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MONOGENEA PARASITES OF *MICROPOGONIAS FURNIERI* (DESMAREST, 1823) (PISCES, SCIAENIDAE) FROM THE LITTORAL OF RIO DE JANEIRO STATE, BRAZIL

ANNA KOHN[+], CLÁUDIA PORTES SANTOS[*] & SIMONE CHINICZ COHEN[+]

Instituto Oswaldo Cruz, Depto de Helmintologia, Caixa Postal 926, 20001, Rio de Janeiro, RJ, Brasil
*Universidade Santa Úrsula, CCB, Rua Fernando Ferrari, 75, 22231, Rio de Janeiro, RJ, Brasil

From the gills of 100 Micropogonias furnieri *(Desmarest, 1823) from Atlantic coast of Rio de Janeiro State, were recovered* Macrovalvitrema sinaloense *Caballero & Bravo-Hollis, 1955*, Pterinotrematoides mexicanum *Caballero & Bravo-Hollis, 1955*, Rhamnocercus rhamnocercus *Monaco, Wood & Mizelle, 1954 and* Encotyllabe spari *Yamaguti, 1934.* M. furnieri *represents a new host record for them and a new geographical distribution is referred for* M. sinaloense, P. mexicanum *and* R. rhamnocercus.

Key words: *Macrovalvitrema sinaloense* – *Pterinotrematoides mexicanum* – *Rhamnocercus rhamnocercus* – *Encotyllabe spari* – Monogenea – *Micropogonias furnieri* – Sciaenid fishes – Brazil

In order to increase the knowledge of Monogenea parasites of commercial marine fishes, a survey on 100 *Micropogonias furnieri* (Desmarest, 1823) from Rio de Janeiro coast was made. Four species: *Macrovalvitrema sinaloense* Caballero & Bravo-Hollis, 1955; *Pterinotrematoides mexicanum* Caballero & Bravo-Hollis, 1955; *Rhamnocercus rhamnocercus* Monaco, Wood & Mizelle, 1954 and *Encotyllabe spari* Yamaguti, 1934 were recovered from the gills of this Sciaenidae which represents a new host record for them.

MATERIAL AND METHODS

The survey work was done on fish obtained on free-markets or from fishermen of "Praia da Ribeira, Ilha do Governador" and "Praia de Copacabana", Atlantic coast of Rio de Janeiro State.

The gill archs were separated, placed in 1:4000 dilution on formalin and shaked just to set appart the parasites. The worms were then fixed under light cover-glass pressure or without pressure in 5% formalin. Some were stained in alcoholic-acid carmine of Langeron, dehydrated in ethyl alcohol, cleared in beachwood creosote and mounted in Canada Balsam. Others were just mounted in Gray & Wess' medium (Humason, 1967) to study the hard parts.

Measurements are in micrometers with means in parentheses when possible, followed by the number of measurements when more than two. Photomicrograph is presented and illustrations were made with the aid of a drawing tube. The studied material was deposited in the Helminthological Collection of the Instituto Oswaldo Cruz (CHIOC), Rio de Janeiro.

RESULTS

Of 100 *M. furnieri* examined, 17 were parasitized by *P. mexicanum*, 14 by *M. sinaloense* and one by *R. rhamnocercus* in single infections, 7 fish harboured both *P. mexicanum* and *M. sinaloense* and one both *E. spari* and *P. mexicanum*. Considering the well described morphology of the species, only the main measurements are presented.

Macrovalvitrema sinaloense Caballero & Bravo-Hollis, 1955 (Figs 1-2)

