

Abstract

Softening and chilling injury (CI) are the main problems in cold storage of plums, that limit transport to distant markets. The 1-methylcyclopropene (1-MCP) is an ethylene receptor inhibitor and its effect on maturity of climacteric fruits is well known, however, the effect on the development of chilling injury symptoms requires further studies. Black Amber plums were harvested at commercial maturity and divided into two lots. One lot of fruit was cooled immediately (Control), and a half of those fruits were treated with 600 ppb of 1-MCP (1-MCP). The other lot was exposed to a delayed storage (DS) by 24 hours at 20°C and a half of these were treated with 600 ppb of 1-MCP (DS+1-MCP). After treatment fruits were stored at 0°C during 10, 20, 30, 40, 50 days and evaluated the day of removal of chamber and after 5 days of ripening. Results indicated that the DS was not effective on reducing CI symptoms; in fact this treatment increased the percentage and the severity of symptoms, in addition to hastened the softening, the lose of titratable acidity and the development of red colour of the flesh. DS do not increase loose of weight. In contrast, the two 1-MCP treatments reduced the development of flesh browning and translucency irrespective of it was immediately cooling or DS. Furthermore, 1-MCP treatments maintain firmness, acidity and flesh colour and reduced the weight loss. Soluble solids content was unaffected by treatments. We conclude that the best treatment to reduce ripening and chilling injury of cold stored Black Amber plums is cooling immediately the fruit followed by the application of 1-MCP.