

Title The aroma development during storage of Castlebrite apricots as evaluated by gas chromatography, electronic nose, and sensory analysis

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Abstract

One of the most important factors limiting apricot quality is the loss of flavor during storage, particularly overall aroma. To characterize fruit aroma, several techniques have been used, including both instrumental- and sensory-based methodologies. Despite the importance of aroma in fruit quality, limited information is available regarding the effects of long-term cold storage and ripening on the apricot's volatile compound profile. The objective of this research was to characterize the aroma of two lots of Castlebrite apricots at different stages of initial maturity using gas chromatography–mass spectrometry (GC–MS), electronic nose (e-nose) analysis, and a sensory panel. GC measurements were performed on both intact fruit and ground fruit tissue. Evaluations were performed at harvest, after 15 or 30 d of cold storage at 0 °C under a normal air atmosphere and also after a simulated shelf-life period at 20 °C. Among the volatiles identified by GC–MS, aldehydes and esters were the primary constituents of Castlebrite apricot aroma, and differences in volatile aroma profiles were observed between intact and ground fruit. Only the concentrations of aldehyde compounds, primarily hexanal, were different between maturity stages. Furthermore, the e-nose was able to successfully differentiate between the two different stages of fruit maturity examined, but only after simulated shelf-life storage. Interestingly, despite the changes detected by GC and the e-nose, the sensory panel could not identify any differences between apricots at different stages of maturity.