

Abstract

Changes in sugar content and activities of invertase (EC 3.2.1.26) and sucrose synthase (EC 2.4.1.13) were measured throughout fruit development in tree tomato (*Cyphomandra betacea* (Cav.) Sendtn.). Fruit of *C. betacea* accumulated predominantly reducing sugars similar to *Lycopersicon esculentum* and in contrast to sucrose accumulation, which is characteristic of *L. peruvianum*. Soluble acid invertase, fructose and glucose were localized principally in the vacuole. The soluble acid invertase activity was highest in ripe fruit (80 days past anthesis), while sucrose synthase activity was highest in the young fruit and declined with development. Otherwise, the activity of cell wall-bound acid invertase was less and may be greatly decreased by interaction with an invertase inhibitor protein, located in the cell walls of *C. betacea* fruit. The highest soluble acid invertase activity was associated with fruit ripening and during early stage of development. Sucrose synthase is the dominant enzyme in metabolizing imported sucrose.