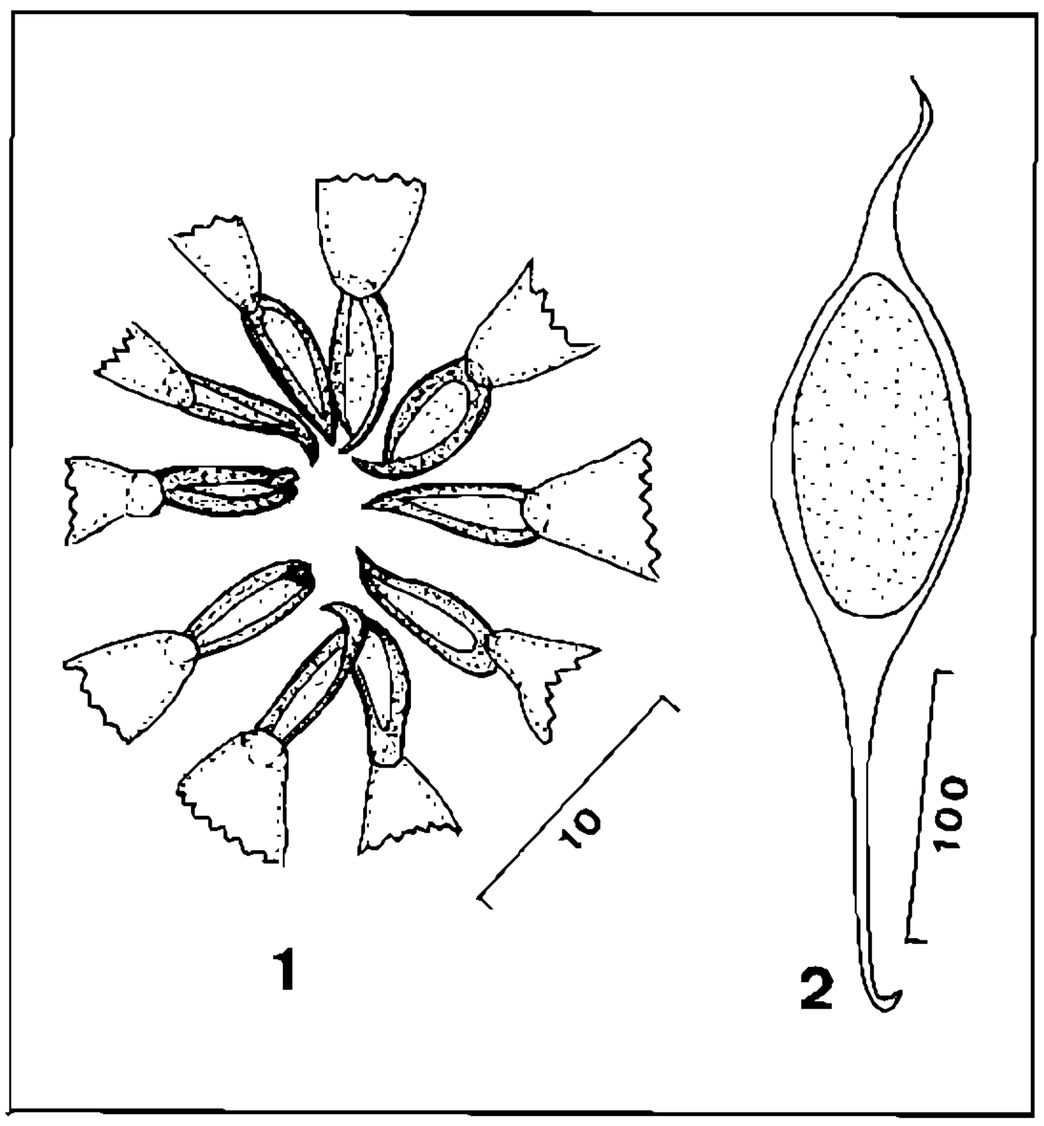
Number of specimens studied: 24

Deposited specimens: CHIOC no. 32602 to 32612.

Macrovalvitrematidae. Body narrow, elongate, tapering near opisthohaptor, 983-1800

+ Research fellows "Conselho Nacional de Desenvolvimento Cientifico e Tecnológico – CNPq".

(1319)8 in total lenght by 108-474 (224)9 wide at ovary level. Prohaptoral suckers 36-66 (57)4 long by 54-66 (60)4 wide. Pharynx 39-60 (54)6 long by 36-50 (44)6 wide. The spherical genital corona has 7-10 spines and is situated at 156-180 (172)3 from anterior end. One dorsal vaginal pore is placed between the genital corona and ovary. The only egg observed measures 140 long by 72 wide and has two polar filaments: the anterior 77.4 and the posterior 140.4 long. Opisthohaptor attached obliquely with 8 large pedunculated clamps arranged in two longitudinal groups. The clamps are similar in shape but the first pair is smaller than the others: the first measures 78-110 (100)6 long by 48-72 (60)6 wide; the second 96-150 (126)8 long by 48-96 (75)7 wide; the third 120-156 (138)7 long by 48-100 (82)5 wide and the last pair, on the peduncle formed by prolongation of haptor, is 112-150 (131)8 long by 60-100 (80)5 wide. Lappet present with two pairs of anchors.



Macrovalvitrema sinaloense. Fig. 1: genital corona. Fig. 2: egg. Scale in μm.

