

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance.

INTRODUCTION TO AQUATIC SCIENCES

11. Week

Introduction to Fish Disease

Introduction to Aquatic Sciences

WEEKLY TOPICS (CONTENT)

Week	Topics
1. Week	Aquaculture in Turkey and world
2. Week	The role of fish in human consumption
3. Week	What is fish? Taxonomy of fish
4. Week	Aquatic Crustacean
5. Week	Water quality for aquaculture
6. Week	Introduction to marine fish
7. Week	Introduction to freshwater fish
8. Week	Live foods (microalgae, zooplankton and <i>Artemia</i>)
9. Week	Introduction to fishing techniques
10. Week	Fish transport
11. Week	Introduction to fish disease
12. Week	Introduction to fisheries economy
13. Week	Processing and marketing of fish
14. Week	Introduction to fisheries and aquaculture management

- Like other cultured farm animals fish could susceptible to the pathogens.
- What is pathogen?
- What is disease?
- Please describe the terminology of diseases?

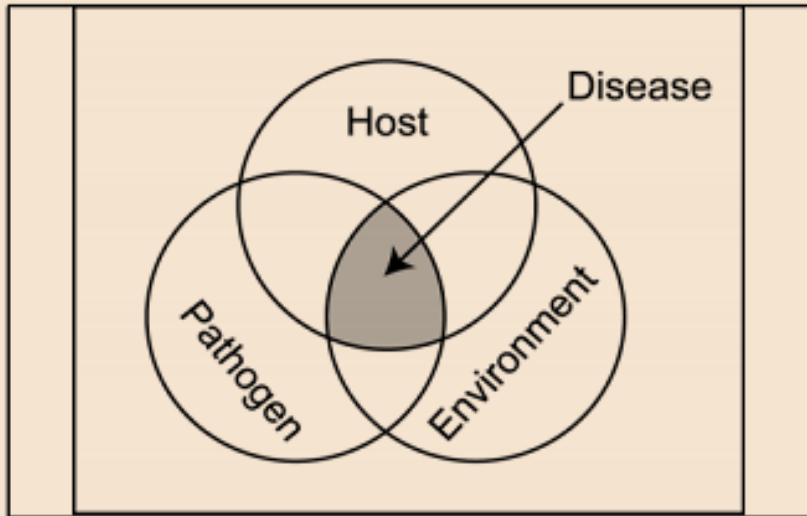


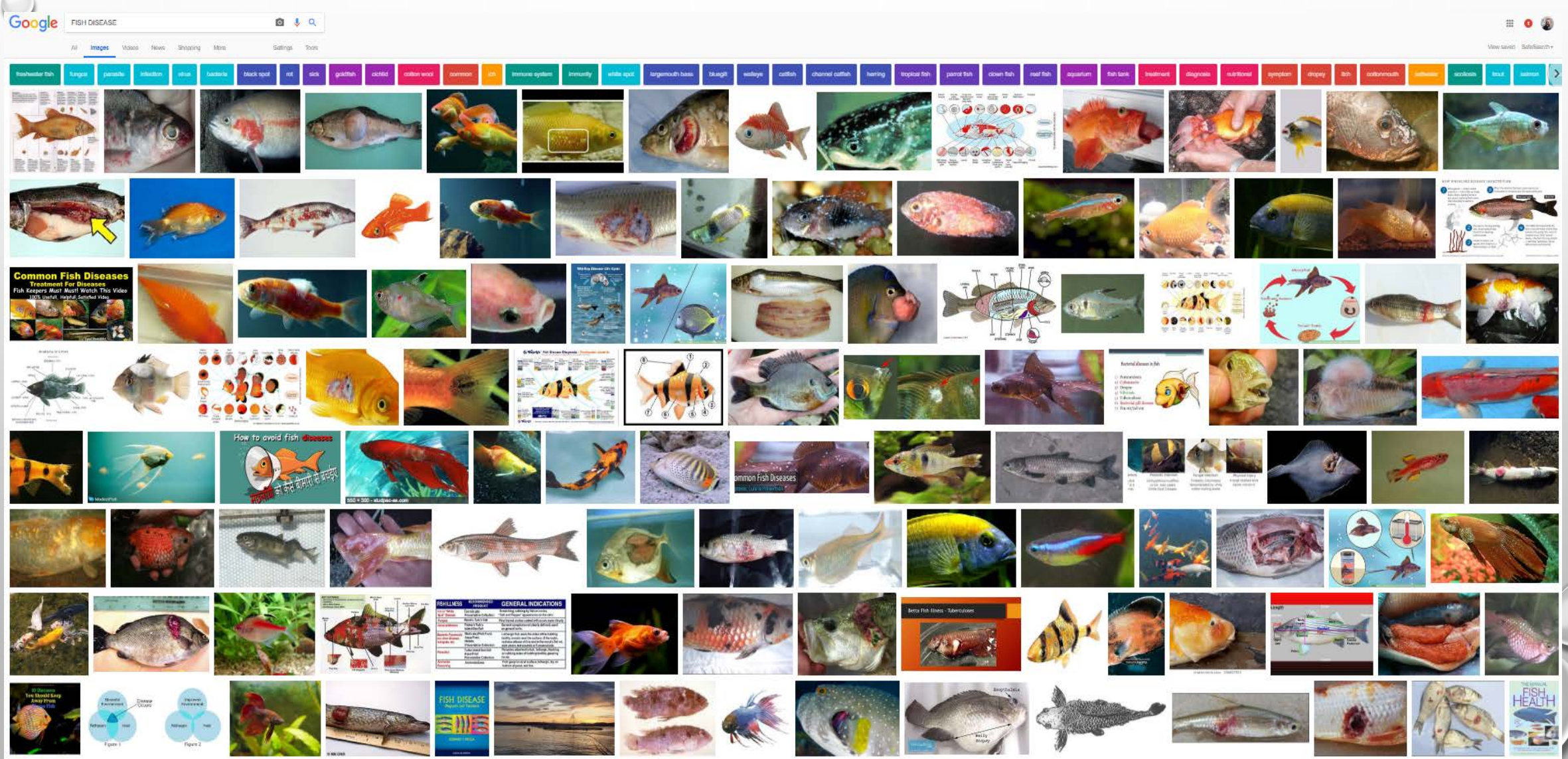
Figure 1. Disease rarely results from simple contact between the fish and a potential pathogen. Environmental problems, such as poor water quality, or other stressors often contribute to the outbreak of disease.

What Is Fish Health Management?

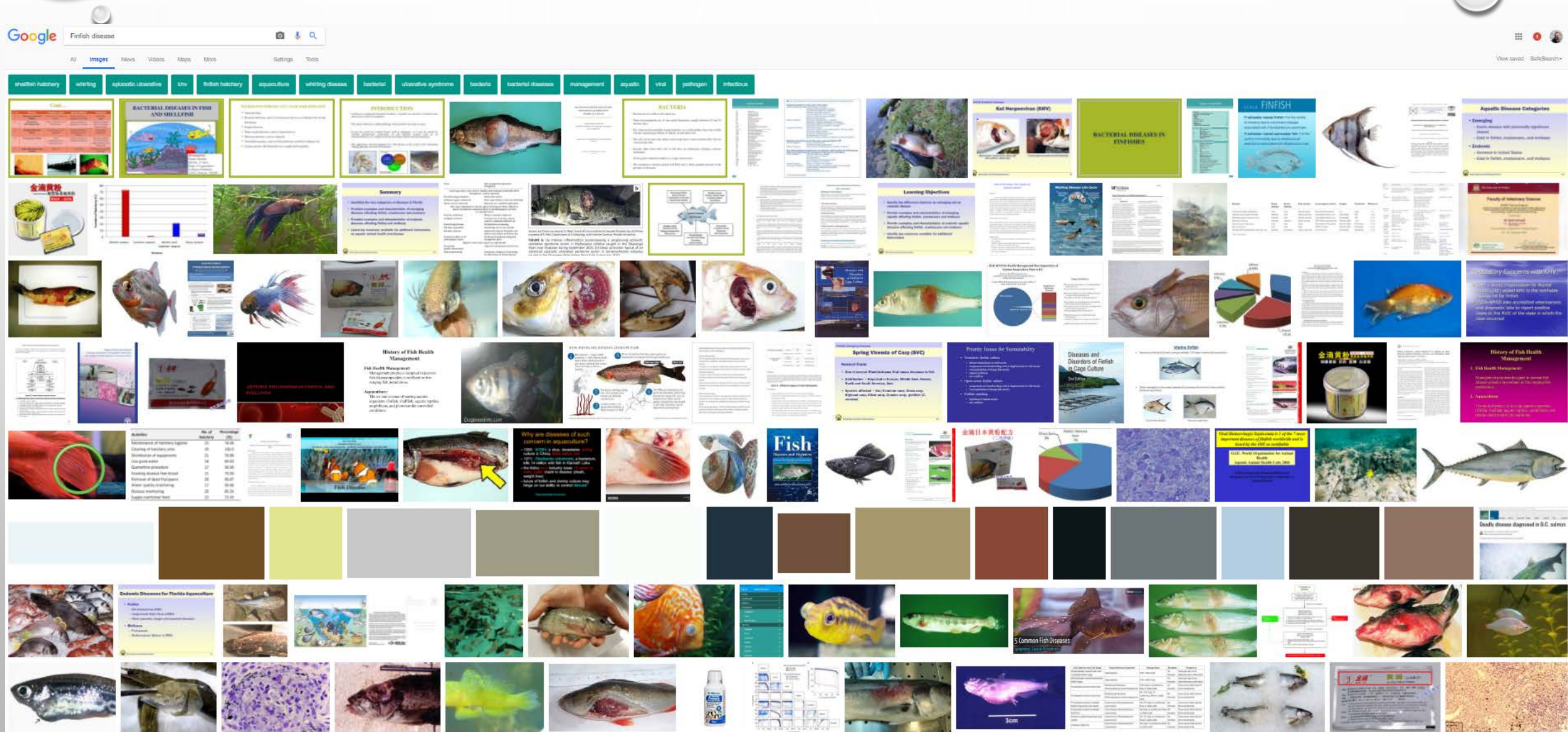
Fish health management is a term used in aquaculture to describe management practices which are designed to prevent fish disease. Once fish get sick it can be difficult to salvage them.

