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Incidence of Infection of *Myxobolus* (a Sporozoan Parasite) in some Fresh Water Fishes

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ABSTRACT
Incidence of infection of Myxobolus in some fresh water fishes was studied. Different fishes were found to be differently infected. Observations indicate that Locality D (Shekha lake in Aligarh region) is highly infected in comparison to other localities. Channa striatus fish is found to be highly infected in comparison to other fishes.
Keywords: *Myxobolus, Channa striatus, Sheka Lake Aligarh.*

INTRODUCTION

Various infectious diseases of fishes are caused by protozoan parasites [1]. Among the protozoan parasites sporozoans are one of the highest in number. These are the endoparasites occur in the skin, muscles and various visceral organs and are causative agents of various diseases in fishes. These infections may result in their decline and can pose a great risk in their availability. Many species of *Myxobolus*have been reported in Channa striatus such as *M. cultus* [2], *M.cognati* [3], *M.cerebralis*, *M. dujardini, M. pfeifferi, M. cycloides, M. oviformes and M.mulleri*. Many of these species of *Myxobolus*are highly pathogenic,often causing fatal diseases or even death to host fish. In natural waters fish's exhibit diseases in exceptional cases, but when fishes are in small water bodies, they often get diseased [4].

MATERIAL AND METHODS

The fresh water fishes were brought to the laboratory from different localities, namely Ganga River in Narora (locality A), Yamuna river in Mathura (Locality B), Kali Nadi (Locality C) and Shekha Lake (Locality D) in Aligarh region, and kept in aquarium. The behavioral and gross pathomorphological changes in the spontaneous cases were recorded. The fishes were dissected to remove gills, kidney and liver. Tissue samples from these organs were taken and fixed in Bouin's solution for 24 hours, dehydrated using graded series of alcohol, embedded in paraffin wax, sectioned and examined by light microscope. Finally photomicrographs were taken out with the help of a digital camera.

RESULTS AND DISCUSSION

Sporozoan parasite *Myxobolus* represents an important group of fish parasite. Many species of this parasite are highly pathogenic, often causing fatal disease or even death of host fish. Sporozoan parasite *Myxobolus* affects fish population by causing mortality, reduction in growth, weight loss, suppression of reproductive activity [4]. Present investigation was conducted on 8 fresh water fishes i.e. *Channa striatus, Heteropneustes fossilis, Clarias batrachus, Labeo rohita, Wallago attu, Catla catla, Cirrhina mrigla and Mystus seenghala.* Theseare abundantly present in Aligarh region and are very popular as food fishes. These fishes (living specimens) are collected from different localities as mentioned in material and methods. They were dissected to remove gills, kidney and liver. The body weight and length of all fishes under observation was measured before dissection.

For the present study 372 specimens of 8 species of fishes are collected. Some of the species such as *Heteropneustes fossilis, Clarias batrachus* and *Channa striatus* are collected from all localities. *Labeo rohita* and *Wallago attu* are collected from the Ganga river in Narora (Locality A) and Yamuna river (Locality B). *Catla catla, Cirrhina mrigla* and *Mystus seenghala* are collected from Ganga River in Narora (Locality A).

Table 1- represents status of collection of fishes from various localities.

Table – 1: Collection of fishes from different Localities

S. No.	FISH	LOCALITIES			
		A	B	C	D
1.	*Heteropneustes fossilis*	+	+	+	+
2.	*Catla catla*	+	-	-	-
3.	*Labeo rohita*	+	+	-	-
4.	*Clarias batrachus*	+	+	+	+
5.	*Cirrhina mrigala*	+	-	-	-
6.	*Mystus seenghala*	+	-	-	-
7.	*Wallago attu*	+	+	-	-
8.	*Channa striatus*	+	+	+	+

+ = Present species; - = Absent species

Table-2 shows percentage of incidence of infection in fishes in different localities.

Table – 2: Incidence of infection of *Myxobolus* in fishes of different Localities

Locality of host	No. of fishes examined	No. of infected fishes	% of infection
A	120	11	9.16
B	100	8	8.00
C	72	5	6.94
D	80	16	20.00

The table-2 clearly indicates fishes in locality D (Shekha lake in Aligarh region) are most highly infected in comparison to other localities. 16 fishes out of 80 fishes observed are found infected in this locality. However, fishes in locality A (Ganga river in Narora), locality B (Yamuna river in Mathura) and locality C (Kali Nadi) are less abundantly infected i.e. 9.16%, 8.00%, 6.94% respectively.

Table-3 shows the highest percentage of infection in *Channa striatus* while the lowest percentage of infection is found in *Labeo rohita* in all localities.

Table – 3: Infection of *Myxobolus* Parasite in different fishes

S. No.	Name of Fish	No. of Fishes Examined	No. of Fishes Infected	%age of infection
1.	*Heteropneustes fossilis*	102	8	7.84
2.	*Clarias batrachus*	96	11	11.45
3.	*Channa striatus*	94	19	20.21
4.	*Labeo rohita*	32	1	3.15
5.	*Catla catla*	7	0	0.00
6.	*Cirrihina mrigala*	5	0	0.00
7.	*Mystus seenghala*	8	0	0.00
8.	*Wallago attu*	28	1	3.75

In this study the most infected species is *Channa striatus* [5-8]. The maximum percentage of *Myxobolus* infection has been found in *Channa striatus*. *Clarias batrachus* and *Heterpneustes fossilis* are found to be infected, but infection is less in comparison to *Channa striatus*. *Labio rohita* and *Wallago attu* are less infected, While no infection has been reported in *Catla catla, Cirrhina mrigala* and *Mystus seenghala* (Table-3).

Thus locality D (Shekha Lake in Aligarh region) is highly infected in comparison to locality A (Ganga river in Narora), locality B (Yamuna river in Mathura) and locality E (Kali Nadi).

CONCLUSION

The highest percentage of *Myxobolus* infection has been found in *Channa striatus*. *Clarias batrachus* and *Heteropneustes fossilis* are also found to be infected, but infection is less in comparison to *Channa striatus.*

REFERENCES

1. Khanna, S.S. (2000). An introduction to fishes. Reprinted. Central book depot publication, Allahabad :pp 459-469.
2. Yokoyama, H., Ogawa, K. and Wakabayashi, H. 1995. Myxobolus cultus n.sp. (Myxosporea: Myxobolidae) in the Actinosporean stage in the oligochaete Branchiura sowerbyi. J.Parasitol., 81 (3):446-451.
3. Cone, David, K., Stickel, R.G.,Eck,G.W., Muzzall, P.M. 1996. Myxobolus cognate n.sp; (Myxosporea) from the opercular integument of Cottus cognatus (Cottidae) in Lake Michigan. J.Parasitol., 82(1):137-139.
4. Chakrabvarti, N.M.(1994) *: Diseases of cultivable fresh water fishes and theircontrol.* International books & Periodicals supply service Pub. Delhi, 35: 1-143.
5. Duijn, C. Van Jr. (2000): Diseases of fishes, Reprinted. Narendra Publ. House, Delhi: 174 pp. (76-86).
6. Duijn, C. Van (1953): Protozoan parasites of fish, sporozoan infections, *Mixros.,* 9: 227-237.
7. Pandey, K and Shukla, J.P. (2005) : Fish and Fisheries. 1st ed. Rastogi Publication, Meerut, pp. 444-460.
8. Srivastava, C.B. (1975): Fish pathological studies in India a brief review, 349-358.