

CELL WALL POLYSACCHARIDE DEGRADATION IN PAPAYA FRUITS SUBMITTED TO ETHYLENE AND 1-MCP TREATMENT

Shiga, T.M.¹; Fabi, J.P.¹; Lajolo, F.M.¹; Purgatto, E.¹; Cordenunsi, B.R.¹ –
Departamento de Alimentos e Nutrição Experimental – FCF- USP - Brazil

Tropical fruits show fast texture loss during ripening that reduces their shelf-life. The aim of this study was to verify the correlation between pulp softening and cell wall polysaccharides solubilization in papaya fruits (*Carica papaya*). Control fruits, treated with ethylene and treated with 1-methylcyclopropene (1-MCP) were ripened at 24°C and 95% RH. Samples were obtained at green stage and when the fruits softened. Their cell walls were isolated and fractionated with water, chelating agent and alkali solutions to obtain, respectively, water-soluble pectins, calcium pectate and esterified pectins. Texture loss coincided with the increase of pectins-water solubility for control and ethylene-treated samples (26 and 29%, respectively). The content of galacturonic acid in the water-soluble fractions of control and ethylene-treated samples increased 3 and 2 times revealing galacturonans solubilisation. Concomitantly, the content of cell wall cellulose-rich residues decreased 25 and 32%, respectively. Samples treated with 1-MCP did not show alterations in the polysaccharides fractions as well as in their sugar compositions. Control samples showed texture loss accompanied by solubilization of galacturonans after 5 days post-harvest (5DPH). In samples treated with ethylene this process was accelerated with extensive galacturonans solubilization and texture loss occurring at 2DPH. The cell wall of fruits treated with MCP did not showed alterations.

Keywords: polysaccharides, ripening, cell wall

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