Effect of sodium bicarbonate and ammonium bicarbonate on anthracnose fruit rot of tomato caused by Colletotrichum cocodes

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The effect of two Generally Recommended As Safe (GRAS) compounds, namely, sodium bicarbonate and ammonium bicarbonate in different concentrations were evaluated on conidial germination and mycelial growth of Colletotrichum cocodes, a major postharvest pathogen on tomato fruits .Disease development was observed on tomato fruits, surface inoculated or un-inoculated with the pathogen before or after the treatment with sodium bicarbonate in 40 g l-1concentration.Un-treated, un-inoculated fruits were used as controls. Physico- chemical parameters and organoleptic properties of sodium bicarbonate treated fruits were compared with commercially available non treated fruits. Sodium bicarbonate either completely inhibited or significantly reduced the in vitro mycelial growth and conidial germination of the pathogen, whereas, inhibitory effect of ammonium bicarbonate was not significant. Fruits that were first inoculated and then treated with 40 g l-1sodium bicarbonate, or the reverse, gave 64.6% and 98.1% disease reduction, respectively. Non-treated control fruits were diseased completely after4 daysand fruits treated with sodium bicarbonate without inoculation (naturally infected fruits)were free from the disease up to 14 days at 27 ± 2°C and 65–70% RH. Physico-chemical parameters and sensory attributes were not significantly different.