

NEW HOST RECORDS AND LOCALITIES OF SOME MONOGENEA FROM
BRAZILIAN MARINE FISHES WITH SCANNING ELECTRON MICROSCOPY OF
BICOTYLOPHORA TRACHINOTI (MAC CALLUM, 1921)

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Bicotylophora trachinoti (Mac Callum, 1921) from *Trachinotus carolinus* L.; *Pseudanthocotyloides heterocotyle* (Van Beneden, 1871) from *Cetengraulis edentulus* (Cuvier), and *Decapterus punctatus* (Cuvier), new host records; *Pseudomazocraes selene* Hargis, 1957 from *Selene vomer* (L.) and *Caranx latus* Agassiz, new host record, are reported for the first time in Brazil from the coast of Rio de Janeiro State. The marine fishes *Diplectrum* sp. and *Pomatomus saltatrix* (L.) are respectively new host records for *Pseudotagia cupida* (Hargis, 1956) and *Macrovalvitrema sinaloense* Caballero & Bravo-Hollis, 1955. Measurements, original figures and photos in scanning electron microscopy of *B. trachinoti* are presented. The egg with two filaments is referred for the first time in the genus *Pseudanthocotyloides*.

Key words: Monogenea – Brazil – *Bicotylophora trachinoti* – *Pseudanthocotyloides heterocotyle* –
Pseudomazocraes selene – *Pseudotagia cupida* – *Macrovalvitrema sinaloense*

A list of species of the Brazilian Monogenea with hosts and geographical distribution, has been recently published (Kohn & Santos, 1989). We present herein five species that parasitize marine fishes in the Atlantic coast of Rio de Janeiro State. Three of these parasites represent a new occurrence in Brazil and four new hosts are also reported, amplifying the knowledge of this group of parasites in South America. The scanning electron microscopy of *Bicotylophora trachinoti* is for the first time presented.

MATERIALS AND METHODS

The fishes were obtained from fishermen of Ilha do Governador and Copacabana, coast of Rio de Janeiro State, Atlantic Ocean.

The employed methodology was described in our previous paper (Kohn et al., 1989). The measurements are in micrometers with means in parentheses, followed by the number of specimens measured when more than two. Drawings were made using camera clara. Specimens were deposited in the Helminthological

Collection of the "Instituto Oswaldo Cruz" (CHIOC).

For scanning electron microscopy the worms, previously fixed in glutaraldehyde 2.5% were post-fixed for 1 h with 1% osmium tetroxide in 0.1M phosphate buffer, dehydrated in graded ethanol, critical point dried using CO₂, and coated with gold. The observations were made in a Jeol 25 SII scanning electron microscope.

As the morphology of these species has been well described, only the main measurements are presented.

