Effect of 24-epibrassinolide on sugar metabolism and delaying postharvest senescence of kiwifruit during ambient storage

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Abstract

Effect of 5 μM 24-epibrassinolide (EBR) on delaying the senescence of 'Huayou' kiwifruit and possible defense mechanisms were elucidated during ambient storage. Results revealed that EBR treatment retarded decrease in firmness as well as increase in weight loss and total soluble solid content in kiwifruit. EBR treatment prevented the increase of membrane permeability and suppressed the accumulation of malondialdehyde. EBR treatment postponed the degradation of starch to soluble sugars, resulting from the inactivation of amylase activity. EBR treatment also inhibited the activity of acid invertase, neutral invertase, sucrose phosphate synthase, sucrose synthase, hexokinase and fructokinase, and subsequently EBR-treated fruit exhibited the lower contents of sucrose, glucose and fructose. These results suggest that EBR treatment could be an innovative solution to delay the senescence of kiwifruit by regulating sugar metabolism.