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revfitotecniamex@gmail.com

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Sañudo Barajas, J. Adriana; Siller Cepeda, Jorge; Osuna Enciso, Tomás; Muy Rangel, Dolores; López Álvarez, Guadalupe; Osuna Castro, Juan Alberto; Greve, Carl; Labavitch, John
Solubilización y despolimerización de pectinas durante el ablandamiento de frutos de papaya

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Abstract

The main changes in cell wall composition as well as the degradation of water soluble pectins that correlate with postharvest softening of papaya fruit (*Carica papaya* L. cv. Maradol) were studied. Fruits in the maturity stage of 1/2 (50-75 % of yellow-orange peel color) were submitted to treatments for delaying or advancing ripening with 300 nL L⁻¹ of 1-methylcyclopropene (1-MCP) or 2.5 g L⁻¹ of 2-chloroethyl phosphonic acid (ethephon), respectively. Treated fruits were stored under simulated marketing conditions (20 ± 2 °C and 85 % RH) during 6 d. Firmness, changes in cell wall composition and solubility and depolymerization of water soluble pectins were monitored. Application of 1-MCP inhibited totally softening and maintained fruit firmness. After 3 d in storage, control fruits presented a loss of 69 % on firmness while ethephon-treated fruits had a loss of 84 % in firmness during the same period. Fruit softening of the control-control- and ethephon-treated fruits were accompanied of uronic acids and total sugars solubilization from the CDTA, Na₂CO₃, KOH 4% and KOH 24 % fractions. An extensive depolymerization in the water soluble pectins and an accumulation of pectin-derived oligomers were only detected in control and ethephon-treated fruits, which suggests a relationship with fruit softening and a possible link to polygalacturonase action.

Keywords

Carica papaya, 1-MCP, ethylene, ripening, softening, cell wall.

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