

Abstract:

Pears (*Pyrus communis* L. cv Conference) were subjected to air and controlled-atmosphere storage (CA: 2 % O₂ + 5 % CO₂), to investigate the short-term effects of this atmosphere on H₂O₂ and antioxidant metabolisms. In the first days of storage, a sharp peak of H₂O₂ was observed especially when the fruits were stored in CA. Concomitantly, the superoxide dismutase (SOD) activity increase and the catalase (CAT) activity decrease in the CA-stored fruits. Total ascorbate content decreased rapidly during storage especially when fruits were stored in CA, and a significant oxidation of ascorbate during the first days of storage was found. Total glutathione levels also decreased after storage, but here levels of the reduced form of glutathione were found in the CA-stored fruits. A changing ascorbate metabolism in the CA-stored fruits was related to an increasing ascorbate peroxidase (APX) and dehydroascorbate reductase activity (DHAR). These results support the hypothesis that Conference pears are subjected to oxidative stress during the initial phase of CA.