

Title Effect of MA conditions on occurrence of Kohansho [physiological rind disorder] and quality of 'Kiyomi' tangor [fruit of *Citrus unshiu* x *C. sinensis*]

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Abstract

The effect of MA conditions under high humidity packaging on the occurrence of postharvest Kohansho and the quality attributes of stored 'Kiyomi' tangor (*Citrus unshiu* Marc. x *C. sinensis* Osb.) fruit was investigated. Modified atmosphere containing CO₂ concentrations less than or equal to 12% and O₂ concentrations more than or equal to 10% had no effect on the occurrence of Kohansho under high humidity conditions. However, the occurrence of Kohansho was accelerated when the CO₂ level accumulated to 14%. Under the condition that CO₂ levels are not too high and O₂ levels are not too low, maintenance of a high relative humidity surrounding the fruit is considered to be the main factor for packaging design to prevent Kohansho. Furthermore, excessive CO₂ levels (more than 8%) induced fermentative metabolism, resulting in high ethanol levels. MA conditions had no significant effect on the quality attributes, including firmness, TSS, TA, TSS/TA ratio, and AA contents under the high humidity condition. These qualities were preserved during the storage period, probably resulting from the maintenance of a high relative humidity inside the package. As recommended storage conditions and packaging design guidelines, 'Kiyomi' fruit should be stored particularly under a high relative humidity and should not be exposed to high CO₂ levels (8%) and /or low O₂ levels (5%) to prevent Kohansho and preserve high quality.