in combination with 1% and 2% calcium chloride, 10 days before harvesting. Untreated trees served as control. As for post-harvest, chitosan was applied at concentrations of 0.5 and 1%, ozone at concentrations of 0.5 and 1 ppm. Fruits were harvested at maturity stage for both experiments, packed and stored at (0 °C and 85-90 % RH) or at room temperature (25±2 °C). A number of physical and chemical parameters were evaluated on stored fruits at equal intervals (7 days for fruits stored at 0 °C for a total of 35 days, and 2 days for fruits stored at room temperature).

Results showed that pre-harvest application with 2% CaCl<sub>2</sub>+1% chitosan was most effective in minimizing weight loss (%) and decay (%), as well as in maintaining maximum firmness, lengthening marketing life and keeping best general appearance. Fruit color was not affected by any of the treatments, in the meantime untreated fruits recorded higher total soluble solids (TSS%), total phenolic content, and lower titratable acidity TA, (%). These results were recorded for fruits stored at 0 °C and room temperature.

Post-harvest treatments with ozone at both concentrations recorded less weight loss, while decay incidence was significantly lowered by the treatments with 0.5% chitosan, 1% chitosan and 1 ppm ozone, in comparison to control fruits in the first and second season, maximum firmness was maintained with both the chitosan treatments. Likewise, treated fruits recorded higher scores of general appearances comparing to untreated ones. Meanwhile, untreated fruits recorded the highest loss of weight (%) and decay incidence (%), furthermore, higher TSS %, total phenols, and the lowest fruit firmness, TA% and Marketing life comparing to other treatments when fruits were kept at both 0 °C and room temperature conditions.

**Key words:** Peach, cv Early Swelling, CaCl<sub>2</sub>, chitosan, ozone, quality attributes