حسام مغربى

شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

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التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بعض الوثائق الأصلية تالفة

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شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

STUDIES ON ENTOMOPATHOGENIC FUNGI FOR CONTROLLING CERTAIN LEPIDOPTEROUS INSECTS ON CORN

By

HANY AHMED SAYED ABD EL-GAWAD
B.Sc. Agric. (Pesticides) Cairo University, 1988
M.Sc. Agric. (Pesticides) Cairo University, 1995

THESIS

Submitted in Partial Fulfillment of the
Requirements of the Degree of

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APPROVAL SHEET

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IN
Agriculture Science
(Pesticides)

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Title of Thesis: Studies on Entomopathogenic Fungi for Controlling Certain Lepidopterous Insects on Corn

Supervisors: Prof.Dr.M.H.Belal, Prof.Dr.G.H.Sewify and Prof.Dr.A.H.El-Heneidy

Department: Economic Entomology and Pesticides

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ABSTRACT

Survey of entomopathogenic fungi associated with corn borers, the pink stem borer *Sesamia cretica* Led. (Noctuidae), the purple – lined corn borer, *Chilo agamemnon Bles.* (Crambidae) and the European corn borer, *Ostrinia nubilalis* Hübn (Pyraustidae) in three governorates: Qaluobia, Kafr El-Sheikh and Beni-Suef during 1997-1999 after harvested early, summer and Nily maize plantings (stalks and ears). Isolating and identify these fungi on different medium PDA and SDA. The survey revealed the presence of identified fungi species associated with the three corn borers; *S. cretica, O. nubilalis.* and *C. agamemnon.*Four entomopathogenic fungi, *Beauveria bassiana, Nomuraea* rileyi, *Verticillium lecanii* and *Entomopthora* sp. were isolated from the collected corn borer cadavers in the three governorates. Besides, eight relatively common fungi associated with the corn borers were isolated from Beni Suef (Sids region), Qaluobia and Kafr El-Shiekh (Sakha region) governorates during 1997/98 – 1998/99. These fungi were identified as; *Fusarium sp., Aspergillus flavus, Aspergillus sp., Pseudogibellula formicarum, Alternaria sp., Penicillium sp., Mucor sp.* and *Trichothecium rosaum.* Distribution of entomopathogenic fungi associated with corn borers and survey populations of corn borers (stalks and ears) in previous governorates. Susceptibility of the 1st instar (newly hatched) larvae of *S. cretica* to isolated fungi to estimated LC_{50} and LT_{50}. Among the tested fungi, *B. bassiana (B8)* proved to be the most pathogenic to 1st the larval instar of *S. cretica* followed by *N. rileyi* and *V. lecanii*. Effect of insecticides on *B.bassiana (B8).* Effect of insecticides on mycelial growth and spore germination was studied. Data revealed that Methomyl and Cyhalothin were promising insecticides for mixing with the fungus, since no or little inhibition occurred either at the recommended dose or at 0.25 of it. Monocrotophos insecticide gave a high rate of inhibition to the tested isolate. In this respect, *B. bassiana (B8)* was the most tolerant isolate, at both tested doses, recording no inhibition, at any of the concentrations tested with Methomyl insecticide. Field applications of the entomopathogenic fungi *B. bassiana* (10^7 and 10^8) and *V. lecanii* (10^7) to evaluate the fungi in controlling *S. cretica* and *S. exigua* were carried out weekly, biweekly and monthly treatments in (Sakha) at Kafr El-Sheikh governorate during summer and Nily plantings 1998 using two plant cultivars (maize hybrid 323 and maize variety Giza 2). Latent effects of fungal application in summer and Nily plantings on populations of corn borers in stalks and ears maize plants after harvested and yield assessment was carried out. The weekly treatment with *B. bassiana,* and *V. lecanii* gave reduction of infestation and latent effect. It appeared that the maize variety (Giza 2) facilitated the efficacy of both fungi more than the maize hybrid 323. The grain yield was affected by the number of fungal sprayings, fungus concentrations and maize variety. The application of fungus alone *B. bassiana* (10^8) weekly, Methomyl and Monocrotophos at recommended dose, the mixture of Methomyl at ¼ recommended dose + fungus and Methomyl and Monocrotophos at ¼ recommended dose were tested against corn borers carried out in Kafr El-Sheikh (Sakha region) during summer planting 1999. The treatments with Methomyl and Monocrotophos at recommended dose gave high reduction of infestation following by fungus alone, mixture of Methomyl at ¼ recommended dose + fungus and Methomyl and Monocrotophos at ¼ recommended dose. The maize grain yield was increased as a result of previous applications. Effect of fungi on predators after survey common predatory species associated with the corn borers during 1998/1999 in Kafr El-Sheikh (Sakha region): *Coccinella udecimpunctata* L, *Scymnus interruptus L., Paedrus alfierii* Koch, and *Chrysoperla carnea.* No mycosis was observed among the collected individuals of the predators.

M. Belal

DEDICATION

I dedicate my thesis to my mother and my sisters. I specially dedicate it to the memory of my father for all the generous love and encouragement he gave me throughout my life. I also dedicate it to all my professors and to all those who helped me.

ACKNOWLEDGMENT

First of all, I would like to pray to my Great God "Allah"-the most beneficent and merciful of all – expressing my thanks for completing my work.

Deep appreciation is expressed to Prof. Dr. M.H.Belal Head of Pesticides Branch, Department of Economic Entomology and Pesticides, Faculty of Agriculture, Cairo University. Particular mention must be made for his kind supervision of the progress of this work, his sincere efforts, his help, all the facilities offered by him and his positive situations extended more than supervision in all steps during this work of research.

Grateful appreciation and deepest gratitude to Prof. Dr.G.H.Sewify, Prof. of Economic Entomology at the Department of Economic Entomology and Pesticides, Faculty of Agriculture, Cairo University for supervision of this thesis. He familiarized me with fungal technology and guided my work throughout the research. I am indebted to him for his continuous encouragement, sincere help and all the facilities offered by him during the work.

I deeply thank Prof. Dr. A.H.El-Heneidy, Chief Researcher and Head of Biological Control Department, Plant Protection Research Institute, Agriculture Research Center for his supervision, great help, valuable suggestions and for the facilities he made available during this study.

I am deeply thankful to Prof. Dr. M.F.S. Tawfik Director of the Center of Biological Control at the Faculty of Agriculture, Cairo University for all the facilities offered by him and for his valuable advice.

Deep thanks and my gratitude are expressed to Dr. Prof. Metwally Farag, Chief Researcher, Plant Protection Research Institute, Agriculture Research Center for his valuable help.

Deepest gratitude to Prof. Dr. Mohamed Abou Setta, Prof. Of Entomology, Chief Researcher, Plant Protection Institute, Agriculture Research Center for his help during statistical analysis of the data.

Special thanks are expressed to all my colleagues at the Faculty of Agriculture - Cairo University, Biological Control Department, Plant Protection Research Institute and Agriculture Research Center for their friendly cooperation during the course of this study.

Many thanks are expressed to those who generously helped me to carry out this study with their knowledge, valuable advice and kind encouragement.

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