

Two New Species of Trematodes (Gorgoderidae and Lepocreadiidae) from Deep-sea Fishes of Suruga Bay, Japan

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Abstract Two new species of trematodes are described from deep-sea fishes of Suruga Bay, off the Pacific coast of central Japan. They are: *Gigantogorgoderina caelorinchi* gen. et sp. nov. (Gorgoderidae) from the body cavity of *Caelorinchus japonicus*, and *Pseudolepidapedon hydrolagi* sp. nov. (Lepocreadiidae) from the esophagus of *Hydrolagus mitsukurii*. The new subfamily Gigantogorgoderininae is proposed for the genus *Gigantogorgoderina*.

In November 1993, a collection of fish parasites was made in Suruga Bay, off the Pacific coast of central Japan, as a part of the “Fundamental research on the deep-sea fauna and the conservation of marine ecosystem” organized by the National Science Museum, Tokyo.

In this paper, two new species of trematodes, a gorgoderid from a rattail and a lepecreadiid from a ratfish, will be described. Trematodes were washed in saline, fixed in AFA or 70% ethanol under slight pressure, stained with Heidenhain's hematoxylin or alum carmine and mounted in balsam. The specimens are deposited in the National Science Museum, Tokyo (NSMT).

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Family Gorgoderidae

Gigantogorgoderininae subfam. nov.

Body large, foliate, pointed anteriorly. Oral sucker subterminal. Pharynx present. Esophagus very short. Caeca sinuous, terminating near posterior extremity. Acetab-

ulum at midbody. Testes two, symmetrical, in posterior half of hindbody. Seminal vesicle saccate; pars prostatica with prostatic cells. Genital pore just posterior to oral sucker. Ovary median, between acetabulum and testes. Seminal receptacle absent. Vitellaria two, symmetrical, at ovarian level. Uterus preovarian. Excretory vesicle Y-shaped. Parasitic in body cavity of marine teleosts.

Type genus: *Gigantogorgoderina* gen. nov.

Gigantogorgoderina gen. nov.

Body large, foliate, pointed anteriorly like a cephalic cone. Oral sucker subterminal; prepharynx absent; pharynx present; esophagus very short; caeca sinuous, terminating near posterior extremity. Acetabulum at midbody. Testes two, ovoid, symmetrical, in posterior half of hindbody. Seminal vesicle saccate; pars prostatica with prostatic cells; cirrus pouch absent. Genital pore median, just posterior to oral sucker. Ovary median, having irregular incisions, between acetabulum and testes. Seminal receptacle absent and Laurer's canal present. Vitellaria two, lobate, symmetrical, at ovarian level. Uterine coils preovarian. Eggs small, embryonated. Excretory vesicle Y-shaped, arms uniting at pharyngeal level. Parasitic in body cavity of marine teleosts.

Type species: *Gigantogorgoderina caelorinchi* sp. nov.

Gigantogorgoderina caelorinchi sp. nov.

(Fig. 1)

Host. Rattail, *Caelorinchus japonicus* (TEMMINCK et SCHLEGEL) (Family Macro-uridae).

Site. Body cavity.

Locality. Suruga Bay, off the Pacific coast of central Japan.

Date. 19–XI–1993.

Specimen No. NSMT-P1 4499 (holotype and one paratype).

Description. Based on two specimens. Body large, foliate, pointed anteriorly like a cephalic cone, dark red in color in life, 21.3–25.9 mm long and 11.3–12.7 mm wide at acetabular level. Cuticle smooth. Oral sucker subterminal, rounded, $1.02\text{--}1.12 \times 1.23\text{--}1.27$ mm; prepharynx not recognizable; pharynx ovoid, $0.41\text{--}0.51 \times 0.52\text{--}0.57$ mm; esophagus very short, up to 0.40 mm long; caeca winding and terminating near posterior extremity. Acetabulum rounded, $1.88\text{--}1.93 \times 1.83\text{--}2.15$ mm, approximately in midbody. Sucker ratio 1: 1.4–1.8.

