

Preharvest multiple sprays with chitosan accelerate the deposition of suberin poly phenolic at wound sites of harvested muskmelons

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Abstract

Suberin poly phenolic is an important component of healing tissue. We aimed to develop a new method to accelerate wound healing of harvested muskmelons. In this study, the plants and fruits of muskmelons were sprayed with 0.1 % chitosan four times during fruit development to evaluate the effect of chitosan treatment on wound healing of harvested muskmelons. The results showed that preharvest chitosan sprays reduced the weight loss and disease index of harvested muskmelons during healing. Chitosan sprays also accelerated the deposition of suberin poly phenolic at wound sites of harvested muskmelons during healing. The treatment increased the activities of phenylalanine ammonia-lyase and cinnamate-4-hydroxylase, and promoted the accumulation of cinnamic acid, caffeic acid, ferulic acid, *p*-coumaric acid, total phenols and flavonoids at wound sites. We suggest that preharvest chitosan sprays activated phenylpropanoid metabolism, promoted the deposition of suberin poly phenolic at wound sites of harvested muskmelons.