

# **SURVEY OF ORNAMENTAL FISH DISEASES AND FISH HEALTH MANAGEMENT PRACTICES IN SELECTED COMMERCIAL AQUARIA AND FARMS IN THE NITTAMBUWA AREA**

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## **INTRODUCTION**

Like other captive animals, aquarium fish can suffer from a wide variety of diseases, as they carry pathogens. Disease is an abnormality in structure or function displayed by living organisms through a specific or non specific symptom. Development of disease is a simple association between fish and a potential pathogen and involves a complex interaction between susceptible host, a virulent pathogen and an unfavorable environment. Common ornamental fish diseases are bacterial, viral, fungal and parasitic disease. Ornamental fish are also susceptible to environmental and nutritional disorders. Fish health management practices are designed to prevent fish diseases and also to achieve optimum production to provide maximum profit for farmers. Successful fish health management begins with prevention of disease rather than treatments. Daily observation of fish behavior and feeding activity allows early detection of diseases (<http://edis.ifas.ufl.edu/pdffiles/FA/FA00400.pdf>). The study was aimed to identify the ornamental fish diseases and fish health management practices in selected commercial ornamental aquaria and farms in the Nittambuwa area.

## **MATERIALS AND METHODS**

The study was conducted for a period of seven months from December 2009 to June 2010. Seven aquaria and nine farms were selected for the study using the snowball method. ([http://en.wikipedia.org/wiki/Snowball\\_sampling](http://en.wikipedia.org/wiki/Snowball_sampling)). Twenty eight fish samples infected with diseases were used for the study. The diseases were identified using a microscope and/or hand lens. Each disease was confirmed by specific guidelines for disease diagnosis. All the fish diseases, symptoms and treatments were tabulated as a database. The temperature, pH and dissolved oxygen of the diseased fish rearing tanks were recorded. Information on major causes of ornamental fish diseases, precautions taken to

reduce diseases and methods of fish health management was gathered by interviewing owners of aquaria and farms using a structured questionnaire.

## RESULTS AND DISCUSSIONS

### Common fish diseases

The most obvious sign of sick fish is the presence of dead or dying fish in the tank. However, a careful observer can usually detect the sick fish before they die as they often stop feeding and may appear lethargic. During the study period different forms of disease were identified such as abdominal dropsy, fin rot, columnaris disease, saprolegniasis, white spot (*Ich*), sleeping sickness, velvet disease, gill fluke, skin fluke, *Argulus*, Costiasis, body rot, pop eye, anchor worm, ammonia poisoning, oxygen shortage and unknown angel disease. The widely distributed fish diseases in the study area were fin rot (67.70%) and white spot disease (58.82%) and Costiasis was the very rare disease (5.88%) (Fig. 1). Higher pH facilitates the spreading of fin rot disease. The pH of the well water was 6.5 to 7 in the study area and when the water was aerated it increases up to 8 which were favorable for fin rot. The fighting with tank mates causes tearing of fins and body injuries which also initiate the fin rot disease.

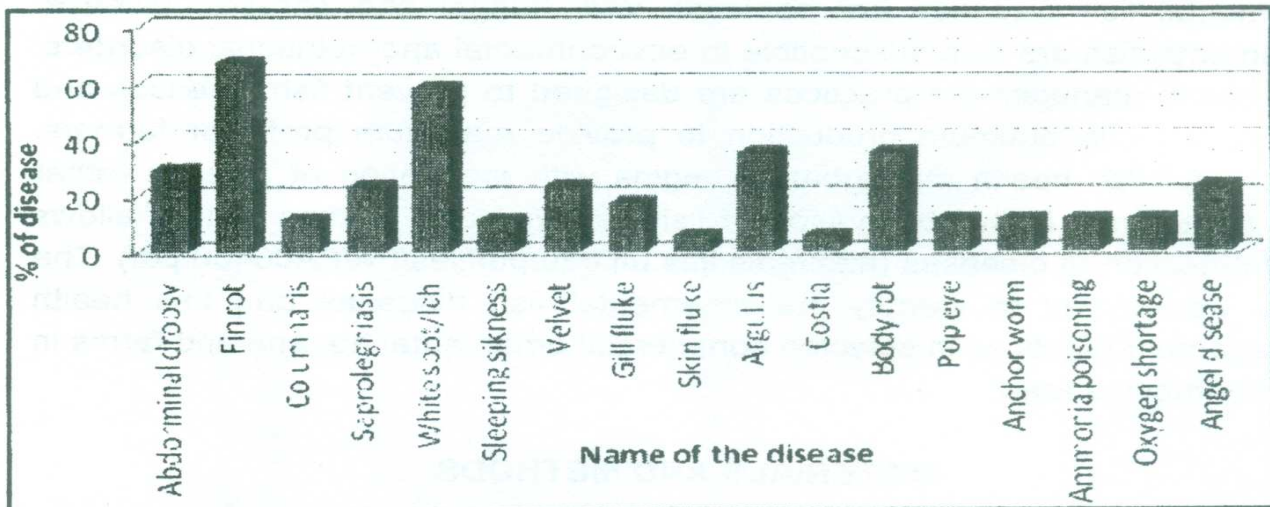


Figure 1- Distribution of fish diseases

### Fish species vulnerable for fish diseases

The aquaria and farm owners in the study area grow various types of ornamental fish. Viz Gold fish, Angel, Koi carp, Giant gourami, Silver doller, Guppy, Oscar, Siamese Fighters, Cat fish, Platy, Tiger barbs, Sword tail and Marble cat fish. Gold fish was the most susceptible species to fish diseases

(84.61%) in both aquaria and farms. Cat fish and Platies (15.38%) were the most disease resistant fish species in the study area (Table 1).

