

A STUDY OF XIPHIDIOCERCARIA INFECTION IN SNAILS FROM DIFFERENT WATERBODIES IN NANDURBAR DISTRICT MAHARASHTRA, INDIA.

Harshala Hiralal Mali¹ Magare S.R²

^{1,2}Department of Zoology, A.S. Mandal's, C.H.C. Arts, S.G.P.Comm. and B.B.J.P.Sci. College, Taloda, Dist- Nandurbar.425413. (MS) India

Email ID- harshalamali@gmail.com , drsmagare@yahoo.co.in

Abstract-

The present work is based on study of three common freshwater snail species containing parasites. Snails collected were of three species i.e. *Indoplanorbis exustus*, *Lymnaea accuminata* and *Bellamya bengalensis*. Snails were examined for cercariae by natural shedding. The present study was focused on two types of cercaria i.e. Xiphidocercaria and Echinostome cercaria.

Keywords- Mollusca, freshwater molluscs, snail, cercaria, parasite.

Introduction-

Freshwater molluscs were well known as intermediate host for several parasites. These molluscs contain various developmental stages of parasites as egg, miracidia, Radia and cercaria. Many workers studied intra-molluscan larval stages and different types of cercariae found as parasites in molluscs.

In India many workers reported parasites from snails [1,2,3,4,5]. Freshwater snails transfer many parasites to human and other animals which causes paracitic diseases like Schistosomiasis [6,7,8] and Fasciolosis [9,10,11,12,13].

Present work is carried out to study parasites found in freshwater snails of Nandurbar district of Maharashtra state of India.

Materials and method-

Study area-

The study was carried out in Nandurbar district of Maharashtra state of India located at latitude:21.3700 and longitude:74.2500. Snails were collected from five different waterbodies. These were as- Site 1- Tapi River of Prakasha, Site 2-River of Khapar Dehali, Site 3- Kothar Dam, Site 4- Padalpur dam and Site 5- Ponds around Taloda city.

Collection of snails-

Snails were collected from each waterbody by hand net or by handpicking. These snails were brought to zoology research laboratory of our college and acclimatized in tap water. Each species of snail from each location was maintained in separate aquarium containing tap water and aquatic plant hydrilla. The study period was from Oct 2020 to Sept 2021.

Identification of snails- The collected snails were identified according to morphological characters by using reputed references [14,15].



Fig.1 *Indoplanorbis exustus*
Snail hosts-



Fig.2 *Lymnaea accuminata*



Fig.3 *Bellamya bengalensis*

1) *Indoplanorbis exustus*-

Indoplanorbis exustus has a shell which is dorsoventrally flat, discoid and shows rapidly increasing whorls. It is present towards the base and attached to substratum like stones, plant parts or other objects in water.

2) *Lymnaea accuminata*-

Lymnaea has spiral shell but not much pointed and less acuminate. Shell is ovate with narrow end, the outer lip is broad but straight.

3) *Bellamya bengalensis*-

Bellamya has spiral shell but broad in size and less in length with rapidly increasing whorls. It shows operculum. They found attached to any substratum.

Study of parasites-

All the snails collected were examined live for cercaria by natural shedding and examined fresh. Two snails taken in test tube with ten ml water and kept in sunlight for 15 minutes, cercaria come out of the shell in water. Cercaria was studied from water and snails were released in natural habitat. Cercaria were identified by using description and keys [16,17].

Result and Discussion-

Ten snails of each species from each site were examined. Both three species were found infected with cercaria. Highest infection was observed in rainy season followed by winter season. Among these *Indoplanorbis exustus* was found highly infected. This study was mainly focused on Xiphidocercaria and Echinostome cercaria. Xiphidocercaria was found in all three species of snail examined i.e. *Indoplanorbis exustus*, *Lymnaea accuminata* and *Bellamya bengalensis* but Echinostome cercaria was found in *Indoplanorbis exustus* and *Lymnaea accuminata* and not recorded in *Bellamya bengalensis*.

Table 1: Kind of Cercarial infection showing host specificity

Snail species	Xiphidocercaria	Echinostome
<i>Indoplanorbis</i>	+	+
<i>Lymnaea</i>	+	+
<i>Bellamya</i>	+	-

+, present; -, absent

Table 2: Seasonal change in cercarial infection

Snail Species	Rainy Season	Winter	Spring
<i>Indoplanorbis</i>	+++	++	+
<i>Lymnaea</i>	+++	++	+
<i>Bellamya</i>	++	+++	+++

+++; maximum; ++, moderate; +, minimum

Xiphidocercaria-

Xiphidocercaria shows different morphotypes but commonly somewhat oval cercarial disc with oral sucker at anterior end with stylet in oral sucker size of oral sucker is variable in different morphotypes. Ventral sucker also seen diff size somewhat middle on ventral side Tail present at posterior end stylet of diff morphology.

Echinostome cercaria-

Cercarial disc is ovate, collar with spines below the oral sucker, ventral sucker is larger than oral sucker and situated at lower part. Tail is longer than body (disc)

Conclusion-

Several species of freshwater snails are found in Nandurbar district. In present work we studied three freshwater snails *Indoplanorbis exustus*, *Lymnaea accuminata* and *Bellamya bengalensis*. Two types of cercaria as Xiphidocercaria and Echinostome cercaria were studied in this work. Study shows that cercaria are host specific and quantity of parasites depend on season. Xiphidocercaria present in *Indoplanorbis exustus*, *Lymnaea accuminata* and *Bellamya bengalensis* but Echinostome cercaria present only in *Indoplanorbis exustus* and *Lymnaea accuminata* i.e. Echinostome cercaria not found in *Bellamya bengalensis*.

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