

Antifungal Activity of some Carbonic Acid Salts against *Colletotrichum musae*

Pavithra BHKW and Wasantha Kumara KL

Department of Agricultural Biology, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya

Abstract

The fungi toxicity of some carbonic acid salts on the fungus *C. musae* verified *in vitro* by means of mycelial growth inhibition. Sodium carbonate, Sodium bicarbonate, Potassium carbonate and Ammonium carbonate were prepared in 0.1, 0.5, 1, 2, 5 and 10 percent concentrations and assayed the percentage inhibition of radial mycelial growth of *C. musae*. Separate experiments for each chemical were designed in a completely randomized design (CRD) with five replicates. Antifungal activity was confirmed in all carbonic acid salts, but not in all concentrations. The growth of the *C. musae* on *in vitro* cultures was significantly reduced with the application of Na_2CO_3 at 0.5%, $(\text{NH}_4)_2\text{CO}_3$ at 0.5%, NaHCO_3 at 1% and K_2CO_3 at 10%. Based on these results, 0.5% and 1% of Na_2CO_3 , 1% and 2% of NaHCO_3 , 5% and 10% of K_2CO_3 and 0.5% and 0.1% $(\text{NH}_4)_2\text{CO}_3$ were selected for further investigation to test the best carbonic acid and its effectiveness for the inhibition of *C. musae*. The carbonic acid salt, K_2CO_3 , of 5% and 10% concentrations performed best of all the carbonic acid tested. Although, 0.5% and 1% Na_2CO_3 , 1% NaHCO_3 , and 1% of $(\text{NH}_4)_2\text{CO}_3$ rated as the second best, these chemicals could be considered more effective since they are active even in low concentrations to inhibit the pathogen compared to K_2CO_3 .

Keywords: anthracnose, antifungal activity, banana, carbonic salts, *Colletotrichum musae*