

Abstract

L-Galactono-1,4-lactone dehydrogenase (GLDH; E.C. 1.3.2.3), the enzyme responsible for the last step of L-ascorbate biosynthesis in plants, was cloned from strawberries (*Fragaria × ananassa* Duch, cv. Campineiro) and its activity and expression followed during fruit development and ripening. Properties of strawberry GLDH were similar to those of other plants, what can be explained by the high identity at the amino acid level. Enzymatic and molecular analysis of fruits at different developmental stages indicated that the main changes in activity and expression occurred during the enlargement phase, when the L-ascorbate surpassed the L-dehydroascorbate content. The infiltration of the substrate L-galactono-1,4-lactone through the fruit petiole at the small green and turning stage resulted in a 50% increase in total L-ascorbate content, but no differences in enzyme activity and expression.