

EFFECT OF CHITOSAN COATING COMBINED WITH CINNAMIC ACID
ON TOMATO (*Lycopersicon esculentum*) QUALITY

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EFFECT OF CHITOSAN COATING COMBINED WITH CINNAMIC ACID ON
TOMATO (*Lycopersicon esculentum*) QUALITY

By
Norhafizah Binti Md Zain

Research Report submitted in partial fulfillment of
the requirements of the degree of
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**FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK ILMIAH I DAN II**

Adalah ini diakui dan disahkan bahawa laporan ilmiah bertajuk:

EFFECT OF CHITOSAN COATING COMBINED WITH CINNAMIC ACID
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oleh NORHAFAZAH MO. ZAIN, No.Matrik UK14208 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan AGROTEKNOLOGI sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda SAINS AGROTEKNOLOGI (TEKNOLOGI LEPAS THAI), Fakulti Agroteknologi dan Sains Makanan, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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ABSTRACT

This study was conducted to examine effects of chitosan (1% or 1.5%), cinnamic acid (1mM or 5mM) or a combination of chitosan (1.5%) and cinnamic acid (5mM) on shelf life of tomato fruits (*Lycopersicon esculentum*) stored at ambient temperature (28 °C) for 12 days. The effectiveness of the treatments in extending fruit shelf-life was evaluated by determining overall postharvest quality and postharvest disease of fruits. Coated fruits had a greater visual acceptability than those of untreated fruits. However, coated fruits had no effect in weight loss, total soluble solid content, and fruits firmness. The chitosan coating delayed ripening and the progress of fruit decay due to senescence. Tomato coated with 1.5% chitosan delayed the senescence associated with external colour changes. No sign of fungal decay was observed during the storage period for fruit coated with 5mM cinnamic acid or 1.5% chitosan + 5mM cinnamic acid. By contrast, approximately 9% of tomato fruits coated with 1.5% chitosan without cinnamic acid were infected after six days of storage. The addition of cinnamic acid to the chitosan coating (combined treatment) had a strong inhibitory effect against pathogenic microorganism and decay caused by fungi, thus maintaining the quality attribute and extending the storage life of tomato fruits.