

RESEARCH ARTICLE

Study to find Myxosporean Parasites in Fishes that are Commonly found in Lonavala

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Manuscript Details	ABSTRACT
<p>Received : 03.07.2015 Revised : 23.08.2015 Revised received : 09.09.2015 Accepted: 16.09.2015 Published: 05.10.2015</p> <p>ISSN: 2322-0015</p> <p>Editor: Dr. Arvind Chavhan</p> <p>Cite this article as: Pokale SS . Study to find Myxosporean Parasites in Fishes that are Commonly found in Lonavala, <i>Int. Res. J. of Science & Engineering</i>, 2015; Vol. 3 (5):209-213.</p> <p>Copyright: © Author(s), This is an open access article under the terms of the Creative Commons Attribution Non-Commercial No Derivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p>	<p>Present Paper deals with the study of the Protozoan parasites found in the blood streams of fresh water fishes from Maval taluka. The study covers an analysis of the prevalence of myxosporean parasites. The study, stretched over a period of about two years, analyses the prevalence of myxosporean parasites in fresh water fishes. The findings are based on the average of monthly sample testing. The paper is presented gives an analysis of the pattern of prevalence of protozoan parasites in fishes, based on an examination of about 1104 fishes. The Fifteen species of hosts are belonging to Two Orders, Five Families and fourteen genera are examined overall prevalence's of about 0.6% is recorded.</p> <p>They gives an account of the myxosporian parasites found during the study. The Myxosporean Parasites have been recorded from four species of hosts are of which only myxosporians were present in families i.e. Ophiocephalidae, and Mastacembalidae Mixed infection of Myxosporean & Trypanosomes were found in two species of host from two families i. e. Cyprinidae and Bagridae out of which some species are redescribed.</p> <p>Keywords: Myxosporean found in Lonavala.</p> <p>INTRODUCTION</p> <p>The study on protozoa has a great practical importance to man, Several Species from virulent parasites of men and other animals. Fishes constitute a favorite biotope for the development of large number of parasites including myxozoans. The myxosporean are exclusively parasites of cold blooded vertebrates especially fishes. But few occur in amphibian and reptiles. No species have been reported from aves and mammals. Several Serious diseases</p>

are caused by myxosporeans. Their cysts are found in the skin, gills, gut wall, cartilage, excretory system and even in the brain of the fishes.

India is a Country with numerous rivers and lakes having the most diversified fauna of fresh water fishes. Lands berg and Lom (1992) gave a list of 444 myxobolus species followed by Eiras *et al.* (2005) who listed approximately 744 species of myxobolus from all over the world (Kaur *et al.*, 2013) Presented study on myxozoan parasites of freshwater fishes of Punjab. They examined 72 fishes & found 23 infected fishes. Mackenzie k, studied distribution of myxosporean families in different taxonomic groups of marine fishes & suggested the original of different myxosporean taxa. Kaur and Singh (2011) studied myxosporean parasites of fresh water fishes of Punjab wetlands. They recorded from the caudal fin of cirrhina mrigala.

In recent years, much attention has been paid to studying ecology of myxosporeans, particularly the parasites-host-environment relationship since as parasitic organisms. Myxoporeans are for more dependent on the abrupt shifts in environment there is a greater possibility for a rapid increase in new infectious or a flare in the chronic invasions through easy spread of the parasites, attributable to the mobility of the mediam. Under such condition, an adequate knowledge of the parasites in its entirety therefore seems very essential for an overall assessment of the host parasite relationship.

Protozoan Disease:

Protozoan is a unicellular animal, microscopic and live in fish and aquatic animals causing various external and internal diseases with mass mortality of young fish. The infected fishes die without showing any disease symptoms except in few cases.

Whirling Disease:

This disease is caused by sporozoans parasites. It has been reported from Europand North America also other parts of the word. This disease is not greatly significant in large water bodies, but it

cause serious losses in fish farms and hatcheries. The pathogen of the disease is not greatly significant in large water bodies. The pathogen of the disease is Myxobolus, a myxozoan parasites, the lifecycle is not uniform in all its phase and generally occurs after infection of the host by spores and two haploid nuclei each emerges from spores. Two haploid grows up in the infected organ of host by multiple nuclear fission.

MATERIAL AND METHODS

The material used for investigation is obtained from the rivers and lakes of various places like indrayani river Kamshet, indrayani river karla & Pavana rivers in Taluka Maval Dist.Pune .The Fish host were punched from the local fisherman on the spot or from the local markets. Live fishes purchased from rivers side Karla and Valvan Lake were brought to the laboratory for examination while those from other localities were examined on the spot with the help of a field microscope.

