The Infectıon of Ichthyophthirius multifiliis (fouget, 1876) ın Some of the Aquarıum Fıshes (Cichlasoma nigrofasciatum gunther, 1867) ın Mersin.

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Abstract

This study were conducted in October 2008 in order to find out the reason of instant mortality of Cichlasoma nigrofasciatum (Gunther, 1867) fishes in some of the aquarium facility in Mersin. The fish parasitological point of view. Ichthyophthirius multifiliis (Fouget, 1876) was found responsible high mortality. The histopathology samples from the skin tissues of infested fish were examined and hyperplasia of epithelial in the skin of the fish were markely determined. Fish were succesfully treated with FMC bath (15 mg l^{-1}, 60minutes/2-3day). After FMC applications the mortality stopped.

1.INTRODUCTION

Commonly known as “Ich”, the white spot disease (Ichthyophthiriasis), can infect almost all freshwater fish (Ventura and Paperna, 1985). The disease is recognized as one of the most pathogenic diseases of fish caused by eukaryote parasites resulting in significant economic losses in the affected cultured fish species (Matthews, 1994). Causing infection in fish Ichthyophthirius multifiliis Fouget, 1876 are included within the genus Hymenostomatida family.

The parasite is commonly distributed, occurring in tropical, subtropical and temperate regions, and extending north to the Arctic Circle (Matthews, 1994). The fish, which are cultivated in the pools of the fish farms or in the aquariums, have high numbers of Ichthyophthirius multifiliis in their skin if the enviroment is stressful, the water criteia is not appropriate and if they are given low quality feed. This situation can lead to high rates of mortality (Riehl et al. 1996).

Observed in fish Ichthyophthirius multifiliis of general effects; parasites of fishes of the skin tissue between the epithelial layer into that, and reached the basal membrane mucus production by increasing irritation of the surface epithelium, mucous cells does not begin to be, skin damage and the number of parasites depending on the breathing difficulties as have been identified. Histopathologic examinations identified dropsy in lamella, hypertrophy in epithelium cells, hyperplasia, dejeneration and necrocisis in line with the degree of irrritation (Ferguson, 1989). Against the infection, formaldehyde (100-200 ppm/an hour), malachite green (1.25-2.0 ppm/30minutes,5-10 days), methylene blue (2.0ppm/one day), acriflavin (10 ppm/3-10 days), Chloramin-T (2.5-20 mg l^{-1}), Trypaflavine(10 mg l^{-1}), Brillant green (0.1-0.2 ppm) have already been used by the researchers, and they have all proved to be effective.

(Van As et al. 1984; Schperclaus, 1991; Egusa, 1992; Stoskoph, 1993; Hans et al. 2000; Tokşen, 2000).

In the present study; the ectoparasite Ichthyophthirius multifiliis which has been observed in cichlid (Cichlasoma nigrofasciatum Gunther, 1867) and with symptoms that make up the skin tissue that is intended to treat the disease and histopathological changes.

2.Materials and Methods:

The present study has been conducted in a fish farm located in Mersin/Turkey, which cultivates aqarium fish in 2008. The study has been conducted in the cyclitis fish Cichlasoma nigrofasciatum Gunther, 1867) to learn the reason of mortality as they have 50% mortality rate (see Table 1).

Total body length (cm)	Number of fish (N)	Mean weight (gr) ± SE
3-4	2	1,09±0,15
4-5	19	3,06±0,17
5-6	20	3,95±0,35
6-7	16	6,68±1,63
7 >	10	15,73±0,86

Table 1. Mean weight for height groups

Prozotoas, which live in fish as ectoparasites, leave the fish by the time the enviromental conditions change in a short time. That's why, fish has been observed in the farm.

As the first step, 67 cichlite fish's skin, which are about to die, has been exarated so as to make preparation. Secondly, gill lamels have been extracted carefully, and they have been taken into petri dish which includes the surrounding water. These extracts are examined in terms of parasite via using microscope. The criterias and the identification of the parasites have been done according to Bykhoskaya-Pavlovskaya (1962), Bauer (1969), Nigrelli,(1976), Kabata (1985)'s studies. The photographs and measurements of the permanent parasite preparations have been done in Nikon (H550L) Phase Contrast Microscope.

