

Abstract

Mamey sapote (*Pouteria sapote* (Jacq.) H.E. Moore and Stearn) fruit is highly appreciated in the Caribbean region; however, marketable life is significantly limited by abrupt softening during postharvest handling. Postharvest wax and 1-methylcyclopropene (1-MCP) treatments were evaluated for potential of extending mamey sapote postharvest life. Fruit of the cv. Magaña were harvested at mature green (G), light orange (LO) and orange (O) stages of the pulp color, and brushed to remove excess epidermal fiber. Waxed (carnauba emulsion) and unwaxed fruit (G and LO stages) were held at 13 °C for 7 days, then transferred to 20 °C for ripening; those at O stage were held constantly at 20 °C. In a subsequent test, 'Magaña' fruit were harvested at a preclimacteric stage (LO), brushed, and treated with ±carnauba wax and ±1-MCP ($1 \mu\text{l l}^{-1}$ at 20 °C for 24 h). Fruit from all treatments were subsequently stored at 20 °C and 85–90% relative humidity. Unwaxed 'Magaña' fruit reached climacteric maxima in 10–11 days, irrespective of harvest maturity or storage regime (Exp. 1). At 20 °C, peak CO_2 production ranged from 90 to $137 \text{ ml kg}^{-1} \text{ h}^{-1}$ and peak ethylene production from 116 to $209 \mu\text{l kg}^{-1} \text{ h}^{-1}$, respectively. Waxed fruit generally had higher CO_2 and C_2H_4 production rates than unwaxed fruit. When LO fruit was stored continuously at 20 °C (Exp. 2), wax treatment alone hastened the onset of respiration and ethylene climacteric peaks by 5 days over unwaxed fruit. 1-MCP treatment alone delayed the onset of respiration and ethylene climacteric maxima by 6 and 5 days, respectively. Marketable life for wax-only fruit stored continuously at 20 °C was 10 days, while that for control, wax + 1-MCP and 1-MCP-only fruit was 13, 14, and 14 days, respectively. Mamey sapote fruit treated with wax lost less weight during continuous storage at 20 °C. At the full-ripe stage, no treatment effects were noted for pulp soluble solids content (23.4%) or pH (5.7). Mamey sapote fruit treated with wax + 1-MCP, however, retained total titratable acidity (0.25%) and lost less acid during storage than wax-only fruit (0.14%).