For the purpose of examination the blood was obtained either from the caudal vein or from the brachial vein of the host. A Small drop of blood was taken on clean slides, covered with cover glass and examined under the microscope. In case of heavy infection no difficulty was experienced to but in case of light infection, careful and through examination had to be made to detect the presence of myxosporean parasites in the gill.

Their presence could be easily detected by active wriggling movement displacing the adjacent blood corpuscles. Twisting of the body into knots has also been observed in some cases. In the cases of infected fishes fresh blood from the gills and the heart and sometimes from organs like the liver and the kidney was obtained to prepare a number of blood smears on clear grease free slides .No anticoagulant was used .The smears were air dried quickly and fixed in acetone free methanol for 8-10 minutes .In cases of field studies the smearing and fixation was done on the spot itself and the fixed smears were brought to the laboratory for staining. Giemsa stain was used for staining; diluting it with phosphate buffer solution at the rate of 1-3 drops of stain per one ml buffer

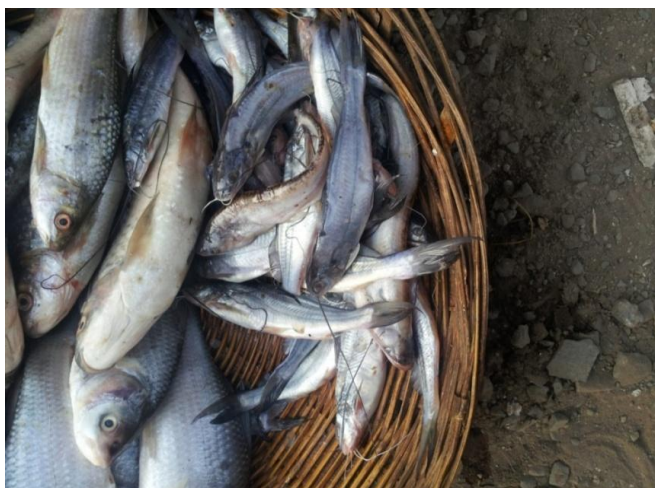


Fig. 1: Specimen selected for study (Fishes)

solution staining was done for 45-75 minutes in different cases. Then the smears were quickly rinsed under running tap water, dried and preserved.

Buffer Solution:

Di-sodium hydrogen orthophosphate-1.5 gms%
 Potassium di-hydrogen orthophosphate-0.3 gms%
 Distilled water -500 ml.

RESULT AND DISCUSSION

The prevalence of protozoan parasite in the blood streams in freshwater of Maval has been studied over a period of about two years. A total Number of 1104 fishes were examined out of which 07 were positive for myxosporean parasites, the prevalence being 0.6 % (Table 1A).The fishes examined were drawn from three localities, Viz. Indrayani river Kamshet, Indrayani river karla and Pawna rivers . The host's examined belong to 15 species spread over two orders, four families and ten genera, two of the fifteen host's species were positive for myxosporean parasites. The prevalence of myxosporean parasites is about 0.6% (07/1104 fishes).

Table 1: Prevalence of the various species myxosporean parasites in different Host.

Sr.No.	Host	Prevalence
01	<i>Labeo calbasu</i>	01
02	<i>Puntiuskolus</i>	01
03	<i>Channa punctatus</i>	03
04	<i>Mastacem belusarmatus</i>	02

A family wise analysis of the host, in relation to the haemflagellates harbored by them showed that fishes of three families namely, Mastacembelidae, Notopteridae, and Ophiocephalidae showed the presence of only myxosporean of these *Mastacem belusarmatus*, harbored one Species And one specie *Labeo Calbasu &Puntiuskolus*, each of myxosporean fishes of the family, Notopteridae is being present & Ophiocephalidae family species *Channa gachua* being present.

Intensity of Infection:

The infection of myxosporean was found to be low and scanty than the other infection .Heavy infection was found in only two cases i.e. Myxosporean from *Mastacem belusarmatus*.The infection was (Scanty)moderate in the case of myxosporean from *Labeo calbasu&Puntiuskolus*. In the case of myxosporean the infection was mild in most cases and heavy in none.

Locality wise Analysis of the Myxosporean Parasites:

A comparative study of the myxosporean parasites infection from the three localities (Table 1) showed that there were village wise differences in the myxosporean parasites fauna in the three localities. Most of the fishes from indrayani river Kamshet, indrayani river Karla and Pavana river areas harbored either Myxosporean infections, but rarely both.

The fishes examined from Karla were mostly infected with both myxosporean.

Table2: Locality wise analysis of the Myxosporian Parasites.