### **Treatments for fish diseases**

Triple mixture (formalin 1l + methane 3.3g + malachite green 3.3g) at a concentration of 2ppm and frequent siphoning of water were used to control the fin rot. White spot disease was controlled using 2ppm of triple mixture or 30 minutes bath in 2ppm potassium permanganate or salt (NaCl) and raising the temperature to 30°C.

**Table 1: Distribution of fish diseases on fish species**

<b>Fish Species</b>	<b>Observed Diseases</b>	<b>Disease %</b>
<b>Gold fish</b>	<b>Abdominal dropsy, Fin rot, Columnaris, White spot/Ich, Sleeping sickness, Velvet, Gill fluke, Skin fluke, Argulus, Body rot, Pop eye, Anchor worm</b>	<b>84.61</b>
<b>Angel</b>	<b>Fin rot, White spot/Ich, Ammonia poisoning, Angel disease</b>	<b>30.76</b>
<b>Silver doller</b>	<b>Abdominal dropsy, Fin rot, White spot/Ich, Velvet, Gill fluke, Body rot</b>	<b>46.15</b>
<b>Guppy</b>	<b>Abdominal dropsy, Fin rot, Columnaris, White spot/Ich, Velvet, Gill fluke</b>	<b>46.15</b>
<b>Oscar</b>	<b>Abdominal dropsy, Argulus, Anchor worm, Ammonia poisoning, Oxygen shortage</b>	<b>38.46</b>
<b>Fighters</b>	<b>Fin rot, Columnaris, White spot/Ich,</b>	<b>23.07</b>
<b>Cat fish</b>	<b>Saprolegniasis, Costia</b>	<b>15.38</b>
<b>Platy</b>	<b>Sleeping sickness, Body rot</b>	<b>15.38</b>
<b>Tiger barbs</b>	<b>Fin rot, Columnaris, Velvet, Costia, Pop eye</b>	<b>38.46</b>
<b>Sword tail</b>	<b>Sleeping sickness, , Velvet, Gill fluke, Skin fluke</b>	<b>30.79</b>
<b>Marble cat fish</b>	<b>Fin rot, White spot/Ich, Velvet, Skin fluke, Ammonia poisoning, Oxygen shortage</b>	<b>46.15</b>
<b>Giant gurami</b>	<b>Saprolegniasis, Skin fluke, Argulus, Costia, Anchor worm, Ammonia poisoning, Oxygen shortage</b>	<b>53.84</b>
<b>Carp</b>	<b>Abdominal dropsy, Fin rot, Columnaris, Sleeping sickness, Gill fluke, Skin fluke, Argulus, Body rot, Pop eye, Anchor worm,</b>	<b>76.92</b>

## **Fish health management practices**

According to the questionnaire survey, poor water quality, higher stocking density, unsuitable pH, poor fish nutrition, insufficient oxygen for fish, and stress conditions were major causes for fish diseases. About 85.71% of aquarium owners indicated that the stress conditions to be the major reason for disease. However, about 88.88% indicated that the insufficient oxygen and poor water quality management to be the major reasons for fish diseases. In contrast, most of the farm owners (88.88%) pointed out that the absence of quarantine section and stress are the major reasons for fish disease. These information will assist to develop suitable precautions in order to reduce fish diseases in the study area. The precautions to be taken to reduce fish diseases are to buy good quality fish, quarantine new fish before introducing to aquarium, avoid of stress, proper feeding and removal of sick fish to a hospital tank for treatment and disinfection of nets used to move sick fish.

## **CONCLUSIONS AND RECOMMENDATIONS**

Fin rot (67.7%) and white spot (58.82%) were the widely distributed fish diseases in Nittambuwa area. Gold fish was the most susceptible species to fish diseases (84.61%) and hence when rearing gold fish special attention should be paid. In general, the stress conditions will make the fish susceptible to fin rot and white spot diseases. Thus the fish keepers should pay more attention on proper water quality management and handling in order to avoid the stress. Quarantine of new fish at least two weeks prior to the culture should be practiced to minimize the spreading of diseases. Hence the ornamental fish keepers should establish a quarantine section in the aquaria or farm for proper fish health management. It was also noticed that the ornamental fish keepers did not have a proper scientific knowledge in fish health management. Therefore conducting workshops on ornamental fish health management for fish keepers also recommended.

## **REFERENCES**

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