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## PREVALENCE OF FISH DISEASES OF POND FISH FARM MAIHAR (M.P.)

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### ABSTRACT:

An assessment on prevalence of fish diseases in Pondi fish farm Maihar, revealed the occurrence of Two major diseases viz., fin rot, gill rot, in this region. The bacteriological analyses of sediments collected from different points indicate occurrence of hygiene indicator bacteria at lower level. There is an increasing trend in counts of different bacterial groups in sediments and in fish of stocking ponds from February to March correlating with increase in temperatures. The antibiotic susceptibility of aeromonads isolated from diseased *Cyprinus carpio* varied among and between the isolates from kidney, liver and skin lesions. This study inquires for better management of fishponds to avoid problems in future.



**KEY WORDS:** antibiotic susceptibility, better management, Pondi fish.

### INTRODUCTION

The freshwater aquaculture in India is mainly the cultivation of Indian major carps. The advent of 1980s has seen expansion of commercial carp culture in various parts of the country. Besides carp, small-scale cultivation of catfish (*Clarias batrachus*) and murrells (*Channa punctata*) is also practiced, and the aquarium trade is also attempting to establish itself as an industry. The main aim of commercial aquaculture is to boost production by intensification; hence, increased stocking density, fertilisation, feeding and use of chemicals and antibiotics have become common (Khatri 2004). Fish in freshwater systems are susceptible to a number of bacterial, viral and parasitic diseases. Large-scale mortalities of fish due to bacterial diseases reported all over the country. Among these diseases of bacterial origin, motile aeromonads play an important role in freshwater systems. Mass mortalities in India in major carps *Catla catla*, *Labeo rohita* and *Cirrhina mrigala* due to motile aeromonad infection are reported (Karunasagar et al. 1986). Among these fishes, catla is most susceptible followed by mrigal and rohu. Aquaculture ponds receive inputs of organic matter such as uneaten feed, fertiliser and faeces. To assess the sediment quality, the techniques that are simple, rapid and practical on-site such as redox potential, pH, the hydrogen sulphide activity potential (pH<sub>2</sub>S) and soluble ammonium nitrogen are used (Hussenot & Martin 1995). Measures such as sediment removal and water exchange only transfer pollution problems from pond environments to surrounding environments (Boyd 1997). This study is undertaken to assess prevalence of different fish diseases in Pondi fish farm Maihar.

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## MATERIALS AND METHODS:

### Study Area:

Podi village in Maihar Tehsil of Satna district in Madhya Pradesh State. Maihar is known for the temple of the revered mother goddess Sharda situated on Trikuta hill. Maihar is located at 24.27°N 80.75°E. It has an average elevation of 367 metres (1204 ft). The area receives moderate rainfall mostly in the month of July and August.

### Studies on prevalence fish disease:

A fish farms were selected for disease assessment. Fish were harvested from different areas and fish with symptoms of disease were brought to the laboratory for further examination.

### Collection of fish samples:

Fish sample was collected from the Pondi fish farm in live oxygenated condition and was brought to the laboratory for observation and immediate analyses.

### Diseased fish:

Infected common carp was cleaned of the surface contaminants with sterile cotton swabs soaked in a chloroxylonol-based antiseptic. Skin lesions, gall bladder and kidney regions were sampled as described by Karunasagar et al. (1989). Samples were ground with sterile nutrient broth using a sterile mortar and pestle under aseptic conditions. A loop full of the sample was spread on M-*Aeromonas* selective agar plates and was incubated at 20°C and 36 ± 1°C for 24 h (Niewolak & Tucholski 2000).

## RESULTS AND DISCUSSION:

The major diseases identified were included fin rot and gill rot. The percentage of occurrence in fish farms surveyed varied from 4% to 8% in this region. The fin rot was seen in 12% of the Fish farms from which samples were drawn. Gill rot is seen in farmed fish in this areas. The percentage of occurrence is limited to 8% of the farms. This study indicates that disease problem is prevalent in the breeding of pondi fish farm the beginning of the production. This study corroborates the findings of the studies by Sivakami et al. (1996) and Al Harbi (2003) in which coliform organism found in sediment and fish samples.

Characterisation of the bacterial isolates from diseased fish (*C. carpio*) of this study revealed that they are *Aeromonas hydrophila* and *Aeromonas sobria*. Motile aeromonads also isolated from Epizootic Ulcerative Syndrome affected *Channa striatus* (Prasad et al. 1998). In this study, high temperatures (37°C) were used for detection of different groups of bacteria in sediments, fish and aeromonads from diseased *C. carpio* and all groups of bacteria under screening could be detected. These results agree with the study on evaluation of the bacteria identified on broth agar in 20°C and 37°C, viz., coli forms, faecal coli forms, faecal streptococci, *Aeromonas* sp. and *Salmonella* sp. in the muscles, skin and digestive tract content of common carp (*C. carpio*) (Niewolak & Tucholski 2000) in which the high temperatures favoured growth of all bacteria more, so *Aeromonas* sp. motile aeromonads are inherently associated with freshwater bodies and cultured fish production.

## CONCLUSION:

This study revealed the occurrence of six major diseases viz., fin rot and gill rot. This is helpful to develop preventive measures, control and spread of the diseases. The antibiotic susceptibility of *A. hydrophila* isolated from diseased *C. carpio* varied among and between the isolates from kidney, liver and skin lesions. This result will act as baseline data for future studies. However, more studies are required to understand changing pattern of antibiotic resistance in environmental strains.

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