Mem. Inst. Oswaldo Cruz, Rio de Janeiro, Vol. *84*, Supl. IV, 475-481 1989

TRYPANORHYNCHA FROM SHARKS OF SOUTHERN BRAZILIAN COAST: *EUTETRARHYNCHUS VOOREMI* SP. N. AND TWO OTHER SPECIES PARASITES OF *MUSTELUS* (PISCES, TRIAKIDAE)

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In the present paper, Eutetrarhynchus vooremi *sp. n., a cestode of the order Trypanorhyncha is proposed. The new species was recovered from sharks under the genus* Mustelus *(Pisces, Triakidae) and was compared to* E. ruficollis, E. lineatus, E. leucomelanus, E. litocephalus *and* E. macrotrachelus. *The main character, among others, considered to differ the species refers to the eggs filament, size of proglottids, tentacular hooks and lenght of pars postbulbosa. Two other known species are studied:* Callitetrarhynchus gracilis *(Rudolphi, 1819) from* M. canis *(Mitchill, 1815) and* Nybelinia (N.) lingualis *(Cuvier, 1817) from* M. schmitti *Springer, 1939 representing new host records.*

Key words: *Eutetrarhynchus* – *Callitetrarhynchus* – *Nybelinia* – *Mustelus* – Trypanorhyncha – sharks – Brazil

The first reports on Trypanorhyncha parasitizing Brazilian fishes were those of Diesing (1850, 1855, 1856) with basis on the material collected by Natterer in the last century. Since then, there were no great contributions regarding the improvement towards the knowledge of these parasites and as a consequence, this fauna is almost unknown and abundant.

One of the pioneers works on Trypanorhyncha in Brazil was conduced by Faria & Silva (1934), when plerocerci and adult specimens were identified to *Tetrarhynchus* sp. occurring in several species of teleosts and elasmobranchs obtained in a fish market of Rio de Janeiro.

In despite of the few avaible works, temptatives, in order to add some data, were done during surveys on cestodes of Brazilian fishes (Rego, 1973), when, once more, attention was called to the lack of informations referring to those helminths.

In this way, observations on Trypanorhyncha recovered from elasmobranchs captured off the Brazilian coast, namely *Mustelus canis* (Mitchill, 1815) and *M. schmitti* Springer, 1939, Pisces, Triakidae, are presented herein.

