

Common fungal infections in Nile tilapia fish

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Abstract

Faculty of Veterinary Medicine, Zagazig University, 44519- Zagazig, Sharkia, Egypt Due to recent rapid progress in the development of freshwater aquaculture in Egypt, many new and precedent fish fungal diseases have emerged. Nile tilapia (*Oreochromis niloticus*) has been threatened by various diseases that have harmful health consequences and prone to mortalities. The infection can be superficial as *Saprolegnia* spp. that is characterized by focal dermal cottony growth and is the most common in occurrence. While, systemic infection as *Ichthyophonus* sp. that invades the highly vascularized organs impairing their functions, Branchiomycosis is a devastating disease that affects gills obstructing blood flow. *Saprolegnia* spp. was identified through the morphological characters of culture on Sabouraud's dextrose agar media (SDA) and histopathological examination of tissue. Surprisingly, *Saprolegnia* spp. grew on Eagle's Minimum Essential Medium (MEM) at pH 7.0 only giving zoospores. *Ichthyophonus* sp. was isolated and is characterized by spherical double-walled multinucleate schizonts that are verified in squash preparations from infected internal organs (liver, spleen, and kidneys) and tissue sections. Additionally, it developed two different forms of growth on MEM depending on culture medium pH. *Branchiomyces* spp. exhibited different stages of growth in gills and so appeared congested, paled, white-colored or marbled according to the progress of infection. A key diagnostic feature to genus *Branchiomyces* is the branching of hyphae at their tips with the first report for a description of such branching in compression techniques from gills. Also a microscopic examination of fungal culture aids in the identification. Herein, we report *Branchiomyces sanguinis* for the first time and *Branchiomyces demigrans* in Nile tilapia in Egypt. Both species are distinguished based on the shape and diameter of hyphae in compression techniques from infected gills as well as the diameter and location of spores in histological sections. Koch's Postulate confirmed the identity of the investigated pathogens. The current research represents the first comparative mycological and histopathological study for *Saprolegnia* spp., *Ichthyophonus* sp., and *Branchiomyces* spp. as well as their prevalence in wild and cultured Nile tilapia throughout the different seasons in Egypt.

Biography:

Heba Hassan Mahboub Associate professor of Fish Diseases and Management Department, Faculty of Veterinary Medicine, Zagazig University, 44519- Zagazig, Sharkia, Egypt. I am interested in fish diseases especially fungal diseases, Fish nutrition, Fish immunology and microbiology, Fish diagnosis and treatment.

References

1. Mahboub, Heba & Adel, A.. (2020). Mycological and histopathological identification of potential fish pathogens in Nile tilapia. *Aquaculture*. 530. 735849. 10.1016/j.aquaculture.2020.735849.
2. Mahboub, Heba & Tartor, Yasmine. (2020). Carvacrol essential oil stimulates growth performance, immune response, and tolerance of Nile tilapia to *Cryptococcus uniguttulatus* infection. *Diseases of Aquatic Organisms*. 141. 10.3354/dao03506.
3. Mahboub, Heba & Shahin, Khalid & Zaghlool, Asmaa & Roushdy, Elshimaa & Ahmed, Shimaa. (2020). Efficacy of nano zinc oxide dietary supplements on growth performance, immunomodulation and disease resistance of African Catfish, *Clarias gariepinus*. *Diseases of Aquatic Organisms*. 142. 147-160. 10.3354/dao03531.