Successful fish health management begins with prevention of disease rather than treatment. Prevention of fish disease is accomplished through good water quality management, nutrition, and sanitation. Without this foundation it is impossible to prevent outbreaks of opportunistic diseases. The fish is constantly bathed in potential pathogens, including bacteria, fungi, and parasites. Even use of sterilization technology (i.e., ultraviolet sterilizers, ozonation) does not eliminate all potential pathogens from the environment. Suboptimal water quality, poor nutrition, or immune system suppression generally associated with stressful conditions allow these potential pathogens to cause disease. Medications used to treat these diseases provide a means of buying time for fish and enabling them to overcome opportunistic infections, but are no substitute for proper animal husbandry.

- Please use one of the search engine for searching "Fish Disease. You may probably observe lots of pathologic structures about the fish disease.



- Please use one of the search engine for searching "Finfish Disease. You may probably observe lots of pathologic structures about the fish disease.



Types of Fish Diseases

Infectious diseases. Infectious diseases are broadly categorized as parasitic, bacterial, viral, or fungal diseases.

Non-infectious diseases. Non-infectious diseases can be broadly categorized as environmental, nutritional, or genetic.

Diseases of Carp and Other Cyprinid Fishes

Probiotics, immunostimulants, plant products and oral vaccines, and their role as feed supplements in the control of bacterial fish diseases

Abstract

There is a rapidly increasing literature pointing to the success of probiotics, immunostimulants, plant products and oral vaccines in immunomodulation, namely stimulation of the innate, cellular and/or humoral immune response, and the control of bacterial fish diseases. Probiotics are regarded as live micro-organisms administered orally and leading to health benefits. However, in contrast with the use in terrestrial animals, a diverse range of micro-organisms have been evaluated in aquaculture with the mode of action often reflecting immunomodulation. Moreover, the need for living cells has been questioned. Also, key subcellular components, including lipopolysaccharides, have been attributed to the beneficial effect in fish. Here, there is a link with immunostimulants, which may also be administered orally. Furthermore, numerous plant products have been reported to have health benefits, namely protection against disease for which stimulation of some immune parameters has been reported. Oral vaccines confer protection against some diseases, although the mode of action is usually linked to humoral rather than the innate and cellular immune responses. This review explores the relationship between probiotics, immunostimulants, plant products and oral vaccines.

Fish viruses and fish viral diseases.

Author(s) : [Wolf, K.](#)


Book : [Fish viruses and fish viral diseases.](#) 1988 pp.xii + 476 pp.

