

Research Article

**Helminth Parasitofauna of Freshwater Catfish *MYSTUS SEENGHALA*
(SYKES 1839) from Nanded District (M.S.) India**

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ABSTRACT:

The aim of this work is to investigate Helminth Parasitofauna of Freshwater catfish *Mystus seenghala* (Sykes 1839). Total 818 freshwater catfishes *Mystus seenghala* (Sykes 1839) were collected from different localities of Nanded district during February, 2011 to January, 2013, out of these 128 fishes infected due to Helminth parasites. Study revealed the existence of 03 species of cestodes (*Ptychobotrium sp.*, *Proteocephalus sp.* and *Silurotaenia sp.*) 01 species of Digenean trematode Viz. *Azygia sp.* and 02 species of nematodes (*Camallanus sp.* and *Procamallanus sp.*). The results indicate that *Mystus seenghala* (Sykes 1839) collected and examined from Nanded region heavily infected due to Cestode infection moderately by Nematodes and low infection rate by trematode.

Keywords: Helminth Parasitofauna, *Mystus seenghala* (Sykes 1839), Nanded District.

INTRODUCTION:

Freshwater catfish *Mystus seenghala* (Sykes 1839) is important to man as a good source of protein, vitamin D in man's diet and as a vector of some human disease pathogens. *Mystus seenghala* (Sykes 1839) is vulnerable to various parasitic infections depending on the type of stream inhabited. Some of the factors that increase parasitic infection in this fish include reduced oxygen content of water, increase in organic matter, in the water, poor environmental conditions. The importance of such parasitic infections particularly with respect to huge economic loss in fishes has also been well studied.

Irrespective of advance and achievements, intensive fish farming remains at high risk investment mainly due to helminthic diseases. Parasitic diseases of fish are very common all over the world, and are of particular importance (Robert & Janovy 2000).

The metabolites produced by some of these parasites could adversely affect vital systems of the fish (Ukoli 1969). Parasitic infections of fishes are major factors responsible for economic losses through reduction in productivity and increased mortality. As fishes are important from ecological, medicinal, nutritional and economical point of

view, keeping in view, importance of Helminth infections of freshwater fish host, an attempt has been made to assess Helminth Parasitofauna of Catfish *Mystus seenghala* (Sykes 1839) from Nanded Region of Maharashtra State.

MATERIAL AND METHODS:

Study area- Study was conducted in different collection sites of Nanded district. Nanded is situated in south eastern part of Maharashtra State. The Nanded district lies between 18.15 to 19.55 North latitudes and 97.07 to 98.15 East longitude. It covers an area of 10,528 sq. km.

Fish hosts *Mystus seenghala* (Sykes 1839) were collected from different localities of Nanded district and examined for Helminth infection during February, 2011 to January, 2013. Fishes were cut open ventrally and their intestine and internal viscera were exposed, removed and placed in physiological saline. Cestodes and

Trematode parasites were collected and fixed in 4% formalin, where as nematodes were preserved in 10% glycerol, stained with Haematoxyline and Borax Carmine. Stained specimens were dehydrated by ascending series of alcoholic grades, cleared in xylene and mounted in DPX and Canada Balsm. Nematodes were mounted in glycerin and glycerin jelly. Drawings are made with the aid of camera lucida attached to research microscope. All measurements are recorded in millimetres, unless otherwise stated.

Helminth parasites collected from *Mystus seenghala* (Sykes 1839) are identified by –

1. Systema Helminthum Vol.I to III- By Yamaguti, S. (1958, 1959, 1961)
2. Keys to the Cestode Parasites of Vertebrates- By Khalil, Jones and Bray (1994)
3. Advances in the Zoology of Tapeworms- By Wardle R., McLeod E.L., and Radinovsky S. (1974).

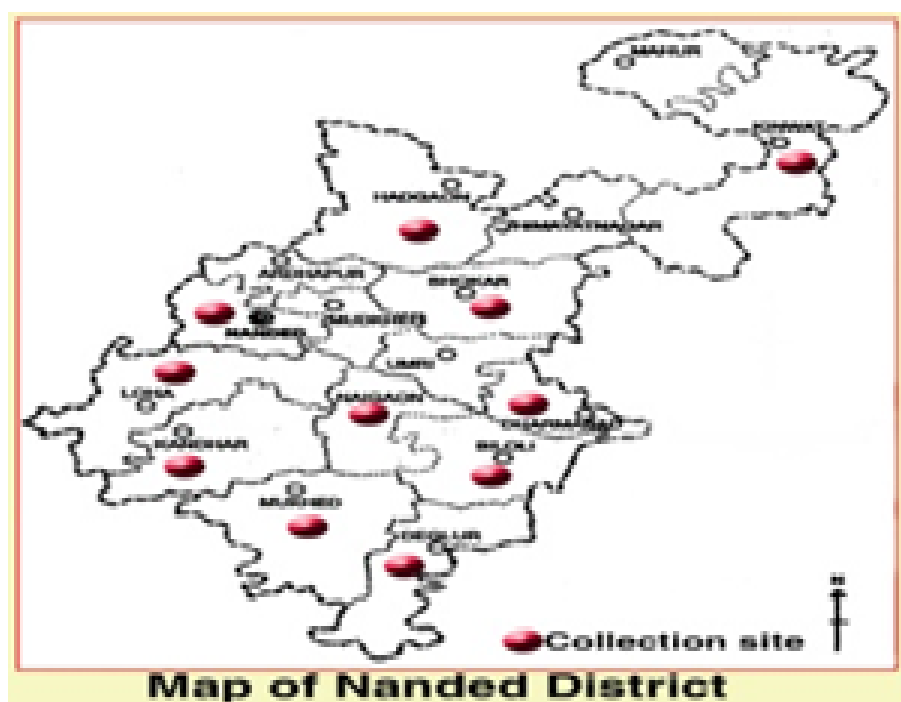


Fig.1. Study Area Fig.