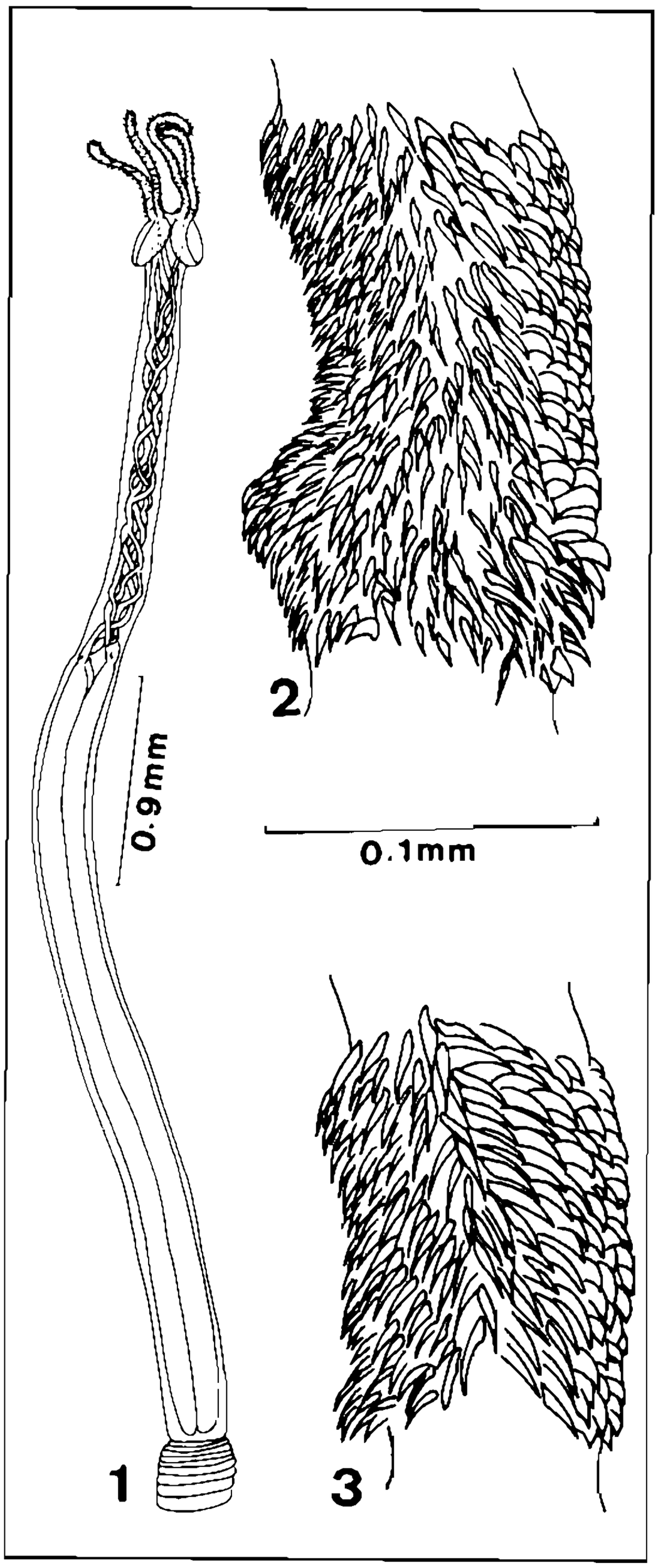
MATERIALS AND METHODS

Thirty-seven specimens of *Mustelus canis* (Mitchill, 1815) and 35 of *Mustelus schmitti* Springer, 1939 were necropsied for helminths. Out of these, 20 (54.0%) and 11 (31.4%) respectively, were positive for cestodes of the order Trypanorhyncha. Sharks were captured off the southern Brazilian Coast (30°40'S – 33°40'S, 53°20'W – 50°40'W). The material was fixed in alcohol-formalin-acetic acid (AFA), stained with Mayer's Carmalum, cleared with beechwood creosote and preserved in Canada balsam. The drawings were made with a drawing tube. All measurements are in millimeters, unless otherwise indicated. Most of ranges are in parentheses. Holotype, paratypes and voucher specimens were deposited in the Helmintological Collection of Instituto Oswaldo Cruz (CHIOC), Rio de Janeiro.

RESULTS

Family Eutetrarhynchidae Guiart, 1927
Eutetrarhynchus vooremi sp. n.
(Figs 1-6)

Supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) and Sigma Xi, The Scientific Research Society of North America, Nebraska Chapter, USA.



Eutetrarhynchus vooremi sp. n. Fig. 1: scolex. Fig. 2: basal region external surface. Fig. 3: metabasal region, external surface (Figs. 2 and 3 in same scale).

Description: (based on 10 adult specimens). Maximum total length 52.60. Scolex (Fig. 1) subcylindrical, 7.83 (6.06 – 9.60) long. Pars bothridialis with two patelliform bothridia, notchless, with posterior margin free, 0.41 (0.31 – 0.52) long by 0.44 (0.32 – 0.56) wide. Maximum width of scolex at the bothridial region. Pars vaginalis 2.97 (2.10 – 3.84) long, with coiled sheats, presenting an enigmatic organ in its base. Pars bulbosa longer than the pars vaginalis with 5.18 (3.72 – 6.65) in length by 0.38 (0.30 – 0.46) wide. Individual bulbs 0.14 (0.13 – 0.15) wide. Pars postbulbosa short, 0.11 (0.10 – 0.12) long. Tentacular armature heteroacanthous. Basal region, external surface (Fig. 2) with hooks 10 μm long, subtriangular, enlarged base 10 μm wide, presenting a heel. Hooks narrow, 3 μm wide by 12 – 16 μm long. At the region of the tentacular dilatation, the hooks are falciform with abruptly turned points, 10 – 18 μm long. Metabasal region, external surface (Fig. 3) with subtriangular hooks, 16 – 18 μm long and falciform narrow hooks 16 – 18 μm long. Tentacular internal and external surfaces with the same oncotaxy. Strobila long, maximum length 45.69, with several proglottids, about 55 in number. First proglottids larger than long, increasing gradually in length. Mature proglottids acraspedote (Fig. 4), longer than wide, 2.25 (2.05 – 2.45) long by 0.77 (0.67 – 0.87) wide. Genital pores irregularly alternated in the posterior thrid of the proglottid, cirrus pouch pyriform, reaching the middle region of the proglottid, 0.16 (0.14 – 0.18) long by 0.12 (0.11 – 0.13) wide, cirrus unarmed. Testes elipsoidal, forming two longitudinal rows, about rows, about 85 in number. Ovary bilobed in the posterior extremity of the proglottid, each lobe ranging from 0.34 (0.30 – 038) in width. Osmoregulatory canals joining immediately after the ovary. Vitellaria distributed all around the proglottid limits. Uterus tubular in shape, reaching almost the total length of the proglottid. Gravid proglottids (Fig. 5) 4.09 (3.70 – 4.48) long by 0.88 (0.82 – 0.94) wide. Eggs (Fig. 6) with polar filament, 36.5 μm (34 – 39) long by 24.5 μm (23 – 26) wide; filament 136.5 μm (130 – 143) long.

