

Control of *Aspergillus* rot in wood-apple (*Ferronia acidissima*)

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Wood apple (*Ferronia acidissima*) that belongs to family Rutaceae is a nutrient rich underutilised fruit crop in tropical countries. In Sri Lanka, *Aspergillus* rot is a major post harvest problem in wood apple. However, the species level of the pathogen has not been identified yet.

In this study, the Pathogen of wood-apple rot was identified up to the species level using the description of International Mycological Institute (IMI). Effect of four Generally Recommended As Safe (GRAS) compounds; sodium bicarbonate, calcium chloride, citric acid and sodium benzoate on the control of the *Aspergillus* rot, was evaluated under *in vitro* and *in vivo* conditions. Under *in vitro* conditions, effect of those compounds on the growth of mycelium was investigated and the most effective compound was used for the *in vivo* experiments. In the *in vivo* experiments, healthy, mature wood-apple fruits were subjected to different treatments; 1) Stem scar of the fruits were inoculated with 10 μ l of the conidial suspension and allowed to air dry, and they were treated with different concentrations of the selected GRAS compound. 2) Fruits were treated with different concentrations of the selected GRAS compound followed by the inoculation with the conidial suspension 3) fruits were treated with that compound without inoculation. Fruits, with and without inoculation prior to the application with distilled water and also non-treated, non- inoculated fruits were used as controls.

Results revealed that *Aspergillus niger* was the causative agent of the wood-apple rot. Under *in vitro* condition sodium bicarbonate (SBC) inhibited the growth of the pathogen by 100% at the concentration of 4%. In the *in vivo* experiments, wood-apple fruit inoculated with the pathogen followed by the treatment of 4% SBC aqueous solutions gave 53.6 % control of the disease, whereas fruits treated with SBC followed by inoculation have shown 98.4 % disease control. Non-treated, non-inoculated fruits and the fruits treated with distilled water were diseased completely after three days. Fruits treated with 4% SBC without inoculation gave 100% control of *Aspergillus* rot and the storage life of the fruits were extended up to 23 days at ambient conditions (28 °C \pm 2 & 85-90% Relative humidity). No sign or symptom development was observed during the storage to confer them a 100% marketable value.

In conclusion, post harvest treatment of wood-apple fruits with 4% sodium bicarbonate can be used to control the infections of *Aspergillus niger*.

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