

Effective postharvest management of tangerine citrus (*Citrus reticulata* 'Siam Banjar') to reduce losses, maintain quality, and protect safety

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Abstract

Among various tangerine citrus (*Citrus reticulata*) or Jeruk Siam known and found in Indonesia, the most popular cultivars are 'Siam Banjar', 'Siam Pontianak', and 'Siam Madu'. Tangerine citrus 'Siam Banjar' is mostly grown in South Kalimantan province, Indonesia, and is generally planted in the lowland or swampy land. The fruits are in high demand by local consumers because of its fresh sweet taste and its high nutritional content. Although the fresh tangerine citrus 'Siam Banjar' currently produced is in good quality, poor postharvest handling consequently results in significant product losses and quality deterioration. Effective postharvest management during the postharvest handling is a strategic effort to improve the quality of tangerine citrus (*Citrus reticulata*) 'Siam Banjar'. Simple innovation in postharvest technology is the key in maintaining the quality properties (color, flavor, aroma), extending the shelf-life, and maximizing the added value of the fruits, so that they are more attractive to consumers, as well as compliant to the trading standards. This paper outlined some simple and low cost primary postharvest technologies for tangerine citrus 'Siam Banjar' during the postharvest handling activities, from harvest until storage prior to marketing. Postharvest treatments were applied in several stages, i.e., harvesting, initial sorting, washing, grading, degreening, waxing, packaging, and storage. The optimum maturity of the tangerine citrus 'Siam Banjar' was obtained at 28-30 weeks after anthesis. Initial sorting was normally conducted in the orchard by discharging the immature, overripe, damaged and diseased fruits. Tangerine citrus 'Siam Banjar' was washed by scrubbing gently the fruit surface in warm water (40-45°C) containing hypochlorous acid (150 ppm), fungicide of benomyl (500 ppm) and small amount of detergent for 3-4 min. Based on the fruit weight and diameter, the tangerine citrus 'Siam Banjar' was categorized into four grades,

Category-A, Category-B, Category-C and Category-D. The treatment with 0.4% w/w of calcium carbide for 72 h provided the best result for degreening of the fruits. The combination of 12% bee wax coating and storage at 5°C was the most effective treatment in maintaining the quality of tangerine citrus 'Siam Banjar'. A proper postharvest handling helped to reduce losses, maintain produce quality, and protect the safety of the fruits.