REMARKS

Macrovalvitrema sinaloense was reported from *Micropogon ectenes* Jordan & Gilbert by Caballero & Bravo-Hollis, 1955 and from *Micropogon megalops* Gilbert, *Ophioscion sciurus* (Jordan & Gilbert), *Lutjanus argentiventris* (Peters) and *Umbrina roncador* Jordan & Gilbert by Bravo-Hollis, 1982 from the Pacific coast of Mexico. This species was described originally with only one dorsal vagina. Suriano in 1975 described from *Micropogon opercularis* (Quoy & Gaimard) of the Atlantic coast of Argentina, a new genus *Neomacrovalvitrema* with the new species, *N. argentinensis* which differs from *M. sinaloense* only by the absence of vagina.

Bravo-Hollis (1982) studying more specimens of *Macrovalvitrema sinaloense* noticed that in the parasites fixed in dorso-ventral position the vagina wasn't well distinguishable, but was well differentiated on that laterally fixed. In our material the dorsal vagina, could be observed, although with difficulty. We agree with Gussev's statement (1976) that "the words 'lacking' or 'presence' of vagina should be avoided in differential diagnosis".

The genital corona was referred by Bravo-Hollis (1982) with 10-12 genital hooks and by Suriano (1975) with 7-11. In our material we observed 7-10.

Bravo-Hollis (1982) presented for *M. sinaloense* the eggs' measurements ranging from 140-214 long by 39-56 wide without referring the filaments. Suriano (1975) referred for *N. argentinensis* the egg 175 long by 50 wide with filaments of 75 long although in the figure they look unequal. In our specimens one of the eggs' filament is almost twice the lenght of the other (Fig. 2).

This is the first record of *M. sinaloense* in Brazilian coast and *M. furnieri* represents a new host record. The types of *Neomacrovalvitrema argentinensis* Suriano, 1975 must be reviewed considering that the only differential character "absence of vagina" is not a sufficient character to separate genera.

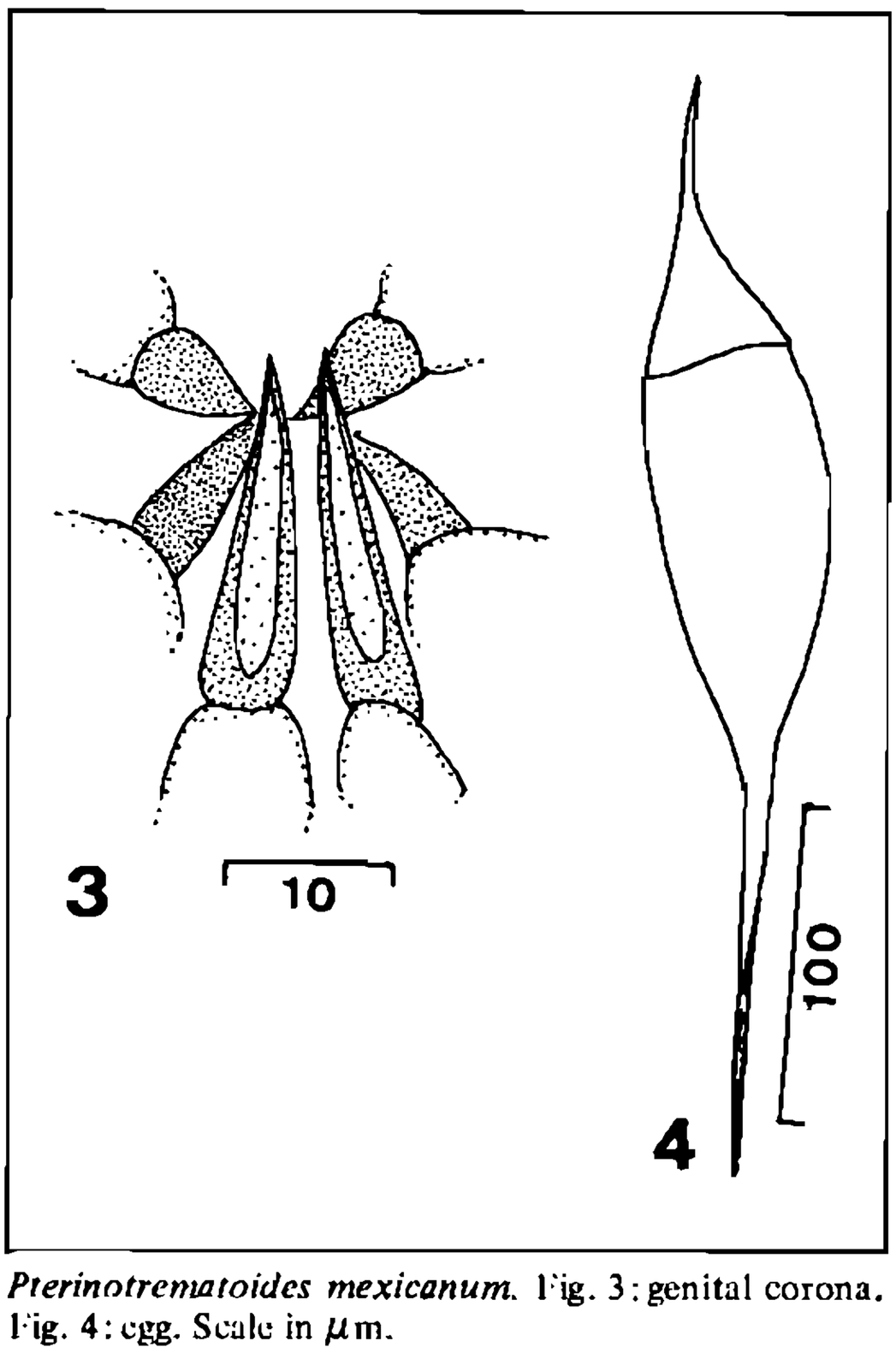
Pterinotrematoides mexicanum Caballero & Bravo-Hollis, 1955 (Figs 3-4)

