

A NEW SPECIES OF *MEXICANA* (MONOGENEA: DACTYLOGYRIDAE) PARASITIC ON *HAEMULON STEINDACHNERI* (JORDAN & GILBERT) (OSTEICHTHYES: HAEMULIDAE) FROM THE BRAZILIAN COAST.

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SUMMARY: *Mexicana atlantica* n. sp. (Monogenea), a branchial parasite of the haemulid fish *Haemulon steindachneri* from the coast of the State of Rio de Janeiro, Brazil, is described and illustrated. The new species can be differentiated from the other species of *Mexicana* by the shape of the sclerotized transversal piece at the base of the copulatory organ and by the characteristics of the sclerotized pieces of the haptor. The generic diagnosis of *Mexicana* is emended. This is the first record of the genus *Mexicana* in the Atlantic Ocean.

KEY WORDS: Monogenea, Dactylogyridae, *Mexicana atlantica* n. sp., *Haemulon steindachneri*, Atlantic Ocean, Brazil.

INTRODUCTION

To date, studies on dactylogyrid monogenean parasites of marine fishes from Brazil are unknown. During a parasitological study in haemulid fishes from the coast of the State of Rio de Janeiro, Brazil, numerous specimens of a new species of the genus *Mexicana* Caballero & Bravo-Hollis, 1959 were collected. In the present paper a new species of *Mexicana* is described and compared with the other species of the genus. The diagnosis of *Mexicana* is emended. This is the first record of this genus in the Atlantic Ocean.

MATERIAL AND METHODS

The specimens studied are part of the material collected from 80 specimens of *Haemulon steindachneri* (JORDAN & GILBERT, 1882), caught at Itacuruçá (Sepetiba Bay), State of Rio de Janeiro, Brazil (22°51'S, 43°56'W), during 1991 and 1992. The fishes measured 14 to 26 cm of total length and weighted 40 to 220 g. The monogeneans were removed from the gills, washed in 0.65% saline solution, fixed in 5% formaline or A.F.A and preserved in 70% ethyl alcohol. The parasites were stained with Gomori's trichrome and mounted in Canada balsam. Sclerotized pieces were studied in specimens mounted in Gray & Wess medium (HUMASON, 1979). Measurements were made in micrometers (μm), and the range is followed by the mean within parentheses. The terms prevalence, intensity and mean intensity of infestation were used according to MARGOLIS *et alii* (1982). The holotype and some paratypes were deposited in the Helminthological Collection of the United States National

Museum (USNM). Some paratypes were deposited in the Coleção Helmintológica da Fundação Instituto Oswaldo Cruz (CHIOC), Rio de Janeiro, Brasil. Paratypes of *Mexicana bychowski* and *M. littoralis* were borrowed from the Colección Helmintológica de la Universidad Nacional Autónoma de México (UNAM).

DESCRIPTION

Mexicana Caballero & Bravo-Hollis, 1959 *emend.*

Emended diagnosis: Dactylogyridae. Ancyrocephalinae. Body moderately elongated, pedunculated posteriorly. Tegument thin, smooth. Three terminal cephalic lobes and adjacent cephalic zones usually present. Cephalic glands present. Eyes present, two pairs. Haptor poorly developed, armed with dorsal and ventral pairs of anchors, bars and seven pairs of similar hooks; anchors subequal, related to two pairs of sclerotized bars; dorsal bar folded, with slender lateral ends; ventral bar with lateral, wing-like expansions. Mouth subterminal; pharynx pyriform or ovoid; esophagus short; intestinal caeca confluent posteriorly, lacking diverticula. Gonads intercecal. Testis post-ovarian, bipartite posteriorly; vas deferens long, crossing ovary, ootype, reaching copulatory organ, not looping intestinal caeca; seminal vesicle a slight dilation of vas deferens; copulatory complex comprising sinuous, slender, sclerotized, tubular, copulatory organ with strongly sclerotized transversal piece at base; prostatic glands well developed, filling the space limited by caecal bifurcation and base of copulatory organ; prostatic reservoir subspherical, lateral to base of copulatory

organ. Ovary bilobed, pre-testicular; vagina dextral, sacciform; vaginal pore ventro-lateral; Mehlis' gland well developed, with long, pedunculate cells; vitellaria well developed, distributed along two bilateral bands, with comissures posterior to pharynx, ovarian and post-testicular zone. Parasites of Haemulid teleost fishes.

Taxonomic summary

Type species: *Mexicana bychowskyi* Caballero & Bravo-Hollis, 1959.

Other species: *Mexicana littoralis* Caballero & Bravo-Hollis, 1961 and *Mexicana atlantica* n. sp.

Mexicana atlantica n. sp.

