Percentage prevalence of Protozoan parasites of fishes from Aurangabad region (M.S.)

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Abstract: During the present study two species of ciliated Protozoa and one species from Myxospora were encountered. Among the parasites found on the parts of the sampled fishes, *Ichthyophthirius multifiliis* was the most abundant followed by *Chilodonella* sp. and lastly *Myxobolus sp.* The relative prevalence of the protozoan parasites of fishes from Aurangabad are analysed. Over all prevalence for the whole year was 59.6 %. Among species *Chilodonella sp*. and *Ichthyophthirius multifiliis* were the most dominant parasite showing highest prevalence of 26.8% and 24.9%, whereas *Myxobolus sp* was minimum with the prevalence of 7.8%.

Keywords: Fish , Protozoan parasite, Prevalence

Introduction

Aquaculture is one of the most economically important applied strategies all over the world. Fishes are one of the most beneficial food and nutritional resources to human and other organism. But this fishes are facing various risks factors responsible for fish diseases due to infection of the microorganisms such as fungi, bacteria, virus and protozoa (Kabata 1985). Besides, helminth and crustacean parasites causes fatal diseases to the fishes (Smyth 1994). Parasite of fish can either be external or internal. Parasitic infections often give an indication of the quality of water, since parasites generally increase in abundance and diversity in more polluted waters (Poulin R. 1992 and Avenant-Oldewage A, 2002).Amongst the protozoan parasites, Myxozoa and Ciliophora cause serious diseases in fishes (Lom 1960). The parasite community of fish shows considerable variation with the environmental conditions in which fish live (Hossain et al. 2008).

The subkingdom Protozoa now includes over 65,000 named species, of which over half are fossil and 10,000 are parasitic. Among living species, this includes 250 parasitic and 11,300 free-living sarcodines (of which ~4,600 are foraminiferids); 1.800 parasitic and 5,100 free-living flagellates: 5,600 parasitic "Sporozoa" (including Apicomplexa, Microspora, Myxospora, and Aseetospora); and 2,500 parasitic and 4,700 free-living ciliates.(*N. D. LEVINE,1980)*

During the study it has been found that the ciliates belonging to the genus *Trichodina, Tripartiella,* and *Ichthyophthirius* are more prevalent from November to February whereas, the myxozoan such as *Myxobolus*, *Thelohanellus* showed higher prevalence from January to April. Another myxozoan parasite, *Henneguya sp.* occurred in low concentration throughout the year. It has also been detected that helminth infections caused by *Gyrodactylus* and *Dactylogyrus* found all over the body surface and tail fin region. These parasites infect the fish and cause massive destruction to the skin and gills epithelium.

Material and Methods

The fishes have been collected from the fish market of Aurangabad and brought to the laboratory. During June 2017 to May 2018, more than 305 fishes were randomly collected for the study. The infected fishes were collected and examined. The smears were examined from, oral region body, gills and pectoral, pelvic and caudal fin on grease free clean slides with a drop of saline (0.5 % NaCl)solution and air dried. The months were divided into three groups namely, June–September ;October-January–February-May ,Monsoon Winter and Summer, respectively.