Sr.No	Locality	Host	Myxosporean Parasites
01	Indrayani river Kamshet	1) <i>Labeo calbasu</i> 2) <i>Channa punctatus</i> 3) <i>Mastacem belusarmatus</i>	00 01 00
02	Indrayani river Karla	1) <i>Mastacem belusarmatus</i> 2) <i>Channa punctatus</i> 3) <i>Puntiuskolus</i> 4) <i>Labeo calbasu</i>	01 02 01 00
03	Pavana River	1) <i>Mastacem belusarmatus</i> 2) <i>Puntiuskolus</i> 3) <i>Labeo calbasu</i>	01 00 01

Table 3: Prevalence of seasonal incidence of Myxosporean parasites of fishes from Taluka.

Sr. No.	Month/ Year	Host examined	Positive	Prevalence (%)	Host examined	Positive	Prevalence (%)
Monsoon months of June 2012 to September					Monsoon months of June 2013 to September		
1	June	48	0	0	54	0	0
2	July	45	0	0	35	0	0
3	August	60	0	0	40	0	0
4	September	34	0	0	43	0	0
	Total:	187	0	0	152	0	0
Winter months of October 2012 to jan.2013					Winter months of October 2013 to jan.2014		
1	October	36	0	0	60	0	0
2	November	30	0	0	53	0	0
3	December	50	0	0	48	0	0
4	January	24	0	0	36	0	0
	Total:	140	0	0	197	0	0
Summer months of February to March 2013					Summer months of February 2014 to March		
	February	110	2	1.8	94	01	1.06
	March	126	4	3.1	98	0	0
	Total:	236			192		
	Total Year	563			541		

Maval spaces region during different season observations.

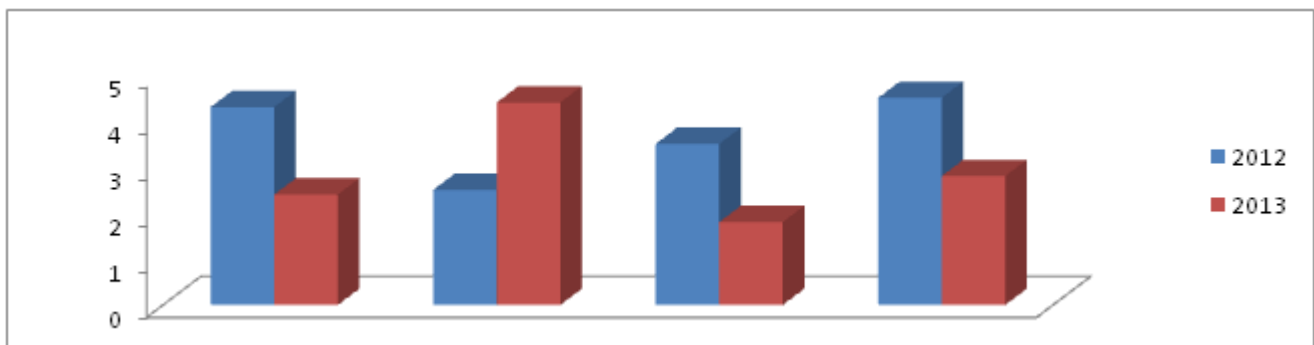


Fig 2: Prevalence of myxosporean parasites in last two years.

Seasonal variations in the prevalence

It has been shown that the present study of fishes from different localities has been examined during different seasons. In most cases where the hosts were positive for myxosporean. The infection has been seen almost from February & March. One host, namely *Channa punctuates* which was easily available and which showed fairly constant infection was selected for a detailed study of the seasonal variations in the prevalence.

Myxosporean Parasites Sp

Host: *Channa punctatus* .

Locality: Indrayani river Kamshet & Indrayani river Karla.

Site of Infection: Blood.

This Myxosporean parasite was found in two out of the two hundred seventy fishes (*Channa punctuates*) collected and examined from the local fisherman of Indrayani river Kamshet out of two infected fishes. He has also harbored another species of Myxosporean parasites described in the later part at fell injured defined forms were also observed. The infection was rare in this case.

Morphology: The Myxosporean parasite was small in size &with unclear infection.

Cytoplasm: The cytoplasm is uniformly dense and has many scattered chrophilic granules. Nucleus, kinetoplasts which are not clearly observed.

CONCLUSION

The prevalence of protozoan parasites in the blood streams of freshwater fishes in Lonavala has been studied over a period of about two years. A total number of 1104 fishes were examined out of which 07 were positive for Myxosporean parasites, the prevalence being 0.6% (Table.1). The fishes examined were brought from four localities, Viz, Indrayani River Kamshet, Indrayani river Karla, Valvan Lake and Pavana river. The host's examined belong to 15 species spread over two orders, four families and ten genera. Two of the fifteen host's species were positive for Myxosporean parasite. An overall prevalence of

about 0.6% is recorded. The prevalence of Myxosporean parasites is about 0.6% (07/1104 Fishes.

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