Title Preharvest Chitosan and Postharvest UV Irradiation Treatments Suppress Gray Mold of Table Grapes.

Authors G. Romanazzi, F. Mlikota Gabler and J. L. Smilanick

Citation Plant Dis. 90(4): 445-450. 2006.

Keywords blue mold; *Penicillium* sp.; *Vitis vinifera.*

Abstract

The effectiveness of chitosan treatment of table grapes, alone or in combination with ultraviolet-C (UV-C) radiation, to control postharvest gray mold caused by *Botrytis cinerea,* was determined in California, United States. The influence of these treatments on catechin and resveratrol contents and chitinase activity in grape berry skins also was assessed. Clusters of cvs. Thompson Seedless, Autumn Black, and Emperor were sprayed in the vineyard with 1% chitosan, then harvested daily for 5 days. Promptly after harvest, they were inoculated with *B. cinerea*. Decay incidence and disease severity were significantly reduced by chitosan, which was most effective on berries harvested 1 or 2 days after treatment. In another experiment, grape berries were sprayed in the vineyard with chitosan, harvested 2 days later, irradiated for 5 min with UV-C (0.36 J/cm(^2)), and inoculated with *B. cinerea* 2 days later. Combined chitosan and UV-C treatments applied to cv. Autumn Black or selection B36-55 were synergistic in reducing gray mold incidence and severity compared with either treatment alone. Preharvest chitosan treatment increased neither concentration of catechin or resveratrol nor activity of chitinase in berry skin. Conversely, UV-C irradiation, alone or combined with chitosan treatment, induced catechin in cv. Autumn Black berries and *trans*-resveratrol in both cv. Autumn Black and selection B36-55.