DESCRIPTION (based on 15 specimens stained and mounted *in toto*, 10 specimens measured): Body elongate (Fig. 1), peduncle tapered posteriorly. Total length 745 - 1058 (907), maximum width at ovary level, 168 - 270 (205). Cephalic region with three terminal, well developed lobes. Cephalic organs and glands extend to pharynx level. Eyes four, similar size, equidistant. Haptor poorly developed, 36.5 - 73 (55.5) long, 80 - 124 (97) wide, lobations indistinct. Anchors subequal, dorsal anchor (Fig. 2) 24 - 27.5 (25) long, ventral anchor (Fig. 3) 22 - 24 (23) long; both with curved point and shaft, truncate superficial root to sclerotized plaques, anchor filament simple, conspicuous; dorsal bar (Fig. 4) 33 - 40 (35) long, elongate, lateral ends enlarged, folded; ventral bar (Fig. 5) 35 - 44 (40) long, with lateral wing-like expansions; hooks 14 (Fig. 6), equal, short shank, erect thumb, curved shaft, delicate point; FH loop 4/5 shank length. Pharynx pyriform or ovoid 42 - 97 (66.4) long, 44 - 62 (53) wide; intestinal caeca confluent posteriorly. Testis 121 - 165 (147) long, 82 - 119 (91.5) wide, with bipartite posterior portion; vas deferens thick; prostatic glands well developed, prostatic reservoir subspherical; copulatory organ (Fig. 7) long, sinuous, with two pronounced curvatures; copulatory organ base with fusiform, transversal piece strongly sclerotized. Ovary bilobed, 49.5 - 62 (56.5) long, 77 - 112 (90) wide; Mehlis' gland well developed, with elongate and pedunculated cells; vagina wide, sacciform; vaginal pore dextralateral; at level of copulatory organ base; vitellaria lateral, with comissures at pharynx; ovary and post-testicular level. Eggs not observed.

Taxonomic summary

Type host: *Haemulon steindachneri* (JORDAN & GILBERT), Haemulidae.

Site of infestation: distal portion of gill filaments.

Type locality: Itacuruçá, Sepetiba Bay, State of Rio de Janeiro, Brazil.

Prevalence: 30.0%.

Intensity of infestation: 49 in 24 hosts.

Mean intensity of infestation: 2.0.

Specimens examined: Two paratypes of *Mexicana bychowskyi* (N-216-24) and two paratypes of *M. littoralis* (N-218-3), from the UNAM.

Specimens deposited: USNM Holotype N° 83181, paratypes N°s 83182, 83183, 83184, CHIOC paratype N°s 33109 - 33110.

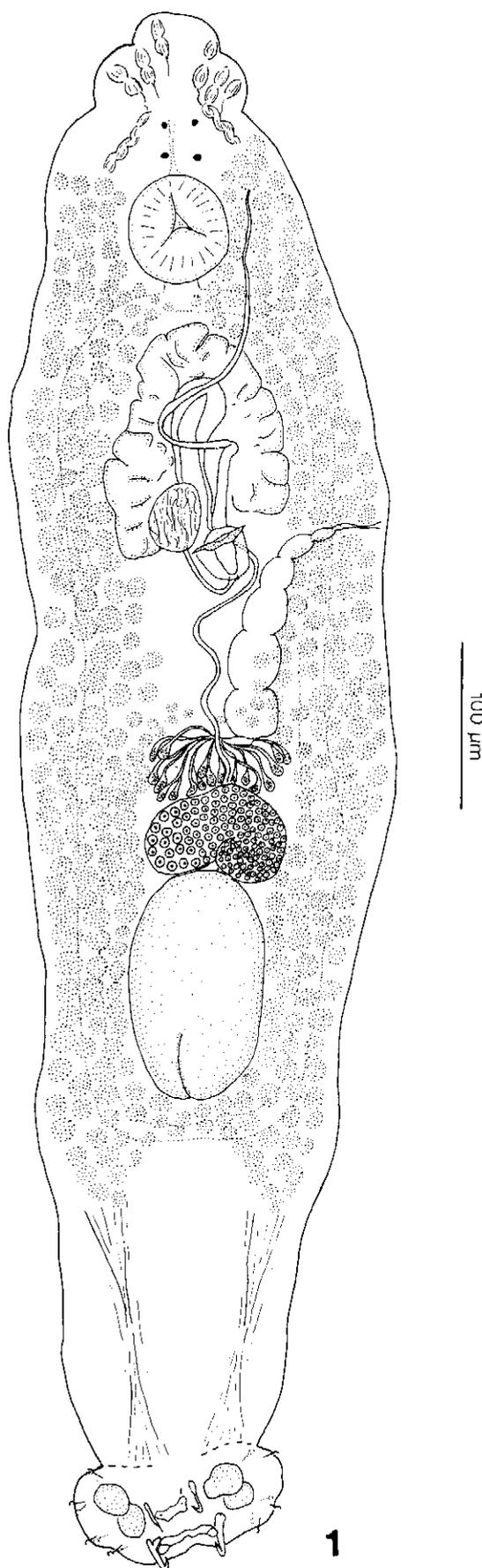


Fig. 1 - *Mexicana atlantica* n. sp. - holotype, entire worm, dorsal view.

