

Abstract

Chitosan was used to control pre-harvest diseases of rambutan cv. Rong Rean in the orchard at Chumphon province, Thailand. Rambutan trees were sprayed with chitosan at the concentration of 0, 0.03, 0.06, 0.09 and 0.12 % (w/v) every two weeks for three months during flower bloom stage and 1,000 ppm of benomyl was used as a positive control. Pre-harvest diseases (powdery mildew, algal spot, and sooty mold), post-harvest diseases (fruit rot), and fruit quality of rambutan were investigated in this experiment. The results showed that a decrease in powdery mildew was affected by 0.12 and 0.09% chitosan respectively but this was not caused by the induction of plant defense mechanisms, or peroxidase activity. Rambutan fruits were harvested from chitosan treated rambutan trees and fruit rot and fruit quality were determined after fruits were stored at 13°C. Spraying chitosan at 0.12% improved rambutan quality by increasing fresh weight and firmness and it did not appear to have a negative effect on spintern color or total soluble solid. Moreover, 0.12% chitosan treated fruits showed the lowest amount of fruit rot (13%) while the control fruits and benomyl treated fruits had 23% and 34% rot respectively. Peroxidase activity in peel of rambutan was increased by 0.09% chitosan treatment but not by 0.12% chitosan treatment. These results imply that the effect of chitosan treatment on fruit rot of rambutan may not be associated with peroxidase activity.