

Title Postharvest sodium silicate treatment induces resistance in potato against *Fusarium sulphureum*

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Abstract

Dry rot, caused by *Fusarium* spp. is reported as the most important postharvest disease of potato in China. *F. sulphureum* is one of the principal pathogens. Potato (cv. Atlantic) tuber and slices treated by sodium silicate (Si) at 100 mM was investigated to reduce dry rot and to induce defense responses. The results showed that Si significantly decreased lesion expansion on tuber challenged inoculation 3 days after treatment and infection ability of *F. sulphureum* inoculated on slices 48 hours after treatment. The activity of peroxidase (POD), polyphenoloxidase (PPO) phenylalanine ammonia-lyase (PAL) and β -1, 3-glucanase (GLU) and the production of total phenolic, flavanoid in tuber tissue after treatment with 100 mM of Si were not higher than that of control, even lower during early treatment period, although the value of them gradually increased with treatment time prolonging. However, the activity of POD, PPO, PAL and GLU, and the production of total phenolic, flavanoid dramatically increased after challenged with *F. sulphureum*. Their increasing ratio were significantly higher than those of control. The results suggested that Si could enhanced defence responses in potato tuber against pathogen infection.