

# *Acta Medica Okayama*

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*Volume 1, Issue 1*

1929

*Article 5*

DEZEMBER 1928

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## On a new Trematode Podocotyle ayu n. sp. from the Intestine of Plecoglossus altivelis (T. and S.)

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On a new Trematode *Podocotyle ayu* n. sp. from  
the Intestine of *Plecoglossus altivelis*  
(T. and S.)

By

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(MS. received for publication May 21, 1928)

The material for this investigation was obtained from the intestine of *Plecoglossus altivelis* (Temminck & Schlegel)—Japanese, "Ayu"—from the Asahi river, Okayama Prefecture, Japan.

The body of this trematode is flat and elliptical, tapering at both ends; both extremities are rounded. The specimens mounted in toto under a slight pressure are in average 1.474 (1.220—1.740) mm in length and 0.364 (0.300—0.400) mm in breadth. The whole body is covered with a cuticle, 2.2—3.5  $\mu$  thick, which is smooth and devoid both of spine and scales.

The oral sucker is situated subterminal on the ventral side, measuring 0.160 (0.147—0.175) mm in transverse diameter. The ventral sucker is larger than the oral and lies in the median line at the end of the anterior third of the body. It measures 0.198 (0.196—0.203) mm in diameter.

The oral sucker opens inwardly into the prepharynx measuring 0.028 mm in length, and the latter is followed by a muscular pharynx. The pharynx, 0.106 (0.105—0.112) mm in length and 0.102 (0.098—0.105) mm in breadth, is located just posteriorly and slightly dorsal to the oral sucker, and leads into a narrow tube-like oesophagus, 0.114 (0.105—0.175) mm in length and 0.035 mm in breadth. The oesophagus bifurcates into two intestinal caeca in front of the ventral sucker, a short distance off. The intestinal caeca measure 0.028—0.042 mm in breadth. They pass along both sides of the body almost to its terminal end.

Two spherical testes are situated in the center of the post-acetabular region closely one after the other in the median line of the body. Very commonly they are in contact with each other. The posterior testis is slightly larger than the anterior one as a rule. The anterior one measures 0.170 (0.154—0.224) mm and posterior one, 0.209 (0.175—0.245) mm in diameter,

The genital pore opens on the ventral surface on the left side of the body a little behind of the pharynx. The cirrus pouch is slender,

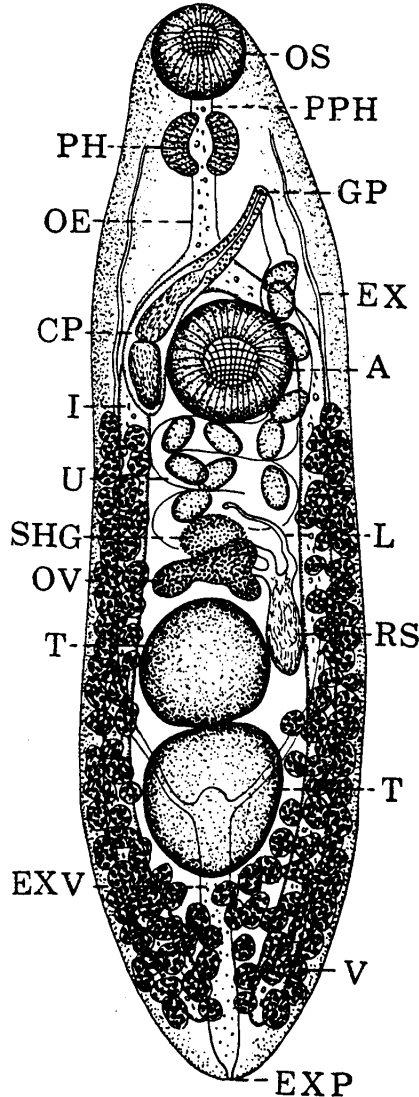


Fig. 1.\* Ventral view of *Podosotyle ayu* n. sp. 70/1.

