

Cephalogonimus fasciatusii n. sp. (Digenea: Cephalogonimidae) from *Trichogaster fasciatus* Bloch and Schn. in Mansar Lake, Jammu, India

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ABSTRACT

A new species of a cephalogonimid digenean trematode *Cephalogonimus fasciatusii* is described from a freshwater teleost *Trichogaster fasciatus* Bloch & Schn. from a sub-shivalik lake Mansar, Jammu, India. The worm has an aspinose ovate body, with an anterior testis consistently smaller than its posterior testis, vitellaria extending over the whole of oro-testicular zone, caeca extending into posttesticular zone and non-operculate eggs. A key to the only 3 species of the genus *Cephalogonimus* known so far from fishes is also given.

Keywords: *Cephalogonimus fasciatusii* n. sp., *Trichogaster fasciatus*, Mansar lake, Jammu.

INTRODUCTION

The genus *Cephalogonimus* was created by [4] for a digenean trematode worm *Cephalogonimus lenoiri*, in the intestine of an African turtle *Tetraodon vaillanti*. This trematode genus is represented only by two species *C. heteropneustus* Gupta, [2] and *C. seenghalus* [3] among the fishes world over. This report describes the morphology of a new species of the genus *Cephalogonimus fasciatusii* n. sp. found parasitic in the intestine of a freshwater fish *Trichogaster fasciatus* Bloch & Schn. in a freshwater sub-shivalik lake Mansar in Jammu.

MATERIALS AND METHODS

61 specimens of the worm were collected from the intestine of a single host specimen of the fish *Trichogaster fasciatus* Bloch & Schn. from lake Mansar, Jammu, India. The parasites were fixed in

acetic-formal-alcohol (1:1:3) solution and strained in aceto-alum carmine [1] after dehydrating them in ascending grades of ethanol, cleared in xylene and mounted in D.P.X. All measurements were recorded micrometrically from stained specimens only. *Cephalogonimus fasciatusii* n. sp. (Fig. 1)

Description: (Based on 30 randomly selected mature stained specimens).

Body elongate, aspinose, being posteriorly broader than at the anterior end; 1.01 (0.54 -1.47)mm long and 0.33 (0.16-0.46) mm wide at the widest part. Oral sucker subterminal and funnel shaped; 0.065 (0.044-0.104) mm long and 0.064 (0.44-0.104) mm wide. Prepharynx present, 0.012 (0.008-0.016) mm long; pharynx oval and well developed; 0.032 (0.16-0.112) mm long and 0.038 (0.24-0.06) mm wide. Esophagus short 0.058 (0.036-0.08) mm long, bifurcates into two stout intestinal caeca, which extend beyond testicular

zone and terminate blindly in the posterior third of the body, short of the posterior end of the body. Acetabulum median 0.086 (0.06-0.112) mm long and 0.082 (0.06-0.096) mm wide and consistently preequatorial in location.

Testes two, each testis entire, subspherical to oval in shape, subequal, obliquely tandem, partly overlapping each other, equatorial to postequatorial in location, anterior testis 0.14 (0.092-0.24) mm long and 0.14 (0.076-0.224) mm wide and posterior testis 0.16 (0.08-0.256) mm long and 0.17 (0.08-0.272) mm wide. Cirrus sac elongated claviform, swollen at base and tapering anteriorly, lying mostly in front of the acetabulum (in some worms even overlapping the acetabulum); 0.048 (0.032-0.062) mm long and 0.192 (0.152-0.271) mm wide. Seminal vesicle bipartite. Ovary spherical to oval, 0.11 (0.024-0.128) mm long and 0.083 (0.016-0.112) mm wide, submedian or immediately posterolateral to acetabulum and mostly pretesticular but in some may overlap the anterior testis.

Uterus with ascending and descending limbs spreading conspicuously in the hind body and extending narrowly anteriorly upto the genital pore, genital pore level with oral sucker. Receptaculum seminis subspherical to oval in shape, prominently placed between the ovary and the anterior testis; Vitelline follicles numerous, large, occupying orotesticular zone, covering whole of the forebody and laterally in testicular region. Eggs numerous small, oval, non-operculated being 0.026 (0.02-0.032) mm long and 0.014 (0.012-0.016) mm wide. Excretory vesicle Y-shaped.

Host: *Trichogaster fasciatus* Bloch & Schn.

Location: Intestine

Locality: Mansar lake, Jammu.

DISCUSSION

The form described above has been assigned to the genus *Cephalogonimus* [4] for the main generic reasons of the location of the genital pore at anterior extremity.

Of the only two species of the *Cephalogonimus* found parasitic in fishes i.e. *C. heteropneustus* [2] and *C. seenghalus* [3] the present form strongly differs from *C. seenghalus* in having an aspinose body, in

having the posterior testis larger than its anterior testis, in the extension of vitellaria into relatively wider oro-testicular zone and a posttesticular extension of the intestinal caeca. In *C. seenghalus*, on the other hand, the body is spinose, the anterior testis is larger than posterior testis, the vitellaria are restricted to the acetabulo-testicular zone and the intestinal caeca terminate around the posterior testis (Table 1).

However, the form under discussion more or less resembles *C. heteropneustus* particularly in the size range of the body, the size ratios of different organs, bipartite seminal vesicle and having posterior testis larger in size than anterior testis (Table 2).

