Title Effect of ethylene levels at harvest on 1-methylcyclopropene (1-MCP) efficiency and chilling injury sensitivity of plum

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Abstract

Six cultivars of plum were harvested at commercial maturity stage. These varieties were chosen according to their levels of ethylene production during ripening. Fruits were treated with 1-MCP at 650 $nL.L^{-1}$ for 24 hours at 5°C. After treatment, all fruit was stored at 1°C. Fruit were removed from cold storage at 15 days intervals, and transferred to 20°C for 7 days shelf life.The. degree of response of the fruit to 1-MCP treatments was evaluated by the degree of delaying the loss of firmness and color changes during holding at 20°C. Here we reported that the effects of 1-MCP on plum depend mainly on the levels of ethylene produced by fruit before application. In cultivars that exhibited low ethylene level higher values of firmness were observed in 1-MCP-treated plums compared with control. However, cultivars displayed high levels of ethylene at harvest, showed lower response to 1-MCP treatment and are more affected by chilling injury (CI), a major physiological storage disorder in plums. This variation in chilling injury sensitivity in relation to ethylene production may be useful in breeding cultivars with improved storage life at low temperatures.