COMPARATIVE STUDIES ON THE DIAGNOSTIC CHARACTERISTICS OF CERTAIN NEMATODE PARASITES BELONGING TO THE SUPER FAMILY ASCARIDOIDEA

A THESIS SUBMITTED
BY

HODA ABDEL HALIM TAHA
(B.Sc. ZOOLOGY)

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SUPERVISED BY

DR. ABDEL HAFEZ HELMY MOHAMMED
PROF. OF ZOOLOGY – DEPARTMENT OF ZOOLOGY
FACULTY OF SCIENCE-AIN SHAMS UNIVERSITY

DR. AMEEN ABDEL BAKI ASHOUR
PROF. OF PARASITOLOGY – DEPARTMENT OF ZOOLOGY
FACULTY OF SCIENCE-AIN SHAMS UNIVERSITY

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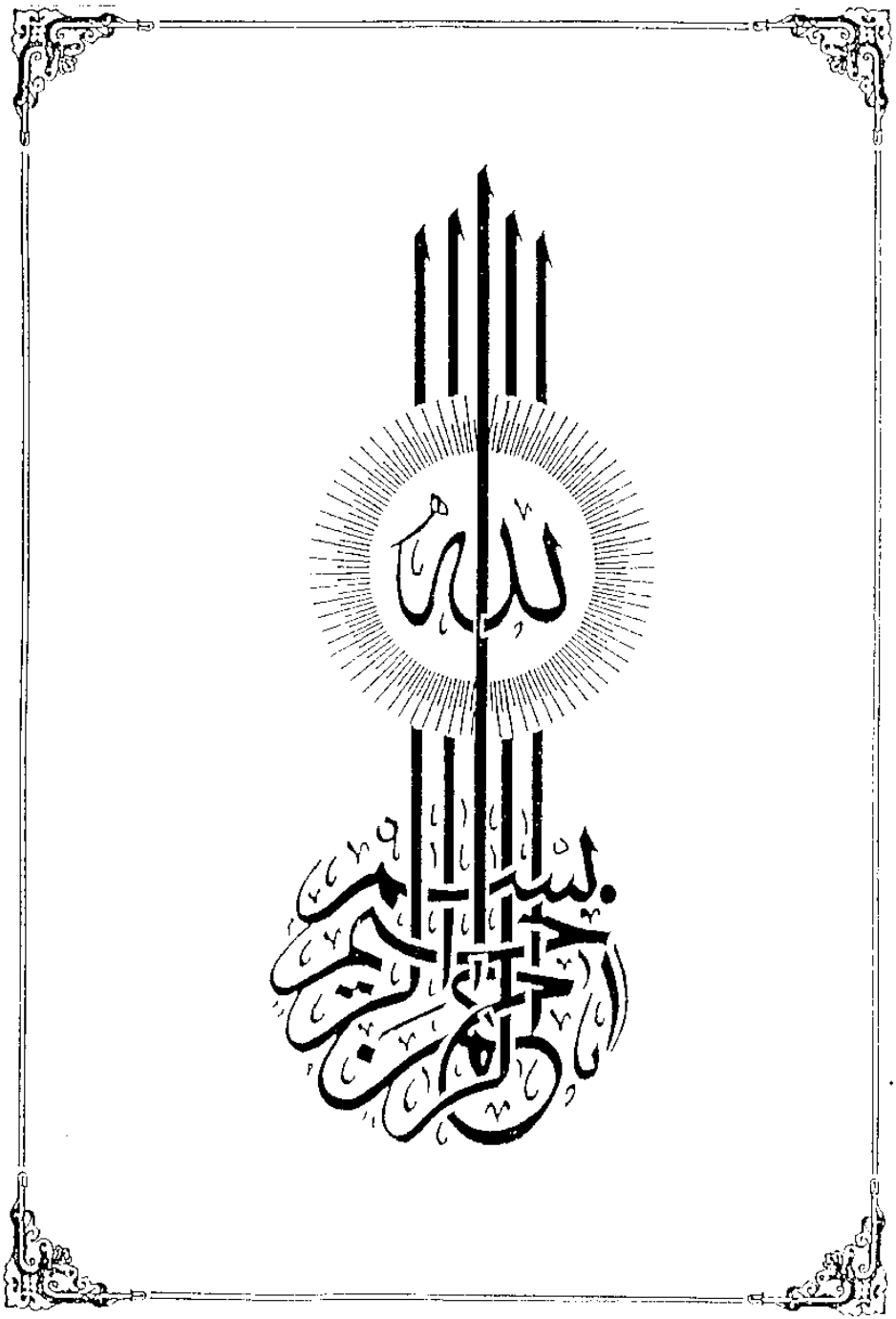