The present form, however, differs from *C. heteropneustus* in having an aspinose body (spinose in *C. heteropneustus*), relatively smaller size of the oral sucker and the testes (Table 2), a wider distribution of vitellaria within oro-testicular zone, unlike *C. heteropneustus*, where vitellaria are restricted to acetabulo-testicular zone only, and posttesticular termination of the intestinal caeca which extend only upto the posterior testis in *C. heteropneustus*.

In view of these differences together with the fact that *Trichogaster fasciatus* is a new host for *Cephalogonimus* it is proposed here to treat the present form as a new species and named *Cephalogonimus fasciatusii*. The suggested species name being after the name of the species of the host in which found for the first time.

A key to the identification of species of *Cephalogonimus*:

1). Anterior testis bigger than posterior testis - *C. seenghalus* [3].

Anterior testis smaller than posterior testis - 2.

2). Vitellaria restricted to acetabulo-testicular zone - *C. heteropneustus* [2]. Vitellaria extending over oro-testicular zone - *C. fasciatusii* n. sp.

Specific diagnosis of *C. fasciatusii* n. sp.

Body flattened, elongated and aspinose. Oral sucker subterminal and funnel shaped. Prepharynx and pharynx present. Caeca posttesticular reaching upto the posterior third of the body. Acetabulum preequatorial. Testes two, tandem, subequal, posterior testis larger than the anterior testis. Cirrus sac lying in front of the acetabulum, Seminal vesicle bipartite. Ovary submedian, pretesticular, posterolateral or

lateral to acetabulum. Uterus occupying almost entire hind body and narrowing anteriorly. Genital pore at level with the oral sucker. Receptaculum seminis situated in between the ovary and the anterior testis. Vitellaria numerous, small, follicular and extending

from the level of the oral sucker to testicular zone. Excretory vesicle Y-shaped. Eggs small, numerous and non-operculate.

The type specimen and paratypes are deposited in the Parasitology laboratory of Department of Zoology, University of Jammu, J&K (India).

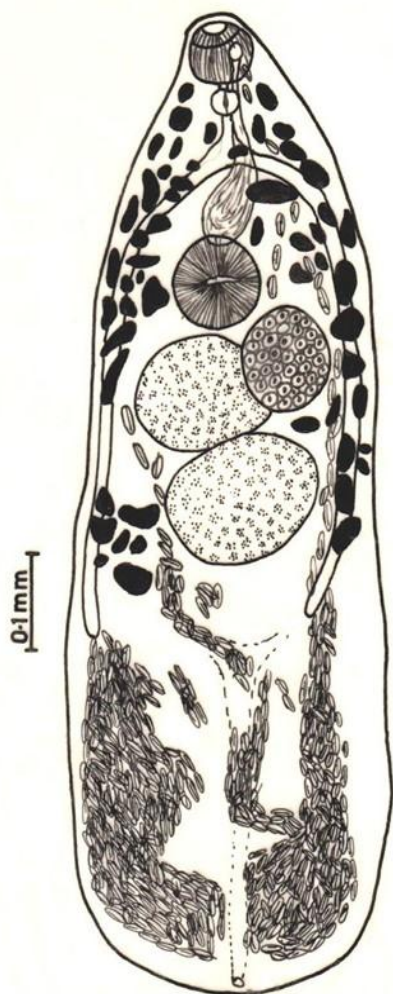


Fig. 1. Camera lucida drawing of *Cephalogonimus fasciatusii* n. sp.

Table 2: Comparative body size ratios of different species of *Cephalogonimus* reported parasitic in fishes

Body size ratios	<i>C. Heteropneustus</i> Gupta, 1951	<i>C. Seenghalus</i> Kakaji, 1969	Present form
Body length	1.115	0.85	1.01
Width	0.30	0.36	0.32
Oral Sucker	0.1	0.14	0.036
Prepharynx	0.036	0.06	0.01
Pharynx	0.030	0.047	0.035
Acetabulum	0.11	0.29	0.08
Ovary	0.085	0.10	0.096
Anterior testis	0.07	0.12	0.14
Posterior Testis	0.09	0.11	0.16
Egg Size	0.018	0.024	0.019

Table 1: Comparative morphological differences between different species of *Cephalogonimus* reported parasitic in fishes.

Morphological features compared	<i>C. heteropneustus</i> Gupta, 1951 (n=?)	<i>C. seenghalus</i> Kakaji, 1969 (n = 1)	Present form (n = 30)
Mean body size	1.12 x 0.33	0.85 x 0.31	1.01 x 0.33
Body spines	Present	Present	Present
Anterior testis	Smaller than posterior testis (0.82)	Bigger than posterior testis (1.11)	Smaller than posterior testis (0.84)
Extension of vitellaria	Acetabulo-testicular zone	Acetabulo-testicular zone	Oro-testicular zone
Caecal termination	Posterior region of anterior testis	Little anterior to middle of the posterior testis	Posterior third of the body
Eggs	Operculated	Non- Operculated	Non-Operculated
Host	<i>Heteropneustus fossils</i>	<i>Mystus seenghala</i>	<i>Trichogster fasciatus</i>

Note: n, Parasite number; ?, Not Known.

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