

Cairo University
Faculty of Veterinary Medicine
Microbiology and Immunology

Effect of Mycotoxins on Aquaculture Fish

A Thesis

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(B. V. Sc. 2009, Cairo University)

For the degree of M.V.Sc.

In Microbiology

(Bacteriology, Immunology & Mycology)

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2016

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Abstract

The present study was undertaken to detect the prevalence of mycotoxins in fish feeds and assessment of its effect on fish health and growth. The mycological examination of samples of fish feeds revealed that the recovered genera of moulds were *Penicillium* spp., *Aspergillus* (*flavus*, *niger*) and *Mucor* Spp. The most predominant isolates were *Aspergillus flavus* that isolated from 40 out of 50 samples with a percentage of 80%, followed by *Penicillium* spp in 30 out of 50 samples with a percentage of 60%, *Aspergillus niger* recovered from 20 out of 50 samples with a percentage of 40%, and *Mucor* spp that obtained from 10 out of 50 samples with a percentage of 20%.

The aflatoxin B₁ and ochratoxin A were measured in the five ration samples by Fluorometric method and the result detected that the highest concentration of ochratoxin A was found in fourth sample at the level of 38

PPb, while the highest concentration of Aflatoxin B₁ was found in the second sample at the level of 13PPb. Whereas, the lowest concentration of ochratoxin A was detected in second sample at the level of 7.6 PPb . While, the lowest concentration of Aflatoxin B₁ was observed in the third sample at the level of 5 PPb. The total concentrations of aflatoxin B₁ was ranged from 5 to 13 PPb and concentrations of ochratoxins A ranged from 7.6 to 38 PPb. The effects of experimental feeding of ochratoxins and aflatoxins contaminated ration on *Tilapia niloticus* was undertaken. The diminished body weight gain in fish fed on ration contaminated with AFs and OA was significantly improved after addition of yeast to the mycotoxicated feed. Whereas, the mortalities rate which observed in the mycotoxicated fish group were completely absent by adding yeast to the toxicated group. On the other hand, the hepatosomatic index calculated in the present experiment were increased after administration of yeast to fish with the mycotoxicated feed. Currently, no aflatoxins and ochratoxins residues levels in flesh of *Tilapia niloticus* were detected at the end of experimental period . The histopathological examination of liver and kidney tissues of fish in treated groups was carried out. The addition of yeast to the mycotoxicated feed to fish , increased the intracellular GSH and restore its levels following depletion through elevation in the glutathione peroxidase and glutathione reductase activities, total glutathione, and total reactive antioxidant potential levels . This beneficial effect of yeast was detected as a marked improvement of hepatic features manifested by mitigation of the vacuolar degenerative changes at both low and high doses and nuclear membrane integrity.

DEDICATION:

To Mom and Dad

To Marwa,

Ahmed.

Acknowledgement

First of all, many thanks to Allah who gives me power, patience and ambition to begin and finish this work without your blessing and mercy nothing would be done.

*I wish to express my profound gratitude and high appreciation to **Prof. Dr. Heidy Mohamed Shawky**, Professor of Microbiology; Faculty of Veterinary Medicine, Cairo University, for her unlimited help, planning, her kind supervision, constant encouragement, trust, provision of so much of her time to follow me up, pushing me forward to be a good researcher and her valuable advices that always help me not only in research but also in life aspects.*

*All the words of appreciation and acknowledgement come in short of describing my great indebtedness of thanks to **Prof. Dr. Mai Ibrahim Dosouki**, Professor of Fish diseases and Management; Faculty of Veterinary Medicine, Cairo University, for her supervision, valuable help and continues encouragement through the progress of the work,*

*Grateful thanks are due to **Dr. Mai Hamed Mahmoud Hanafy** lecturer of Microbiology; Faculty of Veterinary Medicine, Cairo University, for her kind advices, encouragement and great help.*

*Deep thanks are due to **Prof. Dr. Mohamed Abdelaziz**, Professor of Fish diseases and Management; Faculty of Veterinary Medicine, Cairo University, for his supervision, valuable help and encouragement.*

*It is pleasure to thank **Prof. Dr. Adel Bakeer** professor of Pathology, Faculty of Medicine, Cairo University for his keen and great help in delivering this work,*

*I own deep thanks to **Prof. Dr. Anwaar El-Nabrawy** professor of Poultry Diseases for her kind advices and encouragement.*

*From all my heart I want to deeply thank my friends **Maha El-Masry, Abdallah Sallam, Sara Osama, Hend Mohsen, Habiba Hany** for their great support and impressive help.*

To all Staff members of the Department of Microbiology, Faculty of Veterinary Medicine, Cairo University, I would like to thank you from the bottom of my heart for your kind help and cooperation.

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