

## A New Species of *Megasolena* (Trematoda, Waretrematidae) from Surgeonfishes of Japanese and Adjacent Waters<sup>1)</sup>

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**Abstract** A new species of trematode belonging to the family Waretrematidae, *Megasolena acanthuri*, is described from the intestine of surgeonfishes of southern Japan and adjacent waters. It differs from all others in *Megasolena* in having larger body and eggs, an acetabulum larger than the oral sucker, and no muscular band in the oral sucker and the pharynx.

*Megasolena acanthuri*, a new species of trematode belonging to the family Waretrematidae was found in the intestine of surgeonfishes of southern Japan and adjacent waters. The trematodes were fixed in AFA or 70% ethanol under slight pressure, stained with Heidenhain's hematoxylin or alum carmin and mounted in balsam. The specimens are deposited in the National Science Museum, Tokyo (NSMT).

Family Waretrematidae

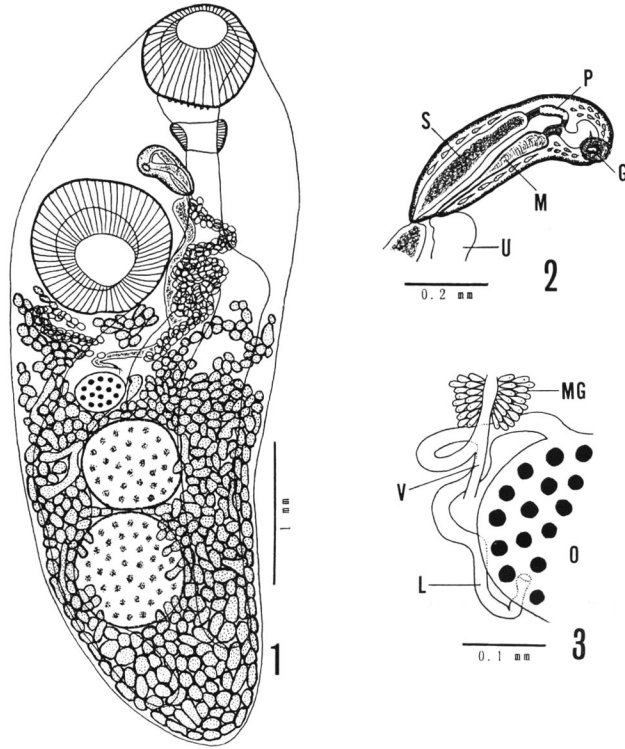
*Megasolena acanthuri* sp. nov.

(Figs. 1–3)

*Material examined.* One specimen from intestine of *Acanthurus dussumieri* VALENCIENNES, Okinawa-jima, 4–VI–1988 (NSMT-PI 3421, holotype); One from intestine of *A. olvaceus* BLOCH et SHNEIDER, Palau, 14–VI–1980 (NSMT-PI 2311); Two from intestine of *Acanthurus* sp., Palau, 8–VII–1980 (NSMT-PI 2433); One from intestine of *A. lineatus* (LINNAEUS), Amami-oshima, 2–VIII–1977 (NSMT-PI 4126). Only five specimens were mature among some forty obtained.

*Description.* Based on 5 mature specimens. Body thick, linguiform, rounded anteriorly and somewhat tapering posteriorly, 3.7–5.6 mm long and 1.3–2.0 mm in

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Figs. 1-3. *Megasolena acanthuri* sp. nov. — 1. Entire worm, ventral view (holotype, NSMT-PI 3421). 2. Hermaphroditic pouch, ventral view (NSMT-PI 3421). 3. Ovarian complex, ventral view (NSMT-PI 2433). G, genital pore; L, Laurer's canal; M, metraterm; MG, Mehlis' gland; O, ovary; P, prostatic duct; S, seminal vesicle; U, uterus; V, vitelline duct.

maximum width at acetabular level or a little more posteriorly. Cuticle aspinose. Oral sucker spherical, terminal,  $0.32-0.64 \times 0.36-0.77$  mm, with some small bosses on margin bordering prepharynx. Posterior portion of the sucker without circular muscle band. Eye pigments not observed. Prepharynx  $0.06-0.18$  mm long. Pharynx  $0.20-0.26 \times 0.28-0.39$  mm, without anterior muscular band. Esophagus up to  $0.85$  mm long, bifurcating dorsal to acetabulum; caeca voluminous, extending near posterior extremity. Acetabulum spherical,  $0.46-1.01 \times 0.06-0.99$  mm. Forebody 18-33% of body length. Sucker ratio 1: 1.3-1.7.

