

Kitti Saiyawan 2012: Effect of Ethylene on Chilling Injury in 'Hom Thong' and 'Namwa' Bananas during Storage at Low Temperature. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Miss Wachiraya Imsabai, Ph.D. 138 pages.

The effect of ethylene on chilling injury (CI) in 'Hom Thong' and 'Namwa' banana fruits was studied. Banana fruits were treated or not treated or with 500 mg/L of ethephon and fumigated with 500 nl/L 1-methylcyclopropene (1-MCP) before storage at 4°C for 8 to 12 days in 'Hom Thong' and 'Namwa' bananas respectively. Every 4 days during storage, fruits were transferred to 25°C and then evaluated for qualities every 2 days. The result showed that banana fruit fumigated with 1-MCP showed more severe of CI symptoms than those fruit treated with ethephon or the control after transferred to 25°C. Total soluble solids (SS), titratable acidity (TA), total sugar (TS), total starch, peel and pulp firmness, ethylene production, and respiration rate of all treatments did not change during storage at 4°C. After transferred to 25°C, it was found that fruits treated with ethephon had increase in SS, TA and TS contents, respiration rate and ethylene production. In contrast, peel and pulp firmness of fruits treated with ethephon decreased and lower than the control or fruit fumigated with 1-MCP. Both 'Hom Thong' and 'Namwa' bananas treated with ethephon ripened normally after transferred to 25°C. Bananas treated with ethephon had more abundance of *MA-ACS*, *MA-ACO* and *MA-beta amylase* mRNA than those fruit treated with 1-MCP or the control. In conclusion, banana fruits pre-treated with ethephon (ethylene) before storage at low temperature may reduce CI symptoms in both bananas and banana fruits ripen normally after storage.

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Thesis Advisor's signature