

The effects of transportation temperature on the decay rate and quality of postharvest Ponkan (*Citrus reticulata* Blanco) fruit in different storage periods

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Abstract

Ponkan (*Citrus reticulata* Blanco cv. Ponkan) is one of the widely grown and economically important citrus fruit species in China. Present study investigated the dynamic changes of Ponkan fruit' storability in different storage period and under alternating temperature during the postharvest transportation and shelf life, aiming to find out an efficient and energy-saving transportation scheme for Ponkan fruit at different storage stage. The results showed that, the elongation of storage time and the higher transport temperature led to the increase of decay rate. The juice yield continued to decrease, without affecting by the transportation temperatures. The rind color turn yellow rapidly (with the citrus color index (CCI) increased from 3.61 to 9.25) during the first two months, and remained stable during the following period. The higher transportation temperature accelerated the rind color development. The total soluble solids (TSS) increased during the first month (from 11.21% to 13.25%), remained stable in the second and third months, and then decreased slightly in the fourth month, which was not evidently influenced by the transportation temperature. The titratable acidity (TA) showed a continuous decline which was accelerated by the high transportation temperature. The ethanol and aldehyde contents continue to increase and were not significantly affected by the transportation temperature. The total flavonoids content decreased during the transportation and shelf life of the newly harvested Ponkan fruit, while remained stable and was not significantly affected by the transportation temperature in the four months of storage. The alternating temperature of transportation affected the storability of Ponkan fruit at different storage periods. These finding provided a theoretical basis for the selection of transportation temperature from economic perspective.