

Evaluation of Entomopathogenic Fungi Strains for Field Persistence and Its Relationship to in Vitro Heat Tolerance

Authors : Mulue Girmay Gebreslasie

Abstract : Entomopathogenic fungi are naturally safe and eco-friendly biological agents. Their potential of host specificity and ease handling made them appealing options to substitute synthetic pesticides in pest control programs. However, they are highly delicate and unstable under field conditions. Therefore, the current experiment was held to search out persistent fungal strains by defining the relationship between invitro heat tolerance and field persistence. Current results on leaf and soil persistence assay revealed that strains of *Metarhizium* species, *M. pingshaense* (F2685), *M. pingshaense* (MS2) and *M. brunneum* (F709) exhibit maximum cumulative CFUs count, relative survival rate and least percent of CFUs reductions showed significant difference at 7 days and 28 days post inoculations (dpi) in hot seasons from sampled soils and leaves and in cold season from soil samples. Whereas relative survival of *B. brongniartii* (TNO6) found significantly higher in cold weather leaf treatment application as compared to hot season and found as persistent as other fungal strains, while higher deterioration of fungal conidia seen with *M. pingshaense* (MS2). In the current study, strains of *Beauveria brongniartii* (TNO6) and *Cordyceps javanica* (Czy-LP) were relatively vulnerable in field condition with utmost colony forming units (CFUs) reduction and least survival rates. Further, the relationship of the two parameters (heat tolerance and field persistence) was seen with strong linear positive correlations elucidated that heat test could be used in selection of field persistent fungal strains for hot season applications.

Keywords : integrated pest management, biopesticides, Insect pathology and microbial control, entomology

Conference Title : ICACIPM 2023 : International Conference on Agricultural Chemicals and Integrated Pest Management

Conference Location : Vancouver, Canada

Conference Dates : August 03-04, 2023