

Title Evolution of metabolites associated to flavor and its possible regulation by ethylene on Cherimoya (*Annona Cherimola* Mill.) Fruit Cv. Bronceada

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Abstract

Flavor is one of the most important quality attributes at the consumer level on cherimoya, and the metabolites responsible for the flavor include sugars, acids and volatile compounds. However, the evolution and the mechanisms regulating their biosynthesis during fruit ripening have been little studied on cherimoyas. The objective of this study was to characterize the evolution of sugars, acids, texture and aroma-volatile compounds during ripening, and the role of ethylene as a modulator of flavor compounds on cherimoyas, cv. Bronceada, grown in Chile. The fruits were harvested and three treatments were performed: fruit applied with ethylene, fruit applied with 1-methylcyclopropene (1-MCP) and an untreated control. After treatments fruits were stored at 20 ° C until reaching a ready to eat stage (firmness \leq 1 Kgf); flavor and quality attributes were measurement daily. Total soluble solids (TSS) and titratable acidity (TA) showed an increase throughout ripening, with sugars such as glucose and fructose showing a similar trend to TSS. Concentration of malic and tartaric acids showed an increase concomitant with the increase in T A. For aromavolatile compounds, such as : α -pinene, limonene, linalool, caryophyllene, butyl butyrate, ethyl butyrate, ethyl hexanoate, ethyl octanoate, hexyl butyrate and hexyl propionate, all of them showed an increase in during fruit ripening; however, their evolution patterns were different. The treatments with ethylene and I-MCP showed that this hormone seems to be regulating a number of processes during fruit ripening including fruit softening and aroma biosynthesis, but other processes determining flavor such as sweetness and sourness would not be regulated by ethylene (Fondecyt 11090098).