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The fish parasite *Ichthyophthirius multifiliis* – Host immunology, vaccines and novel treatments

A review

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Abstract

Ichthyophthirius multifiliis, the causative agent of white spot disease (Ichthyophthiriasis) is a major burden for fish farmers and aquarists globally. The parasite infects the skin and the gills of freshwater fish, which may acquire a protective adaptive immune response against this disease, making vaccine strategies feasible. However, there is no prophylactic treatment available and repetitive treatments with auxiliary substances are needed to control the infection. Historically, a variety of drugs and chemicals have been used to combat the disease but due to changing regulations and recognition of carcinogenic and environmentally damaging effects the most efficient compounds are prohibited. A continuous search for novel substances, which are highly effective against the parasites and harmless for the fish is ongoing. These compounds should be environmentally friendly and cost-effective. This review presents recent progress within host immunology, vaccinology and a description of novel substances, which have been tested as treatments against ichthyophthiriasis.

Introduction

Ichthyophthirius multifiliis is a protozoan parasite, causing white spot disease and is a major burden for fish farmers and aquarists worldwide. The infective theront stage of the parasite invades the

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