Title Effects of postharvest treatment with low O_2 or high CO_2 on quality changes of Chinese chestnut (*Castanea mollissima* Blume) during cold storage

Author Gui-Xi Wang, Li-Song Liang, and Xiao-Hu Yang

Citation Abstracts of 27th International Horticultural Congress & Exhibition (IHC 2006), August 13-19, 2006, COEX (Convention & Exhibition), Seoul, Korea. 494 pages.

Keywords chestnut; low oxygen; high carbon dioxide; cold storage; quality

Abstract

Quality changes in chestnut *Castanea mollissima* Blume, 'Dahongpao' were evaluated following postharvest shock treatment with low O_2 (0-5%) or high CO_2 (30%-80%) for 10, 20 and 25 days respectively and then stored at 0°C. Duration of treatment and O_2 or CO_2 concentration were the main factors affecting quality. Off-flavors were induced if O2 concentration was less than 2% or CO_2 concentrations were higher than 50%. If the treatment duration was less than 20 days, the injury could be overcome completely in 120 days at 0°C. Chestnuts treated with 3% to 4% O_2 or 40% CO_2 for 20 days had the lowest incidence of decay after 120 days at 0°C. Low O_2 and high CO_2 induced accumulation of ethanol, but concentration decreased during storage, and after 120 days, ethanol concentrations were reduced to the same level as control. Using 4% O_2 or 40% CO_2 for 20 days retarded hydrolysis of starch during 120 days storage. A treatment of 4% O_2 or 40% CO_2 for 20 days had the most positive effect on maintaining quality of chestnuts during storage at 0°C.