Abstract:

Plums cv. ‘Black Diamond’ were treated with concentrations of 0, 500 or 750 ppb 1-Methylcyclopropene (1-MCP) for 24 h at 1°C and then stored at 1°C. After harvest and after 10, 20, 30 or 40 days at 1°C, fruit were transferred to 20°C for 8 days simulating shelf-life. Ethylene emission of plums was strongly inhibited by 1-MCP and levels of CO2 production were significantly higher in non-treated fruit. Control plums exhibited a rapid flesh softening while 1-MCP treatments showed high values of firmness during the storage. 1-MCP treatment delayed color evolution, control fruit showed lower ‘L’, ‘a’ and ‘b’ values (Hunter Lab parameters) compared with treated plums. No significant differences among treatments were detected in sugar content; nevertheless 1-MCP retarded the acidity decline. Our results demonstrated that 1-MCP treatment resulted in delaying ripening and senescence processes and improved fruit quality during cold storage and subsequent shelf-life.