

# Salicylic acid inhibits the postharvest decay of goji berry (*Lycium barbarum* L.) by modulating the antioxidant system and phenylpropanoid metabolites

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## Abstract

Goji berry is a perishable fruit after harvest. To explore the biochemical and molecular mechanisms by which salicylic acid (SA) suppresses rot in goji berry, the fruit was treated with SA and stored for 30 d. Compared with the control, the SA-treated fruit showed smaller lesion areas during storage at 20 °C. During storage at 0 °C, the  $O_2^{\bullet-}$  production and  $H_2O_2$  levels were lower in SA-treated fruit, although the  $H_2O_2$  content was higher at the beginning of storage. SA induced the activities and gene expressions of the key proteins (SOD, CAT, APX and POD) associated with redox homeostasis. Simultaneously, the activities and gene expressions of PAL, C4H, 4CL, CHS, CHI and CAD in phenylpropanoid metabolism was activated. Moreover, the production of chlorogenic acid, ferulic acid, *p*-coumaric acid, sinapic acid, protocatechuic acid, naringenin, and rutin were stimulated to maintain the higher levels by the most effective SA treatment (2 mmol L<sup>-1</sup>). The results indicate that SA inhibits rot of goji fruit during storage by mediating the antioxidant system and phenylpropanoid metabolism.