Abstract:

Pear is a perishable product, which continues to respire after harvest. Some undesirable phenomena such as firmness loss, colour changes and senescence in general are associated with water loss and cause quality losses during long term storage. It is clear that for an improved operation of cool rooms a more profound insight of the transport processes inside pear are mandatory. In this paper, an estimation procedure of effective diffusivity in pear tissue by means of a numerical water diffusion model is presented. Conference pears (Pyrus communis cv. Conference) of different picking date and different storage period were investigated. Results showed that the effective diffusivity of water does not depend on the period of storage or picking date. Average values ranged from 1.52×10^{-11} to 1.73×10^{-11} (m-2.s-1). However, a large biological variability was observed. The diffusion coefficients of cuticles were significantly lower than those of flesh and were in the same range as obtained for apple cuticle (1.1×10^{-13} to 1.2×10^{-13} (m2.s-1)).