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On a trematode *Allocreadium hanumanthai* from the intestine of *Channa punctatus* from Tirhut division of Bihar

Amritesh Gautam* & Sneha Raj
Department of Zoology, S.N.S. College Hajipur, Vaishali, Bihar, India

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Abstract: Diversity in the world is staggering. India being a tropical nation provides suitable conditions for the multiplicity of varied fauna and their parasites. Already people from all around the country have studied and contributed a lot, but a lot of work still has to be done from Bihar, in particular from Tirhut division, Bihar. High humidity and tropical conditions enough leeway for a rich helminth fauna in this region. In this report studies have been made to obtain quantitative data on the Trematode parasites of a cold blooded animal, the air breathing fish *Channa punctatus*.

Key words: Trematode, *Allocreadium hanumanthai*, *Channa punctatus*, Tirhut Division, Bihar

INTRODUCTION

The state of Bihar occupies a unique place among the states of India. It is the 3rd most populous state of the nation covering about 8.07% of the total population. The northern part of the state has rich, fertile soil which is ideally suited for agriculture. There are nine divisions in Bihar.[1-3] Tirhut is one, out of them. Tirhut lies approximately between $25^0$29' to $26^0$1' N and $85^0$4' to $85^0$39' E latitude and longitude respectively. The total area of Tirhut division is 17,668 sq. kms.[4-6] Fishes particularly air breathing fishes are an important sources of animal protein, to supplement food by human beings, from the prehistoric age till today.[7,8]

Channa punctatus inhabits the fresh water, generally muddy streams, tanks and ponds and is carnivorous. It has accessory supra-branchial cavity used for breathing atmospheric air.

*Corresponding author :
Phone : 9430432405
E-mail : amriteshsms@gmail.com

Fourteen trematodes were collected from small intestine of a single *Channa punctatus* from Sitamarhi. These on further study were found to belong to genus *Allocreadium*.[9-11]

Species belonging to the genus *Allocreadium* are generally parasite in fresh water and marine fishes. Looss in the year 1890 first of all proposed genus *Allocreadium* with type species *Allocreadium isoporum*. After Looss, 1890 a good number of species have been proposed by different workers.[12,13]

Twenty four species have been reported so far of the genus *Allocreadium* up till now. *Allocreadium hanumanthai* is one of them reported by other scientists.[14,15]

MATERIAL & METHODS

Fourteen *Channa punctatus* were collected from different places of Sitamarhi district of Tirhut division. Fishes were brought to the laboratory for trematode examination. These animals (fishes) were dissected in saline solution. The internal parts such as liver, intestine etc.

thoroughly examined. The trematodes collected were placed in saline solution. Different kinds of fixatives and preservatives were used. Trematodes were stained by Gower's stain and finally mounted in D.P.X.

Gower's stain - 10 gms of carmine powder was boiled in 100ml of 45% glacial acetic acid. The solution after cooling was filtered. The filter paper was removed carefully and dried for the preparation of the stain. The process of stain's preparation is as follows -

Acidified carmine	-	1g
Potash alum	-	10g
Distilled water	-	200ml

The above ingredients were mixed and dissolved by heating then cooled and filtered. The process of filtering clear liquid (stain), a few thymol crystals were mixed in the stock solution to avoid any subsequent fungal growth. After dehydration the trematodes were treated with methyl salicylate and benzene and then mounted in DPX.

DESCRIPTION

Body is aspinose, blunt and elongated and rounded at both the ends. The length of the body is 1.859-3.336 in measurement and breadth is 0.431-0.673 in measurement. The body is wide in the region of slightly ahead of acetabulum. The oral sucker is subterminal, small and 0.192-0.256 and 0.176-0.256 in measurement. The acetabulum measures 0.145-0.193 and 0.144-0.192 in length and breadth respectively. The prepharynx is absent. The pharynx is muscular and well developed and is horse-shoe shaped and is 0.082-0.128 and 0.116-0.119 in measurement. The caeca is simple and extends upto the posterior extremity of the body. The testes are longitudinally ovoid or round entire. The anterior testis (T_1) is 0.191-0.225 and 0.160-0.250 in measurement while the posterior testis (T_2) is 0.193-0.208 and 0.144-0.178 in measurement. The anterior and posterior testis (T_1 and T_2) are situated at a distance of 0.944-1.426 and 1.152-1.854 mm from anterior end respectively.

The cirrus sac is preacetabular lying in a curved position or somewhat transeversely and measures 0.076-0.265 in length.

The ovary is oval, Pretesticular, Preequatorial in position and situated 0.704-1.060 mm from anterior end of the body.

The ovary measures 0.128-0.160 and 0.066-0.113 in length and breadth respectively. Receptaculum seminis is not visible.

The vitelline follicles commences from below the acetabulum. The right vitellarian commencement is at 1.008 mm while the left vitellarian commencement is 1.216-1.752 mm from anterior end. The total vitellarian extension of right side is 1.280-1.920 mm while that of the left side is 1.168-1.964 mm. However, in posterior part of the fluke the vitellaria of two sides appears to converge.

