



**Zgazig University
Faculty of Science
Botany and microbiology Department**



Microbial control of certain stem borers and aphids infesting maize plants in Sharkia Governorate

By

Soha Shaprawy Ibrahim Mohamed

**B.Sc. (Botany and Chemistry),
Faculty of Science - Zagazig University, (2004)**

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Abstract

Some of the Entomopathogenic Fungi belonging to the genus *Metarhizium* are currently used as biocontrol agents and substitute the harmful chemical pesticides. *Metarhizium anisopliae* (Metchnikoff) was confirmed to have insecticidal, antimicrobial and anti-tumor activities. This research was performed in Sharkia governorate in seasons 2018 as an identified *M. anisopliae* M4 was identified by molecular biology (by 18S rRNA technology). The best media for *M. anisopliae* growth was yeast media. Environmental and nutritional conditions were studied to detect the optimum conditions for the growth as 25°C, pH8 and 13days incubation period was the best glucose, NaNO₃ and KH₂PO₄ were the best nutritional requirements. *M. anisopliae* M4 produced lytic enzyme (protease, chitinase and lipase) for insect penetration. *M. anisopliae* M4 was used in the biocontrol of some pests infecting maize plants such as, *Sesamia cretica* (Led) and *Rhopalosiphum maidis* (Fitch) under laboratory and field conditions. Under laboratory conditions *M. anisopliae* M4 spores concentration 1x10⁸ caused 100% mortality to *R. maidis* after 7 days and *S. cretica* after 10 days. Studies regarding capabilities of *M. anisopliae* M4 in both culture filtrate and prepared Trade form (10% conidia) to control *R. Maidis* and *S. cretica* comparable to some chemical and biological insecticides under field conditions and found that both culture filtrate of *M. anisopliae* M4 and its Trade has a biocontrol effect on *R. maidis* and *S. cretica* larvae. The studied on treated larvae and pre pupae of *S. cretica* morphology were made. Histological studies were done on *S. cretica* larvae to explain histological effect on larval stage.