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

BY

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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. anisopliaeM4*** 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^{o}C, pH8 and 13dayes incubation period was the best glucose, $NaNO_3$ and KH_2PO_4 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 1x10^{8} 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.