Abstract : In 1904 Bruno Hofer in his book on fish diseases discussed carp pox and thought it was a secondary effect of a myxosporidian infection; he also mentions that Konrad Gesner noted this disease in 1563. The viral nature of lymphocystis disease was proposed by Weissenberg in 1914. By the 1950s at least six viral diseases of fish had been recognised and by the 1960s this had increased to 17. Since then the pace of discovery in fish virology has accelerated and this book describes 51 virus infections and another 8 infections with virus-like particles. Ken Wolf of the U.S. Fish and Wildlife Service has produced an excellent, informative and reasonably priced account which is divided into six parts. Part I deals with pathogenic viruses (18 of moderate to high virulence and 5 of low virulence). Part II is devoted to 11 viral infections of indeterminate pathogenicity; 17 viruses visualized by electron microscopy but not isolated are discussed in part III, while part IV describes eight disorders involving virus-like particles. Part V is on a chlamydial infection (epitheliocystis), which is included on the basis that chlamydia, like viruses, are obligate intracellular agents. The final part contains three brief chapters on diseases once thought to be viral but do not actually involve viruses. There are two appendices: the first is an alphabetical list of the common names of fish with their Latin names; the second is a 14-page section on fish cell and tissue culture.

Immunological Control of Fish Diseases

Authors

Authors and affiliations

Bergljot Magnadóttir 

Review

First Online: 30 March 2010

2.9k

202

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Abstract

All metazoans possess innate immune defence system whereas parameters of the adaptive immune system make their first appearance in the gnathostomata, the jawed vertebrates. Fish are therefore the first animal phyla to possess both an innate and adaptive immune system making them very interesting as regards developmental studies of the immune system. The massive increase in aquaculture in recent decades has also put greater emphasis on studies of the fish immune system and defence against diseases commonly associated with intensive fish rearing. Some of the main components of the innate and adaptive immune system of fish are described. The innate parameters are at the forefront of immune defence in fish and are a crucial factor in disease resistance. The adaptive response of fish is commonly delayed but is essential for lasting immunity and a key factor in successful vaccination. Some of the inherent and external factors that can manipulate the immune system of fish are discussed, the main fish diseases are listed and the pathogenicity and host defence discussed. The main prophylactic measures are covered, including vaccination, probiotics and immunostimulation. A key element in the immunological control of fish diseases is the great variation in disease susceptibility and immune defence of different fish species, a reflection of the extended time the present day teleosts have been separated in evolution. Future research will probably make use of molecular and proteomic tools both to study important elements in immune defence and prophylactic measures and to assist with breeding programmes for disease resistance.

A review of the main bacterial fish diseases in mariculture systems

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Received 15 December 2004

Abstract

The aim of this review is to compile some dispersed literature published about different aspects of the most threatening bacterial diseases occurring in fish cultured in marine waters worldwide such as vibriosis, “winter ulcer”, photobacteriosis, furunculosis, flexibacteriosis, “winter disease”, streptococcosis, lactococcosis, BKD, mycobacteriosis and piscirickettsiosis. Therefore, the geographic distribution of each disease and the main host species affected, together with the biochemical and antigenic diversity existing in the aetiologic agents are described. In addition, the genetic studies that have been performed to determine the possible existence of intraspecific heterogeneity or clonal lineages within each pathogen are included. We review also in brief the classical methods to isolate the microorganisms from their hosts as well as the serological and/or genetic tools for a rapid diagnosis of the diseases. Finally, the current status in the development of vaccination strategies to prevent these bacterial diseases is also addressed.

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Keywords: Bacterial pathogens; Characterization; Diagnosis; Vaccination; Marine fish

Development of draft protocols of standard reference methods for antimicrobial agent susceptibility testing of bacteria associated with fish diseases

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Abstract

The following draft protocols were developed during a workshop funded by the European Union as a Concerted Action by DG XIV under the FAIR programme—FAIR CT 97-3760. Members of the workshop are given below and all are joint authors of the draft protocols presented here. The intention of the workshop was to bring together representatives of the major European Community laboratories (plus a limited number from outside Europe) working on aspects of the use of chemotherapeutants, particularly upon antibiotics and the problem of drug resistance in aquaculture. The primary theme of the Workshop was to enable these experts to re-examine these problems and, in particular, to discuss and gain agreement on recommendations for uniform methods for determining minimum inhibitory concentrations for the most important antimicrobials against the most important fish pathogens. The ultimate objective of this Workshop was to produce a set of recommendations on methods of determining MICs of major bacterial fish

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