RESULTS AND REMARKS

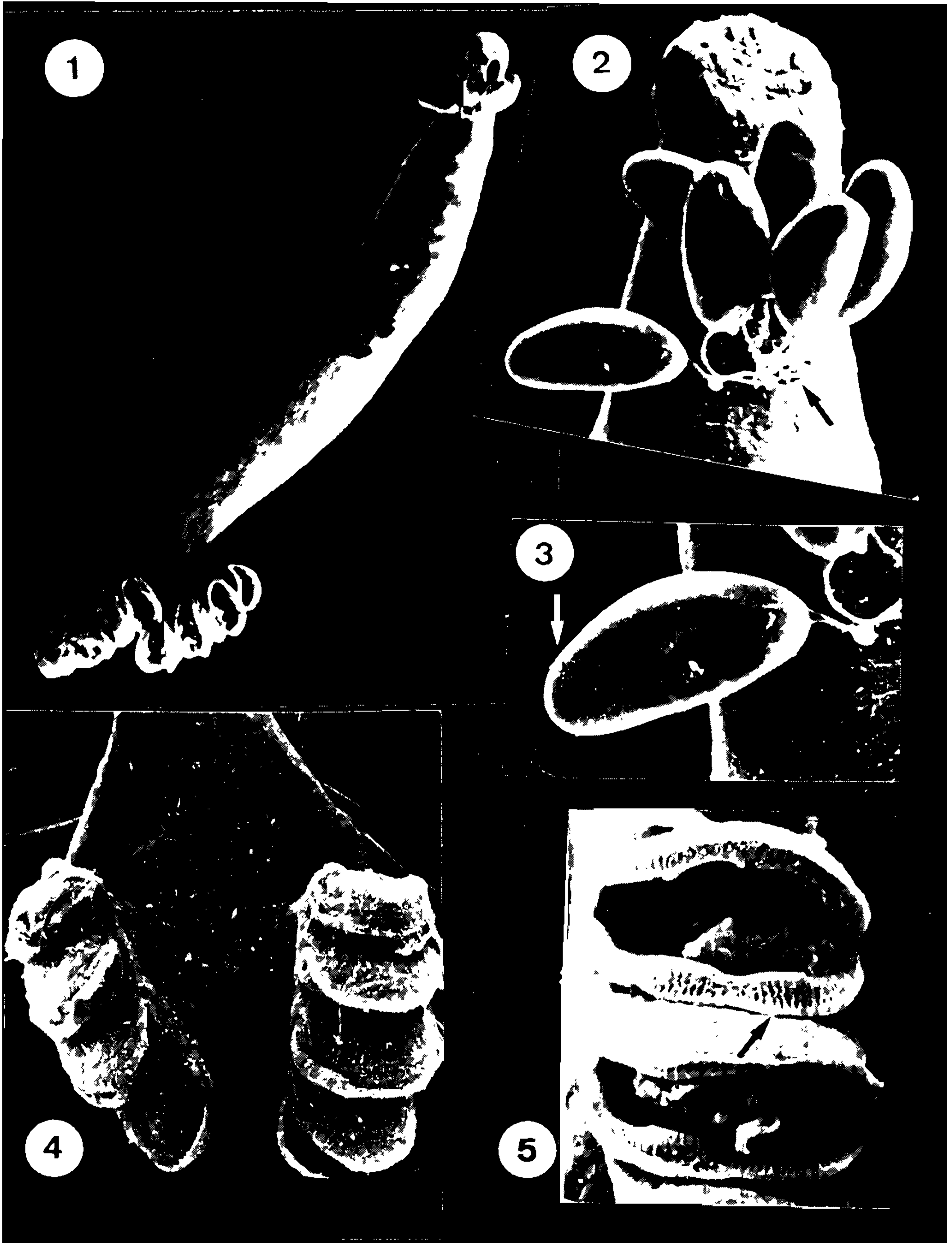
Bicotylophora trachinoti (Mac Callum, 1921) Price, 1936
(Figs 1-6)

Host: *Trachinotus carolinus* L., common named "pampo"; Carangidae.

Site: gills

Locality: Ilha do Governador.

Material studied: eight specimens collected from one fish. CHIOC no. 32.749.



Scanning electron microscopy of *Bicotylophora trachinoti*. Fig. 1: total. X 48. Fig. 2: anterior region with group of eggs emerging from the genital pore (arrow). X 290. Fig. 3: egg with polar filament and operculum. X 472. Fig. 4: opisthohaptor. X 170. Fig. 5: opened jaw of clamps showing rib-like sclerites in the internal borders (arrow). X 637.

Microcotylidae: total body length 2.050-3.510 (2.755) 7 by 220-480 (366) 7 width at ovary level. Buccal organs (after Rohde, 1979) 69-96 (79) 7 x 36-48 (40) 7. Pharynx 48-64 (58) 6 long by 48-60 (54) 6 wide. Genital corona situated at 156-270 (223) 7 from anterior end, armed with numerous hooks of different forms and sizes. The number of the postovarian testes ranges from 19 to 29 (24) 7. Ovary irregular, pre-testicular. Eggs measure 87-96 (90) 5 long by 39-48 (46) 5 wide with a long posterior filament. Opisthohaptor 330-439 (376) 6 long with 4 pairs of clamps. The longest clamps are 84-120 (106) 5 long by 144-187 (165) 6 wide and the smaller are 72-120 (98) 7 long by 130-160 (142) 7 wide.

