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Parasitology

NEOGONAPODASMIUS HEMIRHAMPHI N. GEN., N. SP. FROM THE
FIN OF *HEMIRHAMPHUS XANTHOPTERUS* (VAL.)

NEOGONAPODASMIUS HEMIRHAMPHI N. GEN., N. SP. Z PŁETW RYBY
HEMIRHAMPHUS XANTHOPTERUS (VAL.)

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A new, host specific digenetic trematode, *Neogonapodasmius hemirhamphi* n. gen., n. sp. from the half beak, *Hemirhamphus xanthopterus* (Val.) off the Southwest (Trivandrum) coast of India is described. The parasite is found encysted on the anterior dorsal fin of the fish. Each cyst usually contains one female worm. Occasionally, however, one male also occurs along with the female, in a cyst. A comparison of the characters of the known forms of the family *Didymozoidae* with those of the present specimen showed significant differences prompting the erection of a new genus *Neogonapodasmius*, to contain the new specimen.

Type and only species: *Neogonapodasmius hemirhamphi* n. gen., n. sp. Host: *Hemirhamphus xanthopterus* (Val.)

Location: Dorsal fin

INTRODUCTION

Twelve specimens of a didymozoid trematode were obtained from the dorsal fin of *Hemirhamphus xanthopterus* (Val.) collected off the coast of Trivandrum, India. The

collection included ten females and two males. The parasites were found encysted on the fin, the cyst being invariably located in between adjacent fin rays. A typical cyst is, more or less, oblong measuring 15 to 20 mm in length, dirty yellowish in colour, somewhat flabby in texture, and thin-walled. Each cyst contained only one parasite, except in two cases when they contained two parasites — a large female and a small male. In the typical condition, the anterior narrow half of the body of the female parasite is folded and it lies parallel to the cylindrical posterior body. A detailed examination of the specimens showed them to be significantly different from the known forms of the family *Didymozoidae* which prompted the erection of a new genus to contain this parasite.

The holotype will be deposited in the Indian Museum, Calcutta, and the paratypes will be kept in the Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum 695 007.

OBSERVATIONS

Specific diagnosis: (Based on 7 females, 2 males and 1 female sectioned) (Fig. 1 to 4). All measurements are in mm, unless otherwise stated.

Completely gonochoristic with pronounced sexual dimorphism. Female long, yellowish in colour with the body clearly demarcated into fore- and hind-bodies. Fore-body filamentous, 8.5–14 mm long 0.176–0.32 mm wide, hind-body cylindrical with a tapering posterior end, measuring 14–15 mm in length and 1.44–3.2 mm in width. Male small, cylindrical, transparent, without any demarcation into fore- and hind-bodies even though the anterior part is slightly narrowed, measures 8.0 mm in length and 0.58 mm in width. Oral sucker terminal, circular, 0.32–0.48 x 0.285–0.448 mm. Pharynx absent, oesophagus long, simple, caeca narrow, tubular, extending more or less to the posterior extremity.

Female

Ovary divided into two branches, both branches tabular, slender, coiled and confined to anterior part of hind-body, to the area in front of genital junction. Posteriorly the two branches unite and from the common branch arises the short oviduct. Recepticulum seminis not visible. Genital junction situated far anterior to middle of hind-body almost at the junction of middle and anterior thirds of hind-body. Mehli's gland large, diffuse, its cells extending over the proximal part of uterus. Uterus with ascending and descending coils, narrow, sinuous, running in a zig-zag manner to either side. Ascending uterus wide, modified into a large egg reservoir which occupies all the space in the middle of hind-body. A narrow, tubular, thick-walled, muscular metraterm emerges from the anterior end of egg reservoir, enters fore-body, runs as a sinuous tube and opens into genital atrium situated at the base of oral sucker. Vitellaria consisting of two main branches each giving off a number of sub-branches; branches narrow, sinuous and extend

