

# Transcriptomic analysis of the effects of $\gamma$ -aminobutyric acid treatment on browning and induced disease resistance in fresh-cut apples

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## Abstract

$\gamma$ -Aminobutyric acid (GABA) has several physiological functions and broad application prospects. In this study, as a tool used for transcriptomics, RNA-seq sequencing was employed to determine the mechanism by which GABA slows browning and induces resistance against the growth of bacterial in fresh-cut apples. GABA altered the expression level of genes related to the synthesis of browning enzymes and phenolic substances in fresh-cut apples, which slowed the browning process during storage. Additionally, GABA promoted the gene expression of enzymes or proteins related to disease resistance, which resultantly induced disease resistance in fresh-cut apples. Notably, GABA maintained the integrity and stability of the cell wall composition and structure in apple tissues to reduce browning and induce disease resistance. Our findings revealed the mechanism by which GABA acts as a protective agent against browning and bacterial growth in for fresh-cut apples.