Title Postharvest behaviour of chemical, biochemical and physical aspects of tomato fruits heterozygous in alcobaca and ripening inhibitor loci.

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Citation Ciencia e Agrotecnologia Vol: 27 (2003); 749-757

Abstract

The ripening mutants alc and rin delay tomato (*Lycopersicon esculentum*) ripening and affect the synthesis of carotenoids pigments and fruit firmness. This paper reports on the comparative effects of heterozygous alc and rin genotypes (alc+/alc and rin+/rin) on the chemical, biochemical and physical aspects of tomato fruits during three ripening stages. Neither alc+/alc nor rin+/rin influenced the total solid content at the intermediary or fully ripe stages. The genotype rin+/rin resulted in a more marked reduction in lycopene than alc+/alc, relative to the normal genotype. In mature fruits, the pectin methylesterase [pectinesterase] activity was more markedly reduced by rin+/rin, whereas alc+/alc was more effective in the reduction of polygalacturonase activity. In the breaker stage, neither mutant affected cellulose, hemicellulose or pectin contents. In the intermediary stage, hemicellulose was reduced by rin+/rin and, in the mature stage, rin+/rin reduced cell wall cellulose and pectin fractions. Both alc+/alc and rin+/rin can be efficiently deployed in breeding tomato hybrids with long shelf life.