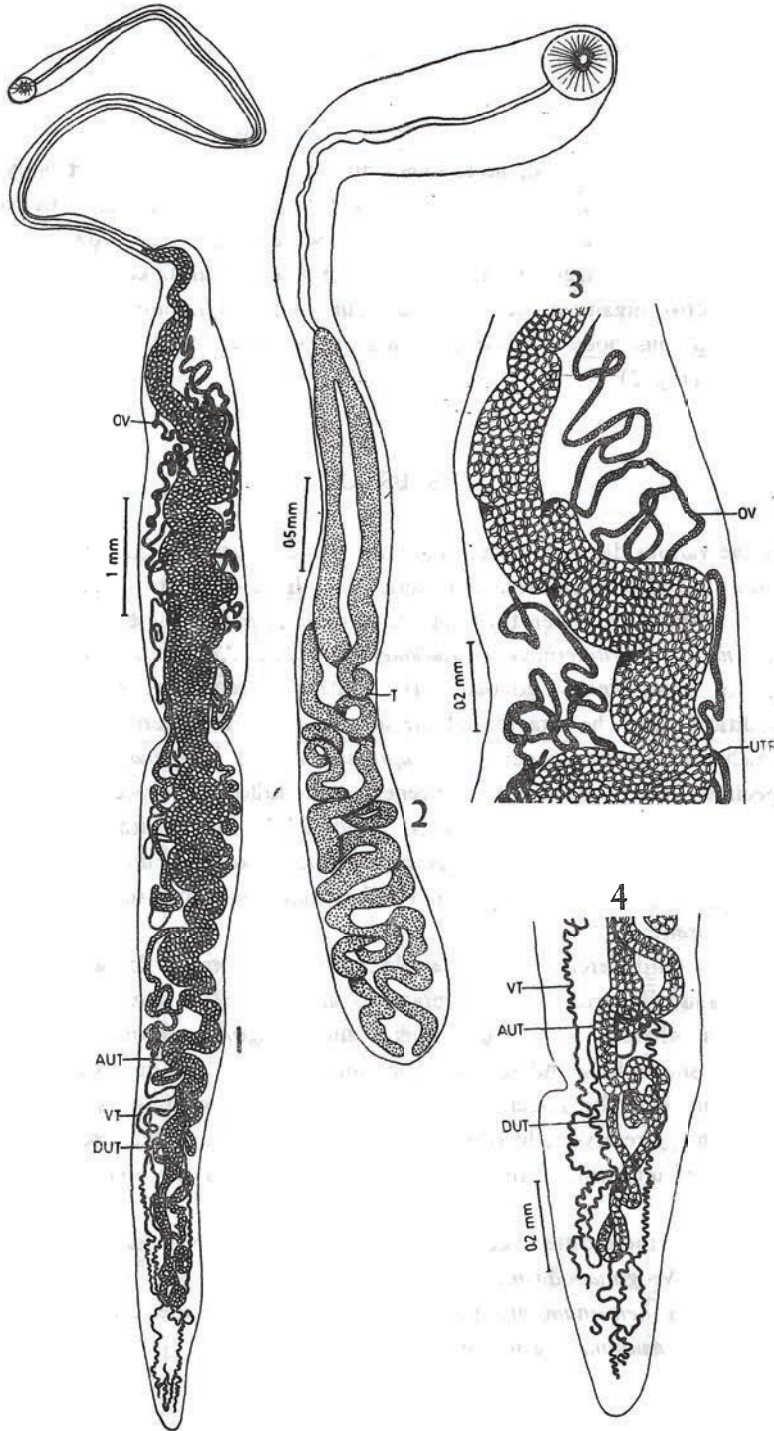


Fig. 1–4. *Neogonapodasmius hemirhamphi* n.gen., n.sp., 1. female entire, 2. male entire, 3 female anterior end, 4. female posterior end AUT – ascending uterus, DUT – descending uterus, OV – ovary, T – testis, UTR – uterus, VT – vitellaria

from genital junction to near posterior end. The common vitelline duct opens into oviduct. (Fig. 1, 3 and 4).

Male

Testes paired, ribbon-shaped, juxtaposed, running through greater part body straight anteriorly, sinuous, taking a zig-zag course posteriorly, the two testes are confluent anteriorly from where arises a single vas deferens. Seminal vesicle a narrow, sinuous tube, running parallel to oesophagus. Genital pore at the base of oral sucker. Contains obsolete female reproductive organs in the form of a rudimentary vitellarium which is represented as a narrow, sinuous body commencing near posterior end and terminating at about middle of body (Fig. 2).

DISCUSSION

Among the various digenean families the family *Didymozoidae* exhibits several unique features and includes both hermaphroditic and dioecious forms. Yamaguti (1971) included 23 subfamilies under the family *Didymozoidae*. Of these only four namely, *Gonapodasmiinae*, *Koellikeriinae*, *Patellokeriinae* and *Nephrudidymotumatinae* are completely or incompletely gonochoristic while the remaining subfamilies include hermaphroditic forms. The characters of the specimen described here fit into *Gonapodasmiinae* which includes two genera – *Gonapodasmius* and *Paragonapodasmius*. But the present specimen differs from both these genera in the following respects.

