

**Title** Assessment of chitosan for inhibition of *Colletotrichum* sp. on tomatoes and grapes  
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### Abstract

The objective of this study was to evaluate the antifungal properties of chitosan and to assess its role in the protection of tomato and grape plants against *Colletotrichum* sp. isolated from infected tissues of *Dracaena sanderiana*. The isolate was tested *in vitro* using PDA amended with five concentrations of chitosan (0, 1, 1.5, 2, 2.5%). Chitosan significantly ( $P < 0.05$ ) inhibited the radial growth of this fungus, with a marked effect at the three highest concentrations, after 7 d incubation. The effective concentration that reduced the radial growth to 50% ( $EC_{50}$ ) was 2.28%. Tomato fruits and single berries treated with aqueous solutions of 1.0 and 2.5% (w/v) chitosan were artificially inoculated with *Colletotrichum* sp. and incubated at 4 and 24 °C. Lesion diameters were recorded 7 and 10 d after inoculation. After 10 d at 24 °C, chitosan significantly ( $P < 0.05$ ) reduced the lesion size of tomato fruits treated with 1.0 and 2.5%. Lesion diameter on pre-treated berries was also significantly reduced at 24 °C. However, no differences were observed between the chitosan concentrations and the corresponding controls at 4 °C; no lesions developed on berries at either 7 or 10 d after inoculation and although lesion size on tomato fruits was smaller for all treatments when stored at 4 °C, there were no treatment differences.