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## CONTROLLING ANTHRACNOSE OF BANANA AND PAPAYA THROUGH GRAS (GENERALLY REGARDED AS SAFE) COMPOUNDS

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*Colletotrichum musae* and *Colletotrichum gloeosporioides* are the causative fungi of anthracnose of banana and papaya, respectively. Use of non-fungicidal approaches for the control of postharvest pathogens have become an emerging trend due to environmental and health hazards caused by application of fungicides. Experiments were conducted at the Fruit Crops Research and Development Centre, Horana to evaluate several non-fungicidal measures for the control of banana and papaya anthracnose.

In the present study, efficiency of six GRAS (Generally Regarded As Safe) compounds were evaluated for the control of *C. musae* and *C. gloeosporioides* in comparison to a recommended fungicide (i.e. Chlorothalonil 500SC).

Sodium propionate ( $\text{NaC}_2\text{H}_5\text{COO}$ ) at a concentration of 30000 ppm, Potassium sorbate ( $\text{C}_6\text{H}_7\text{KO}_2$ ) at 20000 ppm, Sodium bicarbonate ( $\text{NaHCO}_3$ ) at 40000 ppm, Sodium metabisulphite ( $\text{Na}_2\text{S}_2\text{O}_5$ ) at 1500 ppm, Cinnamaldehyde ( $\text{C}_9\text{H}_8\text{O}$ ) at 5 ppm and Clove Oil ( $\text{C}_{10}\text{H}_{13}\text{O}_2$ ) at 4 ppm, achieved complete growth inhibition of *C. gloeosporioides* in papaya. This was similar to the control achieved by the recommended fungicide, Chlorothalonil. Minimum effective concentrations of GRAS compounds which were able to cause 100% growth inhibition of *C. gloeosporioides* were applied for isolates of *C. musae* from banana (variety Kolikuttu). All the selected concentrations of GRAS compounds had the ability to cause 100% growth inhibition of *C. musae* isolated from the banana variety Kolikuttu. Hence *C. gloeosporioides* and *C. musae* from banana variety kolikuttu can be controlled by the same treatments under *in vitro* conditions. Under *in vivo* conditions, symptom development could be completely controlled by sodium metabisulphite (1500 ppm), sodium propionate (30000 ppm) and Chlorothalonil 500SC (2 ml/l) on papaya or banana fruits inoculated with the respective species of *Colletotrichum*. On the other hand, the minimum effective concentrations of the other GRAS compounds did not control the fungi completely in inoculated fruits *in vivo*.

Based on the results of the present study it can be concluded that the tested GRAS compounds have the potential to be developed as non-pesticidal methods of anthracnose control in banana and papaya.