

Title Effect of modified atmosphere packaging on the browning and lignification of bamboo shoots
Author Qun Shen, Fanchun Kong and Qun Wang
Citation Journal of Food Engineering, Volume 77, Issue 2, November 2006, Pages 348-354
Keywords Bamboo shoots; Modified atmosphere packaging; Brown; Peroxidase; Phenylalanin ammonialyase

Abstract

Fresh bamboo (*Phyllostachys praecox*) shoots were stored in open or packaged circumstance at 10 °C to determine the effect of modified atmosphere packaging on the browning and lignification of the bamboo shoots. The packaging film was 0.04 mm polyethylene bags and the gas components were 2% O₂, 5% CO₂ and 93% N₂. The bamboo shoots of control treatment were not edible[†] at the end of the storage for severe browning, while the shoots of modified atmosphere packaging treatment browned slightly and remained edible. Modified atmosphere packaging treatment inhibited the formation of malondialdehyde and the activity of peroxidase and phenylalanin ammonialyase, which attributed to preventing the browning and lignification. Modified atmosphere packaging could not inhibit the formation of polyphenol and polyphenol oxidase activity, but the low O₂ concentration and the low activity of peroxidase and phenylalanin ammonialyase prevented the enzymatic reaction and maintained the bamboo shoots unbrowned. Modified atmosphere packaging treatment could also significantly inhibit the lignification of the bamboo shoots by preventing the formation of cellulose and lignin contents. (†When the contents of cellulose and lignification of bamboo shoots was more than 46.64% and 15.63% (dry basis), it was inedible [Wang, J. W. (2002). Study on ageing physiology of postharvest of bamboo shoots. *Forest Research* 15 (6), 687–692].)