

# *Rhipidocotyle gibsoni* n. sp. from a Brazilian Freshwater Fish and *Rhipidocotyle froesi* n.sp. for *R. baculum* (Linton, 1905) of Eckmann (1932) (Bucephalidae; Digenea)

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*Rhipidocotyle gibsoni* n.sp. is described from *Acestrorhynchus lacustris* from Paraná River, Brazil. It is most closely related to *R. froesi* n. sp and to *R. eckmanni* in the shape of the cephalic hood, differing in the extent of the uterus, in the position of the vitelline follicles and in that the host is a freshwater fish. *Rhipidocotyle froesi* n. sp. is proposed for the marine specimens described by Eckmann (1932) as *R. baculum* (Linton, 1905).

Key words: *Rhipidocotyle gibsoni* n. sp. - *Rhipidocotyle froesi* n. sp. - Digenea - *Acestrorhynchus lacustris* - Brazil

The genus *Rhipidocotyle* Diesing, 1858 is represented by a very large number of species parasitic in marine fishes but only a few from freshwater fishes. In this paper, we describe *Rhipidocotyle gibsoni* n.sp., collected during expeditions to the Paraná River in 1985, which represents the first report of this genus from freshwater fish in South America. We also propose *Rhipidocotyle froesi* n. sp., for marine specimens described by Eckmann (1932) as *R. baculum* (Linton, 1905).

## MATERIALS AND METHODS

The trematode specimens were collected live, washed in 0.85% saline, and fixed and stored in AFA. Some were fixed without pressure and the others under slight cover slip pressure. Wholemounts were stained with carmine of Langeron, dehydrated and mounted as permanent preparations in Canada balsam. Measurements are given in micrometres unless otherwise stated, with means in parentheses, followed by the number of specimens measured when more than two. The figures were drawn with the aid of a drawing tube.

## RESULTS

*Rhipidocotyle gibsoni* n.sp.  
(Figs 1-10)

Type-host: *Acestrorhynchus lacustris*  
Eigenmann & Ogle, 1907 (Characidae)  
Site: pyloric caeca

Type-locality: Paraná River, Guaira, State of Paraná, Brazil

Material studied: 20 specimens from 2 fish

Deposition of types: Holotype no. 33.119a and paratypes no. 33.119 b-m and 33.120a-b in the Helminthological Collection of the "Instituto Oswaldo Cruz", Rio de Janeiro and 2 paratypes no. 1994.6.2.1-2 in the British Museum (Natural History), London. Description based on holotype and 16 paratypes.

Body small, round to elongate, 1.20-2.45mm (1.86) n=13 in length and 0.41-0.60mm (0.51) n=13 in width. Tegument armed with small spines. Anterior organ a sucker 142-240 (184) n=13 x 131-240 (204) n=13, ventrally subterminal, with muscular hood provided with 2 ventral lateral lobes and one large dorsal median lobe.