Number of specimens studied: 23

Deposited specimens: CHIOC no. 32591 to 32601.

Macrovalvitrematidae. Body slender, elongate 900-2272 (1509)11 long by 114-366 (230)11 wide at ovary level. Prohaptoral suckers 36-120 (80)10 long by 41-117 (76)10 wide. Pharynx muscular, 43-84 (57)7 long by 36-78 (50)7 wide. Genital corona at 132-315 (191)6 from anterior extremity with three pairs of dissimilar

spines. The posterior spines are the longest and measure 15-24 (20)7 long, the median are 8-15 (10)7 long and the anterior are 7-8 (7)5 long. Eggs only observed in two specimens, 146-161 long with two unequal filaments, the anterior is 36-48 long and the posterior is 124 long. Opisthohaptor with 8 clamps arranged in two groups; dorsal group consisting of two small clamps attached to penducle of haptor and median ventral group with 6 clamps. Dorsal clamps, similar in structure to that of *Macrovalvitrema*, though lacking equatorial sclerites, is 53-89 (67)12 long by 29-48 (41)7 wide. Ventral clamps racket shaped, bivalved, 103-301 (209)12 long by 43-72 (62)7 largest width. Lappet present with three pairs of anchors.



Pterinotrematoides mexicanum. Fig. 3: genital corona. Fig. 4: egg. Scale in μm.

REMARKS

Pterinotrematoides mexicanum Caballero & Bravo-Hollis, 1955 was described from *Micropogon ectenes* Jordan & Gilbert from Mexican Pacific Ocean. In 1966 this species was redescribed from *M. opercularis* (Quoy & Gaimard) from Argentina (Suriano, 1966). Bravo-Hollis (1982) reported 4 new hosts: *Micropogon megalops* Gilbert, *Ophioscion sciurus* (Jordan & Gilbert), *Umbrina roncador* Jordan & Gilbert and *Lutjanus argentiventris* (Peters) also from Mexican Pacific Ocean.

In the original description only one vagina was referred. In 1982 Bravo-Hollis redescribed the species with two vaginae leading in a group of short pappilous pores situated at both lateral sides of the body.

From the 23 specimens studied now only in a few of them the two lateral vaginae were visible.

Neopterinotrematoides avaginata described in 1975 by Suriano from *Micropogon opercularis* (Quoy & Gaimard) from the Atlantic coast of Argentina was differentiated from *P. mexicanum* only by the absence of vagina.

Considering the absence of vagina an insufficient differential character, as discussed to *Macrovalvitrema*, *Neopterinotrematoides* should be revised in order to be confirmed.

