

Efficacy of some Entomopathogenic Fungi Against Tomato Leaf Miner *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) in Iraq

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Abstract. The most important tool for biological management of several insect pests is entomopathogenic fungi. The purpose of this study was to compare the effectiveness of *Beauveria bassiana* and *Chaetomium globosum* as biological agents against *Tuta absoluta*. According to the findings, *B. bassiana* and *C. globosum* may be able to influence *T. absoluta* larvae's eggs and third instar. By extending the duration and concentration, the fungus became more active. *B. bassiana* has had the greatest death rates after 7 days in the eggs and the third instar of the insect by 83.86% and 68.3% at 2×10^7 conidia mL⁻¹, respectively.. This score was significantly differs to the *C. globosum* reached 60.09% and 31.7% in the destruction both eggs and the 3rd larvae- instar respectively. The outcomes also confirmed that the fungal colonies of both fungi isolated from leaves after 10 days of the application. The highest colony percentage belongs to the *C. globosum* 32.29% with a significant difference to the *B. bassiana* by 23.26%. The presence of both fungal colonies had a significant effect on the eggs, larvae, and pupae period development. Consequently, the weight of the pupal was influenced compared to the control. The *B. bassiana* has supremacy in comparison to the *C. globosum* and the control treatment. A gradual decrease has been shown in the proportion of the two fungal colonies tomato leaves after 30th days. The lowest level score was 4.17% and 9.37% for both *B. bassiana* and *C. globosum* respectively.

Keywords. Tomato, Vegetable crops, Fungi Against, *Beauveria bassiana*.

1. Introduction

Tomatoes are widely cultivated and consumed as one of the most important vegetable crops around the world. The tomato growers have faced the seriously losing in the production due to the *Tuta absoluta* (Meyrick) [1]. The tomato yield loss was estimated at 80% in the greenhouses and 100% in the open fields [2-5].

One of the main characteristics with this pest is a short life cycle 28-29 days. During this period, it can have between 10-12 generations a year [6]. Many control methods have applied to decrease *T. absoluta* populations for instance the pheromone traps. These traps were effective in capturing lots of adults resulting in reducing their population [7,8]. Chemical control has also been employed. It has

