

Control of stem end rot in mango (*Mangifera indica*) caused by *Botryodiplodia theobromae*

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Stem end rot, caused by *Botryodiplodia theobromae*, *Phomopsis*, *Dothiorella* and *Colletotrichum gloeosporioides*, is a major post harvest problem in mango (*Mangifera indica*). In Sri Lanka, the most important species causing stem end rot is *Botryodiplodia theobromae*

In this study, the effect of generally recommended as safe (GRAS) compounds; sodium bicarbonate, calcium chloride, potassium bicarbonate, ammonium bicarbonate and sodium benzoate on the control of *Botryodiplodia theobromae*, the main causative agent of the disease, was evaluated both *in vitro* and *in vivo*. Under *in vitro* conditions, effect of GRAS compounds on the growth of mycelium was investigated. In the *in vivo* experiments mature, green, hard mango fruits were subjected to different treatments; inoculation followed by dipping in GRAS solutions, dipping in GRAS solutions followed by inoculation and dipping in GRAS solutions without inoculation. Fruits with and without inoculation prior to dipping in distilled water and also non-dipped, non-inoculated fruits were used as controls. Dipping durations of mango fruits in GRAS solutions with concentrations ranging from 2%- 6% (w/v) were 5, 10 and 15 minutes.

Results of the *in vitro* experiments revealed that sodium bicarbonate and calcium chloride retarded the growth of the pathogen by 99% and 78% respectively at the concentration of 6%. In the *in vivo* experiments, mango fruits dipped for 5 minutes in sodium bicarbonate or 10 minutes in calcium chloride aqueous solutions at 5% without inoculation gave 90% control of stem end infections whereas untreated fruits were severely damaged by the disease. When the fruits were dipped in solutions of the same concentrations heated to 52 °C and kept for similar time periods. 100% excellent control was achieved. No sign or symptom development was experienced during ripening to confer them a 100% marketable value. Fruits, inoculated either prior to or after dipping in GRAS solutions reduced the growth of *Botryodiplodia theobromae*, but did not completely eradicate the pathogen.

It can be concluded that the, post harvest treatment of mango fruits dipped in sodium bicarbonate for 5 minutes or in calcium chloride for 10 minutes at 5% under 52 °C can be used to control field infections of *Botryodiplodia theobromae*.

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