

EFFECT OF SOME PRE AND POSTHARVEST TREATMENTS ON MARKETABILITY OF PEACH FRUITS

By

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B.Sc. Agric. Sci. (Horticulture), Fac. Agric., Fayoum Univ., 2011

THESIS

**Submitted in Partial Fulfillment of the
Requirements for the Degree of**

MASTER OF SCIENCE

In

**Agricultural Sciences
(Pomology)**

**Department of Pomology
Faculty of Agriculture
Cairo University
EGYPT**

2017

APPROVAL SHEET

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Approval:26 /11/ 2017

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 1st spraying was at pea stage, while the 2nd 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% CaCl₂+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, CaCl₂, chitosan, ozone, quality attributes

DEDICATION

*I dedicate this work to whom my heartfelt thanks;
to my father, my mother and my brothers Mohamed,
Mahmoud and Zead for all the support they lovely
offered along the period of my post-graduation.*

ACKNOWLEDGEMENT

Praise and thank be to "ALLAH" the most merciful for assisting and directing me to the right way.

*I wish like to express my sincere thanks and gratitude to **Dr. Nabil el-sherbini**, Professor of Pomology, Faculty of Agriculture, Cairo University, for his ideal supervision, valuable advice, kind encouragement, providing facilities during this investigation, expert guidance and stimulating suggesting.*

*Great thanks expressed to **Dr. Mohamed el-khishen** Assistant Professor of Pomology, Faculty of Agriculture, Cairo University for his supervision, kind help, continuous encouragement and stimulating criticism during the preparation of this work.*

*I am also indebted to **Dr. Samar Shaarawi** Researcher of Handling Fruit, Fruit Handling dept., Horticulture Research Institute, ARC. , for her supervision, kindly support and sisterly guidance. All the time, her efforts will always be remembered.*

Special thanks expressed to the staff of Pomology Department, Faculty of Agriculture, Cairo University, for their co-operation and friendly atmosphere.

Special thanks to my colleagues in the Fruit Handling Research Department, Horticulture Research Institute, ARC, for their co-operation and friendly atmosphere.

Special deep appreciation is given to my father, my mother and my brothers.

My sincere thanks to every one helped me and supplied me with the facilities during this work.

CONTENTS

	Page
INTRODUCTION.....	1
REVIEW OF LITERATURE.....	6
1. Effect of some pre-and postharvest treatments on fruit quality attribute and storability.....	6
a. Effect on fruit weight loss percentage (%).....	6
b. Effect on fruit decay percentage (%).....	10
c. Effect on fruit firmness (Ib/inch²).....	15
d. Effect on fruit color.....	19
e. Effect on marketing life.....	21
f. Effect on total soluble solid (TSS) content (%)....	23
g. Effect on total acidity percentage (%).....	25
h. Effect on TSS/acidity ratio.....	28
i. Effect on total sugars (%).....	29
j. Effect on reducing sugars (%).....	31
k. Effect on total phenols.....	32
MATERIALS AND METHODS.....	35
RESULTS AND DISCUSSION.....	41
1.Pre-harvest experiment.....	41
a. Cold storage experiment.....	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. Marketing life experimen.....	67
(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
2. Postharvest experiment.....	75
a. Cold storage experiment.....	75
(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
a. Marketing life experiment.....	100