

Mayuree Mounmoon 2014: The Effect of 1-Methylcyclopropene on the Quality of Fresh-cut Durian cv. Chanee During Storage. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development.  
Thesis Advisor: Assistant Professor Pisit Dhamvitee, Ph.D. 179 pages.

Durian (*Durio zibethinus* Murray) revered as the "king of fruit", is classified in a group climacteric fruits. It produces high ethylene during ripening that causes the short shelf life. The objectives of this research were to study the effect of 1-methylcyclopropene (1-MCP) and storage temperature (4, 14 and 24°C) on the quality of fresh-cut durian cv. Chanee. The results showed that fresh-cut durian stored at 4 °C decreased quality change slower than stored at 14 and 24 °C, respectively. 1-MCP treatment had affected on the physiological, physical and chemical quality by qualities change more slower than no 1-MCP treatment. The consumers were rejected durian treated with 1-MCP (more than 50 percent) after stored for 30, 20 and 8 days and rejected durian not treated with 1-MCP (more than 50 percent) after stored for 25, 16 and 6 days at 4, 14 and 24 °C, respectively. The result of shelf-life evaluation by Univariate kinetic analysis showed that activation energy ( $E_a$ ) of weight loss was lowest (31.542 kJ/mol and 29.297 kJ/mol for 1-MCP and no 1-MCP treatment, respectively). Also, weight loss was suitable for indicating the shelf-life of fresh-cut durian cv. Chanee. The result of shelf-life evaluation by Multivariate kinetic analysis revealed that  $E_a$  of fresh-cut durian cv. Chanee treated and non treated with 1-MCP were 43.495 kJ/mol and 38.843 kJ/mol and closed to  $E_a$  of  $b^*$  value, titratable acid, sugar/acid ratio, enzyme PG activities and overall liking for 1-MCP treatment and closed to  $E_a$  of  $L^*$  value, firmness,  $CO_2$  and overall liking for no 1-MCP treatment. Shelf-life evaluation by survival analysis 3 methods included Life table, Kaplan-Meier and Multivariate analysis with Cox regression consider by acceptance of 30 consumers demonstrated that Kaplan-Meier method was appropriated for this research than Life table and Cox regression method. As a results from Shelf-life evaluation of 1-MCP treated durians were 26, 20 and 8 days and no 1-MCP treated durians were 25, 16 and 6 days at 4, 14 and 24 °C, respectively. Therefore, shelf-life evaluation by survival analysis was appropriated due to considered from consumer acceptance during storage.

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Student's signature

Thesis Advisor's signature