

Title Effect of 1-methylcyclopropene on shelf life, visual quality, antioxidant enzymes and health-promoting compounds in broccoli florets

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Abstract

The effect of 1-methylcyclopropene (1-MCP) on quality, antioxidant enzymes and glucosinolate contents in broccoli (*Brassica oleracea* var. *italica*) florets was investigated in the present study. Broccoli florets were treated with air (control) and 2.5 $\mu\text{l/l}$ 1-MCP for 6 h at 20 °C, and were then stored at 20 °C for 5 days. 1-MCP treatment markedly extended shelf life, reduced postharvest deterioration, retarded chlorophyll degradation and inhibited the increase of malondialdehyde amount and activities of polyphenol oxidase and lipoxygenase in florets. The activities of superoxide dismutase, peroxidase and catalase in florets treated with 1-MCP were higher than those in control florets. 1-MCP treatment reduced the rate of decrease of total carotenoids, ascorbic acid and glucosinolates in florets when compared to those in the control. These results indicated that 1-MCP treatment could be a good candidate for extending shelf life, maintaining visual quality and reducing loss of health-promoting compounds, particularly glucosinolates in broccoli.