



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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التوثيق الإلكتروني والميكروفيلم

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Viral problems of Tilapia fish in Egypt

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Abstract

Incidences of mortalities in cultured Nile tilapia (*Oreochromis niloticus*) have had a negative impact on the maintenance of many tilapia hatcheries and farms for the past few years. The socioeconomic structure of Egyptian aquaculture is severely affected due to fish loss, feed waste and loss of job opportunities. There is little information about pathogenic fish viruses in Egypt although members of twelve virus families have been identified worldwide in wild and farmed fish species causing drastic losses. Efforts were directed to investigate the possible viral causes of these massive infections. Therefore, the development of the synthetic positive control standard is crucial for the survey of viruses causing mortality in cultured tilapia as a rapid, affordable, and reliable molecular diagnostic assay. It was synthesized in silico allowed the amplification of fragments from nervous necrosis virus (NNV) RNA 2 and segment 9 of tilapia lake virus (TiLV) that reported to be threat to tilapia aquaculture. TiLV RNA was not detected in any of the extracts tested using RT-PCR. NNV strains phylogenetically related to red-spotted grouper NNV were detected in three tilapia hatcheries in the period of investigation (2018-2019). Clinical signs of naturally infected fish were consistent with classical NNV infections (abnormal swimming behavior and skin darkening). Electron

micrographs revealed virions in the retina and brain. NNV RNA was also detected in the brood stocks' brains and ovaries indicating the vertical transmission possibility. Experimental infection of NNV-free fries resulted in 100% morbidity and mortality. Since this is the first report of VNN-infections in African tilapia, different aspects of viral epidemiology and possible ways to break the epidemic wave and prevent future interspecies transmission events are discussed. VNN does not constitute a public health hazard because it is not transmitted from fish to humans. The disease is not a notifiable disease according to the OIE, and therefore it does not affect international fish trade (export and import between countries).

Keywords:

Oreochromis niloticus, Betanodavirus, Mass mortality, Electron microscopy, Hatchery-reared fries, Phylogenetic analysis, Brood stocks

Dedication

My deep thanks to

my Mother,

my Father,

my sister,

my brothers

and

my close friends

for their great cooperation and

continuous support

during the whole work

Acknowledgment

*All thanks to our merciful **ALLAH** who gave me all the graces I enjoy in my life. His magnificent help and compassion gave me the ability and patience to finish this work.*

*I would like to direct my sincere gratitude to **Prof. Dr. Mohamed Abdelaziz Ahmed**, Professor of Aquatic Animal Medicine and Management, Faculty of Veterinary Medicine, Cairo University, for his precious supervision, infinite support, and endless encouragement during every single step that allowed me to finish my work smoothly, successfully and effectively.*

*I would like to express great thanks, deep gratitude and respect to my supervisor **Prof. Dr. Mohamed Moustafa Mohamed**, Professor of Aquatic Animal Medicine and Management, Faculty of Veterinary Medicine, Cairo University, for his valuable advice, follow up, and continuous care.*

*I would like to express my deepest gratitude to **Prof. Dr. Ausama Abd El-Raouf Abd El-Moneim Yousif**, Professor of Virology, Faculty of Veterinary Medicine, Cairo University, for his precious supervision, endless donation and infinite support during every step that allowed me to finish my work smoothly and effectively. His guidance helped me all the time of this research. His immense knowledge and exceptional perspectives have changed my way of thinking. His vision was the cornerstone for each step and point of the thesis.*

*Thanks are also extended to **Dr. Basem Mohamed Abdel-Hamid Ahmed**, Lecturer of Virology, Faculty of Veterinary*

Medicine, Cairo University for his continuous guidance and support for the work of the synthetic positive control.

*Special great thanks and appreciation to **Mohamed Shawky**, master's degree in fish virology, Faculty of Veterinary Medicine, Cairo University for his kind support and great help and assistance regarding synthetic positive control.*

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