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Trematodes from Red Scads of the Ryukyu Islands, Southern Japan

By

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Abstract Five species of trematodes were collected from *Caesio* spp. of the Ryukyu Islands, southern Japan. They are: *Deretrema* sp., *Pseudocreadium ovale*, *Opecoelus lobatus*, *Siphodera gurukun* sp. nov. and *Lecithochirium caesionis*. *Siphodera gurukun* sp. nov. is distinguished from all other siphoderan species in having testes in a cluster between both caeca, and a seminal receptacle never extending anterior to the ovarian level.

Two species of trematodes, *Pseudocreadium ovale* and *Lecithochirium caesionis*, were reported by YAMAGUTI (1942) from the red scad, *Caesio chrysozonus* (=*C. diagramma*) from the Ryukyu Islands, southern Japan. In addition to these, three species of trematodes were collected by me from *Caesio* spp. from the Ryukyu Islands as shown in Table 1. Observation and description of a new species of *Siphodera* and measurements of *Opecoelus lobatus* and *Lecithochirium caesionis* were made.

The procedure to fix and to stain the specimens was as follows: trematodes were washed in saline, fixed in acetic sublimate or alcohol-formalin-acetic acid (AFA) under slight pressure, stained with Heidenhain's hematoxylin and mounted in balsam.

Specimens are deposited in the collection of the National Science Museum, Tokyo (NSMT).

Family Opecoelidae

Opecoelus lobatus OZAKI, 1925

This species was obtained from the intestine of *Caesio diagramma*, *C. tile* and *C. xanthonotus* of Irabu-jima, Ryukyu Islands (NSMT-Pl 2095, 2099, 2136 b). The measurements on 10 specimens are as follows: Body 2.2–4.0 mm long by 0.55–0.90 mm wide. Oral sucker 120–187×127–204 μm. Prepharynx 40–77 μm long. Pharynx 76–107×76–133 μm. Esophagus 56–271 μm long. Acetabulum 153–342×206–342 μm, with 6 digitiform papillae. Sucker ratio 1: 1.16–1.88. Testes with incisions; the anterior 210–430×335–570 μm, with its center lying posterior to equatorial level; the posterior 280–410×370–580 μm. Seminal vesicle 77–155 μm wide, extending posterior to acetabulum. Cirrus pouch 64–147×46–85 μm. Ovary 122–164×285–378 μm. Vitellaria commencing usually a little behind acetabulum, occasionally in front of it. Eggs 48–57×33–38 μm.

Table 1. Trematodes from red scads of Ryukyu Islands.

Trematode	Host	Site
Zoogonidae		
Deretrema sp. (2 specimens; 1 of them crushed)	*Caesio xanthonotus* BLEEKER	Gall bladder
Lepocreadiidae		
Pseudocreadium ovale YAMAGUTI, 1942	*C. diagramma* BLEEKER *C. tile* CUVIER	Intestine
Opecoelidae		
Opecoelus lobatus OZAKI, 1925	*C. diagramma* *C. tile* *C. xanthonotus*	Intestine
Cryptogonimidae		
Siphodera gurukun sp. nov.	*C. diagramma* *C. tile* *C. xanthonotus*	Pyloric caeca & intestine
Hemiuridae		
Lecithochirium caesionis YAMAGUTI, 1942	*C. diagramma* *C. tile*	Stomach

YAMAGUTI (1940) described *Opecoelus mutu* as a new species on the ground that the anterior testis is located on the pre-equatorial area of the worm, whereas the same testis of the closely related *O. lobatus* is never located there but on the post-equatorial area. MANTER (1954) considered *O. mutu* to differ insignificantly from *O. lobatus* and reduced it to be synonymous with *O. lobatus*. Later, PRITCHARD (1966) observed the situation of the anterior testis in her specimens of *O. lobatus* to vary at midbody, anterior or posterior to midbody, and supported the synonym of *O. mutu* with *O. lobatus* as concluded by MANTER (1954). Judging from YAMAGUTI's figure (1940, Fig. 29), it is clear that the anterior testis of *O. mutu* is just on the equatorial level of the body. So, I also consider *O. mutu* to be synonymous with *O. lobatus*.

