Abstract

The influence of 1-MCP on the response of apricots to mechanical injury (impact) and the potential involvement of oxidative stress was investigated. Apricots (*Prunus armeniaca* L. cv. Marietta) picked at an early ripening (commercial harvest) stage (11–11.5 °Brix) were dropped from 30 cm onto a flat, hard surface to simulate an impact injury; fruit were treated with 500 nl l^{-1} 1-MCP for 20 h at 20 °C before or after the impact injury. Injured fruit showed a substantial rise in ethylene production after 4 days, while in fruit treated with 1-MCP, this increase started after 6 days, with a production rate lower than that of injured fruit. Increase in the respiration rate was delayed for 1-MCP-treated injured fruit in comparison with untreated injured ones. Tissue softening was reduced by 1-MCP treatment, showing less tissue deformability. Scanning EM analysis of injured tissue revealed healthier cells in 1-MCP treated apricots. 1-MCP-treated the increase of superoxide dismutase activity (SOD) due to mechanical injury in the first 4 days and this behaviour was related to ethylene production. Peroxidase activity (POX) increased in injured tissue immediately but then remained stable; 1-MCP, particularly when applied before the impact, increased POX activity. These results indicate that using 1-MCP can control ripening acceleration of apricots induced by mechanical injury. SOD, POX, and ethylene relationships are discussed.