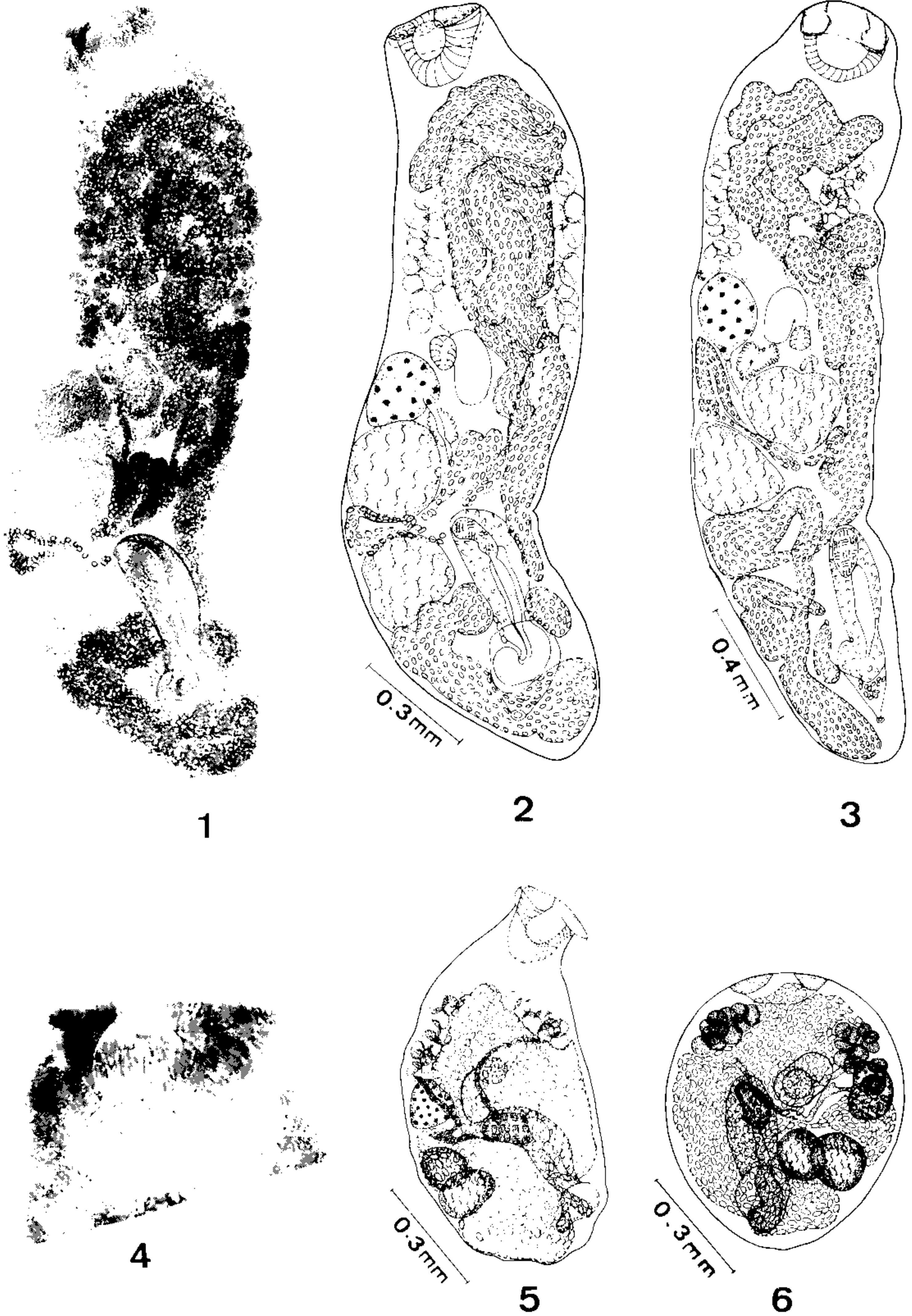
Mouth situated mid-ventrally, 480-1108 (811) n=10 from anterior end. Pharynx round to oval, muscular, 56-78 (65) n=12 x 56-94 (70) n=12, situated in middle third of body, at level of ovary. Oesophagus of variable length. Caecum saccular, oval, small, 130-270 (182) n=11 x 75-127 (99) n=11, in about middle of body or slightly anterior.

Testes 2, post-ovarian, subglobular, tandem or somewhat oblique, close together or separated by loops of uterus. Anterior testis 170-300 (231) n=11 x 165-330 (232) n=11; posterior testis 170-290 (227) n=11 x 150-280 (216) n=11. Cirrus-sac large, elongate, sinistrally submedian in posterior third of body, 161-610 (483) n=12 long. Seminal vesicle oval, 78-150 (117) n=10 x 41-93 (67) n=10. Pars prostatica tubular, straight, surrounded by gland-cells. Cirrus large, curved, within genital atrium. Genital atrium large, almost completely filled by cirrus. Genital pore ventrally subterminal.

