

Title The effect of 1-methylcyclopropene (1-MCP) on the physical and biochemical characteristics of onion cv. SS1 bulbs during storage

Author Gemma A. Chope, Leon A. Terry and Philip J. White

Citation Postharvest Biology and Technology, Volume 44, Issue 2, May 2007, Pages 131-140

Keywords Abscisic acid; *Allium cepa* L.; Ethylene; Non-structural carbohydrates; Sprouting

Abstract

There is a paucity of information on the role of ethylene in onion bulb dormancy, and the available literature is conflicting. Onion cv. SS1 bulbs were treated with $1 \mu\text{l l}^{-1}$ 1-MCP for 24 h at 20 °C and then stored at 4, 12 or 20 °C. Sprout growth was reduced in onions treated with 1-MCP and stored at 4 or 12 °C, but not when stored at 20 °C. Greater concentrations of sucrose, glucose and fructose were measured in 1-MCP treated bulbs stored at 12 °C as compared with untreated bulbs. Dry weight was also maintained in onions treated with 1-MCP. Abscisic acid (ABA) concentration before storage has previously been shown to be correlated with storage life, but there were no differences in the ABA concentration between 1-MCP treated and untreated bulbs. It appeared that 1-MCP reduced the rate of carbon utilisation. The mechanism by which this occurred is unknown although it is unlikely to be mediated by ABA.