Testes rounded, intercaecal, tandem or slightly diagonal; anterior testis  $0.32-0.64 \times 0.36-0.70$  mm, lying on border between middle and posterior third of body; posterior testis  $0.40-0.85 \times 0.38-0.80$  mm. Posttesticular space  $0.70-1.60$  mm long, corresponding to 18-29% of body length. Vas efferens arising from anterior edge of each testis, ascending forward. Vas deferens practically absent. External seminal vesicle long, tubular, slightly winding,  $0.04-0.08$  mm wide near middle region, from a

level midway between acetabulum and ovary to hermaphroditic pouch. Hermaphroditic pouch ovoid to club-shaped,  $0.31\text{--}0.53 \times 0.15\text{--}0.22$  mm, lying transversely or a little obliquely between pharynx and acetabulum, sometimes with its posterior extension touching anterior edge of acetabulum, containing slender seminal vesicle  $0.21\text{--}0.36 \times 0.05\text{--}0.09$  mm, poorly-developed prostatic duct, slender metraterm and short hermaphroditic duct. Prostatic duct joining metraterm near distal 1/4 of the pouch. Genital pore median, midway between pharynx and acetabulum or closer to acetabulum.

Ovary ovoid,  $0.22\text{--}0.36 \times 0.23\text{--}0.40$  mm, anterior to fore testis, 44–57% of body length from anterior extremity. Oviduct arising from anterior edge of ovary, giving off Laurer's canal which opens middorsally near postovarian level, connecting with vitelline duct, and entering into ootype. Mehlis' glands lying obliquely anterior to ovary. Uterus preovarian, winding, filling with sperms at proximal end. Eggs ovoid, thin-shelled,  $87\text{--}103 \times 58\text{--}72$   $\mu\text{m}$ . Vitellaria follicular, extending from mid- or postacetabular level to posterior extremity, overlapping ovary and testes dorsally, and fusing medially between ovary and anterior testis and also at posttesticular area. Excretory pore terminal; vesicle cannot be traced.

Ten immature specimens without eggs (One specimen from intestine of *Acanthurus* sp., Palau, 13–VI–1980, NSMT-PI 2310; One from intestine of *A. dussumieri*, Amami-oshima, 20–XI–1985, NSMT-PI 3214; Two from intestine of *A. dussumieri*, Okinawa-jima, 4–VI–1988, NSMT-PI 3421; Two from intestine of *A. lineatus*, Philippines, 9–XI–1988, NSMT-PI 3540; Two from intestine of *A. lineatus*, Philippines, 22–VIII–1990, NSMT-PI 3963; Two from intestine of *A. lineatus*, Amami-oshima, 2–VIII–1977, NSMT-PI 4126): Body 3.8–8.1 mm long by 1.4–2.5 mm wide. Oral sucker  $0.34\text{--}0.78 \times 0.35\text{--}0.96$  mm; prepharynx up to 0.17 mm long; pharynx  $0.15\text{--}0.48 \times 0.26\text{--}0.40$  mm; esophagus up to 1.25 mm long. Acetabulum  $0.45\text{--}1.28 \times 0.56\text{--}1.33$  mm. Forebody 24–32% of body length. Sucker ratio 1:1.2–1.9. Anterior testis  $0.48\text{--}0.97 \times 0.42\text{--}0.83$  mm; posterior testis  $0.50\text{--}1.28 \times 0.41\text{--}0.88$  mm. Posttesticular space 0.7–1.5 mm long, corresponding to 15–25% of body length. Hermaphroditic pouch  $0.33\text{--}0.69 \times 0.11\text{--}0.23$  mm. Ovary  $0.28\text{--}0.47 \times 0.30\text{--}0.50$  mm, lying 46–54% of body length from anterior extremity. Anterior extent of vitellaria varying from preacetabular level or more anteriorly to a level midway between acetabulum and ovary. Lymphatic system recognizable near posterior extremity, but the vessels not clearly visible.

*Discussion.* Four species of *Megasolena* have been described: *M. estrix* LINTON, 1910 from *Kyphosus* spp. from Florida, which was redescribed by MANTER (1935); *M. archosargi* SOGANDARES-BERNAL et HUTTON, 1959 from *Archosargus probatocephalus* from Florida; *M. hysterospina* (MANTER, 1931) from *Lagodon rhomboides* and *Archosargus rhomboidalis* from North Carolina and Florida; and *M. kyphosi* SOGANDARES-BERNAL, 1959 from *Kyphosus analogus* from the Gulf of Panama. Of them, *M. archosargi* was considered to be synonymous with *M. hysterospina* by OVERSTREET (1969). The present new species differs from all others in *Megasolena* in having

larger body and eggs, an acetabulum larger than the oral sucker, and no muscular band in the oral sucker and the pharynx. This is the first record of *Megasolena* from surgeonfishes and also in the West Pacific.

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