

Title Physiological responses and quality attributes of 'Kyoho' grapes to controlled atmosphere storage
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Citation LWT - Food Science and Technology Volume 39, Issue 6, August 2006, Pages 584-590
Keyword 'Kyoho' grapes; O₂ and CO₂ concentrations; Controlled atmosphere; Physiology; Quality

Abstract

This research studied the physiological responses and quality attributes of Kyoho grapes (*Vitis vinifera* X *V. labrusca*) to controlled atmosphere storage. The grapes were stored for up to 60 days in 95% relative humidity with four different conditions, 4% O₂+9% CO₂, 4% O₂+30% CO₂, 80% O₂, and air, as control. The examined physiological responses and quality attributes included polyphenol oxidase (PPO) activity, ethanol concentration, fruit detachment force (FDF), firmness, color, soluble solid content (SSC), titratable acidity (TA), ascorbic acid concentration (Vc), and sensory quality. PPO activity, FDF drop and decay incidence when stored in 4% O₂+30% CO₂ were more effectively controlled, but unacceptable alcoholic flavor and browning were detected after 45 days, compared with those stored in 4% O₂+9% CO₂ or 80% O₂. The fruits kept in 4% O₂+9% CO₂ or 80% O₂ had good quality during 60 days of storage. The results suggested that high O₂ atmosphere exhibited a potential for maintaining the quality of 'Kyoho' grapes during long-term storage.