2. Fish host *Mystus seenghala* (Sykes 1839)

RESULTS:

Six Helminth parasite species were recorded and identified during the present research work. Viz Cestoda represent by three genera *Ptychobothrium sp.*, *Proteocephalus sp* and *Silurotaenia sp.* Digenean Trematoda representing one genus *Azygia sp.* and Nematoda with genus *Camallanus sp.* and *Procamallanus sp.* collected from intestine and stomach of freshwater catfish *Mystus seenghala* (Sykes 1839). The distribution of these helminth parasites and their location in the body of fish host are summarized in Table 1. The given table is an account of helminth fauna of freshwater catfish *Mystus seenghala* (Sykes 1839) with their distribution and their location in the body of fish host and prevalence.

Table 1: The distribution of helminth parasites recorded in different organs of *Mystus seenghala* (Sykes 1839) from Nanded district (M.S.) India

Helminth Parasites	No. of Fish Examined	No. of Fish infected	Prevalence (%)	Site of infection
Cestodes				
<i>Ptychobothrium sp.</i>	124	22	17.74	Intestine
<i>Proteocephalus sp.</i>	214	16	7.48	Intestine
<i>Silurotaenia sp.</i>	120	22	18.33	Intestine
Trematodes (Digeneans)				
<i>Azygia sp.</i>	120	18	15.00	Stomach, Intestine
Nematodes				
<i>Camallanus sp.</i>	120	18	15.00	Intestine
<i>Procamallanus sp.</i>	120	32	26.67	Intestine
Total	818	128	15.64	

DISCUSSION:

The preliminary investigation of helminth parasitofauna of freshwater catfish *Mystus seenghala* (Sykes 1839) revealed the highest prevalence of nematode parasites, moderate trematode and lowest prevalence of Cestodes. The parasite prevalence and abundance depend on many factors like parasite life cycle, host and its feeding habits and the physical factors of water body where the fish inhabit. It also depends upon presence of intermediate host such as piscivorous birds mainly for spread of helminth infection. A water body that is being used as a source of drinking water is likely to be a clean water, while that which serves a collecting basin for all kinds of waste (mainly organic waste) are usually unclean and thus capable of harbouring different kinds of organisms including helminth parasites. Some studies (Pérez-Ponce de León and Choudhury 2002, 2005; Aguilar-Aguilar *et al.* 2008) have corroborated the fact that historical biogeography of parasites is closely link to that of their hosts.

In cestode group, highest prevalence showed by *Silurotaenia sp.* (18.33%) followed by *Ptychobothrium sp.* (17.74%) and lowest prevalence of *Proteocephalus sp.* (7.48%). In nematodes *Procamallanus sp.* shows highest degree of prevalence (26.67%) than *Camallanus sp.* (15%). Dignean trematode represented by only one species *Viz. Azygia sp.* with moderate degree of infection rate (15 %). Collectively nematodes shows high prevalence (20.83%) than trematode (15 %) whereas cestode shows low prevalence (13.10%).

The results of present study are partially in agreement with those conducted by Okaka, C.E., and Akhigbe, J.E., 1999 reported higher prevalence of Nematodes and least prevalence of Trematodes in Nigerian freshwater fishes. The present investigation shows that occurrence of infection were host specific. Morphological factors are those which like a parasite with its host at the site of attachment (Agarwal, 2006). Jadhav and Bhure 2006 also explained the distribution of parasites are host

specific. Fresh water fishes of Marathwada region of Maharashtra State are more diversified for helminth infection (Nanware, S.S. *et al.* 2013). Deshmukh *et al.*, 2013 reported high prevalence of cestode in freshwater fishes of Nanded region specially in summer. Bhure, *et al.*, 2014 reported ecological conditions and seasonal influence on Helminth infection of freshwater fish *Mastacembelus armatus*. Bhure and Nanware 2015 studied Faunestic diversity of Piscean, Avian and mammalian cestodes of genus *Lytocestus*, *Senga*, *Gangesia*, *Cotugnia*, *Davainea*, *Raillietina*, *Moniezia*, *Stilesia* and *Avitellina* from Nanded region (M.S.) India.

The present study indicates that the fish host *Mystus seenghala* (Sykes 1839) is susceptible for all group of Helminth infection but it is more susceptible for cestode infection followed by nematodes and least susceptible for trematode infection. The infection of Helminth parasites of freshwater catfish *Mystus seenghala* (Sykes 1839) is depend on ecological, morphological and physiological condition or food and habitat available for this Fish.

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Conflicts of interest: Authors declared No conflict of interest

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