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**Effect of the fungicide manganese ethylene-bis-dithiocarbamate on *in vitro* growth of *Agrobacterium tumefaciens***

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*Agrobacterium* is a soil borne, Gram negative, rod shaped, motile and aerobic bacterium causing tumors on a wide range of plant species. Out of many soil inhabitant *Agrobacterium* species, only the pathogenic strains of *Agrobacterium tumefaciens* can cause the crown gall disease. Although antibiotics and growth promoters have been recommended in other countries, no proper control measures have been developed and allowed in Sri Lanka for bacterial infections in plants. The objectives of this research were to identify the virulence strains of *A. tumefaciens* using DNA sequence data, to determine whether commonly used antibiotics have an inhibitory activity against *A. tumefaciens* isolated from soil and also to find a cheap control measure based on the fact that certain fungicides have antibacterial effects. For molecular characterization, PCR was carried out using *Agrobacterium* specific primers targeting *virD2* gene. Antibiotic sensitivity was determined by disc diffusion method using Kirby-Bauer technique. Concentration series of 25, 30 and 35 µg/mL of kanamycin and chloramphenicol and 5, 10, 15 µg/mL of rifampicin were prepared. Fungicide assay was also conducted by disc diffusion method using the fungicides Mancozeb (Manganese ethylene-bis-dithiocarbamate) at 0.20%, 0.25%, 0.30% (w/v) and Carbendazim (Methyl benzimidazole-2-yl carbamate) at 0.025%, 0.05%, 0.10% (w/v) concentrations. Plates were incubated at 28 °C for 48 hours. The soil isolates were confirmed to be *A. tumefaciens* from the sequencing results of *virD2* region. In antibiotic sensitivity test all isolates were unable to produce clear zones showing that they were resistant to the three different concentrations of all three antibiotics used. Carbendazim could not inhibit the growth of *A. tumefaciens* isolated from soil at all three concentrations tested. However, the fungicide Mancozeb was able to inhibit the growth of the pathogen in all tested concentrations. According to the results it was concluded that the local isolates of *A. tumefaciens* is resistant to the tested antibiotics and therefore, cannot be used as a control measure. While Carbendazim is not helpful in controlling the growth of *A. tumefaciens*, Mancozeb has a potential to mitigate the *in vitro* growth of the pathogen.

**Keywords:** *Agrobacterium*, Antibiotics, Fungicides, Mancozeb, Carbendazim