

Some Fungal Parasites of Fresh Water Fishes From Yeldari Dam District Parbhani. (MH), Indian.

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Abstract

The current study was conducted on fungal diseases of fresh water catfishes. Total 95 fish specimens were observed. Various parts of body of fishes were found infected and showed medical signs. The medical signs are uneven on different fish species. The fungi separated from infected areas on the fishes were cultured on different media including Malt Extract Agar (MEA), Potato Dextrose Agar (PDA) and Sabouraud Dextrose Agar (SDA) was prepared. The agar plates were incubated at 28-32°C and fungal growth was observed after 5-8 days. The fungal colonies of white, black, grey, brown, green and orange colors were observed. The slides were made and stained with Lacto phenol cotton blue. Three different genera of fungi were recognized as *Aspergillus*, *Saprolegnia* and *Penicillium*. *Aspergillus* and *penicillium* were separate from *Clarius batrachus* and *Wallago attu* and *Saprolegnia* was separated from both *Clarius batrachus* and *Mystus seenghala*. All 03 species of catfishes show occurrence of fungal parasites, *Clarius batrachus* shows (57.89%) which was high, followed by *Wallago attu* (52.94%) and *Mystus seenghala* was found less affected (43.47%).

KEYWORDS: Fungal parasites, occurrence, Catfishes, Yeldari dam.

INTRODUCTION:-

Diseases in fresh water fishes are big hazard to get optimal production and become a limiting factor to economic success of fish culture. The fresh water fishes are affected by number of bacterial and bacterial parasites and suffering from different septicaemia, gill rot disease, tail and fin rot disease, etc. However, fungi can become a difficulty if fishes are stressed by poor nutrition, overexploitation of fishes and pressure of population. Fungal infections are ordinary of fresh water fishes and spread worldwide. Fungal diseases are simply recognized by colony of fluffy growth on the gills and skin of fishes.

The saprolegniaceae are responsible for significant infections, including both living and dead fish and their eggs, mainly in fish culture. Oomycetes are saprophytic opportunists growing on fishes that are physically injured, stressed or infected (Pickering and Willoughby, 1982). Members of this group are generally considered as agents of secondary infections arising from conditions such as bacterial infection, poor husbandry practices, and infestations by parasites and social interactions. However, there are a number of reports of Oomycetes as transferable agents of eggs and fish (Scott and O'Bier, 1961; Bhargava et al., 1971; Willoughby, 1978; Srivastava, 1980;

Sati and Khulbe, 1983; Sati, 1991; Walse and Phelps, 1993; Hatai and Hoshiai, 1993; Khulbe et al., 1994; 1995; Kitancharoen et al., 1995; Qureshi et al., 1995; Kitancharoen and Hatai, 1996; Bisht et al., 1996; Khulbe and Rajender, 1998; Qureshi et al., 1999; Vikas et al., 2005; Ramaiah, 2006; Mastan, 2008; and Vinay 2008; Refai et al., 2010; Rekha and Qureshi, 2012, 2013; Hatai, 2012; Vickie et al., 2013; Zafar Iqbal and Reshma, 2013). Therefore the present study has been aimed to separate, identify and determined the pathogenicity of the catfishes from Yeldari Reservoir, Parbhani.

MATERIALS AND METHODS:-

During current study period catfishes (*Clarius batrachus*, *Wallago attu* and *Mystus seenghala*) were collect from Yeldari Reservoir of Parbhani district with the help of local fisher man.

For identification of fungal and bacterial parasites fishes were brought to the laboratory in sterile polythene bags in aerated pond water and kept in glass aquaria with continuous air supply at ambient temperature for further examination. For culturing of fungal specimens, three different types of media including Malt Extract Agar (MEA), lactophenol cotton blue. The fungi were identified with the help of available fungal

identification keys of Raper and Fennew, 1965, Nelson et al. 1983 and Shrivastava, 2009. There is also recorded the infected and non-infected host fishes. This data was obtained throughout the study period of one year (2018- 2019). This was processed and analysed to know the incidence of fungal parasites. The infected fishes were recognized by the symptoms of fishes such as excess mucus secretions, discoloration of gill filament, loss of normal glaze; spot having hemorrhagic lesions on their body and damage of gill. Clinical symptoms of *Clarius*

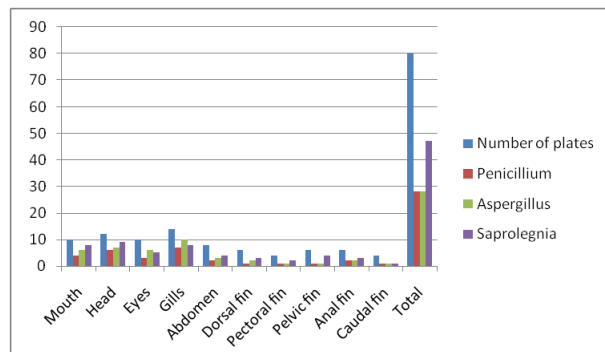
batrachus showed that caudal fin covered with white edges; scales were eroded near caudal peduncle, tip of dorsal fin edges becomes colorless, similarly, anal fin edges shows disintegration. Abdominal part shows eroded scales likewise haemorrhages and lesion were present all over the body surface of *Wallago attu*, *Mystus seenghala* and *Clarius batrachus* fishes with whitish edges which had fungal hyphae. The incidence of fungal parasites was determined by using following formula (**Occurrence (%) = $\frac{\text{Infected host} \times 100}{\text{Total host examined}}$**).

