

Pakkathon Labboriboon 2014: Development of Pre- and Postharvest Procedures for Export of Longkong (*Lansium domesticum* Corr.) by Sea. Master of Science (Postharvest Technology), Major Field: Postharvest Technology, Interdisciplinary Graduate Program. Thesis Advisor: Professor Jingtair Siriphanich, Ph.D. 105 pages.

The study on export of longkong to Hong Kong by sea was divided into 3 parts. Part 1, preliminary study: the preharvest application of CaCl_2 , the suitable package and the efficiency of KMnO_4 to eliminate ethylene. After the treatments longkong were stored at 18°C for 10 days then transferred to room temperature for 6 days. The results showed that pre-harvest CaCl_2 treatment was not necessary provided that on postharvest, longkong were dipped in a solution containing NAA 200 mgL^{-1} , CaCl_2 2.5 gL^{-1} and Carbendazim 1000 mgL^{-1} (NCC solution) after harvest. Longkong packed in baskets lined with paper had less fruit drop than those in plastic containing materials. Increasing the amount of KMnO_4 by 8 times only increased the ethylene removal efficiency by one-third. Part 2, export simulation: comparing longkong maturity stages, comparing between paper lining basket and plastic bag, fumigating with 1-MCP and testing of ventilation rate of a 20 feet container. The results showed that longkong at 13 weeks after flowering was the suitable stage, the basket should be lined with paper, no needed to fumigate with 1-MCP and ventilation needed to be set at 1.6 of the container volume per hour to reduce ethylene concentration to less than 0.05 mgL^{-1} . Part 3, exportation to Hong Kong: using 20 feet container, setting ventilation rate at 1 container volume/hour comparing the quality of longkong from different orchards, testing the use of 1-MCP treatment and humidity addition. The results showed that longkong from an orchard with proper fertilizer applying, irrigation, pruning and fungicide application had less weight loss, fruit drop, fruit rot and peel browning. The use of 1-MCP was dispensable and covering longkong with wet cloth before closing the basket reduced browning, if the relative humidity at the destination was low. All in all, it can be summarized that longkong for export should be 1) harvested at 13 weeks after flowering from well managed orchard 2) dipped in NCC solution. 3) packed in baskets line with paper. 4) covered with wet cloth before closing the basket. 5) set ventilation to 1 container volume/hour and temperature at 18°C . Longkong can transported and stored for 10 days. The fruit retained their freshness with less than 9% of fruit drop. After transferred to room temperature for 4 days, the fruit drop was less than 30% in complying with the Ministry of Agriculture standard for longkong.

Student's signature

Thesis advisor's signature