بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

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

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Cairo University
Faculty of Veterinary Medicine
Department of Aquatic Animal Medicine and Management

"Control of some infectious diseases affecting cultured *Pangasius*" Spp. by recent bioproducts application

A thesis submitted by

Mai Saad Yaseen Farag

(BVSc, Cairo University, 2006; MVSc, Cairo University, 2017)

For the degree of Ph.D.
(Aquatic Animal Medicine and Management)

Prof. Dr. Mohamed Moustafa Mohamed
Prof. of Aquatic Animal Medicine and Management
Faculty of Veterinary Medicine
Cairo University

Prof. Dr. Mohamed Abd El Aziz Ahmed
Prof. of Aquatic Animal Medicine and Management.
Faculty of Veterinary Medicine
Cairo University

Dr. Dalia Ashraf Abdel-moneam
Lecturer of Aquatic Animal Medicine and Management.
Faculty of Veterinary Medicine
Cairo University

Dr. Elsayed Abd Elhy Elsayed
Researcher of fish diseases and management.
Desert Research Center

2020

بسم الله الرحمن الرحيم

وأَنْ لَيْسَ لِلْإِنْسَانِ إِلَّا مَا سَعَى

(٣٩) وَأَنَّ سَعْيَهُ سَوْفَ يُرَى

(٤٠)ثُمَّ يُجْزَاهُ الْجَزَاءَ الْأَوْفَى

(٤١)

صدق الله العظيم

(سورة النجم)

Supervision sheet

Control of some infectious diseases affecting cultured *Pangasius* Spp. by recent bioproducts application

Ph.D Thesis
In
(Aquatic Animal Medicine and Management)
By
MAI SAAD YASEEN FARAG

(B.V. Sc., Cairo University 2006)
(M.V. Sc., Cairo University 2017)

SUPERVISION COMMITTEE

Prof. Dr. MOHAMED MOUSTAFA MOHAMED
Prof. of Aquatic Animal Medicine and Management
Faculty of Veterinary Medicine
Cairo University
Prof. Dr. MOHAMED ABD EL- AZIZ AHMED
Prof. of Aquatic Animal Medicine and Management
Faculty of Veterinary Medicine
Cairo University
Dr. DALIA ASHRAF ABDEL-MONEAM
Lecturer of Aquatic Animal Medicine and Management
Faculty Of veterinary medicine.
Cairo University
Dr. ELSAYED ABD ELHY ELSAYAD
Researcher of fish diseases and management.
Desert Research Center

Name Mai Saad Yaseen Farag
Nationality Egyptian
Date of birth 23/12/1983
Place of birth El Kuwait
Specification Aquatic Animal Medicine and Management
Scientific degree Ph.D (Aquatic Animal Medicine and Management)
Thesis title: "Control of some infectious diseases affecting cultured *Pangasius* Spp. by recent bioproducts application"
Supervision: Prof. Dr. Mohamed Moustafa Mohamed
Prof. Dr. Mohamed Abd El-Aziz Ahmed
Dr. Dalia Ashraf Abdel-moneam
Dr. Elsayed Abd Elhy Elsayed

ABSTRACT

The present study aimed to identifying the main bacterial agent causing disease problem among *P.hypophthalamus* fish in semi intensive and intensive fish farms in Egypt and to assessment the efficacy of nucleotides (Nucleoforce™) on growth, hematological, non-specific immunological parameters and disease resistance in *pangasius hypophthalmus fish*.

This study was conducted on 70 diseased *Pangasius hypophthalmus* fish collected from different *Pangasius* fish farms in Egypt. Bacteriological examination revealed the isolation of *Pseudomonas aeruginosa* that was biochemically confirmed using MALDI-TOF MS and VITEK 2 compact system. The prevalence and virulence of *Pseudomonas aeruginosa* were estimated genotypically using species specific 16S rDNA gene, *OprL* and *ToxA* virulent genes for detection of pathogenic strains followed by sequencing analysis. Pathogenicity of isolated *Pseudomonas aeruginosa* was confirmed by experimental intraperitoneal injection of healthy *Pangasius hypophthalmus* with positively virulent strains resulting in high mortalities among injected fish. Dietary nucleotides were incorporated in diet at different concentrations; group I control, group II 250 g/ ton diet and group III 500 g/ ton diet for 8 weeks. At the end of feeding trial, weight gain and specific growth rate (SGR) were recorded. Results showed that there was a significant increase in WG, SGR in fish groups received diet supplemented with nucleotides in comparison with the control

group. Haematogram indices showed a significant elevation in RBCs count, HB value, WBCs and leukocytic count. Biochemically, High super oxide dismutase (SOD) activity, total protein and globulin levels were recorded in fish fed on 500g/t nucleotide (NT). Immunologically, Lymphocytic proliferation activity, Nitric oxide concentration and Serum lysozyme activity were continuously increased in 250g/t and the 500g/t NT treatment groups along feeding duration.

In conclusion, the supplementation of fish diet with nucleotides in concentration of 500g/t nucleotide can improve the general health status of *P. hypophthalmus* via increasing the disease resistance against *P. aeruginosa*.

Keywords: Nucleoforce™, *pangasius hypophthalmus*, Hematogram, immunological parameters, *Pseudomonas aeruginosa*.

.

Acknowledgements

*First of all, I wish to express my sincere gratitude to "**ALLAH**" who gives me life, Islam, and all things that make me able to finish this work.*

*I would like to express my sincere gratitude and deepest appreciation to **Prof. Dr. Mohamed Moustafa** Prof. of Aquatic Animal Medicine and Management
, Faculty of Vet Med. Cairo University, for his helpful, supervision and facilities offered throughout the course of this work.*

*I would like to express my sincere gratitude and deepest appreciation to **Prof. Dr. Mohamed abdl –Aziz** Prof. of Aquatic Animal Medicine and Management, Fac. of Vet. Med. Cairo University, for his supervision, guidance, his kind help and suggested me such an interesting issue followed by drawing a very fine scheme.*

*Words cannot adequately express the feelings of gratitude I have for **Dr. Dalia Ashraf** Lecturer of Aquatic Animal Medicine and Management for precious advices for her kind supervision, advice, and help during the progress of this work.*

*I would like to record my cordial thank to **Dr. Elsayed Abd Elhy Elsayed** researcher of Fish diseases and management desert research center, for his kind supervision, advice and gentle support.*

*Special appreciation goes to Prof.**Dr. khaled nasr** Prof. of Clinical Nutrition , Faculty of Vet Med. Cairo University, for his assistance and helpful guide in nutrition of fish during the experiment.*

*Many thanks are also extended to all the staff members of the Animal health, Especially **Dr. Islam Wassif** and **Dr.Marwa fawzy** , Desert reaserch center for their kind help.*

Finally I would like to thank all my family for their encouragement.

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES