

Manatchaya Rattanachot 2006: Anthracnose Disease Control of 'Pansetong' Guava with Calcium Chloride and Carbon Dioxide Treatments. Master of Science (Agriculture), Major Field: Plant Pathology, Department of Plant Pathology. Thesis Advisor: Associate Professor Nipon Visarathanonth, M.S. 123 pages.  
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Postharvest diseases of 'Pansetong' guava (*Psidium guajava* L.) were observed to cause by five kinds of fungal pathogens with percentage infection: *Lasiodiplodia theobromae*, 56.25 %; *Phoma psidii*, 31.25 %; *Phomopsis* sp., 18.75 %; *Colletotrichum gloeosporioides*, 12.50 % and *Aspergillus niger* group 12.50 %.

*Colletotrichum gloeosporioides*, the cause of guava anthracnose disease was selected to treat with calcium chloride ( $\text{CaCl}_2$ ), carbon dioxide ( $\text{CO}_2$ ) and their combinations for mycelial growth and spore germination inhibition. All the treatment sets were also conducted with inoculated and non-inoculated guava fruits for disease control efficacy tests.  $\text{CaCl}_2$  gave fair growth inhibition and best for spore germination. The inoculated guava fruits treated with  $\text{CaCl}_2$  concentrations showed small sizes of disease symptoms at room temperature (26-28 °C) and more size retardation at 10 °C storage. Non-inoculated guava fruits treated with 2 %  $\text{CaCl}_2$  did not show any anthracnose disease symptoms for 20 days at this 10 °C storage.  $\text{CaCl}_2$  affected shelf life and quality of guava fruits by decreasing total acidity but increasing total soluble solid, ascorbic acid content and fruit firmness.  $\text{CO}_2$  fumigation in the closed system revealed fair growth inhibition and spore germination of the fungal pathogen.  $\text{CO}_2$  could inhibit symptom development of the inoculated guava fruits and more retardation of disease incidence at 10 °C storage. Non-inoculated guava fruits treated with 20 %  $\text{CO}_2$  at the tested time periods did not show any anthracnose disease. Increasing times of  $\text{CO}_2$  exposure could decrease total acidity, but slightly increase ascorbic acid content and fruit firmness. Combination application of 2 %  $\text{CaCl}_2$  with 20 %  $\text{CO}_2$  gave the best retardation of mycelial growth and spore germination of *C. gloeosporioides* and reduced wound sizes of the inoculated fruits. Non-inoculated guava fruits treated with combinations of 2 %  $\text{CaCl}_2$  and 15 %  $\text{CO}_2$  and or 2 %  $\text{CaCl}_2$  individually did not showed anthracnose disease symptoms after 8 days of room temperature storage. The treated guavas with this treatment combinations showed slightly decreased total acidity but increased more total soluble solid, ascorbic acid content and fruit firmness.

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