The lamellas including parasite have been taken to the dishes which include 10 % formaldehyde. The gills of the infected fish's some sections has been taken histopathologically, and they have been colored via the histological sections were haematoxylin-eosin (H&E) were stained with. Histopathological examinations have been done (Takashima et al., 1995).

In the volume of 30 liters of aquarium fish in ventilation for a period of 60 minutes can be made 1 liter Formaldehyde (37%), 3.7 g Methylene Blue (methylene blue powder) 3.7 gr Malachite Green (malachid green powder) was prepared from 2 ml of concentration by taking bath application of FMC were. After application of the skin and gill preparations were examined by preparing.

3.Results

Business owner, fish pieces in the normal 3-6 at a time the death number rise to 20-50 numbers on the complaint of the diseases were determined. Ten days later, the average daily death number has reached 100 numbers were seen contains the mortality rates.

The owner of the farm stated that the mortality number increased from 3 to 6, to 20-50 abruptly. Due to this fact, the disease has been identified. After 10 days, it has been observed that the mortality rate has increased to 100 fish. The mortality rates can be seen in figure 1.

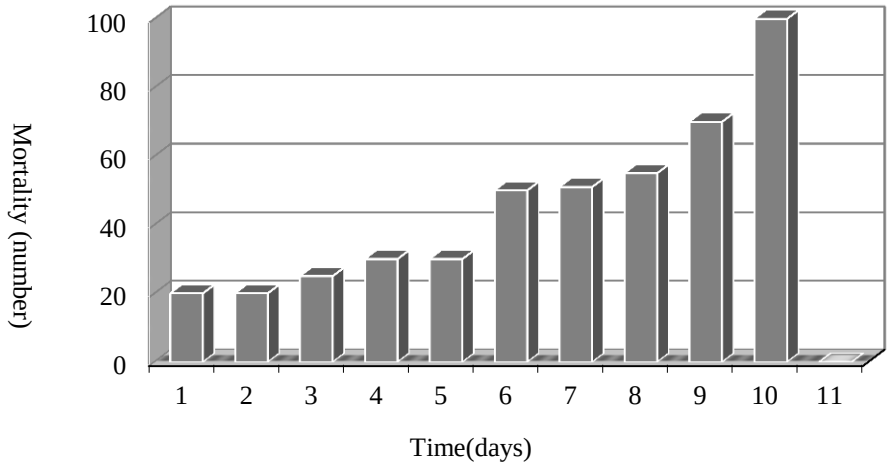

Figure 1. The rate of mortality after the infestation Ichthyophthirius multifiliis

In the course of the days which have high mortality rate, the measurements have been conducted, and the water temperature has been identified as 24-27.5°C on average. The average absorption level of pH was 7-7.81, and the amount of oxygen dissolved in water, the average 4,4-4,8 mg / l was determined as..

In the examination done in the farm, these things have been observed in the infestated fish; , swimming closer to the floor and borders of the pool, putting their gills closer to their body, swimming faster than they usually, and even splashing to the surface of the water. It has been identified that some fish has been gathered around the entrance of water, and they have been also observed to open and close their gills in a rapid way. In many fish, many red and gray spots have been observed in skin, fin and gills even with bare eye.

Prescription preparation which has been prepared from the spots' place, there has been observed macronucleus trofont in the shape of horseshoe, and tomit in the shape oval and pear have been observed. Mature fish have been measured as 0.8-1.mm, and tomitler have been measured as 30-50 μm. (Figure 2). The number of parasites in a view range (X100) have been counted as more than 10. (Figure.2). When the preparations of the surface that include many parasites have been examined in the microsope, it has been identified that there has been a significant increase in mucus cells. In the feeding done daily, the infected fish has been observed not to take the feed, and they have seemed to be weaker than other fish. The parasite has been observed to increase its number by splitting up. The parasite has been observed to multiply by dividing.

