

Title Browning disorders in pear fruit

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Abstract

Disorders occurring during long-term storage of pears can cause economic loss, especially when disordered fruit cannot be distinguished externally from sound fruit. A typical category of disorders in pear fruit is related to internal browning of the flesh and the presence of cavities. In this review, information which appeared in the literature in the last decade has been integrated into a generic model for the development of storage-related browning disorders in pear. In this model it is assumed that browning disorders are caused by an imbalance between oxidative and reductive processes due to metabolic gas gradients inside the fruit, leading to an accumulation of reactive oxygen species. The latter may induce loss of membrane integrity which becomes macroscopically visible through the enzymatic oxidation of phenolic compounds to brown coloured polymers. The development of disorders during postharvest ripening and storage of fruit also depends on a range of preharvest factors such as climate conditions and crop load. Methods to evaluate the incidence of browning disorders nondestructively have been reviewed.