Testes oval, somewhat wider than long, symmetrical, midway between vitellaria and posterior extremity, partly overlapping caeca ventrally. Right testis $1.95\text{--}2.05 \times 1.90\text{--}2.55$ mm and left testis $1.75\text{--}1.98 \times 1.90\text{--}2.70$ mm. Vas efferens arising from anterior edge of each testis, running forward along inside of caeca; vas deferens absent. Posttesticular space 15–17% of body length. Seminal vesicle saccate, slightly sinuous,

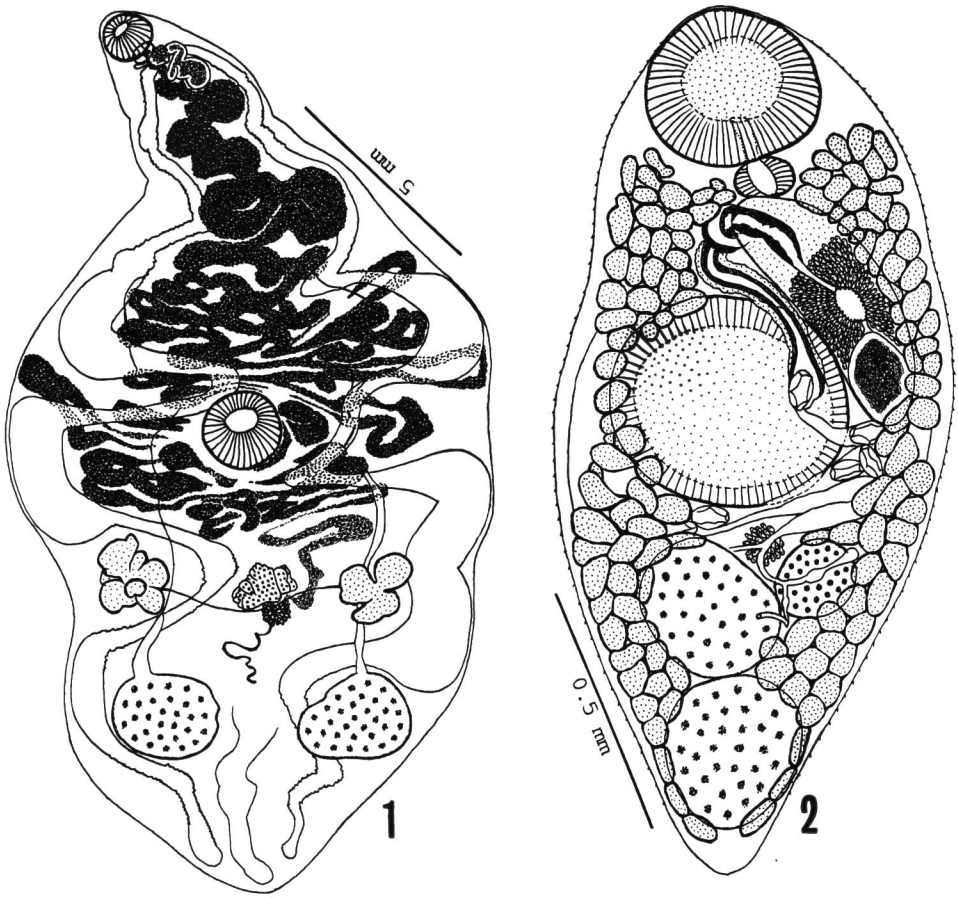


Fig. 1. *Gigantogorgoderina caelorinchi* gen. et sp. nov., ventral view (holotype, NSMT-P1 4499).

Fig. 2. *Pseudolepidapedon hydrolagi* sp. nov., dorsal view (holotype, NSMT-P1 4512).

1.25–1.75 mm long in a straight line. Pars prostatica surrounded by well-developed prostatic cells, just posterior to genital pore. Genital pore median, immediately posterior to oral sucker.

Ovary with irregular incisions, median, $0.95\text{--}0.98 \times 1.05\text{--}1.63$ mm, midway between acetabulum and testes. Mehlis' glands well-developed, just posterior to ovary. Seminal receptacle absent; proximal end of uterus containing sperms. Vitellaria 3–7-lobed, symmetrical at ovarian level. Laurer's canal running backward, sinuous, opening middorsally at level of anterior edge of testes. Uterus preovarian, winding transversely, chiefly intercaecal, filled with numerous eggs. Eggs relatively thick-shelled, embryonated, $54\text{--}68 \times 34\text{--}39$ μm . Excretory vesicle Y-shaped, bifurcating in testicular zone; arms running along lateral margins of forebody and uniting with each other at pharyngeal level; pore terminal or subdorsal.

