

Title Effect of active and passive MAP on postharvest quality of raspberry 'Polka'

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Abstract

The aim of the current experiment undertaken at the Estonian University of Life Sciences in September 2008 was to determine the effect of passive MAP (LDPE bag (Estiko, Estonia) and Xtend raspberry bag (Stepac, Israel) and active MAP (LDPE bag, flushed with gas mixture containing 10% O₂ and 15% CO₂) on postharvest quality of raspberry 'Polka'. Raspberries were picked at the 14. September into 250-g well ventilated plastic cups, cooled down to 1.6°C during 24 hours and then packed into different bags (four cups into one bag). One variant consisted of six replicate bags (6 kg each). Raspberries were stored for 5 days: on 4th day half of the bags were moved into simulated retail conditions (6°C) and half of them stayed at 1.6°C. Raspberries were weighed and O₂ and CO₂ content was measured from the packages every day using hand-held gas analyser OXYBABY V (WITT-Gasetechnik GmbH & Co KG, Germany). Fruit dry matter (DM) and soluble solids content (SSC), titratable acidity (TA), ascorbic acid content (AAC), total anthocyanins (ACY) and total antioxidant activity (TAA) were determined at harvest, and at the end of storage. Rotting (weight of berries with rots) was measured after storage. Neither active nor passive MAP suppressed rotting significantly. After five days of cold storage, raspberries packed in passively modified LDPE package, had higher SSC and TA, lower ACY content and similar AAC compared to raspberries stored in normal atmosphere. Raspberries stored in Xtend film had higher SSC and TA content, similar ACY content and lower AAC content compared to the control. In retail conditions, fruits held in passively or actively modified LDPE packages were no different from control variant fruits in any of the characteristics. Raspberries packed in Xtend film had lower SSC, higher TA, similar AAC and lower ACY compared to the control. Thus, raspberries held in 1.6°C, had best quality in passively modified LDPE bags and in retail conditions Xtend bags turned out to be most suitable.