

Title Study on softening of vinagrillo (*Averrhoa bilimbi*) fruits during ripening
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Citation ISHS Acta Horticulturae 839:323-328. 2009.
Keyword *Averrhoa bilimbi*; postharvest; ripening; softening; pectinmethylesterase; polygalacturonase

Abstract

Vinagrillo is a climacteric fruit and ripening occurs in a few days after harvest. Ripening mainly involves a series of changes characterized by softening and changes of color by the combined action of ethylene and some hydrolases enzymes such as pectinmethylesterase (Pme), polygalacturonase (Pg) and cellulase (Ce). Some physical and chemical characteristics of the fruits during ripening were determined, the kinetic activity of enzymes previously mentioned and the activity of these enzymes with fruits softening were correlated. The fruits were harvested in different states from maturation: green, yellow green, ripened and overripened. The activity of Pme determined by the method of Hagerman and Austin (1986). The activity of enzymes Pg and Ce were determined according to the methodology of Durbin and Lewis (1988). Pme displayed greater activity at pH between 5 and 11 and performed a greater activity to 30°C. Pg showed greater activity in the green state and showed an optimal temperature of 30°C and the maximum activity to pH 7. Kinetic characterization of Pme and Pg was not made since they did not show a kinetic one of Michaelis-Menten. Detectable activity of CE in any of the ripening states was not demonstrated. Pectic substances in cellular wall undergo modifications due to the action of enzymes Pme and Pg. Statistical analyses were variance analysis with Tukey test and Kruskal and Wallis test with a significance level of 5%.