Host: Mustelus canis (Mitchill, 1815), Triakidae; common name: bico-doce.

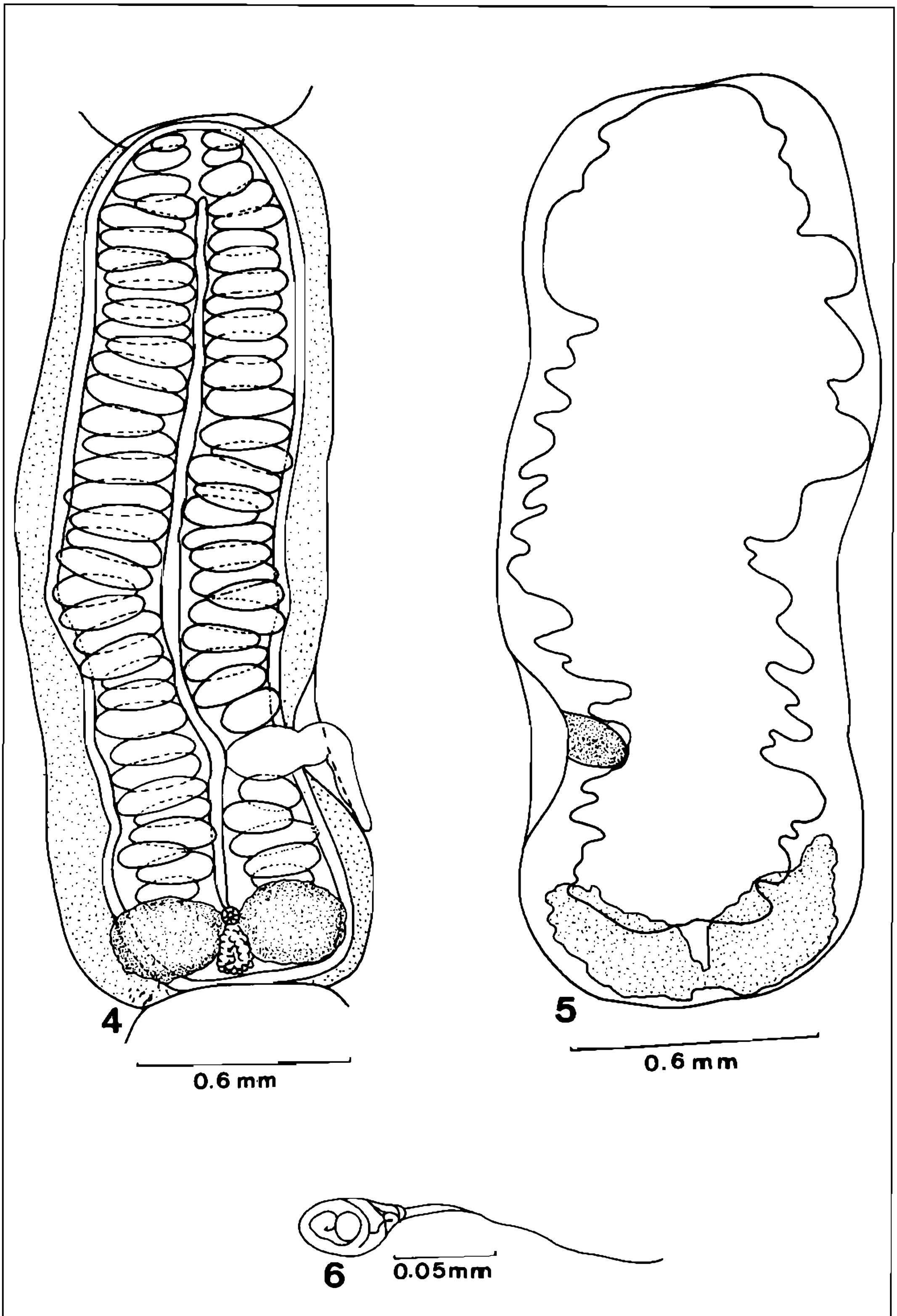
Mustelus schmitti Springer, 1939, Triakidae; common name: bico-doce.

