

Title Postharvest fruit physicochemical changes and properties of asian (*Pyrus serotina* Rehd.) and european (*Pyrus communis* L.) pear cultivars

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Abstract

Postharvest changes in the physicochemical properties of two commercial Asian pears ('KS'A9 and 'KS'A13) and one European pear ('Shahmiveh') were quantified during five months' storage (at 1°C, 80-85% RH). Sugar, organic acid profile and ethylene were determined using HPLC equipped with RI and UV detectors, and GC equipped with an FID detector, respectively. Total oxalate-soluble pectin (OSP) and total phenolics compounds (TPC) were determined using UV-Vis spectrophotometer. The mineral content of fruit was determined by Inductively Coupled Plasma (ICP). Results showed that at the time of fruit harvest, sorbitol was the dominant sugar, followed by fructose, glucose and sucrose. After five months' storage, fructose was the dominant sugar, followed by glucose, sorbitol and sucrose. Malic, ascorbic, and citric acids were the predominant organic acids, in order of dominance. Total oxalatesoluble pectin contents increased from the first month of storage to the second month, then decreased. The total phenolic and calcium content decreased from the time of harvest to the fifth month of storage. The European pear had higher ethylene production than the Asian pear cultivars from harvest to the end of storage period. In addition, fruit color, firmness, titrable acidity, soluble solids content and dry weight were monitored. The Asian pear cultivars 'KS'A9 and 'KS'A13 showed better storage ability and maintained their quality better than the European 'Shahmiveh' pear cultivar.