

**Title** Enhanced efficiency of salicylic acid or heat treatment by ultrasonic to prevent postharvest decay in Yali pear fruit

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### **Abstract**

Yali pear is one of the most famous varieties of Chinese pears widely cultivated in the north of China. However, considerable losses of the pear usually occur due to infection by pathogens during storage. New strategies alternative to fungicides are necessary to be developed to control postharvest decays without pollution of environments and risk to public. The aim of this study was to evaluate the possibility of ultrasonic treatment on the enhancement of efficiency of salicylic acid (SA) or heat treatment on inhibiting diseases caused by *Penicillium expansum* or *Alternaria alternate* in pears during storage. The fruit were treated with SA dipping for 20 min or heat at 50°C for 5 min, combining with ultrasonic treatment. Lesion development on the fruit inoculated with *P. expansum* or *A. alternate* was incubated and evaluated at 20°C. Results showed that disease resistance of the fruit were remarkably elevated by SA and further enhanced by the treatment of SA plus ultrasonic. Lesion area in the fruit treated with 1 mM SA and mM SA plus ultrasonic was 22.2 % and 29.9% lower than that in the control, respectively. The fruit quality was also improved. Lesion area in the fruit inoculated with *P. expansum* treated by heat and heat plus ultrasonic was 91.4% and 99.4% lower, and disease incidence was 43.6% and 90.2% lower than that in the control, respectively. Similarly, lesion area in the fruit inoculated with *A. alternate* treated by heat and heat plus ultrasonic was 48.7% and 95.1% lower, and disease incidence was 16% and 41.3% lower than that in the control, respectively. These results suggested that the efficacy of postharvest SA or heat treatment on the control of diseases in Yali pears could be effectively enhanced by the ultrasonic, and these strategies hold promising in preventing postharvest losses of fruits.