

Involvement of *CsPH8* in citrate accumulation directly related to fruit storage performance of ‘Bingtang’ sweet orange mutants

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Abstract

Loss of organic acids during postharvest storage is one of the major factors that negatively affect the quality and storage performance of citrus fruit. ‘Qianyang Bingtang’ navel orange (QY-BTNO) and ‘Jinxiu Bingtang’ sweet orange (JX-BTO) are bud mutants of common ‘Bingtang’ sweet orange (CK-BTO) (*Citrus sinensis* Osbeck), and are respectively characterized by the trait of higher and lower accumulations of organic acids in fruit juice sacs, which is maintained throughout the storage period. Here, gene expression analysis on citrate metabolism showed that the high citrate accumulation in QY-BTNO could be attributed to the high expression of the p-type proton pump gene (*PH8*), and might be partially due to the low activity of citrate degradation pathway as indicated by the low expression of aconitase (*ACO*) and glutamate dehydrogenase (*GAD*). QY-BTNO had significantly lower fruit disease incidence than JX-BTO. Besides, the content of energy source ATP and the activity of peroxidase (POD) were observably different between QY-BTNO and JX-BTO.