

Effect of ascorbate on prolonging shelf life of persimmon (*Diospyros kaki* Thunb.) fruit

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Abstract

Persimmon fruit soften easily and have a shorter shelf life than other fruit. Fruit softening is closely related to ethylene synthesis and cell wall degradation. In this study, persimmon fruit were treated with ascorbate after harvest, and the fruit softening and ethylene production rates were determined. Ascorbate treatment lowered ethylene production and prolonged the shelf life of persimmon fruit, compared with a water treatment and the control. Ascorbate may function to decrease ethylene production, thereby prolonging the shelf life of the fruit. We analyzed expressed sequence tags from three cDNA libraries from persimmon fruit, and obtained information about genes related to the ascorbate biosynthesis pathway. DNA microarray analyses showed that *L*-galactono-1, 4-lactone dehydrogenase genes were expressed more strongly in “Endou” fruit than in fruit of “B waisei”, a fast-softening cultivar. These results suggest that the ability to accumulate ascorbate is related to softening of persimmon fruit, and that ascorbate may function as a radical scavenger.