Title The potential use of locally prepared chitosan to control in vitro growth of *Colletotrichum gloeosporioides* isolated from papaya fruits

Authors A. Ali, T.M.M Mahmud

Citation ISHS Acta Horticulturae804:177-182. 2008.

Keywords chitosan; *Colletotrichum gloeosporioides*; papaya; antifungal; postharvest

Abstract

A study was carried out to evaluate the effects of chitosan at different concentrations on *Colletotrichum gloeosporioides* isolated from papaya fruit. Chitosan markedly reduced mycelial growth, conidial germination and germ tube elongation in vitro with greater effects at higher concentrations. There was 100% inhibition in mycelial growth at 2% chitosan followed by 94, 74, 65, 54, 42 and 38% inhibition at 1.75, 1.5, 1.25, 1.0, 0.75, and 0.5% chitosan, respectively, after 7 days incubation. Similar results were obtained in the conidial germination test. The maximum inhibition of conidial germination was obtained at 2% chitosan followed by 1.75 and 1.5% with 100, 89 and 74% inhibition, respectively. Hyphal and germ tube morphology of the fungus showed malformed hyphal tips whereas in the control (normal) hyphal walls and germ tubes were smooth with no swellings or vacuolation. These findings suggested that chitosan had a pronounced effect in controlling the growth of *C. gloeosporioides* in vitro. The complete (100% inhibition of spore germination and significant reduction in germ tube length showed that chitosan could become an alternative, ecofriendly means to conventional fungicides.