Discussion. According to YAMAGUTI (1971), the family Gorgoderidae from fishes consists of five subfamilies. The present new species is similar to the members of the two subfamilies, Anaporrhutinae and Probolitrematinae in having a pharynx. However, the anaporrhutine and probolitrematine members have many follicular testes and a seminal receptacle. The present new species has two compact testes and no seminal receptacle. The extent of the uterus is also diagnostic: the uterus lies in the hindbody, extending to near the posterior extremity in other gorgoderids, whereas it is situated in the preovarian field in the present new species, not extending to the posterior extremity. A new subfamily, Gigantogorgoderinae, is proposed with the above given diagnosis.

Family Lepocreadiidae

Pseudolepidapedon hydrolagi sp. nov.

(Fig. 2)

Host. Ratfish, *Hydrolagus mitsukurii* DEAN (Family Chimaeridae).

Site. Esophagus.

Locality. Suruga Bay, off the Pacific coast of central Japan.

Date. 21-XI-1993.

Specimen No. NSMT-P1 4512 (holotype and six paratypes).

Description. Based on seven specimens. Body fusiform, rounded anteriorly and tapering posteriorly, 1.20–1.90 mm long and 0.51–0.87 mm wide at acetabular level. Cuticle spinose. Oral sucker subterminal, rounded, $0.23\text{--}0.33 \times 0.24\text{--}0.43$ mm; prepharynx very short, 0.05–0.11 mm long; pharynx globular, $0.07\text{--}0.11 \times 0.10\text{--}0.14$ mm; esophagus not recognized; caeca terminating near or in zone of posterior testis. Acetabulum spherical, $0.32\text{--}0.45 \times 0.36\text{--}0.51$ mm. Forebody 42–48% of body length. Sucker ratio 1: 1.2–1.5. Both the suckers are large, their total length occupying 40–49% of body length.

Gonads in hindbody. Testes ovoid, almost tandem, contiguous; anterior testis $0.20\text{--}0.29 \times 0.20\text{--}0.29$ mm and posterior testis $0.23\text{--}0.32 \times 0.20\text{--}0.31$ mm. Posttesticular space 4–8% of body length. Genital pore median, just postbifurcal. Cirrus pouch voluminous, club-shaped, $0.33\text{--}0.60 \times 0.16\text{--}0.23$ mm, extending posteriorly to between middle and posterior third of acetabulum. Cirrus pouch containing oval, undivided seminal vesicle; pars prostatica surrounded by well-developed prostatic cells; and muscular, unarmed cirrus. In one specimen, a cirrus 0.35 mm long and evaginated outside through a genital pore was found. External seminal vesicle absent.

Ovary ovoid, $0.10\text{--}0.20 \times 0.14\text{--}0.23$ mm, dextral to and usually touching anterior testis. Laurer's canal opening dorsally at midlevel of anterior testis or more anteriorly. Seminal receptacle absent. Vitelline follicles co-extensive with caeca, overlapping caeca dorsally, from pharyngeal level to near posterior extremity. Uterus between ovary and acetabulum; 6–18 eggs are observed in a specimen. Metraterm muscular, covered with glandular cells, parallel to and somewhat shorter than cirrus

pouch. Eggs thin-shelled, partially collapsed, $79-90 \times 46-57 \mu\text{m}$. Excretory vesicle tubular, extending to near anterior margin of rear testis.

Discussion. The present new species has neither external seminal vesicle nor seminal receptacle. MANTER (1940) described a sac-like seminal receptacle in *Pseudolepidapedon balistis*, but BRAVO-HOLLIS (1956) did not observe it in her specimens of *P. balistis*.

Six species of *Pseudolepidapedon* have been described, all from the intestine of teleost fishes. The present new species has been obtained from the esophagus of a cartilaginous fish and differs from all the others in *Pseudolepidapedon* in having larger suckers, pars prostatica with well-developed prostatic cells, and cirrus pouch not extending posteriorly beyond the acetabulum.

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