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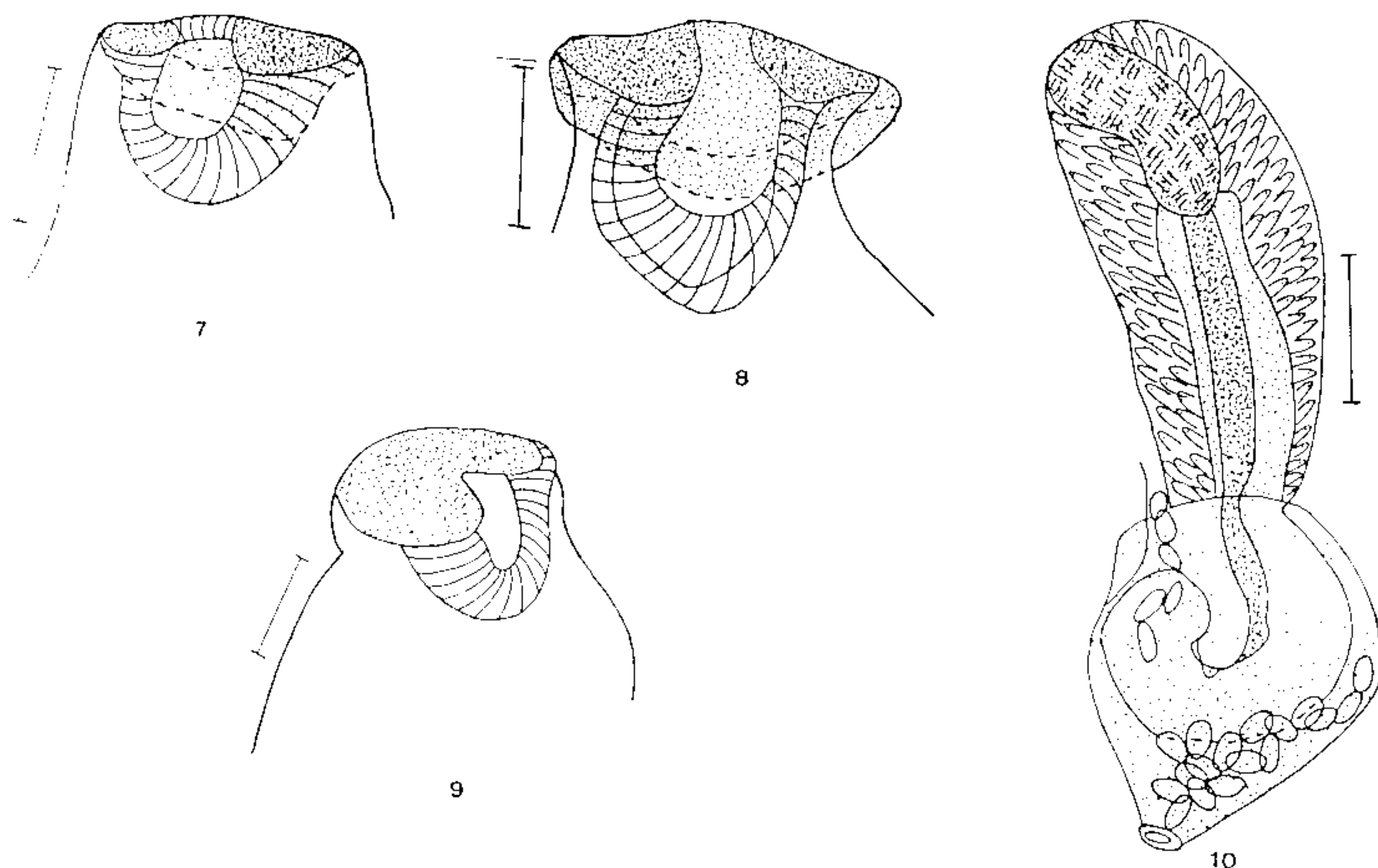
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*Rhipidocotyle gibsoni* n.sp. Fig. 1: light photomicrography of holotype, 6.5 X. Fig. 2: holotype total, ventral view. Fig. 3: total, ventral view. Fig. 4: light photomicrography of anterior extremity of holotype, 16.5 X. Figs 5-6: total, ventral view of unflattened specimens.





*Rhipidocotyle gibsoni* n. sp. Fig. 7: anterior end of holotype. Fig. 8: anterior end of unflattened specimen. Fig. 9: anterior end of flattened specimen. Fig. 10: cirrus-sac.

Ovary 150-250 (202)  $n=11$  x 105-240 (164)  $n=11$ , subglobular, tandem or oblique in relation to anterior testis. Mehlis' gland well developed and seminal receptacle small. Laurer's canal not observed. Vitelline follicles pre-ovarian, in 2 symmetrical lateral fields in anterior third of body; vitelline ducts pass posteriorly and unite posterior to ovary to form vitelline reservoir. Uterus winding, extending into forebody, fills region between vitelline fields. Eggs small, operculate, numerous, 16-21 (19)  $n=59$  x 9-14 (12)  $n=59$ .

Of 4 paratypes fixed without compression, 2 have rounded body with testes slightly oblique (Fig. 6) or tandem, and others are more elongate with tandem testes (Fig. 5). Main measurements of these specimens are: body 0.70-1.11mm (0.95)  $n=3$  x 0.44-0.59mm (0.53)  $n=3$ ; anterior sucker 150-200 x 130-150; pharynx 41-72 x 52-66; mouth at 300-513 from anterior end; caecum 120-144 long; testes 105-135 x 109-150; cirrus-sac 320-400 (365)  $n=3$  long; seminal vesicle 90-125 x 80-90; ovary 108-135 (117)  $n=3$  x 105-108 (107)  $n=3$ ; eggs 16-21 (19)  $n=12$  x 9-15 (12)  $n=12$ .