Family Cryptogonimidae

Siphodera gurukun sp. nov.

(Figs. 1–3)

Host. *Caesio xanthonotus* BLEEKER (type host) and *C. diagramma* BLEEKER (Lutjanidae).

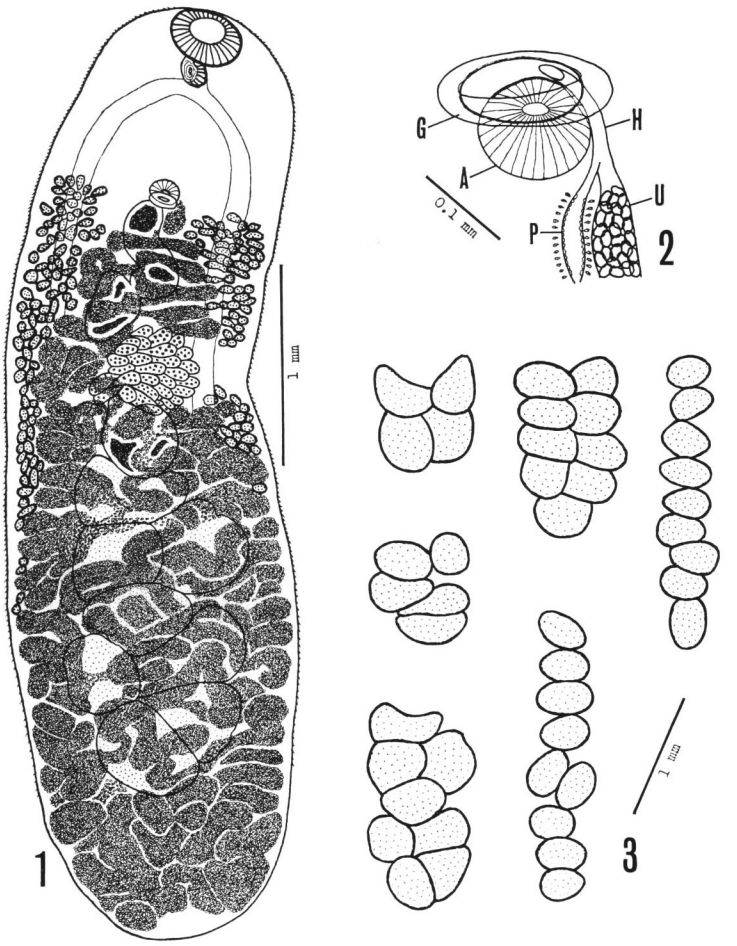
Site. Pyloric caeca and intestine.

Locality. Ishigaki-jima (type locality), Irabu-jima and Amami-oshima.

Data. 25-II-1973, 28-IV-1978, 7-V-1978 and 15-XI-1985.

Specimen No. NSMT-Pl 1280 (holotype), 2098, 2136 b and 3139.

Description. Based on 10 specimens. Body linguiform or elongate, rounded at both ends, 3.2–6.0 mm long by 0.8–1.6 mm wide. Cuticle with minute spines. Dermal glands scattered in forebody. Oral sucker terminal or subterminal, rounded or slightly



Figs. 1–3. *Siphodera gurukun* sp. nov. 1. Entire worm, ventral view (NSMT-Pl 1280). 2. Terminal genitalia, ventral view (NSMT-Pl 2098). A, acetabulum; G, acetabulogenital pouch; H, hermaphroditic duct; P, pars prostatica; U, uterus. 3. Arrangement of testes, ventral view.

elongate transversely, 168–260×260–363 μm; prepharynx up to 173 μm long; pharynx pyriform, 86–148×105–178 μm, with circular muscle band around anterior half, thouth it is obscure in macerated worms; esophagus up to 153 μm long, bifurcating a little posterior to pharynx; caeca terminating near middle of post-testicular space or more posteriorly. Acetabulum globular or somewhat elongate transversely, smaller than oral sucker, 107–148×122–179 μm, on bottom of acetabulogenital pouch, at level of anterior 1/5 of body length. Sucker ratio 1: 0.35–0.58.

