

Research Article

Biological Control of *Sclerotium rolfsii* and *Aspergillus flavus* Infection on Peanut with Combining *Trichoderma harzianum* and *Pseudomonas fluorescens* in the Field

KS Jadon, PP Thirumalaisamy, RD Padavi and VG Koradia

Directorate of Groundnut Research, Ivnagar road, PB. No. 5, Junagadh-362 001 Gujarat, India;
E-mail: kuldeep.rca@gmail.com

Abstract

A field experiment was conducted on Plant Pathology field at ICAR-DGR, Junagadh to manage *Sclerotium rolfsii* (Sacc.) and *Aspergillus flavus* through bio-control agents. A total of four bio-control agents were applied in this experiment viz., *Trichoderma harzianum* isolate T-170 (ICAR-DGR), *T. viride* isolate (Dharwad), *Pseudomonas fluorescens* (TNAU) and *P. fluorescens* (DGR). Lowest per cent stem rot incidence in *Kharif* and *Rabi-Summer* season was reported in soil application of *Trichoderma* isolate T-170 enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + Seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (TNAU) + Seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (DGR) (T13) (10.5 and 18.9 respectively) and lowest soil population (x10³) and per cent seed infection in *Kharif* was reported in soil application of *Trichoderma* isolate T-170 enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + soil application of *Trichoderma* isolate Dharwad enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + Seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (DGR)(T12) (7.6 and 2.1 respectively) and in *Rabi-Summer* season in soil application of *Trichoderma* isolate Dharwad enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (TNAU) + seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (DGR) (T14) (7.0 and 8.2 respectively). The highest biological yield (pod & haulm) in *Kharif* was observed in soil application of *Trichoderma* isolate T-170 enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + Seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (TNAU) + Seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (DGR) (T13) (1427 kg ha⁻¹ and 2498 kg ha⁻¹, respectively) and in *Rabi-Summer* in soil application of *Trichoderma* isolate T-170 enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + soil application of *Trichoderma* isolate Dharwad enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (DGR) (T12) (3034 kg ha⁻¹ and 5309 kg ha⁻¹, respectively). The highest benefit: cost (B: C) ratio was recorded in soil application of *Trichoderma* isolate T-170 enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + soil application of *Trichoderma* isolate Dharwad enriched in FYM @ 1 ton ha⁻¹ (50 kg per 200 kg FYM) + seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (DGR) (T12) whereas highest incremental cost benefit ratio (ICBR) was in seed treatment of *Pseudomonas fluorescens* @ 10 mL kg⁻¹ seed (TNAU) (T3).

Key words: Aflaroot, *Aspergillus flavus* and biocontrol agents, FYM, groundnut, peanut, *Pseudomonas fluorescens*, stem rot, *Sclerotium rolfsii*, *Trichoderma viride*, *T. harzianum*

Citation: Jadon KS, Thirumalaisamy PP, Padavi RD and Koradia VG. 2018. Biological control of *Sclerotium rolfsii* and *Aspergillus flavus* infection on peanut with combining *Trichoderma harzianum* and *Pseudomonas fluorescens* in the field. *J Mycol Pl Pathol* 48(1): 79-89.