Cairo university

Faculty of veterinary medicine

Department of fish diseases and management

Effect of using peppermint extract on growth parameters ,immune and health status of *Oreochromis niloticus*

Thesis

Presented by

Ola Hasan Mohamed

For the degree of m.v.sc of

Vet. Medical science

(fish diseases and management)

Under supervision of

Prof. Dr. Mohamed Abd El Aziz Ahmed

Professor and head of the dept. of fish diseases and management,

Faculty of veterinary medicine , cairo university

Prof. Dr. Magdy Ibrahim Hanna

Professor of fish diseases and management, Faculty of veterinary medicine ,cairo university

2017

Supervision sheet

ProF. DR:Mohamed Abd Elaziz Ahmed
Professor and Head of The Dept.of fish Diseases and Management, Faculty of Veterinary Medicine, Cairo University.

ProF.DR:Magdy Ibrahim hanna
Professor.of Fish Diseases and Management, Faculty of Veterinary Medicine, Cairo University.

Abstract

Cairo university

Faculty of veterinary medicine

Department of fish diseases and management

Name: ola hasan Mohamed

Date and place of birth: 26/5/1991-eltbeen.

Nationality : Egyptian

Title of thesis

Effect of using peppermint extract on growth parameters ,immune and health status of *Oreochromis niloticus*

m.v.sc of Veterinary Medical science(fish diseases and management)

2017

Under supervision of

Prof. dr. Mohamed Abd El Aziz Ahmed

Professor and head of the dept. of fish diseases and management,

Faculty of veterinary medicine , cairo university

Prof. dr. Magdy Ibrahim Hanna

Professor of fish diseases and management, Faculty of veterinary medicine ,cairo university

This study was conducted to evaluate the effect of dietary supplementation of 4% *mentha piperita* powder and 4% ethanol extract of *mentha piperita* on the growth performance ,haematological ,biochemical ,immunological parameters and disease resistance against *streptococcus species* in *oreochromis niloticuus* and at the same time comparing between using of 4% *mentha piperita* powder and 4% ethanol extract of *mentha piperita* .the results revealed that there was significant increase in growth in groups fed enrich diet than control group ,But there was no significant difference beteween groups fed diet supplemented with 4% *mentha piperita* powder and groups fed diet supplemented with 4% ethanol extract of *mentha piperita*. there was no significant difference in Hb ,PCV,RBCs count , WBCs count, ALT ,AST ,uric acid, urea ,creatinine and albumin between different groups. there was significant increase in globulin and total protein in groups fed enriched diet when compared with control group, But there was no significant difference beteween groups fed diet supplemented with 4% *mentha piperita* powder and groups fed diet supplemented with 4% ethanol extract of *mentha piperita*. There was no significant difference in lysozyme activity and nitric oxide activity between different groups. There was reduction in mortality after bacterial challenge with *streptococcus species* in groups fed enriched diet when compared with control group.

Dedicated to ……

My dear family

My dear friends

Every one helps me

Acknowledgement

First of all, I want to confess that all words are disabling to thanks **Allah** who supported me to finish this work.

I wish to express my high appreciation and sincere thanks to **Prof. Dr. Mohamed Abd El Aziz Ahmed** Professor and head of the dept. of fish diseases and management, Faculty of veterinary medicine ,cairo university, who gave me much of his experience ,and support during the supervision of this work.

I would like to express my sincere gratitude to **Prof. Dr. Magdy Ibrahim Hanna** Professor of fish diseases and management, Faculty of veterinary medicine ,cairo university who gave me much of his experience and guidance all this work.

Finally, it is agreat pleasure to record my deep gratitude to everyone who helped me to complete this work and all members of **fish diseases and management**, faculty of veterinary medicine ,cairo university.

Contents

List of tables

List of figures

1-Introduction

Industrial aquaculture is growing rapidly in many developed and developing countries due to the depletion of fisheries and market forces aimed at globalizing food sources **(FAO,2013)**

Major tasks in aquaculture industry are to maintain fish health as well as to improve fish performance. Fish producers use a large quantity of antibiotics and chemicals to prevent and control diseases **(Harikrishnan *et al*., 2011)**, However, the use of antibiotics in fish farming is restricted in many countries due to increasing development of antibiotic resistance in aquatic bacteria **(Citarasu, 2010)**, Also, the occurrence of antimicrobial residues in aquaculture products threatens human health **(WMO, 2006)**.

Nowadays, herbal biomedicine are becoming more popular than ever before as far as the possible adverse effects of synthetic drugs are concerned **(Rawling *et al*., 2009)**,Therefore, there are increasing concerns about testing potential impacts of natural additives on health monitoring and growth effects in fish **(Citarasu, 2010)**.

Use of medicinal plants have advantages of low/minimum cost, potency and efficiency, enhanced tolerance, more protection, fewer side-effects, complete accessibility, and they are recyclable **(Parveen and Shrivastava, 2012)**.

Oral administration of natural plant products promotes various activities like growth promotion, appetite stimulation, tonic and