P. mexicanum is referred for the first time in Brazilian coast and in a new host.

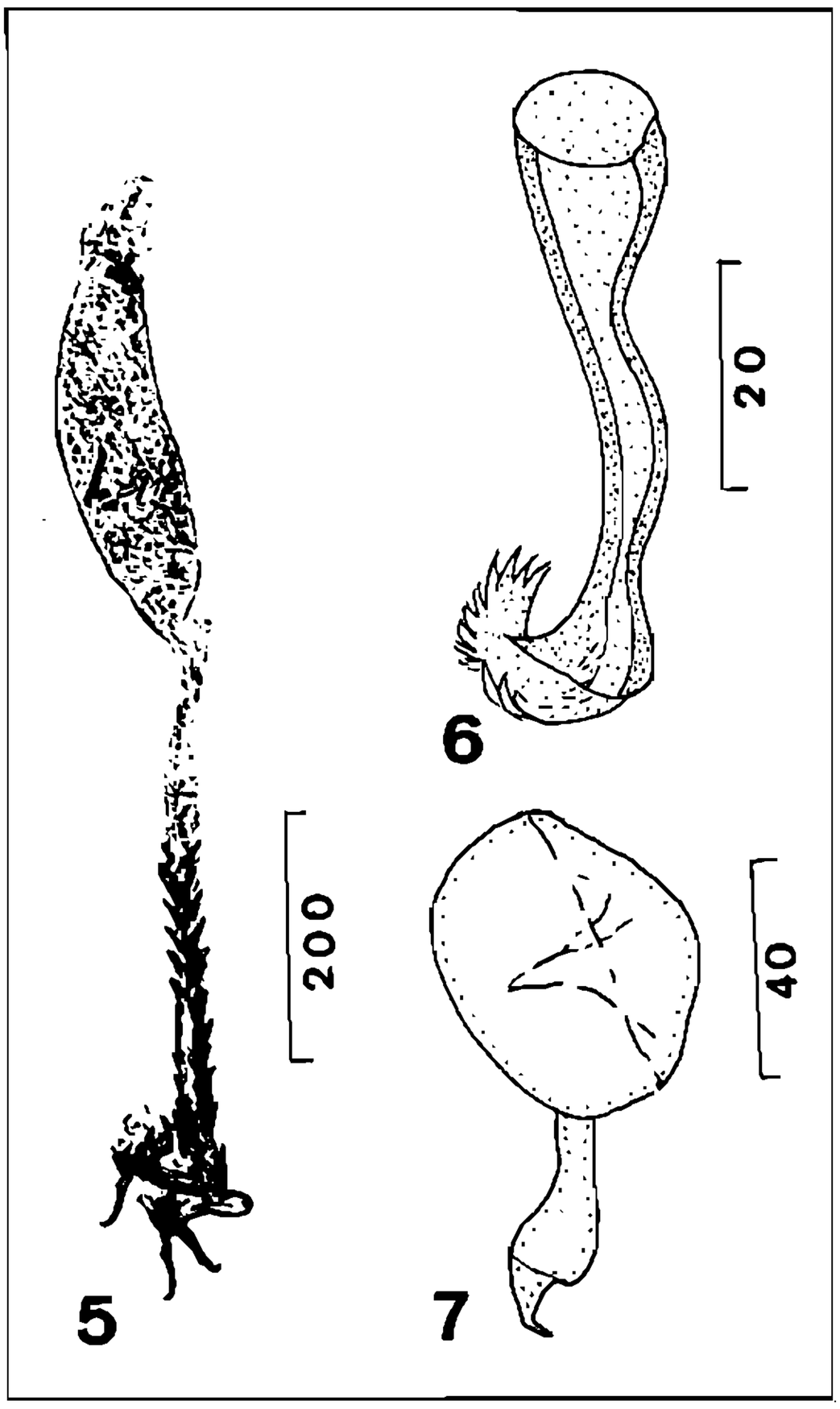
Rhamnocercus rhamnocercus Monaco, Wood & Mizelle, 1954 (Figs 5-7)

Number of specimens studied: 4
Deposited specimens: CHIOC no. 32590.

Diplectanidae. Small worms with 636-1000 (796)4 in total lenght by 90-96 (94)3 wide with a long peduncle covered with rows of spines. Cirrus 48-58 (51)3 long, tubular, with anterior end expanded and posterior fringy and recurved. Only one egg was observed in one specimen; it is slightly oval 55 long by 44 wide, apparently covered by a thin membrane, with a stout fusiform filament at one end. The laterally expanded opisthohaptor has a dorsal bar 168-174 long with acessory spines near midportion and two ventral bars 72-78 long. Ventral anchors 73-77 (74)6 long with reduced superficial root. The dorsal anchors 66-69 (67) long have conspicuous superficial root.

