

Title Expression of an ethylene-related expansin gene during softening of mountain papaya fruit (*Vasconcellea pubescens*)

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Abstract

Fruit softening is associated with cell wall modifications produced by a set of hydrolytic enzymes and proteins. Expansins are proteins with no catalytic activity which have been associated with several processes during plant growth and development. A role for expansins has been proposed during fruit softening, and many fruit-specific expansins have been identified in a variety of species. A fruit-specific expansin gene from mountain papaya (*Vasconcellea pubescens*) was isolated and characterised: *VpEXPA2*, a 851 bp cDNA encoding a polypeptide of 258 amino acids, which contained all the characteristics of α -expansins. DNA gel blot analysis showed that *VpEXPA2* is member of a small multigene family in the mountain papaya's genome. Real-time polymerase chain reaction (qPCR) analyses revealed transcript accumulation during the softening of control fruit, with maximum level after 5 d of storage at 20 °C. A reduction in transcript expression level was observed in fruit treated with an ethylene perception blocker (1-methylcyclopropene), while an earlier and higher transcript level was observed in ethylene-treated fruit, suggesting that *VpEXPA2* expression is regulated by this plant hormone.