Abstract:

Modified atmosphere packaging reduces excessive water loss in artichoke heads during conventional cold storage and shelf life. Most of the available films modify extremely the atmosphere inside the package, due to the high artichoke respiration rate and low gas permeability's of films. In addition, low O_2 combined to high CO_2 levels promote internal blackening. For optimizing gas composition and quality, the effect of controlled atmosphere (CA) on artichoke heads (Cynara scolymus L.) cv. 'Blanca de Tudela' stored for 2 weeks at 4ºC was investigated. Two gas compositons, 5% O_2 - 10% CO_2 (CA 5-10) and 5% O_2 - 15% CO_2 (CA 5-15), were studied. Respiration rates decreased during CA storage ranging 15 to 25 and 10 to 20 mL CO_2·kg-1·h-1 in CA 5-10 and CA 5-15 respectively, while was 30 to 40 mL CO_2·kg-1·h-1 in air. Fungal attacks, external bract browning, apical bract darkening, pappus increase, chilling injuries or violet discoloration after cutting were not observed. However, CA 5-15 caused off odors and several CO_2 injuries in the inner bracts and receptacle of the artichokes. No differences in quality for both CA 5-10 and air samples compared to that at harvest were found, due to the short storage period, CA prolonged artichokes shelf-life for long period. Further studies are necessary to define of O_2 and CO_2 threshold to avoid injury.