EVALUATION OF COMPATIBLE BIO-AGENTS AND SELECTED BOTANICAL EXTRACTS AGAINST THE PATHOGEN OF RHIZOME ROT DISEASE RESPONSIBLE FOR GINGER DECLINE

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Executive Summary

A pot and lab experiment was conducted in bio-agents laboratory and the experimental site of Department of Plant Pathology, Sher-e-Bangla Agricultural University, Dhaka-1207, Bangladesh during the period from July, 2019 to June, 2020. The study was carried out to evaluate the efficacy of selected compatible bio-agent *viz. Verticillium lecanii* (T_1), *Beauveria bassiana* (T_2), *Metarhizium anisopliae* (T_3), *Trichoderma viride* (T_4) and botanicals *viz.* Tea wastage (T_5), Neem leaves extract (T_6), Allamanda leaves extract (T_7) against the pathogen of rhizome rot disease responsible for ginger production. The selected bio-agents were applied as a bio-fortified material. The bio-agents were bio-fortified with the selected substrates; cow dung, mustard oil cake, poultry manure, dust and wheat grain. Data on disease incidence and disease severity was recorded at 50, 70 and 90 days after planting (DAP). Among the selected compatible bio-agents the lowest disease incidence and severity were found in T_3 (*Metarhizium anisopliae*) and the highest in T_1 (*Verticillium lecanii*). Among the selected botanicals the lowest disease incidence and severity were found in T_5 (Tea wastage) and the highest was found in T_7 (Allamanda leaf extract). There was no disease was found in T_6 (Neem extract) treatment up to 90 DAP or up to harvesting. The selected treatments were also giving the promising performance in inhibition of radial mycelial growth of *Fusarium oxysporum* over untreated control. From the *in-vitro* management study it was found that *Trichoderma viride* (T_4) and *Metarhizium anisopliae* (T_3) gave the better performance in inhibition of radial mycelial growth of *Fusarium oxysporum*. Among the botanicals neem extract gave the promising performance in inhibition of radial mycelial growth. From the present study it may be concluded that *Metarhizium anisopliae*, *Trichoderma viride* and Neem leaf extract might be used for effective management of rhizome rot disease of ginger.

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