

Title Effect of timing of 1-MCP application and time from harvest to 1-MCP exposure on shelf life of Cavendish bananas

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Abstract

We examined the combination effect of timing of 1-MCP application and time from harvest to 1-MCP exposure on fruit from the top and bottom of the bunch. Fruit were divided into two lots. The first lot was treated upon arrival (5 days from harvest) and the second lot treated after 5 days of storage (10 days from harvest). Both lots were treated with 100 $\mu\text{L L}^{-1}$ ethylene on two consecutive days, followed by 20 minutes ventilation and then exposed to 1-MCP at 0 or 300 nL L^{-1} for 24 h at 22 °C or treated with 1-MCP at 5 nL L^{-1} for 6 h at 22°C prior to ethylene gassing with 100 $\mu\text{L L}^{-1}$ followed by exposure to 1-MCP at 300 nL L^{-1} for 24 h at 22°C. Shelf life of 1-MCP treated fruit (300 nL L^{-1}) increased significantly in fruit from the top and bottom of the bunch compared to the control when bananas were treated with 1-MCP 5 days after harvest. Bananas that were exposed to 1-MCP 5 days after harvest in the pre-climacteric stage (5 nL L^{-1}) and then 1-MCP in the early-climacteric stage (300 nL L^{-1}) did not ripen. However, reapplication of 1-MCP was more effective in extending fruit shelf life than only one application after ethylene treatment when bananas were treated with 1-MCP 10 days after harvest. We conclude that both time from harvest to 1-MCP exposure and timing of 1-MCP application affected the efficacy of 1-MCP in extending the shelf life of bananas.