

Abstract:

Changes in the composition of carrot cell wall proteins were investigated, associating metabolic changes during long-term storage with changes in mechanical properties. Harvested carrots accumulate an antifreezing protein in their cell walls reaching a maximum level after 12 weeks of storage at 0°C, followed by a gradual decrease. During the same period of time, there is a decrease in the slicing force during the first 7 weeks of storage followed by an increase until the 12th week. The appearance and accumulation of the antifreezing protein suggest that structural changes leading to changes in mechanical properties during the first 12 weeks of storage might be associated with a cold acclimation process.