CHAPTER 7

Overall Conclusion

1. Coating fresh longan fruits cv. Long in 6% bees-carnauba mixed wax (MW) and packaging in polypropylene bags (305 x 457 mm in size, and 0.035 mm thick with 4 holes of 0.8 cm^2 per hole) significantly reduced weight loss with the fruits showing no signs of severe pericarp browning or fruit decay throughout the 20 days in storage at 5°C. In addition, fruits maintained lower respiration rate and pericarp pH than those of other treatments and control fruits, and TSS contents of fruits during the storage period were close to that found in the fresh longan cv. Long at harvesting time.

2. Application of 7.5% oxalic acid (OA) soaking for 5 min in combination with 6% MW coating and polypropylene bag packaging could postpone pericarp browning of longan fruits cv. Long for 25 days in storage at 5°C which was indicated by the lowest browning index, the lowest polyphenol oxidase (PPO) activity and pericarp pH, and higher lightness (L* value) and yellowness (b* value) of fruit pericarp when compared with other treatments and the control. Moreover, this treatment maintained low fruit decay, and the TSS content of the longan fruits revealed no difference over time. Furthermore, OA residue was not detected in the flesh of fruits and OA residue of fruit pericarp was 1.4 mg per kilogram.

3. Soaking longan fruits cv. Long in 200 ppm sodium hypochlorite (SH) in association with 6% MW coating and polypropylene bag packaging markedly delayed fruit decay, and significantly reduced total microorganism populations on fruit surface throughout 25 days in storage at 5°C, when compared to other treatments and the control fruits which had from 5.9 to 50.4% fruit decay and higher total microorganism levels. Furthermore, fruits kept visual appearance and eating quality scores that were accepted for marketing purposes for 20 days, and the TSS content of the longan fruit remained unchanged when compared with the TSS content of fruits at harvesting time. In

addition, residual chlorine level was not detected in the flesh of fruits and residual chlorine level of fruit pericarp was 45 mg per kilogram [Residual chlorine level ≤ 0.01%, SH treated fruits can be considered as safe (Kumar *et al*., 2012)].

4. Fruits dipping in 200 ppm SH for 2 min and 7.5% OA for 5 min, and then coating in 6% MW, (instead of sulphur compounds or carbendazim application) seems to provide an interesting technological alternative method for the prevention of pericarp browning and fruit decay, and the maintenance of postharvest quality in bunches of longan fruit cv. Long for 25 days in storage at 5°C. Which were shown by low browning index, low PPO activity, low total microorganism levels, and low weight loss; high L* and b* values as well as eating quality score; and unchanged TSS contents during the storage period. This result suggests that application of the above dose of preservative agents could be feasible for longan fruits storage on a commercial scale.