

Thesis Title	Effect of Heat Treatment, Calcium Chloride on Chilling Injury of Sapota (<i>Archras sapota</i> Linn. cv. Ma-Kok) at Low Temperature Storage.
Thesis Credits	12
Candidate	Mr. Anan Jitratham
Supervisors	Asst. Prof. Dr. Sirichai Kanlayanarat Mr. Chalermchai Wong-Aree
Degree of Study	Master of Science
Department	Postharvest Technology
Academic Year	1999

Abstract

Sapota is one of the commercial fruits sensitively establishing both external and internal chilling injury symptoms when stored at inappropriately low temperature. Applications of heat and Calcium Chloride (CaCl_2) treatments were therefore introduced to sapota (*Archras sapota* Linn. cv. Ma-Kok) fruit in order to study physiological-biochemical changes and effects on chilling injury during storage at low temperature. For heat treatments, sapota fruits at 80% maturity were incubated in hot air oven at 2 levels of temperature, 35 and 40°C, at 80% RH for 3, 6 and 12 hr whereas for CaCl_2 treatment, fruits were dipped in 0, 2 and 5% CaCl_2 solution for 30 and 60 min. In addition, combinations between heat and CaCl_2 treatments were also investigated. Brought to analyse fruit quality every 5 day, fruits of all treatments were stored at 8°C (85-90% RH), a lower temperature than the optimum temperature for sapota storage. The consequences revealed that untreated fruits (control) showed unacceptable chilling injury on peel after 20 days of storage while heated fruits effectively decreased chilling injury symptom that fruits heated at 40°C for 6 and 12 hr could keep the quality at least 30 days after storage without external chilling injury. Heated fruits, however, seemed to be slightly increased of weight loss and made the fruits easier to wilt. On the other hand, fruit dipped in distilled water (0% CaCl_2) rapidly released external injury and developed the symptom faster and severer than each other. Dipping fruits in 5% CaCl_2 for 30 min is a good condition for reducing external chilling injury. IN the same way, dipping in

CaCl₂ gave a trend to well delay fruit senescence during storage. The combination study indicated that fruits incubated with hot air at 35°C for 12 hr and then dipped in 5% CaCl₂ for 30 min kept the fruit quality accepted by consumer until 40 days of storage. This suggests that the combinations between heat and CaCl₂ presented more positive results than either heat or CaCl₂ treatment.

Keywords : Sapota (*Archras sapota* Linn.) cv. Ma-Kok / Heat treatment / Calcium chloride / Chilling injury