بسم الله الرحمن الرحيم

"قالوا سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم

الحكيم"

البقرة – الآية ٣٢

The student has successfully passed the examinations of the following required postgraduate courses:

1- Principles of Animal Taxonomy

2- Advanced Invertebrates

3- Advanced Protozoa

4- Parasitic Relationships

5- English language

Prof. Dr. Abdalla M. Ibrahim

Head of Zoology Department

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ABSTRACT

Hoda Abdel Halim Taha: Comparative studies on the diagnostic characteristics of certain nematode parasites belonging to the superfamily Ascaridoidea. The four ascaridid nematodes *Toxocara canis*, *Toxocara vitulorum*, *Toxascaris leonina* and *Parascaris equorum* were respectively collected from the domestic dog, *Canis familiaris*, the ruminants, *Bos taurus* and *Bubalis bubalis*, the domestic cat, *Felis catus* and the equines *Equus caballus* and *Equus asinus*. Variations in the morphology of the four ascaridid nematodes were reported and new taxonomically important ones were established including the structure of the lips, the dentigerous ridges, the cephalic and caudal papillae and the cuticular surface of the worm.

The surface topography and the layers of the egg-shell of the four nematodes were also studied. It was revealed that specific sculpture patterningsare found on the egg surfaces of *Toxocara canis*, *Toxocara vitulorum* and *Parascaris equorum*, while that of *Toxascaris leonina* is smooth. The vitelline layer of the egg-shell was clearly demonstrated in both *T. viulorum* and *Toxascaris leonina.*

The electrophoretic profile of the whole body proteins of the four ascaridid nematodes under investigation revealed specific differences and similarities between the four species in this respect. The present work also demonstrated the chromosome number of each nematode species studied and the behavior of these chromosomes during meiosis. The chromosome number was found to be: (n = 9 + small fragment, 2n = 18) in *Toxocara vitulorum*, (n = 10) in T. canis, (n = 18) in *Toxascaris leonina* and (n = 2 , 2n = 4) in *Parascaria equorum*.

The results of all these investigations were compared with other studies made by previous authers and discussed in terms of the phylogenetic relationships of the ascaridid nematodes in general.

KEY WORDS

Ascaridid Nematodes -*Toxocara canis* -*Toxocara vitulorum* -*Toxascaris leonina* *Parascaria equorum* - Morphology - Egg shell ultrastructure - Electrophoresis - Chromosomes

LIST OF ABBREVIATIONS

O.V. : Oesophageal Ventriculus

Pr. P : Precloacal Papillae

Po. P : Post cloacal Papillae

S : Spicules

DL : Dorsal Lip

SL : Subventral Lip

CeP. : Cephalic Papillae

D. R. : Dentigerous Ridges

A : Amphid

C. O. : Cloacal Opening

Ce. Al : Cervical Alae

Ca. Al : Caudal Alae

Pl : Protein layer

Ch.l : Chitinous layer

Ll : Lipid layer

Vit.l : Vitelline layer

L. M. : Light microscope

SEM : Scanning electron microscopy

TEM : Transmission electron microscopy

PAGE : Poly Acryamide Gel Electrophoresis

ES antigen : Excretory-Secretory antigen