

ABSTRACT

EFFECT OF 1-METHILCYCLOPROPENE (1-MCP), CHITOSAN, AND TEMPERATURE STORAGE ON SHELF LIFE AND QUALITY OF 'CAVENDISH' BANANA

By

ESTI HIKMAWATI

'Cavendish' banana is one of high quality banana cultivar that much preferred by the public. In addition to the sweet taste, 'Cavendish' banana is also rich in fiber. Banana are classified as easily damage climacteric fruits. In the climacteric fruit, during the ripening process, respiration and transpiration increase. This condition accelerates the softening process of the fruit and shortens shelf life. Ripening process that occurs can not be stopped, but can be inhibited by application of 1-MCP, chitosan and temperature storage so the shelf life of 'Cavendish' banana can be extended.

This study aimed at determining the effects of (1) 1-MCP application, (2) chitosan application, (3) cold temperature application, (4) interactions among 1-MCP, chitosan and cold temperature applications on the shelf life and quality of 'Cavendish' banana. This research was conduct at the Laboratory of Horticultural Postharvest, Department of Agrotechnology, Faculty of Agriculture, University of Lampung.

The experiment was conducted in July until August 2014. The research material used was stage V 'Cavendish' bananas. Research arranged in a Completely Randomized Design with 2 x 2 x 2 factorial, with treatments of 1-MCP ethylene inhibitor (without and with 1-MCP) x chitosan (without and with 2.5% chitosan) x temperature storage (room temperature 25°C and a low temperature of 20°C). Each treatment had three repetitions and consisted of a same maturity level of banana 'cluster' with two 'finger' fruit. For comparison, a banana 'cluster' was observe. Changes of shelf life, fruit weight, fruit hardness, dissolved solids content (°Brix), discoloration, and free acid had been observed.

The results showed that (1) 1-MCP application is did not significantly extending the shelf life and reduced weight loss during storage, but inhibit the softening process of 'Cavendish' banana flesh of fruit, (2) the 2.5% chitosan application significantly extended the shelf life, but did not inhibit the softening process of 'Cavendish' banana flesh of fruit and weight loss during storage, (3) the cold temperature application extended the shelf life and inhibited the softening process of 'Cavendish' banana flesh of fruit, but did not reduce the weight loss during storage and (4) combination of the three treatments (1-MCP, chitosan, and cold temperature application) extended shelf life of 'Cavendish' banana but could not maintain the quality of the fruit.

Key words: 'Cavendish' banana, climacteric, 1-MCP, chitosan, temperature storage.