



Elucidation of Tropical Fish Diseases and its Various Categories

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DESCRIPTION

Asian aquaculture production accounts for a significant portion of total global fish production. However, disease caused by biotic and abiotic factors cause significant losses in the industry. *Vibrio* in marine and brackish water systems and motile aero monads in freshwater systems are the most commonly encountered bacterial agents associated with fish diseases in tropical environments. The virulence mechanisms of these bacterial species have received a lot of attention. Though rhabdovirus, reo-like virus, infectious pancreatic necrosis virus, picorna virus, and irido-like virus have been identified in various parts of Asia, such reports are scarce. *Aphanomyces invaderis* is the most virulent of the fungal pathogens and has been linked to epizootic ulcerative syndrome. Additional fungi *Achlya* and *Saprolegnia* have been found in a variety of disease conditions. In addition to traditional microbiological and serological methods, nucleic acid-based methods are increasingly being used to diagnose various fish diseases. There have been few successful vaccines developed to protect against disease conditions.

Some of the tropical fish diseases are as follows:

Piscine tuberculosis: Tuberculosis is caused by the bacterium *Mycobacterium piscium* and can take many forms. Infected fish may become lethargic, hollow-bellied, pale, develop skin ulcers and frayed fins, lose fins and scales, and lose their appetite. Yellowish or darker nodules may appear on the fish's eyes or body, deforming it. Mycobacteriosis is a chronic disease that worsens over time.

Despite the fact that 4/5 of all tropical fish are thought to have a latent infection with this organism, the disease only manifests itself in rare cases.

Fin rot: Fin rot is one of the most common and preventable bacterial diseases in the aquarium hobby. When a fish's immune system is compromised, it becomes more vulnerable to bacteria. Several types of gram-negative bacteria cause tropical fish fin rot,

which can lead to a secondary fungal infection. *Aeromonas*, *pseudomonas*, and *vibrio* bacteria can cause fin rot. Often, the early stages of fin rot go unnoticed, and it is only when fins begin to fray and deteriorate in the later stages. If left untreated, white, cottony fungal growths may form. Longer treatment and recovery periods may be required if the disease is not detected until it is in its later, more advanced stages.

Swim bladder disease: Swim bladder disorder causes when the swim bladder is not working properly. Swim bladder problems can be either temporary or permanent because positively buoyant fish can spend too much time above the water's surface, it's critical to keep their skin moist. To keep your fish submerged, do not cover the top of your tank. As a result, oxygen diffusion will be reduced. Inquire with your veterinarian about how to protect fish skin from air. Negative buoyancy disorders, in which a fish spends too much time on its side, belly, or head near the bottom of the aquarium or pond, must be controlled with a clean, non-abrasive brush. Glass stones as a substrate these tanks must be kept extremely clean.

Irido virus: Iridoviruses are a diverse family of nuclear, cytoplasmic, large DNA-containing viruses that infect either invertebrates like insects and crustaceans or coldblooded vertebrates like fish, amphibians, and reptiles. Iridoviruses have icosahedral virions (diameters ranging from 120 to 200 nm) that are infectious as neither unenveloped nor enveloped particles. The viral genome varies in size from 103 kbp to 200 kbp and contains between 100 and 240 putative open reading frames depending on the viral species. Iridoviruses are classified into five genera based on host range, the presence or absence of genomic methylation, the histology of infected cells, clinical signs, and key viral protein sequence identity. Although virion assembly occurs solely in the cytoplasm at distinct viral assembly sites, iridovirus replication also occurs in the cytoplasm. Both the nuclear and cytoplasmic compartments are affected, resulting in significant changes in the appearance and function of infected cells.

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