

# Synergistic effects of 1-MCP and hot air treatments on delaying softening and promoting anthocyanin biosynthesis in nectarines

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## Abstract

The effects of 1-MCP, hot air (HA), and 1-MCP+HA treatments on softening and anthocyanin biosynthesis in nectarines during storage at 25 °C for 8 d were investigated. The results showed that 1-MCP and 1-MCP+HA treatments maintained the firmness and cell wall contents and reduced the activities of cell wall-modifying enzymes, including polygalacturonase,  $\beta$ -galactosidase ( $\beta$ -GAL), cellulase, and pectin methylesterase (PME) in nectarines. Furthermore, transmission electron microscopy of the cell walls showed that 1-MCP and 1-MCP+HA treatments maintained their structural integrity. HA and 1-MCP+HA treatments stimulated the accumulation of anthocyanins and accelerated the reddening of the flesh, possibly through increased activity of enzymes, including flavanone 3-hydroxylase, dihydroflavonol 4-reductase, and uridine diphosphate flavonoid 3-O-glucosyltransferase. Collectively, our results may shed new light on optimizing 1-MCP application for delaying softening of fruit.