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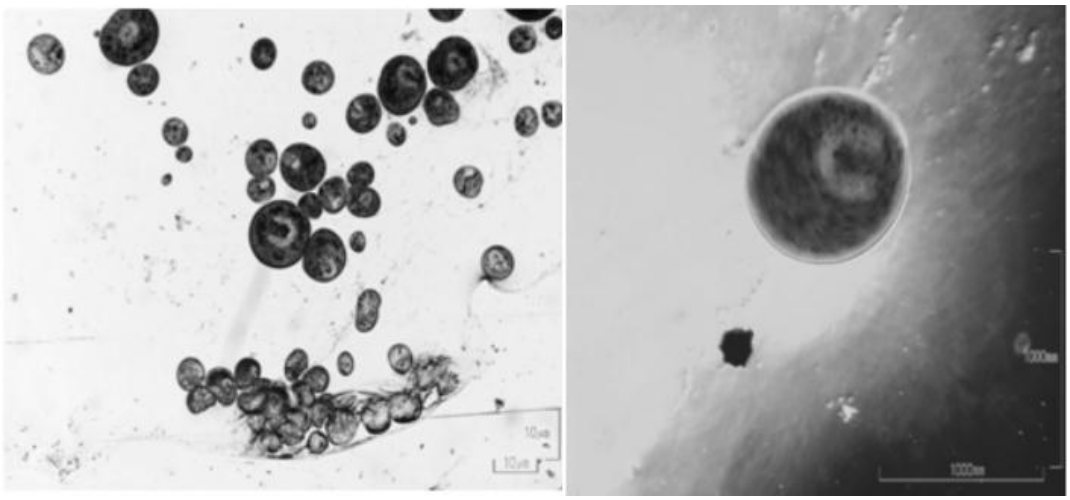

Figure 2. The show are Ichthyophthirius multifiliis in dorsal view

In the histopathologic examinations, it has been observed that mature parasites have entered between epitel layer, and reached to basal membrane. The cells between parasite basal membrane have been observed to be necrotik and hydropic. They have also become vacuolization. Due to the tissue reaction, it has been observed that there has been an increase in epithelial hyperplasia ve mucus cells (Figure 4).

Throughout two days, (pH:7, 25°C) 2ml FMC concentration has been applied, and it has been bathed for 60 minutes to treat the disease. Also, throughout the treatment, tanks have been ventilated. The fish haven't been given feed prior to the treatment day. Moreover, during the application, the toxic due to the medicine has not been observed. After the application, the preparations have been observed via microscope, and there has not been observed any parasite.

4. Discussion and Conclusion

In this research, a common aquarium fish business in the cause of death was determineted Ichthyophthirius multifiliis.

Under adverse environmental conditions Ichthyophthirius multifiliis infections grown in intensity and weak fish in fish appear to be rising too much (Kabata 1985). This study also grown in unsuitable conditions infectıon was seen in fish.

Keeping the high water quality, feed residues and cleaning of the pool is very important in the control of the parasite (Oğut et al 2005). We should use appropriate feeding for fishes, instantly wipe out the wasted food from the bottom. Moreover, water circulation should be conducted in a good way and we should use ventilate enough. The most important rule is that inlet water must be filtered definitely (Woo,1995). At the month which the parasites appeared, we have observed that the water has not been ventilated enough, and the farm hasn't got filtler system.

At the patterns of under one age of carp, in x100 zoom in, Schaperclaus (1991) suggests that when you see 5-10 parasites at one eyesight, you should treat. In this research, we have taken some samples from the skin and gills of juvenils of cihklit. We have found 10-60 parasites on an average.

Ventura and paperna (1985) once in the host of the parasite is located in the epithelial layer is reported. Epithelial cell layer of the timing of parasite development had increased in number and development period, such as a capsule covering the parasites are indicated. Tokşen (2000) reported that in raınbow trout fish experimentally infected with I.multifiliis, an increase in the number of cells, mucus with hyperplasia is reported. In this study prepared under the late histopatholojik sections trofont epidermis and dermis was determined that the best accommodation. Epithelial cell hyperplasia in the region of interference settlement have been identified.

As for this research, in the district of Mersin/Turkey, FMC has been applied for 60 minutes bathing throughout two days, and it has proved to be effective for parasite. Via this research, the ectoparasite which causes sudden mortality in Chiklit ICH has been identified. Moreover, the clinical symptoms and its effects on gill tissues have been identified histopathologically. As a result, the fish has been treated with FMC 2 ml concentration for 60 minutes.

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