

Abstract:

Garlic storage is important to provide product for fresh market and fresh peeled processing. Garlic bulbs (cv. California Late and California Early) and unpeeled cloves were stored in several experiments in air and CA (0.1, 0.5, 1% O₂ in combination with 0, 5, 10, 15 and 20% CO₂) at 0-1°C for up to 6 months. Quality changes, especially sprout growth, decay and discoloration, were reduced by CO₂-containing atmospheres, but the low O₂ atmospheres alone generally had little benefit. Storage of garlic with CO₂ atmospheres >15% may lead to injury after 4-6 months. Fructan concentrations were similar among air- and CA-stored bulbs, but notably decreased under 20% CO₂. Thiosulfinate and pyruvate concentrations were generally maintained in CO₂-containing atmospheres, but increased in air- and low O₂-stored garlic that permitted sprout development. Alliin concentrations were generally stable during storage up to 6 months, but in some cases decreased significantly under high CO₂ atmospheres. For fresh peeled garlic, atmospheres of CO₂ (5-15%) in air or in low O₂ (1-3%) were effective in retarding discoloration and decay at 5 and 10°C for 3 weeks.