Habitat: spiral valve.

Specimens deposited: CHIOC holotype no. 32.566e and paratypes 32.566a-d.

Family Dasyrhynchidae Dollfus, 1935

Callitetrarhynchus gracilis (Rudolphi, 1819) Pintner, 1931



Eutetrarhynchus vooremi sp. n. Fig. 4: mature proglottid. Fig. 5: gravid proglottid. Fig. 6: egg.

Host: Mustelus canis (Mitchill, 1815); Triakidae; common name: bico-doce.

Habitat: spiral valve.

Specimen deposited: CHIOC no. 32.564.

Family Tentaculariidae Poche, 1926
Nybelinia (Nybelinia) lingualis (Cuvier, 1817) Dollfus, 1929
(Figs 7-9)

Redescription: (based on 5 larval specimens). Scolex (Fig. 7) craspedote subcylindrical, 1.24 (1.05 – 1.43) long. Maximum width at the bothridial region. Pars bothridialis with triangular bothridia, 0.73 (0.56 – 0.80) long by 0.79 (0.71 – 0.87) wide. Pars vaginalis longer than the half of scolex, with slightly coiled sheats, sometimes straight, 0.74 (0.56 – 0.92) long. Pars bulbosa 0.28 (0.26 – 0.30) long by 0.32 (0.26 – 0.38) wide. Individual bulbs 0.09 (0.08 – 0.10) wide. Pars postbulbosa 0.10 long. Apendage 0.24 (0.20 – 0.28) long. Vellum short, 0.19 (0.15 – 0.23) long. Width of tentacles, without the hooks, basal region, 50.5 μm (49 – 52). Metabasal region 43 μm (42 – 44). Tentacular armature homeoacanthous. Hooks of basal region external surface (Fig. 8) 11.5 μm (10 – 13) long, implantation site 10 μm wide. In the metabasal region, external surface (Fig. 9) the hooks increase in length to 22 μm (21 – 23), implantation base 18 μm wide. Fourteen hooks in each row. The hooks present the same form in both sides of the tentacle.

Host: Mustelus canis (Mitchill, 1815), Triakidae; common name: bico-doce.

Mustelus schmitti Springer, 1939, Triakidae, common name: bico-doce.

Habitat: spiral valve.

Specimen deposited: CHIOC no 32.568.

