ABSTRACT

RESPIRATION PATTERNS AND FRUIT QUALITY CHANGES OF BANANA (*Musa paradisiaca* L.) cv. 'MULI' IN ACTIVE PACKAGING AT VARIOUS PACKAGE VOLUMES AND CHITOSAN CONCENTRATIONS

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'Muli' banana is one of climacteric fruits which is easily damaged during the storage. It is because of its high respiration and transpiration rates. To make its post-harvest handling easier, the respiration rate and its pattern should be known. The aims of this research were to detect the difference of respiration pattern and rate as well as changes in fruit quality of banana 'Muli' in various package volumes; to detect the differences of respiration pattern and rate as well as changes in fruit quality of banana 'Muli' in various chitosan concentrations; and to detect the differences of respiration pattern and rate as well as changes in fruit quality of banana 'Muli' in combination between various package volumes and chitosan concentrations.

This research was conducted in the Laboratory of Horticulture, Faculty of Agriculture, Lampung University from October- November 2009. Treatments were arranged in a completely randomized design, and laid out factorially 4 x 4. The first factor was active packaging with 4 sizes of container in a volume of 2.3,

3.0, 4.0, and 5.0 l. The second factor was 4 concentrations of chitosan, *i.e*. 0, 2.5, 4.0, and 5.5%. Observations were done for the following parameters: respiration rate, fruit weight, total soluble solid, free acid content, and fruit firmness.

Result showed that (1) The respiration pattern of banana 'Muli' was similar in various packaging volumes, it was generally decreased, while the respiration rate was different. In 5 days storage the respiration rate in 5.0 l it was 14.17 mg CO_2/kg/h which was lower than other packaging volumes. (2) The respiration pattern of banana 'Muli' showed no difference in various chitosan concentrations as the storage time increased the respiration decreased. The respiration rate of 5.5% chitosan concentration was lower than the others, it was about 41.68 mg CO_2/kg/h in 5 days storage. (3) The respiration pattern of banana 'Muli' in the combination between packaging volumes and chitosan concentrations showed no difference; as the storage time increased the respiration decreased The respiration rate of in 5.0 l package 5.5% of chitosan concentrations was lower than other combination of treatments, it was about 41.68 mg CO_2/kg/h in 5 days storage. (4) In all quality variables of banana 'Muli'with smaller packaging, lower chitosan concentration and the combination both of them showed no difference in pattern of quality changes of weight loss, total soluble solids, free acidity, and fruits firmness.

Key words: banana, active packaging, chitosan, respiration, quality