

Title Effects of chitosan and oligochitosan on growth of two fungal pathogens and physiological properties in pear fruit

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Citation Carbohydrate Polymers, Volume 81, Issue 1, 23 May 2010, Pages 70-75

Keywords Chitosan; Oligochitosan; Pear fruit; Antifungal; Elicitor

Abstract

The differences between chitosan (350 kDa) and oligochitosan (6 kDa) in inhibitory effect on phytopathogenic fungi and on decay control were investigated. Both chitosan and oligochitosan strongly inhibited spore germination and mycelial growth of *Alternaria kikuchiana* Tanaka and *Physalospora piricola* Nose. Relatively, chitosan and oligochitosan showed more obvious inhibitory effect on mycelial growth than spore germination. Although oligochitosan had better inhibitory effects on fungal pathogenicity *in vitro*, chitosan was more effective on disease control in pear fruit stored at 25 °C. When treated with oligochitosan, pear fruit increased the activities of chitinase (CHI) and β -1,3-glucanase. Differently, chitosan treatment significantly increased peroxidase (POD) activity of pear fruit. These results suggested that chitosan and oligochitosan triggered different mechanism for pathogenicity inhibition and disease control.