Preharvest chitosan oligochitosan and salicylic acid treatments enhance phenol metabolism and maintain the postharvest quality of apricots (*Prunus armeniaca* L.)

Kuanbo Cui, Chang Shu, Handong Zhao, Xinguang Fan, Jiankang Cao and Weibo Jiang

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Abstract

To improve the apricots quality of preharvest spray with 0.05% chitosan oligochitosan (COS) or/and 1 mmol L^{-1} salicylic acid (SA) were applied on the tree. The postharvest quality parameters and phenol metabolism of 'Xiaobai' apricot fruit were evaluated during the storage at 2 ℃ for 70 d. The result showed that the treatment with COS or SA could decayed the rise decay rate, fruit softening, color change, and the decrease in total soluble solid and titratable acidity content during the apricot storage; however the combined treatment of with COS and SA could more effectively delay postharvest senescence of the apricot than the individual treatment of COS or SA. Furthermore, the COS + SA treatment alleviated chilling injury and delayed the increases of ion leakage, internal browning index and malonaldehyde content, effectively. In addition, the COS + SA treatment remarkably activated the activity of defense enzymes, as well as maintained higher bioactive level of phenol compounds, and enhanced antioxidant capacity in apricots. In conclusion, these results indicated the preharvest treatment of combined COS + SA can be applied for reducing chilling injury and improving the quality of apricots during low temperature storage.