REMARKS

Rhamnocercus rhamnocercus was only reported from *Umbrina roncador* Jordan & Gilbert from the Pacific Ocean of California. This is the first record in the Atlantic Ocean and in a new host.



Rhamnocercus rhamnocercus. Fig. 5: photomicrograph of whole mount. Fig. 6: cirrus. Fig. 7: egg. Scale in μm.

Hargis (1955) studying the paratypes of this species refers that: "the original authors were probably mistaken concerning the dorso-ventral orientation of the opisthohaptor". We agree with Hargis' statement, considering the anchors with more prominent superficial roots as dorsal.

The expanded anterior end of the cirrus observed in our specimens was directed to the cephalic end of the worm and it's fringed terminal end wasn't referred by Monaco et al (1954). The egg is also described for the first time.

Encotyllabe spari Yamaguti, 1934

Number of specimens studied: 1
Deposited specimen: CHIOC no. 32589.

Capsalidae. Total body lenght 3620; body width disregarding folded edges 1280. Suckers of prohaptor 168-180 long by 180 wide, surrounded by a membranous lobe 396 wide. Pharynx 293 in diameter. Testes 194-195 long by 150 wide. Ovary 165 long by 219 wide. Peduncle of opisthohaptor 440 long. Opisthohaptor 586 long by 660 wide with two large anchors 270-290 long by 120 wide; two small anchors 36 long and marginal hooks 10-11 long. The simple anchors were not observed.

REMARKS

Encotyllabe spari was described by Yamaguti (1934) from the gills of *Sparus macrocephalus* (Basilewsky), *Plectorhynchus pictus* (Thunberg) and *Epinephalus akaara* (Temminck & Schlegel) from the Inland Sea of Japan. Kohn et al (1984) redescribed it from *Haemulon sciurus* (Shaw) from the Brazilian Atlantic Ocean, referring that from 68 *H. sciurus* examined, 21 were parasitized with 42 worms. In this survey, from 100 *M. furnieri* examined, which represents a new host record, one specimen was recovered from the only fish parasitized.

The printing of the redescription of this species in Kohn et al. (1984) was mixed. In view of the difficulty to understand the meaning of the text it is rewrited now:

Total body lenght 2.10 to 3.60 (2.81); body lenght excluding peduncle of opisthohaptor 1.70 to 2.88 (2.36); width excluding ventrally infolded borders 0.86 to 1.32 (1.08). Prohaptoral suckers 0.14 to 0.27 (0.21) long by 0.17 to 0.32 (0.22) wide, surrounded by a membranous lobe 0.27 to 0.61 (0.46) wide with ventral infolded margins. Mouth ventral at level of prohaptoral suckers. Pharynx, 0.24 to 0.42 (0.31) long by 0.21 to 0.37 (0.32) wide, surrounded by digitiform projections. Two pairs of eye-spots present at level of pharynx. Two testes more or less oval, situated side by side immediately pre-equatorial; right testis 0.10 to 0.18 (0.15) long by 0.08 to 0.15 (0.12) wide; left testis 0.10 to 0.21 (0.15) long by 0.08 to 0.15 (0.12) wide. Cirrus pouch elliptical, lies immediately behind pharynx. Ovary spherical 0.14 to 0.23 (0.20) long by 0.12 to 0.24 (0.20) wide, median, pretesticular. Vitelline reservoir and Mehlis' gland close to ovary. Four triangular eggs were found attached to the opisthohaptor of one specimen; they measure 0.132 to 0.144 (0.134) long by 0.120 wide and have three filaments, two short and equal and one long about four to five times the lenght of the eggs. Peduncle of opisthohaptor

0.15 to 0.44 (0.28) long by 0.15 to 0.18 (0.17) wide. Opisthohaptor 0.37 to 0.58 (0.45) long by 0.48 to 0.66 (0.57) wide, surrounded by thin membrane and provided with one pair of stout anchors, one pair of small anchors, one pair of simple anchors and 14 marginal hooks. Large anchors 0.23 to 0.30 (0.26) long by 0.09 to 0.13 (0.11) wide, with sharply recurved tips; small anchors 0.023 to 0.029 (0.025) long; simple anchors 0.022 to 0.030 (0.026) long situated posteriorly to larger anchors; marginal hook 0.011 to 0.012 (0.011) long.

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