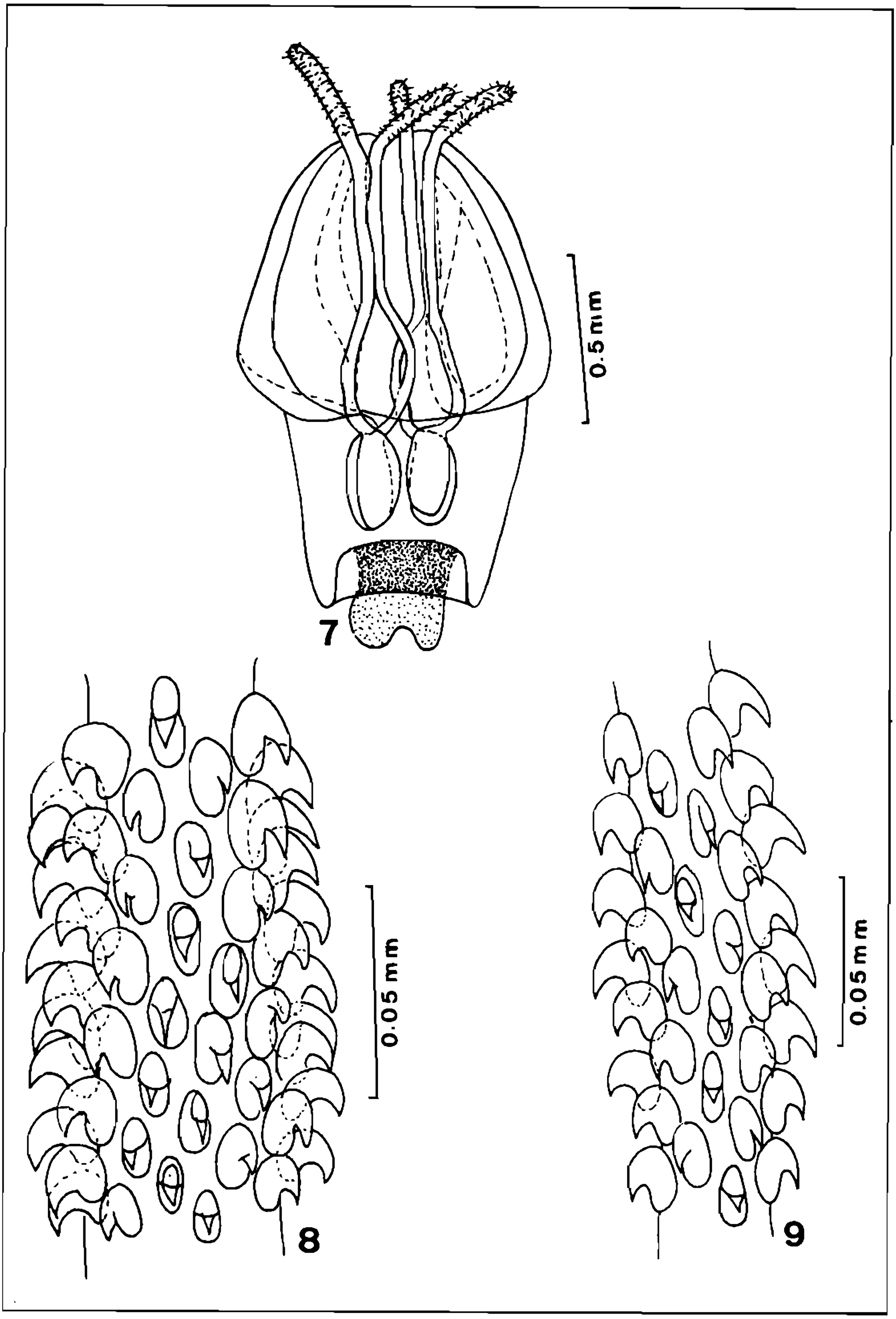
DISCUSSION

Eutetrarhynchus vooremi sp. n.

Eutetrarhynchus vooremi sp. n. is similar to *E. ruficollis* (Eysenhardt, 1829), *E. lineatus* (Linton, 1909) and *E. leucomelanus* (Shipley & Hornell, 1906). Comparisons with these species were based on data after Dollfus (1942). *E. vooremi* sp. n. differs from *E. ruficollis* by eggs with filaments (filament lacking in *E. ruficollis*); mature proglottid 2.5 to 3.5 longer than larger (somewhat a little longer and larger in *E. ruficollis*) maximum lenght of hooks 18 μm (28 μm in *E. ruficollis*). *E. vooremi* sp. n. differs from *E. lineatus*, mainly in the length of the pars bulbosa (5.14) longer in this species than the pars vaginalis (2.97) and in *E. lineatus*, they are 1,76 and 3.05 long, respectively. In order to compare the new species with *E. leucomelanus*, besides data after Southwell (1929) were available, when the original description by Shipley & Hornell is repeated and the specimens recovered by Southwell from elasmobranchs are compared to those previously described. Based on measurements reported by Dollfus (1942) in the description by Shipley & Hornell (in Southwell (1929)) and that by Southwell (1929), *E. vooremi* differs from this species mainly by the different shape of the hooks that are similar in *E. leucomelanus*. The testes in *E. vooremi* are distributed in two longitudinal rows, while in *E. leucomelanus* are condensed in the central field of proglottid. Also, the ovary is bilobed in *E. vooremi*, while is "U"-shaped in *E. leucomelanus*. After examining type material of *E. litocephalus* and *E. macrotrachelus* originally described from the South California Pacific coast and North of Mexico by Heinz & Dailey (1974), it was possible to observe that the main character to be considered in the herein proposed species is the length of the pars prebulbosa. In *E. vooremi* it is 0.11, in *E. litocephalus* 6.95 and in *E. macrotrachelus* 48.65. This morphological parameter is regarded by the experts as one of the main differences observed in these species, when compared to those under the genus.