1. It is smaller in size, and the body is cylindrical in shape with the anterior part differentiated into fore-body whereas in *Gonapodasmius* and *Paragonapodasmius* the body is long, filamentous, entangled and differentiated into fore-and hind-bodies.
2. Pharynx is absent.
3. There are several differences in the female reproductive organs. In the new form, both the ovary and vitellaria have two branches and the latter gives off a number of sub-branches whereas in *Gonapodasmius* and *Paragonapodasmius* the ovary and vitellaria are single, long and tubular. The course followed by uterus is also different. In the present form the descending coils are narrow and winding while the ascending coils form an egg reservoir. In *Gonapodasmius* the ascending and descending coils are straight and of uniform width and in *Paragonapodasmius* the uterus describes three loops.

On the basis of these differences a new genus is erected to include the present form and the name *Neogonapodasmius* proposed to it. The new specimen is named *Neogonapodasmius hemirhamphi*. The differences between the three genera of the subfamily *Gonapodasmiinae* are summarised in Table 1.

Table 1

Comparison of the characters of the genera, *Gonapodasmius*, *Paragonapodasmius* and *Neogonapodasmius* of the subfamily *Gonapodasmilinae* (Family *Didymozoidae*)

Character	<i>Gonapodasmius</i>	<i>Paragonapodasmius</i>	<i>Neogonapodasmius</i> n. gen.
Body shape	filamentous, entangled	filamentous, entangled	cylindrical, demarcated into fore – and hind-bodies
Pharynx	present	rudimentary	absent
Acetabulum	present	absent	absent
Testes	long, parallel to each other	long, tubular, one behind the other	long, ribbon-shaped parallel to each other
Ovary	single	single	two branched
Vitellaria	single, tubular	single, tubular	two branched, each with many sub- branches
Uterus	descending and ascending coils of uniform width	uterus forms three loops	descending uterus narrow, winding, ascending uterus forming egg reservoir

GENERIC DIAGNOSIS

Gonapodasmiinae. Completely gonochoristic, female large, with slender filamentous fore-body and cylindrical hind-body. Male small, cylindrical. Oral sucker and oesophagus present. Pharynx, acetabulum absent. Caeca almost reaching posterior extremity. Genital pore at base of oral sucker.

Male: Testes two, ribbon shaped, juxtaposed, vas deferens sinuous, usually with obsolete female reproductive organs.

Female: Ovary with two branches, tubular, winding anterior to genital pore junction. Vitellaria with two-branched tubes posterior to genital junction. Uterus with ascending and descending coils, descending coils narrow, winding, ascending coils forming a wide egg reservoir. Metraterm present. Parasitic on fins of marine fishes.

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Streszczenie

Autorzy opisują nowy gatunek przywry digenetycznej z rodziny *Didymozoidae*, pasożytującej na płetwie grzbietowej ryby *Hemirhamphus xanthopterus* (Val.), złowionej przy brzegach połudn.-zach. Indii pod Trivandrum. Pasożyty bytują w cystach. Podobnie jak inni przedstawiciele tej rodziny wykazują tendencję do rozdzielnoptciowości. Osobniki „samice” większe (14–15 mm długości) posiadają ciało wyraźnie zróżnicowane na cienką część przednią i szerszą cylindryczną tylną: „Samce” nie wykazują tego zróżnicowania i są znacznie mniejsze (8 mm). Dla gatunku tego autorzy tworzą nowy rodzaj *Neogonapodasmius* zaliczany do podrodziny *Gonapodasmiinae*.

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NEOGONAPODASMIUS HEMIRHAMPHI N.GEN.N.SP. ИЗ ПЛАЗНИКОВ РЫБЫ
HEMIRHAMPHUS XANTHOPTERUS (VAL.)

Р е з ю м е

Авторы описывают новый вид дигенетического сосальщика из рода Didymozoidae, паразитирующего на спинном плавнике рыбы Hemirhamphus xanthopterus, выловленной у берегов юго-зап. Индии (около Тривандрума). Паразиты находятся в цистах. Как и другие представители этой семьи проявляют тенденцию к раздельнополости. Особи „самки“ больше (14–15 мм длиной) имеют тело четко разделенное на тонкую переднюю часть и более широкую цилиндрическую заднюю часть, „самцы“ не проявляют этой дифференцировки, они значительно меньше (ростом) 8 мм). Для этого вида авторы образуют новый род Neogonapodasmius зачисленный к подсемейству Gonapodasmiinae.

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