بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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INVESTIGATION OF CAUSES OF MASS MORTALITIES AMONG TILAPIA FRIES

A Thesis Submitted by

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(B.V.Sc. Cairo University, 2013)

For the Degree of M.V.Sc.

Aquatic Animal Medicine and Management

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Abstract

Key words: tilapia fries, Aeromonads, Staphylococcus epidermidis, Shigella sonnei, Providencia rettgeri, Shewanella putrefaciens, Acinetobacter lwoffii

Recently, aquaculture in Egypt has faced multiple records of mass mortality resulting in high economic losses. The mass mortality among tilapia fries is mainly attributed to bacterial pathogens either with or without other pathogens. This study is designed to investigate the etiological factors implicated in mortality of Nile tilapia fries. Bacteriological examination of Nile tilapia fries, including isolation and identification using a range of techniques (API NE20, Vitec, PCR, and 16SrRNA Sequencing), revealed an array of typical pathogens known to cause lethal infections in tilapia. The most frequently isolated strains were Aeromonads (A. veronii, A. sobria, A. hydrophila), Staphylococcus epidermidis, Pseudomonas aeruginosa, and Shigella sonnei, in addition to three emerging freshwater aquaculture pathogens which have zoonotic significance, namely Providencia rettgeri, Shewanella putrefaciens, and Acinetobacter lwoffii were isolated from fish fries. Despite known pathogenicity, inoculation of fish fingerlings with the different bacterial isolates resulted in only mild mortality rates under non-stress conditions, emphasizing the role of additional environmental stressors in triggering mass mortality of juvenile fish. Conclusively, these pathogens have a significant negative impact on tilapia fries, particularly in combination with environmental stress.

To my father's soul, my mother, my brother

And my sisters

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