*Etymology:* *Rhipidocotyle gibsoni* n. sp. is named for Dr. David I. Gibson, British Museum (Natural History) in recognition of his contribution to our knowledge of trematodes.

*Rhipidocotyle froesi* n. sp

Synonyms: *Gasterostomum* sp. Linton, 1901

*Gasterostomum baculum* Linton, 1905

*Nannoenterum baculum* (Linton, 1905) of Manter (1931)

*Rhipidocotyle baculum* (Linton, 1905) of Eckmann (1932)

*Rhipidocotyle baculum* (Linton, 1905) of Manter (1940)

*Rhipidocotyle baculum* (Linton, 1905) of Manter (1947)

Type-host: *Scomberomorus maculatus*

Site: intestine

Type-locality: Beaufort, North Carolina, U.S.A

*Rhipidocotyle baculum* was originally referred to as *Gasterostomum* sp. by Linton (1901) from the intestine of the Spanish mackerel *Scomberomorus maculatus* from the Woods Hole Region, Massachusetts and redescribed as *Gasterostomum baculum* by the same author in 1905, from the same host from North Carolina Beaufort. In 1931 Manter collected trematodes from the type host and locality and identified them as *Nannoenterum baculum* (Linton, 1905). This material was restudied by Eckmann (1932) as *Rhipidocotyle baculum* and described as having an anterior sucker with a hood without papillae.

In 1940, Linton redescribed as *Nannoenterum baculum*, specimens from different fishes from the Woods Hole region, including the material in poor condition, collected and referred to, previously (1901, 1905). In his paper, Linton described and

figured the anterior extremity of this species, with a sucker surrounded by about 20 short tentacles.

In view of the absence of tentacles in the specimens studied by Eckmann (1932), we propose that they represent another species: *Rhipidocotyle froesi* n. sp.

*Etymology*: the name of the species is given in memoriam of Prof. Oscar Miranda Fróes, from the Universidade Federal do Rio Grande do Sul, for his contribution to Parasitology.

#### DISCUSSION

In the shape of the cephalic hood, *Rhipidocotyle gibsoni* n.sp. is most closely related to *R. froesi* n.sp. and to *R. eckmanni* Nagaty, 1937. *R. gibsoni* n. sp. differs from the former in the extension of the uterus reaching the anterior sucker, in the position of the vitelline follicles, situated in the anterior half of the body and anterior to the pharynx, and in that the host is a freshwater fish. The new species differs from *R. eckmanni* in body shape, the distribution of the vitelline follicles situated in the anterior half of the body and not forming an arch, and in the position of the pharynx at the ovarian level. *R. eckmanni* was described from only one immature specimen which lacked eggs and was considered as a synonym of *R. baculum* by Kniskern (1952).

Four species of the genus *Rhipidocotyle* have been described, from South America, all from marine fishes: *R. adbaculum* Manter, 1940 from Peru (Tantalean et al. 1992), plus *R. angusticollis* Chandler, 1941 (of Fabio, 1976) *R. fluminensis* Vicente & Santos, 1973 and *R. quadriculata* Kohn, 1961, all from Brazil. In addition to its freshwater

host, *R. gibsoni* n.sp. differs from these species mainly in the extent of the uterus and the shape of the cephalic hood.

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#### REFERENCES

- Eckmann F 1932. Beitrage zur Kenntniss der Trematoden familie Bucephalidae. *Z Parasitenk* 5: 94-111.
- Fabio SP 1976. Estudo de dois trematódeos parasitas de peixes marinhos. *Mem Inst Oswaldo Cruz* 74: 71-75.
- Kniskern VB 1952. Studies on the trematode family Bucephalidae Poche, 1907. *Trans Am Micr Soc* 71: 253-266.
- Linton E 1901. Parasites of fishes of the Woods Hole region. *Bull US Fish Comm* 24: 405-492.
- Linton E 1905. Parasites of fishes of Beaufort, North Carolina. *Bull Bur Fish* 24: 321-428.
- Linton E 1940. Trematodes from fishes mainly from the Woods Hole region Massachusetts. *Proc US Nat Mus* 88: 11-72.
- Manter HW 1931. Some digenetic trematodes of marine fishes of Beaufort, North Carolina. *Parasit* 23: 396-411.
- Manter HW 1940. Gasterostomes of Tortugas, Florida. *Pap Tortugas Lab* 33: 1-19.
- Manter HW 1947. The digenetic trematodes of marine fishes of Tortugas, Florida. *Amer Midl Nat* 38: 257-416.
- Tantalean MV, Sarmiento LB, Huiza AF 1992. Digeneos (Trematoda) del Peru. *Boletin de Lima* 80: 47-84.