

Title Postharvest quality and chilling injury of plums: benefits of 1-methylcyclopropene
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Abstract

The aim of this work was to evaluate the effect of 1-methylcyclopropene (1-MCP) treatment on the development of chilling injury (CI) symptoms in four plum cultivars and to determine the relationship between the climacteric behavior of the cultivar and its sensitivity to this disorder. Significant differences in ripening pattern were found between the cultivars after long-term storage. Among the climacteric cultivars, "Royal Zee" plums showed a higher ethylene production rate than "Linda Rosa" and "Friar" cultivars. On the other hand, the "Angeleno" cultivar behaved as a suppressed climacteric type. The development of translucency symptoms was higher in "Royal Zee" than in "Linda Rosa" and "Friar" plums, and was almost absent in the suppressed climacteric cultivar. 1-MCP treatment significantly reduced ethylene production and the percentage of fruit affected by translucency in all climacteric cultivars. This treatment also delayed the ripening of the fruit during shelf life. In contrast, 1-MCP treatment did not affect the quality of "Angeleno" plums. Collectively these results suggest that the development of chilling injury in plums is related to the climacteric behavior of the cultivar and demonstrated the beneficial effects of 1-MCP maintaining plum quality during storage.