By scanning electron microscopy we observed the elongated body with maximum width at equatorial level (Fig. 1). The buccal cavity is subterminal and the genital pore opens ventrally in the anterior region of body (Fig. 2). The eggs are large, oval shaped with a long polar filament (Fig. 3). In Fig. 2 we can observe a group of eggs emerging from the genital pore. The opisthohaptor formed by two symmetrical lobes, present 4 pairs of clamps with the anterior pair smaller than the others (Fig. 4). The clamps are formed by upper and lower jaws (Fig. 5). At higher magnification we can observe the riblike sclerites in the internal borders of the jaws (Fig. 5).

REMARKS

Bicotylophora trachinoti was first referred by MacCallum (1921) from the New York aquarium parasitizing *Trachinotus carolinus* L. and *Morone saxatilis* (Walbaum) (after Hargis, 1956: "*Roccus saxatilis* is an unnatural host for *B. trachinoti*"). Hargis (1956) and McMahon (1963) referred it also in *T. carolinus* in the Atlantic coast of U.S.A. From this same host, *B. trachinoti* was redescribed and figured from Mexico by Caballero & Bravo-Hollis (1965b) and from Venezuela by Nasir & Fuentes-Zambrano (1983). In Uruguay it was referred in *Trachinotus palometa* Regan, by Mané Garzón & Holcman-Spector (1968). Our specimens are larger than those previously described and represent the first report in Brazil.

Pseudanthocotyloides heterocotyle (Van Beneden, 1871) Euzet & Prost, 1959 (Figs 10-11)

Host: *Cetengraulis edentulus* (Cuvier, 1828) common named "sardinha boca torta", Engrau-

lidae and *Decapterus punctatus* (Cuvier, 1829) common named "sardinha cascuda", Carangidae (new hosts records).

Site: gills

Locality: Ilha do Governador.

Material studied: 24 specimens collected from 11 *C. edentulus* and one from one *D. punctatus*, CHIOC no. 32743-32746.

Mazocraeidae: total body length 899-1.613 (1.345) 7 by 148-480 (316) 8 width at ovary level. Small terminal muscular organ present in the prohaptor. Buccal organs non septed, 24-41 (34) 12 long by 19-40 (32) 11 wide. Pharynx 32-47 (42) 5 long by 26-44 (38) 5 wide. Genital corona situated at 132-210 (178) 7 from anterior end with three pairs of small spines arranged in vertical rows. Testes postovarian were difficult to be observed. Ovary is 168-190 long. Four pairs of clamps present in the opisthohaptor. Anterior pair larger, 79-135 (112) 7 long by 102-159 (132) 7 wide; second pair 44-67 (56) 8 long by 48-67 (59) 8 wide; third pair 41-66 (58) 10 long by 48-67 (57) 10 wide and the last pair 36-60 (47) 9 long by 48-60 (53) 9 wide. Two pairs of small anchors were visible in only one specimen. The egg is 210 long by 68 wide with anterior filament 41 and posterior one 60 long.

REMARKS

Pseudanthocotyloides heterocotyle was described from *Sprattus sprattus* (L.) (Clupeidae) and later referred by Mamaev (1982) in the same host and in *Engraulis encrasicolus* (L.) (Engraulidae) from Mediterranean Sea. This is the first record in the Atlantic Ocean, in new hosts *Cetengraulis edentulus* (Engraulidae) and *Decapterus punctatus* (Carangidae).

We observed in our specimens the presence of a muscular organ around the mouth, similar to that referred by Caballero & Bravo-Hollis (1965a) for *P. dossae* and that Euzet & Prost (1969) could not observe in their specimens of *P. heterocotyle*.

The egg in this genus was described only in *P. banghami* Price, 1959 with one filament at posterior pole. We observed filaments at both poles, therefore, the diagnosis of the genus (Williams, 1988) must be emended to include the two filaments.

