

Title Modified atmosphere packaging confers additional chilling tolerance on ethylene-inhibited cantaloupe Charentais melon fruit

Author Francisco B. Flores, Maria Concepción Martínez-Madrid, Mohamed Ben Amor, 5, Jean Claude Pech, Alain Latché and Felix Romojaro

Citation European Food Research and Technology 219 (6): 614-619. 2004.

Keywords Modified atmosphere packaging; Ethylene; Chilling injury; 1-aminocyclopropane-1-carboxylic acid oxidase antisense; *Cucumis melo*; Weight loss; Electrolyte leakage

Abstract

Cantaloupe Charentais melon fruits are subject to chilling injury when stored at low temperatures, around 2 °C. Ethylene-suppressed cantaloupe Charentais melon, expressing a 1-aminocyclopropane-1-carboxylic acid (ACC)-oxidase gene in antisense orientation, showed strong, but not total, resistance to chilling injury, allowing an extended storage at low temperatures. Modified atmosphere packaging (MAP) is known to alleviate chilling injury symptoms in a variety of chilling-sensitive horticultural commodities. In the present work, we have compared the effects of MAP in non-retractile plastic film and storage in air on ethylene production, respiratory activity, development of chilling injury symptoms, water loss, ion leakage and accumulation of ethanol and acetaldehyde in wild-type and ethylene-suppressed melons, during storage at 2 °C and after re-warming at 22 °C. MAP reduced chilling injury and extended the postharvest life of wild-type fruit and conferred additional chilling resistance on ethylene-suppressed melons. Reduction of ethylene production and water loss are necessary to prevent chilling injury symptoms in melon.