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Extension of the shelf life of banana fruit by 1-methylcyclopropene in combination with polyethylene bags

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Abstract

The effect of the new anti-ethylene compound 1-methylcyclopropene (1-MCP) in combination with polyethylene bags on the ripening of harvested banana fruit was investigated. 1-MCP treatment delayed peel colour change and fruit softening, and extended shelf life in association with suppression of respiration and C₂H₄ evolution. Banana fruit ripening was delayed when exposed to 0.01–1.0 $\mu\text{l/l}$ 1-MCP/l for 24 h, and increasing concentrations of 1-MCP were generally more effective for longer periods of time. Similar results were obtained with fruit sealed in polyethylene bags (0.03 mm thick) containing 1-MCP at various concentrations, but longer delays in ripening were achieved. The greatest longevity of about 58 days was realised by packing fruit in sealed polyethylene bags with 1-MCP at either of 0.5 or 1.0 $\mu\text{l/l}$. Analyses of C₂H₄ and CO₂ concentrations within polyethylene bags confirmed that 1-MCP suppressed both C₂H₄

evolution and respiration. Thus, application of 1-MCP in combination with the use of polyethylene bags can greatly extend the postharvest life of banana fruit.



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Keywords

Modified atmosphere; Ripening; Storage

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