Abstract:

Core breakdown is a disorder that frequently occurs during storage of pears under certain controlled atmosphere conditions, characterised by a discoloration of the inner flesh core while the cortex tissue remains sound. Recent research has shown that brown core development might be related to a decrease in vitamin C content. To test this hypothesis, the postharvest evolution of vitamin C and its distribution inside the fruit was investigated. A rapid breakdown of vitamin C during the cooling period was observed, while further losses during subsequent CA storage were minimal. Immediate CA storage under brown-inducing conditions resulted in an eightfold faster vitamin C breakdown. Vitamin C maps showed a strong asymmetrical distribution of vitamin C, indicating that vitamin C cannot be the only limiting factor. It was concluded that vitamin C probably has a protective capability since the occurrence of healthy spots inside the brown zone corresponded with higher vitamin C levels. A vitamin C threshold of 0.37 mg/100g was determined below which the incidence of internal browning was higher than 50%.