Callitetrarhynchus gracilis (Rudolphi, 1819)

This species is widely spread regarding its geographical distribution. The Brazilian first report on *C. gracilis* was based on specimens recovered by Göldi in 1896, in body cavity mesentery and on organs of *Centropomus undecimalis* (Bloch, 1792) captured in Marajó Island, Pará, and Blanchard identified the specimens (*in* Dollfus, 1942). Dollfus (1942) ractified this identification since there were no doubts in considering the specimens as *C. gracilis*. Besides Dollfus, confirming also its wide geographical distribution, further studies report the finding of this species also in Miami, Florida (Ward, 1954), St. George's



Nybelinia (N.) lingualis (Cuvier, 1817). Fig. 7: scolex. Fig. 8: basal region, external surface. Fig. 9: matabasal region, external surface.

West, Bermuda (Rees, 1969), Los Angeles, California (Jensen, 1979), Karachi, Pakistan (Bilquees, 1987), Gulf of Venezuela (Vicente et. al., 1989), and in Brazil, Carvajal & Rêgo (1985) from *Pomatomus saltator* (L.), São Clemente (1986) from *Micropogonias furnieri* (Desmarest, 1823) captured off the coast of Rio de Janeiro State.

The present finding of *C. gracilis* in *Mustelus canis* (Mitchill, 1815) from Rio Grande do Sul State reports a new host record for the species.

Nybelinia (Nybelinia) lingualis (Cuvier, 1817) Dollfus, 1929

Molin (1861), presents descriptions and drawings of *Aspidorhynchus infulatus* Molin, 1858 and *Tetrabothriorhynchus migratorius* Diesing, 1850, considered as synonyms of *N. lingualis* (Cuvier, 1817), by Dollfus (1942). The illustrations presented by Molin (1861) show a shorter vellum than the pars bulbosa, what was confirmed in the present study. Although Dollfus (1942) affirms that the vellum is always longer than the pars bulbosa, characterizing, in this way, *N. lingualis*, this fact alone was not enough to avoid the synonymy. Based on these data, it is suggested that the relation length of vellum/pars bulbosa, should be regarded as a secondary character, since the other parameters, mainly shape and size of tentacular hooks are in agreement with previous descriptions of this species. In Brazil, *N. lingualis* was referred by Mendes (1944) in *Cynoscion* from São Paulo State coast and Saciloto (1980) in *Cynoscion leiarchus* (Cuvier, 1830) from Paraná State coast. *Mustelus schmitti* Springer, 1939 is herein referred as a new host record for *N. lingualis*.

ACKNOWLEDGEMENTS

To Dr J. Ralph Litchtenfels, Animal Parasitology Institute, United States Department of Agriculture, Beltsville, Maryland, U. S. A., for loan specimens of the Helminthological Collection, United States National Museum; to Dr Carolus Maria Voorem, Fundação Universidade do Rio Grande (FURG), for the host species identification; to Prof. Joaber Pereira Jr (FURG), for providing support during the expedition; to Prof. R. Magalhães Pinto, Instituto Oswaldo Cruz, for the review of the English text; to Financiadora de Estudos e Projetos (FINEP) for the Instituto Oswaldo Cruz Helminthological Collection (CHIOC) maintenance grant; to Roberto Moreira (fellowship owner), Valéria Cristina Gonçalves de Sá (Training Program of the Centro Integrado Empresa Escola – CIEE) and to Jorge Carvalho Cruz (IOC) under the direction of Genilto José Vieira from the "Setor de Programação Visual (SIC/FIOCRUZ)", for the revision work concerning the figures herein presented.

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