

Title Improved quality retention of packaged 'Anjou' pear slices using a 1-methylcyclopropene (1-MCP) co-release technology

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Citation Postharvest Biology and Technology, Volume 51, Issue 3, March 2009, Pages 378-383

Keywords 'Anjou' pear; Fresh-cut; 1-MCP; Co-release technology; Secondary browning; Flavour volatiles

Abstract

After three months storage at 0.5 °C one quarter of a lot of 'Anjou' pears (*Pyrus communis* L.) were treated with 1 µL L⁻¹ of 1-methylcyclopropane (1-MCP) for 8 h at 20 °C and three quarters of the fruit were left untreated at 20 °C for the same time. Treated and untreated pears were then sliced, dipped in a commercial anti-browning solution and packaged in modified atmospheric bags. Packages, containing slices from 1-MCP treated fruit, were labelled as MCP1. Slices from two thirds of the untreated fruit had one of two secondary treatments applied: (1) multi-functional co-release sachets added to the package at the time of sealing (NT), or (2) an injection of 1-MCP to sealed packages to achieve a final concentration of 1 µL L⁻¹ (MCP2). The last third of the slices from the untreated lot of pears were sealed into packages with no further treatment (CK). The packages were kept at 5 °C. In-package ethylene concentrations were significantly lower for the NT treated slices. NT also significantly delayed and reduced net oxygen consumption in the package headspace compared with other treatments. The NT treatment also reduced incidence of browning induced by enzymes of microbial origin, termed secondary browning (SB), and better maintained the measured juiciness of slices. In contrast, the CK, MCP1 and MCP2 treatments showed a more rapid appearance and severity of SB. Slices in packages treated with NT retained higher tissue levels of butyl, hexyl and pentyl acetate, 6-methyl-5-hepten-2-one, butanol and hexanol during storage than any of the other three treatments.