

Title Induction of modified atmosphere-related browning disorders in 'Fuyu' persimmon fruit
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Abstract

Critical O₂ levels which induce modified atmosphere-related browning disorders in 'Fuyu' persimmon fruit were determined using controlled atmosphere (CA) storage at two different temperatures. Fruit were harvested at commercial maturity and stored for 4 months under different CA regimes and temperature. In the 2000–2001 season, O₂ levels were adjusted to 0.5–0.75 or 0.1–0.3 kPa in combination with 5.0–7.5 and 10.0–12.5 kPa CO₂, respectively, at 0 °C. In the 2001–2002 season, two different O₂ levels, 0.5 and 0.25 kPa O₂, were combined with 9.0 kPa CO₂ at –1.0 and 1.0 °C. Incidence of the styler-end-specific browning (SEB) disorder was almost 0 above the 0.50 kPa O₂ level regardless of CO₂ concentration, whereas it was noticeable at 0.40–0.50 kPa, indicating that inductive O₂ levels for SEB are below 0.4 kPa. Other types of browning such as pitted specks (PS) and pitted blotch browning (PBB) all over the surface occurred at 0.50 kPa O₂, and the incidence tended to increase at lower O₂ levels. Effects of storage temperature on the incidence of browning disorders were not significant except that lower storage temperature enhanced post-storage development of flesh blotch browning. Incidence of SEB was closely related with internal ethanol content, while incidence of PBB did not show clear relationships with the ethanol contents. Tissue specificity of SEB seemed to be closely related to the accumulation of anaerobic metabolites in the styler-end part of the fruit.