

ABSTRACT

The tomato leaf miner, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae), is a major threat to tomato production in Rwanda. Laboratory bioassays were conducted to evaluate some commercial entomopathogenic fungi (EPF) formulations on *T. absoluta* larvae. The larvae, inside the leaf galleries, were obtained from the established tomato field. Commercial EPF: Metatech® WP [Metarhizium anisopliae (Metschn.) Sorok, Strain FCM Ar 23B3], Beauvitech® WP [Beauveria bassiana (Bals.) Vuill., Strain J25], and Botanigard ES [B. bassiana (Bals.), Strain GHA] were tested in Petri dishes against *T. absoluta* larvae at a concentration of 10⁸ spores/ml. A synthetic insecticide, imidacloprid was included for comparison as a positive control, while water was used as a negative control. All the tested commercial EPF formulations were pathogenic to *T. absoluta* larvae in all conducted bioassays. Mortality rates increased with an increase in time (days). However, the insignificant difference was observed in the mortality of *T. absoluta* larvae treated with the commercial EPF during the first 3 days in all bioassays. Highly significant differences ($p < 0.01$) in pathogenicity among treatments were observed from the 4th to 6th days after inoculation. Metatech® WP and Beauvitech® WP recorded the highest mortality rates (82.8 and 60.8%) with the LT₅₀ values of 3.9 and 5.2 days, respectively, while imidacloprid caused the least larval mortality. Since the EPF demonstrated high virulence level against the target pest, the efficacy of Metatech® WP and Beauvitech® WP should be advanced to field evaluation to determine their potential as alternatives to the synthetic insecticides.

Keywords: *Tuta absoluta*, Entomopathogenic fungi, *Beauveria bassiana*, *Metarhizium anisopliae*, Biological control, Rwanda