

Influence of fresh-cut process on γ -aminobutyric acid (GABA) metabolism and sensory properties in carrot

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Abstract

Effect of fresh-cut procedure on the accumulation of GABA in carrots via γ -aminobutyric acid (GABA) shunt and polyamines degradation pathway was investigated. Results showed that fresh-cut processing enhanced glutamate decarboxylase (GAD) activity and expression levels of *DcGAD1* and *DcGAD2*, while reduced GABA transaminase (GABA-T) activity and *DcGABA-T1* expression level, which induced the more glutamate (Glu) conversion to GABA. Polyamines (PAs) in shredded carrots were significantly lower than the whole, due to the elevated activities of diamine oxidase (DAO), polyamine oxidase (PAO) and aminoaldehyde dehydrogenase (AMADH) and *DcPAO* expression level, which indicated that the polyamines degradation pathway was activated and more PAs were converted to GABA. These results suggested that fresh-cut procedure can induce the accumulation of GABA through activating GABA shunt and polyamines degradation pathway. Besides, fresh-cut processing treatment did not have much adverse effect on the organoleptic quality of carrots.