

Evaluation of the Pathogenicity Test of Some Entomopathogenic Fungus Isolates against Tomato Leaf Miner *Tuta Absoluta* (Meyrick) Larvae [Lepidoptera: Gelechiidae]

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Abstract : Tomatoes leaf minor (*Tutaabsoluta*) is one of the most economically important insect pest in tomatoes production. The use of biological control such as entomopathogen fungi isolates would be a long-term and cost-effective solution to control insects pest. Therefore, identifying the most virulent and pathogenic entomopathogen fungi is one of the basic requirements for effective management options to combat Tomatoes leaf minor (*Tutaabsoluta*). Furthermore, the pathogenicity and virulence difference among entomopathogenfungus strains is not widely well investigated. The current study was therefore initiated to test the pathogenicity of some entomopathogenic fungus isolates against *Tutaabsoluta*. The experiment was conducted at Bursa Uludag University, Agiculutre faculty, horticulture department glasshouse in 2020/2021. *Tutabasoluta* adult were collected, and masslarvae were reared in a growth chamber. Then, ten third instar larvae were inoculated with four entomopathogen fungi isolates (*Beuaveriabassania* Ak-10, *Beuaveriabassania* Ak-14, *Metarhziumanisoplai* Ak-11, and *Metarhziumanisoplai* Ak-12) with different inoculum suspension (0, 1×10^6 , 1×10^7 , 4×10^8 , 4×10^9 and 1×10^{10} conidia /ml) in a factorial experiment arranged in randomized complete block design with three replication. Mortality data assessment was done on the 3rd, 5th and 7th days after treatment and analyzed. The analysis of variance for mortality rate revealed significant variations ($p < 0.05$) among entomoptahogen fungi isolates and conidia concentrations. The results revealed that *Metarhziumanisoplai* Ak-12 was found to show the lowest mortality percentage 80.77%, highest LC50 2.3x108, and the longest incubation period, LT50, 4.9 and LT90, 9.9 days and considered to be less pathogenic fungi. On the other hand, *Beuaveriabassania* Ak-10 isolate showed the highest mortality percentage, 91%, and the lowest LT50, 4, and LT90, 7.6 values at 1×10^{10} conidia /ml, followed by *Beuaveriabassania* Ak-14 and being considered as the most aggressive bio-agent. *Metarhziumanisoplai* Ak-11 was determined as moderately virulent, having a mortality rate 27-81%. Results also revealed that among conidia concentrations, 1×10^9 and 1×10^{10} suspensions is the most effective, while 1×10^6 conidia/ml concentration is the least effective. Hence, results indicated that EPF tested were effective against *T. absoluta* larvae. As the current work revealed the potential variation among entomopathogen fungi isolates and concentration against third instar larvae.

Keywords : tuta absoluta, tomato, metarhizium anisopliae, beauveria bassiana, biological control

Conference Title : ICECP 2022 : International Conference on Entomology and Crop Protection

Conference Location : Istanbul, Türkiye

Conference Dates : June 27-28, 2022