Sr.No.	Host fish species	No.of.observed fish	No. of the infected fish	Occurrence in percentage (%)	Sites of infection
01	<i>Wallago attu</i>	34	22	52.94 %	gills, Eyes, abdomen, caudal fin
02	<i>Clarius batrachus</i>	38	26	57.79 %	Eyes, Head, abdomen, gills, caudal fins.
03	<i>Mystus seenghala</i>	23	18	43.47 %	Mouth, eyes, head, gills, caudal fin and abdomen.
	Total	95.00	66.00	69.47 %	

Table no.1 shows fungal infection in various hosts in fish species.

Fish organs	Number of plates	<i>Penicillium</i>	<i>Aspergillus</i>	<i>Saprolegnia</i>
Mouth	10	04	06	08
Head	12	06	07	09
Eyes	10	03	06	05
Gills	14	07	10	08
Abdomen	08	02	03	04
Dorsal fin	06	01	02	03
Pectoral fin	04	01	01	02
Pelvic fin	06	01	01	04
Anal fin	06	02	02	03
Caudal fin	04	01	01	01
Total	80	28	28	47

Table 2) Shows separated fungi (*Saprolegnia*) from various organs of *Clarius batrachus* fish. Species



Graph 1 shows separated fungi *Saprolegnia* from various organs of *Clarius batrachus* fish species.

RESULTAND

During present study fresh water catfishes were collected from different areas of Yeldari Reservoir with the help of fisherman. Total 100 fishes were collected in number. The *clarius batrachus* fish belongs to the family clariidae, *Wallago attu* belongs to family Siluridae and *Mystus seenghala* belongs to Bagridae family.

These different varieties of fishes are different in their habitat and habit. The fishes were collected, dissected and examined for fungal infections. Out of these 66 catfish specimen shows fungal infection from different sites of body like mouth, head, eyes, gills, abdomen and all the fins (Table no.1).

Although the present investigation was carried out in all three seasons that is summer, monsoon and winter season, so the occurrence of infection and intensity were also shows variations in all different species of fresh water fishes. During summer season it is higher, in monsoon it is less and moderate in winter.

The fungal infection is primary infection to fishes and it spreads rapidly on all the surface of fish body because the mucus on the fish's body is a significant barrier to disease organisms. This mucus is a glycoprotein substance which can eliminate many pathogens.

Scales and skin below the mucus layer considered as secondary barriers to invasion by pathogens, parasites and toxins. Capture, netting and shipping disrupts the integrity of these important barriers facilitating invasion by opportunistic parasites. Internal barriers to pathogens also exist at the cellular level. Infections of fishes were frequently associated with wounds or clinical

DISCUSSION:-

lesions and the damage due to the handling of fishes invites the infection. The comparative study shows that *Clarius batrachus* found more affected than *Wallago attu* followed by *Mystus seenghala*. The incidence of fungal infection is different in these three species of catfishes. The *Clarius batrachus* shows 57.89% fungal infection which is higher as compare to *Wallago attu* (52.94%) and the less percentage was found in *Mystus seenghala* (43.47%) which was reported from different body parts. (As shown in Table no.1) The detail study of separated fungi from all three species of catfishes was also recorded. One example was briefly described in Table no.2, according to which the abundance of *Saprolegnia* was found higher than the remaining two species of fungi.

The above mentioned data of one year shows that fresh water fishes of Yeldari Reservoir suffer from three types of fungal infection and they are identified as *Saprolegnia*, *Aspergillus* and *Penicillium*. This study is almost similar with Alam et al (2003) who found that *C. mrigala* and *C. straitus* were most severely infected fishes. The types of ulcers produced in fishes from India and Pakistan have been associated with pathogenic fungus *saprolegnia* spp. (Anonymous, 1992 and Rab et a, 2001). Jewel and Affan (2003) found that *Aphanomyces* and *Saprolegnia* spp were common pathogens in *L. rohita*, *Catla*, *P.gonionotus* and *C.punctatus*. Burno and Wood (1994) stated that *Saprolegnia* spp. has great impact on aquaculture especially it can infect carp and *Tilapia* which strongly supports the present study. It was found that *Sapriolegnia* sp. is recovered from affected areas of gills, which cause the gill rot disease. Robert et al (1993) stated that gill rot disease is primary problem in many fresh water carp fishes and it was

found when fish suffering from an environmental stress. Barua (1994) reported that *Saprolegnia* sp. can grow at temperature ranging from 32°F to 95°F where poor water qualities such as low circulation, low D.O, or high ammonia are associated with *Saprolegnia* sp. Infections. In present study examination of infected fishes revealed that the existence of species of *Saprolegnia* found to be virulent for fishes. All species of fresh water fishes shows wide range of infections of fungus. The same is also reported by Chauhan and Qureshi (1994). Qureshi et al. (1995) have conducted pathogenicity study with various species of *Saprolegnia* on various species of fishes in India.

CONCLUSION:-

From above investigation, it comes to conclude that catfishes shows more infections and the incidence of fungal infection, high in summer, less in winter and moderate in monsoon i.e. it is varies widely from host to host, species to species and season to season.

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