B-81: Biological control of collar rot in beans caused by *Sclerotium rolfsii* using *Trichoderma harzianum*

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A study was conducted with the objective of isolating and investigating the feasibility of using antagonistic *Trichoderma harzianum* for the control of *Sclerotium rolfsii*, which causes collar rot in bean.

An antagonistic species isolated from the soil samples collected from disease free location in Yatawatte was identified as *T. harzianum*. This isolate exhibited stronger antagonistic activity against *S. rolfsii* and causing significant inhibition of mycelial growth and sclerotial formation of *S. rolfsii*.

A pot experiment was conducted to evaluate the antagonistic efficacy of *T. harzianum* in the greenhouse. Fermented biomass of *T. harzianum* was produced by solid-state fermentation using paddy husk, straw and a mixture of rice bran: saw dust: water in the ratio of 3:1:4. The pathogen was grown on potato dextrose agar plates at 25°C until the sclerotia were formed and used for artificially inoculating the soil at the rate of 90-100 sclerotia/500g of soil. After 4 days, fermented biomass of *T. harzianum* was applied to the soil at the rate of 50g/ 500g of soil. Two days later seeds coated with *Trichodermal* spores and uncoated seeds were sown in separate pots (15 x 15cm) filled with 500g of sterilized and unsterilized soil at the rate of 3 seeds/pot.

Results showed that in sterilized soil, seedling mortality was 20% and 27% when *T. harzianum* was applied to the soil (T2) and seeds (T3) respectively. This was a significant reduction when compared to 76% of seedling mortality in (T1) without the application of *T. harzianum*. When (T2 and T3) were

combined together in a single treatment in the sterilized soil (T4), nearly total control to seedling mortality was achieved.

However, the antagonistic efficacy of *Trichoderma* was less effective in unsterilized soil. The seedling mortality was 34% when *T. harzianum* was applied to the unsterilized soil (T6). This is still a significant reduction when compared to 50% of seedling mortality in (T5). The efficacy of *T. harzianum* in the unsterilized soil can be further enhanced, if the interference of microflora could be minimized by using suitable soil amendments.