\*A. = acetabulum; CP. = cirrus pouch; CYD. = common yolk duct;  
 EX. = excretory canal; EXP. = excretory pore; EXV. = excretory vesicle;  
 GP. = genital pore; I. = intestine; L. = Laurer's canal; OD. = oviduct;  
 OE. = oesophagus; OT. = ootype; OS. = oral sucker; OV. = ovary;  
 PH. = pharynx; PPH. = prepharynx; RS. = receptaculum seminis; SHG. =  
 shell gland; T. = testis; U. = uterus; V. = vitellaria; VR. = vetelline  
 reservoir.

slightly curved conical body, measuring 0.400 mm in length and 0.060 mm in maximum breadth and it extends backwards up to the level between the center of the acetabulum and its posterior border. The wall of the cirrus pouch is made of an internal circular layer and an external longitudinal layer of muscular fibres. The vesicula seminalis, pars prostatica, prostic cells, ductus ejaculatorius and cirrus are enclosed entirely in the pouch. The vesicula seminalis occupies almost the posterior half of the pouch and is divided into two parts. Generally it is filled with the sperm cells. The pars prostatica is comparatively small, starting from the anterior end of the vesicula seminalis and passes into the ductus ejaculatorius, and its terminal part acts as a protrusible cirrus. In some specimens of the pressed preparations, I found that the cirrus projects beyond the genital pore.

The ovary lies directly in front of the anterior testis, slightly to the right off the center of the body. It is irregular in shape and slightly

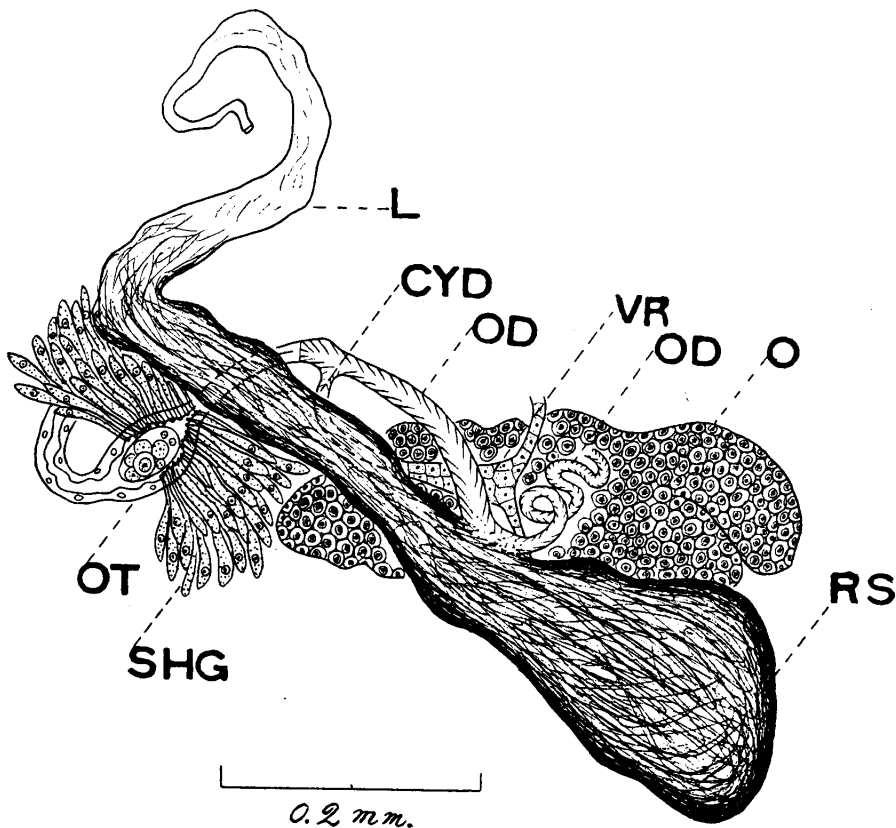


Fig. 2. Dorsal view of female sexual organs of n. sp. 70/1.

lobed. The oviduct starts from the dorsal aspect of the ovary and coils

several times towards the dorsal and left direction, turning towards left and anterior direction to receive the common yolk duct, and then it passes to the ootype. The ootype measures  $0.081 \text{ mm} \times 0.051 \text{ mm}$  and is surrounded by the shell gland (*Mehlis' gland*). The Laurer's canal arises from the receptaculum seminis at its left dorso-anterior surface and opens on the dorsal surface of the body near the median line, in the level between the acetabulum and the anterior border of the anterior testis. The uterus is convoluted slightly and lies in the region between the posterior border of the acetabulum and the anterior border of the anterior testis, and is confined laterally by the intestinal caeca. The uterus contains some ten to fourty eggs. The terminal portion of the uterus runs anteriorly dorsal to the ventral sucker and opens to the exterior through the genital pore which is common to both sexual organs. The short terminal part of uterus is regarded as vagina.

