PREDACIOUS MITES ATTACKING PESTS INFESTING SOYBEAN AND PEANUT AT MENIA AND BEHERA GOVERNORATES, EGYPT

By

MAHMOUD ABDELRADY KORASHY NASR
B.Sc. Agric. Sci. (Plant Protection), Fac. Agric., Cairo Univ., 2008

THESIS
Submitted in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

In

Agricultural Sciences
(Agricultural Zoology)

Department of Zoology and Agricultural Nematology
Faculty of Agriculture
Cairo University
EGYPT

2016

APPROVAL SHEET

PREDACIOUS MITES ATTACKING PESTS INFESTING SOYBEAN AND PEANUT AT MENIA AND BEHERA GOVERNORATES, EGYPT

M.Sc. Thesis
In
Agric. Sci. (Agricultural Zoology)

By

MAHMOUD ABDELRADY KORASHY NASR
B.Sc. Agric. Sci. (Plant Protection), Fac. Agric., Cairo Univ., 2008

Approval Committee

Dr. MAGDY ABD EL-HAKIM ABD EL-SAMAD……
Professor of Acarology, Fac. Agric., Al-Azhar University

Dr. MOHAMED ABD EL-AZIZ ZAHER…….....
Emeritus Professor of Acarology, Fac. Agric., Cairo University

Dr. AYMAN MOHAMED HEFNY MABROUK……
Professor of Acarology, Fac. Agric., Cairo University

Dr. MORAD FAHMY HASSAN …….....
Emeritus Professor of Acarology, Fac. Agric., Cairo University

Date: 17/ 8 /2016

SUPERVISION SHEET

PREDACIOUS MITES ATTACKING PESTS INFESTING SOYBEAN AND PEANUT AT MENIA AND BEHERA GOVERNORATES, EGYPT

M.Sc. Thesis
In
Agric. Sci. (Agricultural Zoology)

By

MAHMOUD ABDELRADY KORASHY NASR
B.Sc. Agric. Sci. (Plant Protection), Fac. Agric., Cairo Univ., 2008

SUPERVISION COMMITTEE

Dr. MORAD FAHMY HASSAN
Emeritus Professor of Acarology, Fac. Agric., Cairo University

Dr. AYMAN HEFNY MABROUK
Professor of Acarology, Fac. Agric., Cairo University

Dr. HASSAN ALI TAHA
Emeritus Researcher Professor of Acarology, Plant Prot., Res. Inst., A.R.C., Dokki, Giza

Name of Candidate: Mahmoud Abd elrady korashy Nasr **Degree:** M.Sc.
Title of Thesis: Predacious mites attacking pests infesting soybean and peanut at Menia and Behera Governorates, Egypt
Supervisors: Dr. Morad Fahmy Hassan
Dr. Ayman Hefny Mabrouk
Dr. Hassan Ali Taha
Department: Zoology and Agricultural Nematology
Branch: Acarology **Approval:**17/8/2016

ABSTRACT

The targets of the present study are, to survey the most common predatory mites found on soybean and peanut plants at Menia and Behera governorates and identify the unknown mite species. Description of the immature stages of selected predators which have not been described before and biology of the most common predatory mite (*Typhlodromus athiasae* Porath and Swirski) was studied on the main pest (*Tetranychus urticae* Koch) associated with soybean and peanut under laboratory conditions.

The surveyed mite species belong to 4 suborders, 26 families and 57 genera. The total identified species associated with soybean and peanut plants were collected from El-Behera and El-Menia governorates during (2013 – 2015).

Studies included description of a new mite species of the genus *Asca* (Acari: Mesostigmata: Ascidae). Studies also included description of the immature stages of *T. athiasae* (Acari: Mesostigmata: Phytoseiidae).

Laboratory studies on some biological aspects of the predatory mite *T. athiasae* were undertaken, using different stages of the two-spotted spider mite *Tetranychus urticae* (eggs, immature and adult), on female fecundity. Significant differences were recorded on the fecundity of *T. athiasae* as the total no. of eggs were (27.56, 27.00 and 44.61), when fed on females, nymphs and eggs of *T. urticae*, respectively, and the daily laid eggs being were (1.06, 1.27 and 1.47), respectively.

The consumption rate showed that during life span were (169.61, 563.08 and 3399.8) on females, nymphs and eggs of *T. urticae*, respectively

The life table parameters showed that the intrinsic rate of natural increase (r_m) was (0.178, 0.177and 0.191), the net reproductive rate (R_o) values averaged (19.56, 16.58and 24.98) and the finite rates of increase (λ) were (1.194, 1.193 and 1.210). The mean generation time (T) were (16.75, 15.88 and 16.84 days), and the values of doubling time (DT) recorded (1.68, 1.70 and 1.58), when *T. athiasae* fed on females, nymphs and eggs of *T. urticae*, respectively.

Key words: *Tetranychus urticae* Koch, *Typhlodromus athiasae* Porath and Swirski, *Asca aegyptiaca* sp. nov, Soybean and Peanut plants.

ACKNOWLEDGEMENT

All thanks and praying is to Almighty ***Allah****. By his will, I got a lot of help, support and encouragement.*

I am deeply grateful to my major ***Professor Morad F. Hassan****, Emeritus professor of Acarology, in the Department of Zoology and Agricultural Nematology, Faculty of Agriculture, Cairo University, for his detailed and constructive comments, and for his important support throughout this work.*

I warmly thank ***Professor Ayman hefny mohamed Mabrouk,*** *professor of Acarology, Zoology and Agricultural Nematology Department, Faculty of Agriculture, Cairo University, for valuable advice and help. Extensive discussions around my work and interesting explorations have been very helpful to this study.*

I am deeply grateful to ***Professor Hassan Ali Taha,*** *Emeritus professor of Acarology, Cotton and field crops mites Department, Plant protection Research institute (ARC), for his detailed and constructive comments, and for his important support throughout this work.*

I would like to express my deep and sincere gratitude to ***Professor Faten M. Momen,*** *Emeritus Professor of Acarology, Pests and Plant Protection Department, National Research Centre (NRC). Her wide knowledge and logical way of thinking have been of great value to me. Her understanding, encouraging and personal guidance have provided a good basis for the present thesis.*

I owe my loving thanks to my family; without their encouragement and understanding, it would have been impossible for me to finish this work. My special gratitude is due to my close friends for their loving support.

I gratefully acknowledge the funding received towards my MSc. from the Plant protection Research institute (ARC),I would also like to express my deep gratitude and respect to the members of Acarology group, Plant protection Research institute (ARC),who contributed immensely to my personal and professional time. They have been a source of friendships as well as good advice and collaboration.

CONTENTS

LIST OF TABLES