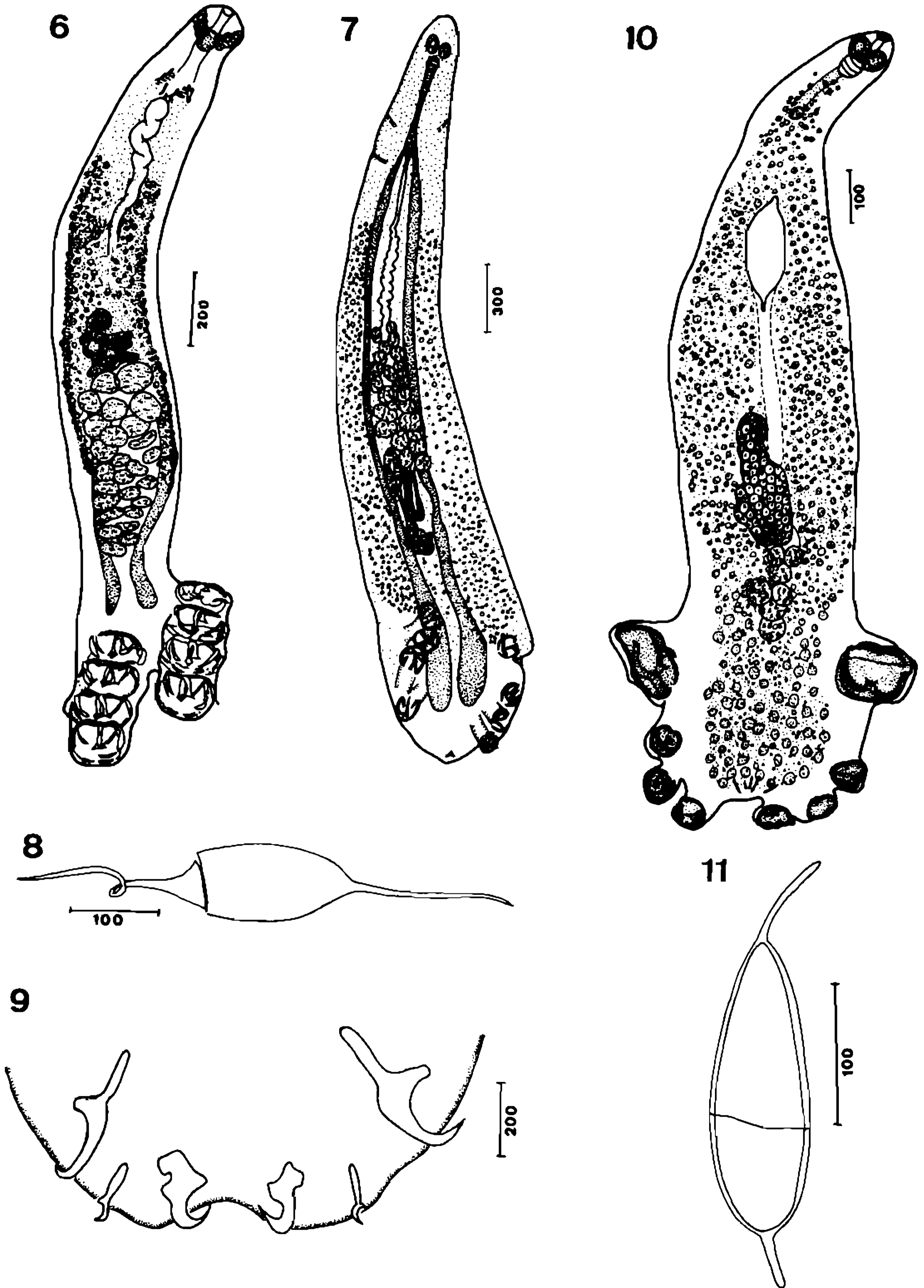


Fig. 6: *Bicotylophora trachinoti*. Figs. 7-9: *Pseudomazocraes selene*. Fig. 7: total. Fig. 8: egg. Fig. 9: lappet with anchors. Figs 10-11: *Pseudanthocotyloides heterocotyle*. Fig. 10: total. Fig. 11: egg. Scales in micrometers.

Pseudomazocraes selene Hargis, 1957
(Figs 7-9)

Host: *Selene vomer* (L.), common named "peixe-galo" and *Caranx latus* Agassiz, common named "xerelete", new host record; Carangidae.

Site: gills

Locality: *S. vomer* from Ilha do Governador and *C. latus* from Ilha do Governador and Copacabana.

Material studied: 14 specimens collected from seven *Selene vomer* and five specimens from two *Caranx latus*. CHIOC no. 32750-32755.

