

Title Effects of 1-methylcyclopropene treatment and controlled atmosphere storage on post storage metabolism and quality of 'Hongro' apples

Author Park H.G., Lim B.S. and Park Y.M.

Citation Horticulture, Environment, and Biotechnology, 50(4) p. 313-318, 2009.

Keywords Ethylene; Respiration; Keeping quality; Texture

Abstract

Individual and combined effects of postharvest 1-methylcyclopropene (1-MCP) treatment and controlled atmosphere (CA) storage on quality changes of 'Hongro' apples during storage were investigated by two-way analysis of variance. Apples were harvested at commercial maturity, treated with $1 \mu\text{LL}^{-1}$ 1-MCP, and stored under refrigerated air or CA conditions for 4 months at 0°C . At 2-month intervals, fruit were removed from storage and put on the shelf for 7 days at 20°C to simulate marketing at room temperature. Postharvest 1-MCP treatment and CA storage significantly reduced respiration and ethylene production. Titratable acidity, flesh firmness, and texture ratings were retained higher by 1-MCP treatment and CA storage, while greasiness on the fruit skin was effectively suppressed by the treatments. However, additional effects from the combined treatment of 1-MCP and CA were slight. Storage potential of 'Hongro' apples seemed to be extended to 4 months by the 1-MCP treatment. Although effects of 1-MCP treatment was not so great as CA storage, postharvest application of the chemical could substitute CA storage for 'Hongro' apples programmed to be stored for 4 months plus 7 day shelf life at room temperature.