شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالأصل

EFFECT OF SOME PRE- AND POST-HARVEST TREATMENTS ON QUALITY AND STORABILITY OF FRESH GARLIC

By

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THESIS

Submitted in Partial Fulfillment of the Requirements for the Degree of

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Date: / / 2019

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Name of Candidate: Marwa Abd El-Rahman Abd El-Ghaffar **Degree:** Ph. D.
Title of Thesis: Effect of Some Pre- and Post-Harvest Treatments on Quality and Storability of Fresh Garlic
Supervisors: Dr. Sayed Fathey El-Sayed
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Department: Horticulture
Branch: Vegetable Crops **Approval: 3/11/2019**

ABSTRACT

This investigation was carried out during the two successive seasons of 2015-2016 and 2016-2017 in the private farm at El-Burg Village, Naser (Bush), Beni-Suef Governorate, and Horticulture Research Institute, to evaluate the effect of potassium fertilizers in the form of potassium sulphate and potassium silicate (as a foliar application) in order to obtain large volumes of heads suitable for early export and evaluate the effect of different wrapping with LifeSpan sheet lining and Polypropylene sheet lining and coating with Chitosan at 0.5% and Active and Passive modified atmosphere packaging (MAP) as a post-harvest treatments at 3 plant ages (18, 20 and 22 weeks from planting date) on keeping quality of minimally processed green garlic during cold storage at 0±1 ºC. The used cultivar was "Balady", the favorite for exporting at immature stages.

The exportable amount of green garlic can be increased in early February (plant age 18 and 20 weeks) with applying fertilization treatment (50 kg / fed Potassium Sulfate + 4 ml/L Potassium Silicate as a foliar application (T1), Garlic plant growth, total yield and its components as well as keeping quality of bulbs were significantly increased by increasing the applied Potassium Silicate-levels. Results may be ascribed to the effect of foliar spray with Potassium Silicate on enhancing the photosynthetic efficiency. The age of 22 and 20 weeks in LifeSpan sheet lining can be stored at 0±1 ºC and 90-95 % RH for 4 weeks with reduce weight loss and decay bulbs, hold more TSS, dry matter, total sugar and total pungency and maintained high visual quality. Green garlic bulbs can be stored in LifeSpan as passive modified atmosphere packaging (MAP) as an alternative to active MAP for ease of use, with no significant differences between them. Passive MAP with LifeSpan bags (T5) was the best treatment where reduce weight loss and decay bulbs percentage and hold more TSS, dry matter, total sugar and total pungency and maintained high visual quality score.

Key words: Green garlic, Fertilizer, Potassium Sulfate, Potassium Silicate, Bulb yield, Exportable yield, minimally processed, Wrapping, Coating, Modified Atmosphere Packaging MAP, LifeSpan sheet, Polypropylene sheet, Chitosan, Cold storage.

DEDICATION

I dedicate this work to whom my heartfelt thanks; to my father Dr. Abdel-Rahman for all the support and great help to me in achieving this work by his continuous advice and fruitful guidance and tangible contribution. Also, to my husband Diaa and my daughter Farida for their patience and help, as well as to my Mother, brother and sister for all the support they lovely offered along the period of my post-graduation.