Testis elliptical, 170–440×260–550 μm. Usually 9 testes, occasionally 4, 5 or 8, gather in a cluster and exist intercaecally, often covering both right and left caeca, in

posterior half of body. Testes are changeable in arrangement as shown in Fig. 3. Seminal vesicle saccular or tubular, with constrictions or incisions, 100–245 μm wide at proximal end, between ovary and acetabulum. Pars prostatica small, often indistinct, surrounded by small number of prostatic cells; ejaculatory duct very short, joining distal portion of uterus to form a hermaphroditic duct which is up to 128 μm long and opens just in front of acetabulum. Acetabulogenital pouch bowl-shaped with opening 25–125 μm wide.

Ovary multilobed, median, 340–460×440–700 μm as a whole, near level of anterior 2/5 of body length. Seminal receptacle retort-shaped, 450–955×240–530 μm, immediately postovarian or sometimes overlapping ovary in part dorsally. Laurer's canal arising from anterior tip of seminal receptacle, opening dorsal to seminal receptacle. Vitellaria extending from acetabular level to anterior or middle level of a cluster of testes, sometimes confluent posterior to acetabulum. Uterus reaching to posterior extremity of body, filling almost of postovarian space ventral to seminal receptacle, testes and caeca, and ascending in zigzag line ventral to seminal vesicle. Eggs very small, elongate oval, 15–18×8–11 μm. Excretory vesicle Y-shaped with terminal pore; bifurcating at postovarian level; arms reaching to pharyngeal level.

Remarks. The genus *Siphodera* LINTON, 1910 contains three species: *S. vinaledwardsii* (LINTON, 1901), *S. ghanensis* FISCHTHAL et THOMAS, 1968 and *S. cirrhiti* YAMAGUTI, 1970. The present new species differs from them in having testes in a cluster between both caeca, and a seminal receptacle never extending anterior to the ovarian level. The specific name refers to the local name of the host.

The revised generic diagnosis after the description of *Siphodera gurukun* sp. nov. is:

Body oval to elongate, spinulate. Dermal glands scattered in forebody. Oral sucker terminal or subterminal; prepharynx short; pharynx developed; esophagus short; caeca terminating near posterior extremity. Acetabulum usually enclosed in circular fold of body wall in anterior half of body. Testes usually 9, in two lateral longitudinal rows outside caeca or in a cluster between both caeca. Seminal vesicle tubular or saccular, extending posterior to acetabulum; pars prostatica short; ejaculatory duct very short, joining metraterm to form a short hermaphroditic duct which opens into acetabulogenital pouch just in front of acetabulum. Ovary multilobed or unlobed, median, behind seminal vesicle. Seminal receptacle preovarian or postovarian. Vitellaria extending in pretesticular field or from acetabulum to midlength of testicular field or to posteriormost testis. Uterus reaching near posterior extremity; eggs very small. Intestinal parasites of marine teleosts.

Family Hemiuridae

Lecithochirium caesionis YAMAGUTI, 1942

The original description of this species by YAMAGUTI (1942) was based on two mature specimens from *Caesio chrysozonus* (=*C. diagramma*) from Naha. Twelve specimens from the stomachs of *C. diagramma* and *C. tile* from Irabu-jima and Amami-

oshima (NSMT-Pl 2029, 2100, 3192, 3207) showed some variations in the size and shape of some parts of the bodies, in comparison with the original description.

Body 1.50–2.72 mm long including tail and 0.53–1.04 mm wide. Oral sucker 100–200×130–255 μm. Pharynx 100–220×145–230 μm. Acetabulum 330–540×340–650 μm. Sucker ratio 1: 1.9–3.0. Preacetabular pit present. Testes 97–179×148–258 μm. Pars prostatica divided into two portions; proximal funnel-shaped and distal globular portion, though these are often difficult to distinguish. Hermaphroditic duct and pars prostatica enclosed in thin muscular pouch. Ovary 117–204×188–304 μm. Eggs 17–21×10–14 μm.

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