

Abstract:

Low-oxygen and/or high-carbon dioxide injury result from holding apples and pears in atmospheres below/above their tolerance for oxygen/carbon dioxide levels. The incidence and extent of the disorders are influenced by concentration of carbon dioxide and oxygen and duration of exposure as well as by site conditions, cultivar, fruit maturity, storage temperature and humidity. Cultivars and individual fruits vary in their susceptibility to injury because of anatomical differences (size of intercellular space, rate of gas diffusion in the tissue and through the skin) and biochemical differences. External injuries of the fruit skin or internal disorders and cavities in the fruit tissue become finally visible as brown discoloured spots caused by oxidation of phenolic compounds. This is the last step in a reaction chain beginning with the impairment of the viability of cell membrane by fermentative metabolites, shortage of energy or possibly excess of free radicals. Recent knowledge of pre- and postharvest treatments, harvesting and storage procedure which can reduce CA-related disorders will be discussed.²