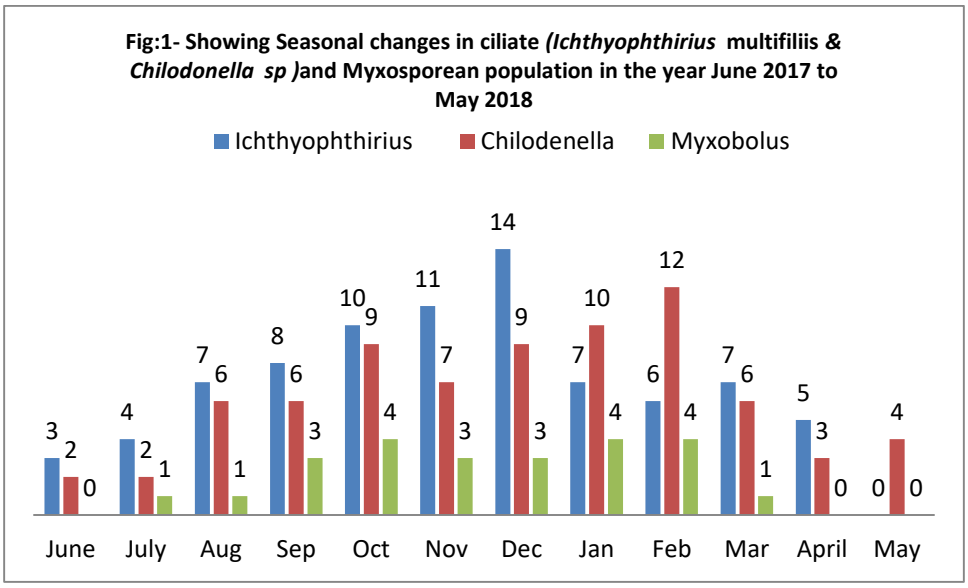
Result and Discussion

The infected fishes were analyzed and identified by the layer of mucus covering gills and body their irritating and sluggish movement, whirling in case of myxospora. Heavily infected fishes showed reddish appearance and white spots appeared throughout their body surface including the gills. It was found that myxozoan and ciliate parasites were most prevalent during October and November whereas the ciliates were affecting the fishes throughout the year but frequently more abundant during the winter (November–February) but their intensity was very less in the month April and May i.e. in summer.

Table: Showing Seasonal changes in ciliate *(Ichthyophthirius* multifiliis & *Chilodonella sp)*and Myxosporean population in the year June 2017 to May 2018:-

Months	**Number of sample examined**	*Ichthyophthirius multifiliis*	*Chilodonella* sp.	*Myxobolus sp*	**Percentage of prevalence**
June	15	03	02	00	33.33 %
July	18	04	02	01	38 %
Aug	26	07	06	01	53%
Sep	30	08	06	03	56.5%
Oct	34	10	09	04	67.6%
Nov	30	11	07	03	70. %
Dec	33	14	09	03	72.7%
Jan	30	07	10	04	70%
Feb	32	06	12	04	68.75%
Mar	24	07	06	01	58.33%
April	18	05	03	00	44..44%
May	15	00	04	00	26.66%
Total	305	82 (26.8%)	76 (24.9%)	24(7.8%)	59.6%

Fig. 1-Graphical representation of prevalence of parasites throughout the year



Among the protozoan parasite, *Myxobolus* was found in a irregular pattern and be very less throughout the year (Table 1). Among the ciliophorans, *Chilodonella* infection were most prevalent in January–February whereas *Ichthyophthirius* infection was prevalent in November–December. Between the two ciliates, *Chilodonella* is more prevalent in infecting fishes than that of *Ichthyophthirius*). Hossain et al. (2008) also viewed that parasite community showed considerable variation with the environmental condition they live.It was reported that *Dactylogyrus* caused mass mortality in fishes (Subashinghe 1992; Shariff and Vijiarungam 1986). The water temperature, pH and dissolved oxygen are the major contributory factors for transmission as they fluctuate more rapidly. But ciliophoran except *Ichthyophthirius multifilis* were encountered in sampled fish specimens more or less throughout the year and mainly found when the temperature dropped. During the study the crustacean parasites like *Ergasilus* sp. and *Argulus* sp. have also been isolated. Its prevalence was found to be lower throughout the year. It was observed that the prevalence of these parasites was more in the winter season. This work corroborated with the work of S. Omeji, e tal.,(2011) The prevalence for the whole year was 59.6 %. Among species *Chilodonella sp*. and *Ichthyophthirius multifiliis* were the most dominant parasite showing highest prevalence of 26.8% and 24.9%, whereas *Myxobolus sp* was minimum with the prevalence of 7.8%.It can be concluded that peak of protozoan parasites have been reported in the winter followed by monsoon and the least in the summer.

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