DISCUSSION

The present flukes have been collected from *Channa punctatus*. These differ from *A. dollfusi, A. guptai, A. kosia, A. batrachai* and *A. calbasi* in the extension of cirrus pouch. The cirrus sac extends beyond ventral sucker in the above noted species but not so in the flukes under investigation. However, the cirrus pouch in *A. hirnai* does not extend beyond acetabulum since this species also differ from the flukes under investigation.

The flukes under discussion also differ from *A. schizothoracis, A. nicolli, A. nemachilus, A. mehrai, A. makundi, A. singhi* and *A. heteropneustusius* where the cirrus pouch extend upto the middle of ventral sucker but similar is not in the case of present flukes which are under investigation. However, it shows resemblances with *A. annendalei, A. handiai, A. thapari, A. kamlai, A. fasciatusi, A. catlai, A. hanumanthai, A. manteri* and *A. glossogobii* where the cirrus pouch extends close,to acetabulum and similar is the case in the slides under investigation.

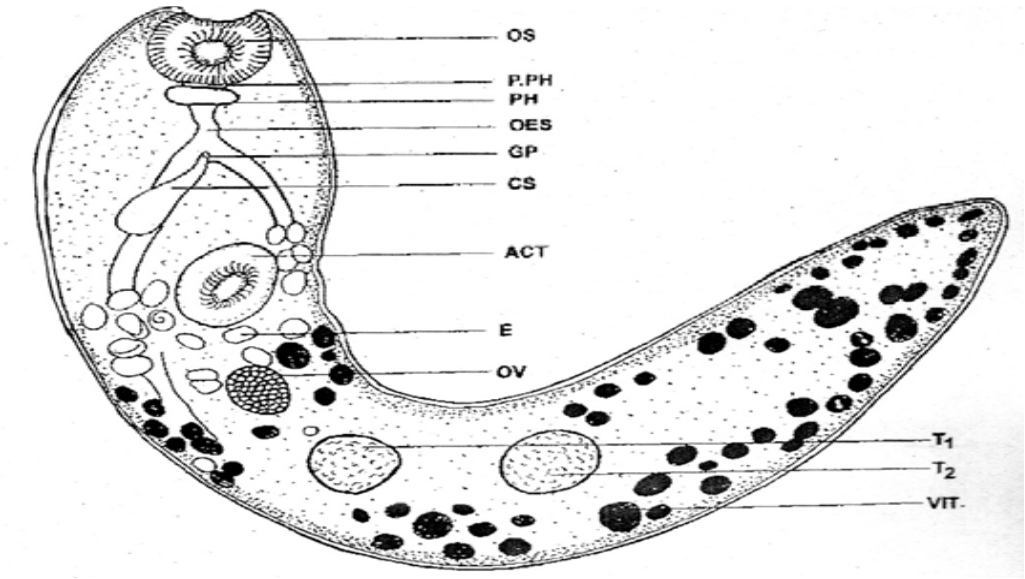
The flukes under discussion differ from *A. kamlai, A. fasciatusi, A. annadatei* and *A. monteri* in the extension of vitelline follicles where vitellaria extends from behind the anterior sucker upto the posterior end of the fluke in *A. kamlai,* vitellaria extends from the point of intestinal bifurcation to hind end of the body in *A. fasciatusi,* vitellaria extends from behind the ventral sucker to the posterior part of the body. The character also met within the flukes under discussion, but testes lying in the extreme posterior part of the body in *A. annandalei* but similar is not in the flukes under investigation, vitellaria extend from behind the ovary of acetabulum upto the posterior end of the body. This character shows similarities with the present flukes but ovary is situated just behind the acetabulum but not so in the slides under investigation.

The fluke under discussion shows similarities with *A. handiai* as far as the extension of vitellaria but differs in location of testes which are very closely situated to

each other in *A. handiai* but similar is not the case in the slides under investigation. Vitellaria extend from Pharynx to the little ahead of posterior end of the body in *A. catlai* but not so in the flukes under study the vitellaria occupy most of the area of Postacetabular part and also overlaps the intestinal caeca having a distance of 0.14 mm from posterior end in *A. hanumanthai* Sinha, 1973. Vitellaria extend from the middle region of the Pharynx upto the hind end of body and also the testes are situated in posterior part of the body in *A, manteri,* Vitellaria extend from anterior sucker upto the little ahead of anterior end of body and anterior testis (T_1) is preequatorial, posterior testis (T_2) postequatorial and ovary is pretesticular in position in *A. glossogobii.*

The fluke under discussion resembles *A. hanumanthai* Sinha, 1973 in most of its details though its occurrence from Saran district is a new record. These variations, however, are considered to be variations within the species.

Host	-	***Channa punctatus***
Location	-	Intestine
Locality	-	Sitamarhi



Allocreadium hanumanthai

	Abbriviations used		Abbriviations used
ACT -	Acetabulum	O.S -	Oral sucker
Pr.Ph -	Prepharynx	Ph_L -	Pharynx length
Ph_L -	Pharynx	T_1 -	Anterior testis
Oes. -	Oesophagus	T_2 -	Posterior testis
OV -	Ovary	CS_L -	Cirrus sac length
E -	Egg	G.P.D. -	Distance of gonopore from anterior end

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