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STUDIES ON KEEPING QUALITY AND STORAGEABILITY OF CUCUMBER FRUITS UNDER ORGANIC FARMING SYSTEM IN GREENHOUSES

BY

Hoda Helmy Aly

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THESIS

Submitted in Partial Fulfillment of

the Requirement for the Degree of

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I dedicate this work to my husband Saber El-Molla and my daughters Norhan & Engy for their support and encouragement.

APPROVAL SHEET

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Name: Hoda Helmy Aly

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Approval 22 / 8 / 2002

ABSTRACT

Fertilization treatments for cucumber plants were conducted in plastic houses, belong to Sekem Company at EL-Adlia location, Sharkia Governorate during the two successive autumn seasons of 2000 and 2001. Whereas post harvest treatments were carried out in Vegetable Handling Research Section, Horticulture Research Institute, Agriculture Research Center by using cv "Passandra". The present study included four experiments as follows:First experiment: The goals of this experiment was to study the effect of the organic and inorganic fertilization on yield and fruit characters. The results of this experiment showed that, organic treatment gave significantly greater early, exportable and total yield than Inorganic treatment (chemical) the increments were 34.3%, 43.2% and 28.38%, respectively. Also, average fruit weight, length, diameter, length / width ratio, fruit firmness,T.S.S., total sugars, total chlorophyll and ascorbic acid content were significantly increased by organic application. Second experiment: This study was conducted to determine the suitable picking stage for cucumber fruits, through studying the changes in physical characters and chemical compositions for fruits at different developmental stages. Data showed that, 14-days was the suitable stage for picking. Third experiment:This experiment was conducted to improve storageability of cucumber fruits by using Calcium Lactate as antitranspirant and stretch film as wrapping material under 10c, 90-95% RH for cold storage and 20c, 65-70% RH for room storage. The best results were obtained by using organic fertilization, treating fruits by Calcium Lactate, using stretch film as wrapping material and storage fruits at 10c with 90-95% RH. These treatments gave the lowest value of weight loss and decay percentage and the highest value of firmness, T.S.S. total sugars, total chlorophyll and Vitamin C contents. Fourth experiment: This experiment aimed to improve guality and control decay of cucumber fruits during storage by using hot water treatments i.e. 45c for 20 minutes, 50c for 5 minutes, 55c for 30 second and tap water as a control. The best hot water treatment was 55c for 30 second which showed increasing in weight loss percentage, decreasing in decay percentage, high value in fruit firmness and total chlorophyll content, However, hot water treatment at 45c for 20 minutes showed the highest value in T.S.S.

Generally, cucumber fruits produced by organic fertilization showed increasing in early, exportable and total yield, as well as improving fruits guality and storageability of cucumber fruits.

Ahmed Kh Khereba

Use Other Side if Necessary

(Cairo Univ. Press, 1524 -1984 - 300 ex.)

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