Pseudomazocraeidae: total body length 2.200-3.800 (3.025) 11 long by 270-580 (412) 12 wide at ovary level. Buccal organs 36-59 (49) 12 long by 32-78 (50) 12 wide. Pharynx 36-64 (51) 13 by 34-58 (42) 13. Male genital pore situated at 368-560 (456) 8 from anterior end. Lateral vaginal pore is at 469-503 from anterior end. Sixteen to twenty-one (19) 7 preovarian testes present. Ovary is 180-513 (320) 7 long by 85-161 (109) 7 wide. Egg 150-200 (173) 4 long by 50-95 (68) 4 wide with anterior filament 215-270 long and posterior one 120-238 (176) 4 long. Opisthaptor with four pairs of subequal clamps. Those in the right side are smaller, measuring 55-73 (64) 17 long by 59-87 (68) 17 wide and on the left side 69-100 (81) 16 by 69-109 (92) 15. Three pairs of anchors present; largest 33-35 (34) 3 long, median 17-21 (18) 3 long and smallest 15-18 long.

REMARKS

Pseudomazocraes was included in different families until 1988, when Lebedev raised the rank of Pseudomazocraeinae Lebedev, 1972 to family level.

Our specimens present, behind the male genital pore, structures similar to the small papillae referred in *P. monsivaisae* by Caballero & Bravo-Hollis (1955). One of the authors (C.P.S.) had the opportunity to observe these structures in the type-specimens deposited in the UNAM Collection. The main difference between *P. selene* and *P. monsivaisae* is the shape and structure of the terminal lappet.

Pseudomazocraes selene described from *Selene vomer* (L.) from Florida, U.S.A. was re-described by Caballero & Bravo-Hollis (1965b) from *Xurel lata* (Agassiz) and *Argyreiosus vomer* (L.) from Mexico. This is the first record in South American waters in *Selene vomer* and in a new host, *Caranx latus* Agassiz.

Pseudotagia cupida (Hargis, 1956) Yamaguti, 1963

Host: *Diplectrum* sp., common named "mixole", new host record; Serranidae.

Site: gills

Locality: Ilha do Governador

Material studied: one specimen, CHIOC no. 32748

Macrovalvitrematidae: body 1.320 long by 0.18 wide. Buccal organs 60 in diameter; pharynx 36 long by 46 wide. The genital corona 36 long by 24 wide, with six curved hooks, is situated at 108 from anterior end. Twelve testes present. Ovary pretesticular. The egg of the only specimen studied measures 190 long by 60 wide; the posterior filament is 180 long and the anterior one seems to be broken. Opisthaptor with four pairs of clamps. The three anterior pairs are 78-96 long by 42-48 wide and the posterior one is 72 long by 42 wide. The anchors of the lappet could not be observed.

REMARKS

This species was previously reported in *Orthopristis crysoptera* (L.) from U.S.A. (Hargis, 1956; Kingston et al., 1969; Suydam, 1971) and in *Haemulon sciurus* (Shaw) from Brazil (Kohn et al., 1984). *Diplectrum* sp. (Serranidae) represents a new host record for *P. cupida*.

Macrovalvitrema sinaloense Caballero & Bravo-Hollis, 1955

Host: *Pomatomus saltatrix* (L.), common named "enxova", new host record; Pomatomidae.

Site: gills

Locality: Ilha do Governador

Material studied: one specimen CHIOC no. 32.747

Macroalvitrematidae: total body length 1.319 by 177 wide at ovary level. Prohaptor suckers 60 in diameter. Pharynx 41 long by 36 wide. Genital corona 36 long by 33 wide is situated at 144 from anterior end. Opisthaptor with 4 pairs of clamps similar in shape; the first pair measures 90 long by 72 wide and the last one 132 long by 72 wide.

REMARKS

This species was well described from different hosts of the families Lutjanidae and Sciaenidae from Mexico (Caballero & Bravo-Hollis, 1955; Bravo-Hollis, 1982).

Our specimen is similar to those already referred by Kohn et al. (1989) from Rio de Janeiro coast in *Micropogonias furnieri* (Desmarest) (Sciaenidae). *Pomatomus saltatrix* L. (Pomatomidae) represents a new host record for this species.

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