

Ukrit Chongchatuporn 2014: Effects of Low Temperature on Postharvest Changes and Storage Life of Mango (*Mangifera indica* L.) Fruit. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Professor Saichol Ketsa, Ph.D. 164 pages.

A study on the postharvest physiological and biochemical changes of mango cvs. Nam Dok Mai #4 and Choke Anan fruits stored at 4 and 12°C (85-90 %RH) and transferred at 3-day interval to 25 °C (63-65 % RH). It was found that the ‘Nam Dok Mai #4’ mango stored at 4°C showed more sensitive to chilling injury (CI) than ‘Choke Anan’ mango but no CI was found in mangoes stored at 12°C. Severity of CI symptoms was aggravated after transfer to 25°C. The visible symptoms of CI were pitting and discoloration of the peel and the pulp discoloration adjacent to the endocarp. CI symptoms had relationship with temperature but not with mango cultivar. There was no interaction between temperature and cultivar in relation to CI. Electrolyte leakage, vitamin C content and total antioxidant capacity (TAC) were not correlated with CI. At 4°C, ‘Choke Anan’ mango peel contained higher ascorbate peroxidase (APX) and guaiacol peroxidase (POX) activities and lower superoxide dismutase (SOD) and catalase (CAT) activities than that of ‘Nam Dok Mai #4’ mango peel. The results suggest that APX and POX activities may involve in CI of mangoes. Storage life of ‘Nam Dok Mai #4’ and Choke Anan’ mangoes stored at 4 and 12°C was 5, 30, 10 and 30 days, respectively. Heat treatment (HT) of both ‘Nam Dok Mai #4’ and ‘Choke Anan’ mangoes at 38°C (60 %RH) for 3 days before storage at 4°C was conducted to alleviate CI. HT of mangoes delayed CI symptom development in ‘Nam Dok Mai #4’ mango stored at 4°C for 5 days but had no effect on ‘Choke Anan’ mango. However, CI symptoms of ‘Nam Dok Mai #4’ mango with and without HT were not much different from day 10 until the end of storage period.

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