

Abstract

To investigate how benzo-(1,2,3)-thiadiazole-7-carbothioic acid *S*-methyl ester (BTH) may affect disease resistance of peach fruit (*Prunus persica* L. cv. Jiubao), harvested fruit were treated with 200 mg/L BTH solution for 5 min immediately after harvest, incubated at 22 °C and 85–95% RH for 60 h, and then inoculated with *Penicillium expansum* at a concentration of 1.2×10^4 conidia per mL. The lesion area and disease-incidence of the BTH-treated fruit were 64.1 and 49.5%, respectively, lower than that of the fruit without BTH-treatment on the 7th day after the inoculation. In the inoculated fruit, the BTH-treatment enhanced the activities of phenylalanine ammonialyase (PAL), polyphenoloxidase (PPO) and peroxidase (POD) as well as the levels of total phenolic compounds and hydrogen peroxide (H₂O₂), which are considered to play important roles in plant disease resistance. Superoxide dismutase (SOD) activity and ascorbic acid (Vc) level in the inoculated fruit were also enhanced by the BTH treatment during the middle and later periods of the inoculation.

The results showed that BTH treatment could significantly enhance the disease resistance of peach fruit after harvest and suggest that postharvest treatment with BTH holds promise as a new technology, substituting for chemical fungicide control of postharvest diseases in fruit.