

Delayed senescence of kiwifruit by *p*-coumaric acid pretreatment during storage at 20 °C: Toward regulating the ascorbate–glutathione cycle and phenolic anabolism

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Abstract

'Xuxiang' kiwifruit were pretreated with 0.5 mmol L⁻¹ *p*-coumaric acid (*p*-CA) and then stored at 20 °C for up to 20 d to investigate the influence of *p*-CA and possible mechanisms on senescence. Results showed that *p*-CA-pretreated fruit were of less senescence, and displayed inhibited softening, respiration intensity and accumulations of soluble sugars, malondialdehyde and hydrogen peroxide. *p*-CA-pretreated fruit were of better antioxidant status, and had higher ascorbic acid and glutathione contents and activity of ascorbate-glutathione cycle-related enzymes including ascorbate peroxidase, dehydroascorbate reductase, monodehydroascorbate reductase and glutathione reductase, and also had higher total phenolics resulting from synergistic action of increased endogenous *p*-CA content and activated shikimate dehydrogenase and phenylalanine ammonia-lyase activity. *p*-CA pretreatment is an effective practice for delaying senescence and maintaining quality for kiwifruit during ambient storage.