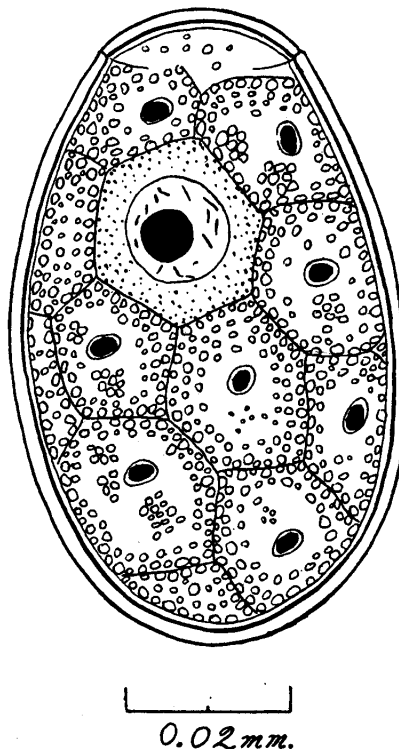


Fig. 3. Ovum of female sexual organs of n. sp. 70/1.

The eggs are operculated and oval in shape. They measure  $0.0715$  ( $0.0667-0.0759$ ) mm in length and  $0.0451$  ( $0.0437-0.0483$ ) mm in breadth. The eggshell is thin, coloured slightly yellowish brown. No knob is

recognizable at the posterior pole. Within the shell, there are numerous yolk cells and a still unsegmented ovarian cell, 0.0184—0.023 mm in diameter.

The both vitellaria consist of numerous follicles, measuring 0.028—0.035 mm in diameter and extend continuously from the level of the posterior, seldom anterior border of the acetabulum, to the posterior end of the body, along the intestinal caeca of each side. The follicles of each side approach each other very closely in the posterior region of the body. The vitelline reservoir lies just anterior and slightly dorsal to the ovary.

The excretory pore is situated at the posterior end of the body. It leads into a single tube-shaped excretory vesicle which passes as far as the level of the center of the posterior testis and where it divides into two main excretory canals. Each main excretory canal passes anteriorly along the side of the body and reaches the level of the pharynx. Many fine granules are enclosed in both the excretory vesicle and the main excretory canals. Among numerous flame cells, I recognized a pair in caudal extremity of the body are most prominent.

The present species resembles *Allocreadium japonicum* (Ozaki, 1926) and *Allocreadium hasu* (Ozaki, 1926) in general shape of the body, general arrangement of the reproductive organs and the shape of the excretory bladder. Undoubtedly this species described belongs to the family Allocreadidae, and to the genus *Podocotyle*, since the genital pore is situated nearer to the left margin of the body than to the median line. It however differs from the other species of this genus, *P. atomon* (Rud.), *P. atomon* var. *dispar* Nicoll, *P. singnathi* Nicoll, *P. atherinae* Nicoll, *P. pennelli* Leiper & Atkinson, (*P.*) *angusticolle* Hausmann, in regards to the following points:

(1) The cirrus ouch does not extend backwards further than the acetabulum.

(2) The excretory vesicle does not reach forwards to the ovary.

These points are sufficient to consider that my specimen is a new species of *Podocotyle*, for which I propose the name *Podocotyle ayu*.

It was confirmed by Dr. *Matashiro Maeda* that the oval egg, so called "koban-shaped egg", found occasionally in the human faeces in southern part of Japan, is none other but the egg of a distoma from the viscera of *Cypsilurus agoo* (T. & S.)—Japanese, "Tobiuo"—which was eaten raw. I think it is necessary also to pay a certain attention to the accidental presence of the eggs of *Podocotyle ayu* n. sp. on examination of faeces, especially in summer, as *Plecoglossus altivelis* is frequently eaten raw or half-roasted in Japan.

I wish to express my hearty thanks to Professor Dr. *Minoru Suzuki* for his valuable suggestions and criticisms, and to Mr. *Yoshimasa Ozaki*, Zoological Institut, Science Faculty, Tokio Imperial University, for his advice in connection with the identification of this trematode.

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