

## **ABSTRACT**

### **CHITOSAN APPLICATION ON STAR FRUIT (*Averrhoa carambola* L.) IN ACTIVE PACKAGING TO MAINTAIN THE QUALITY AND EXTEND THE FRUIT SHELF-LIFE**

By

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Star fruit is one of nonclimateric fruits, easy to be damaged, so that star fruit has a short shelf-life. To overcome such defect, it is needed to do good postharvest, such as coating the fruit with chitosan and packaging. The treatments are expected to maintain the quality and prolong the shelf-life of the fruits. The purpose of this research were to study the effects of (I) chitosan concentrations; (II) packaging volumes; and (III) interaction effects of packaging volume and chitosan concentration in the active packaging technology to maintain the quality and extend the shelf-life of the fruit.

This reseach was conducted in the Horticulture Postharvest Laboratory, Department of Agrotechnology, Faculty of Agriculture University of Lampung during September-November 2013. This research used completely randomized design (CRD) with treatments arranged in 4 x 4 factorials . The first factor was chitosan coating of 0, 1, 2, and 3% concentrations. The second factor was packaging volumes of 1.5, 3.0, 4.0, and 5.0 L . These factors were applied into the

active MAP technology. Each treatment combination consist of 3 replications.

The observed variables were fruit shelf-life, fruit weight loss, fruit soluble solids, free acid contents and fruit hardness.

The results showed that (1) chitosan statistically did not affect starfruit shelf-life significantly compared to the control; (2) postharvest handling of starfruit with active packaging statistically affected to prolong starfruit shelf-life and less weight loss with, other fruit qualities unaffected (3) combination of chitosan and active packaging statistically did not affect the shelf- life, but combination of 3% chitosan with 1,5 liters of active packaging could prolong shelf-life was 29 days.

Keyword: chitosan, packaging, star fruit, shelf-life, quality