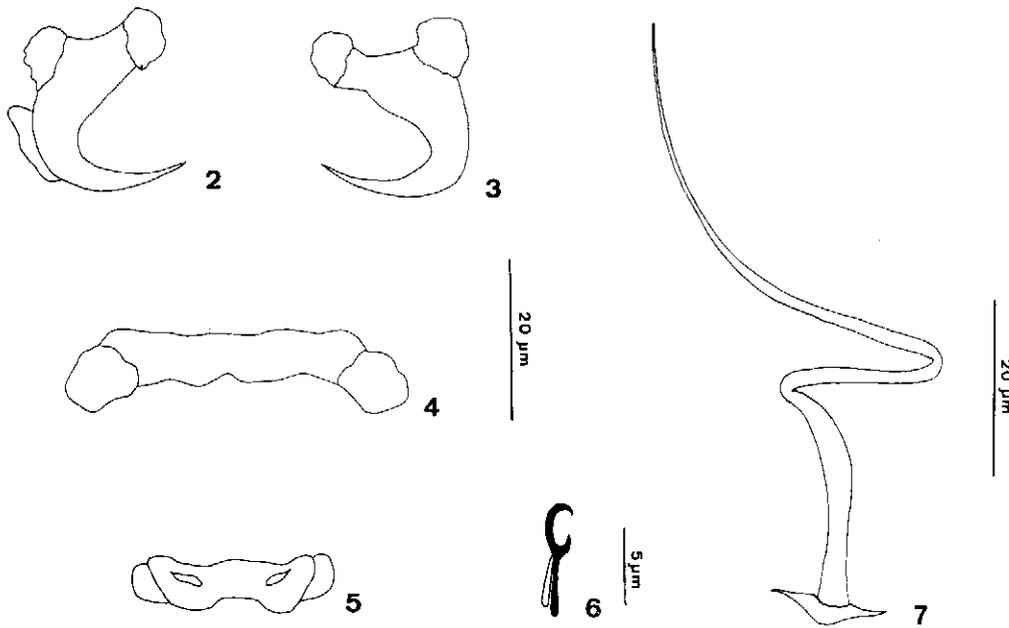
Fig. 2-7: *Mexicana atlantica* n. sp.

Fig. 2: dorsal anchor. Fig. 3: ventral anchor. Fig. 4: dorsal bar. Fig. 5: ventral bar. Fig. 6: hook. Fig. 7: copulatory organ.

Etymology: The specific name *atlantica* refers to the first record of the genus *Mexicana* in the Atlantic Ocean.

Remarks

The genus *Mexicana* was proposed by CABALLERO & BRAVO-HOLLIS (1959). The type species *Mexicana bychowskyi* was described from specimens collected from an undetermined host. Later, CABALLERO & BRAVO-HOLLIS (1961) described an additional species, *Mexicana littoralis* parasite of *Haemulon sexfasciatum* Gill. Both *M. bychowskyi* and *M. littoralis* were collected from the Mexican Pacific Ocean. Additional hosts (*Orthostoechus maculicauda* Gill for *M. bychowskyi* and *Haemulon scudderii* Gill for *M. littoralis*) were recorded by BRAVO-HOLLIS & CABALLERO (1979). Description of *M. littoralis* provided additional information about the reproductive system of *Mexicana* species, thus, an emended diagnosis is presented by CABALLERO & BRAVO-HOLLIS (1961). However, observation of type material of both species, indicated that the authors confused some structures of the reproductive system as seminal vesicle, prostatic reservoir, ovary and Mehlis' gland. Observation of paratypes indicated that the structure named as ovary in *M. bychowskyi* is in fact the Mehlis' gland. The ovary in *M. bychowskyi* is bilobed as in the other species, *M. littoralis*. Moreover, the examination of *M. littoralis* paratypes showed that the structure considered as seminal vesicle is in fact the prostatic reservoir. The seminal vesicle is a structure poorly differentiated in the genus *Mexicana*. In the emended diagnosis of CABALLERO & BRAVO-HOLLIS (1961) the presence of "ramified" ovary and "spherical" seminal vesicle are assumed erroneously as generic characters.

According with the examination of type material and descriptions by the authors (based mainly in the sclerotized

haptor pieces), *M. bychowskyi* and *M. littoralis* are different species. However, by the reasons explained above, a full redescription of *M. bychowskyi* on the basis of additional collected material is recommended.

Mexicana atlantica n. sp. is differentiated from the other known species of *Mexicana* by: 1. the characteristic of the transversal sclerotized pieces of the copulatory organ base (fusiform in the new species, cow horn-shape in the others species), and 2. by the characteristics of the haptor sclerotized pieces.

SUMÁRIO

Mexicana atlantica n. sp. (Monogenea), parasita das brânquias do peixe haemulídeo *Haemulon steindachnery* da costa do Estado do Rio de Janeiro, Brasil, é descrita e ilustrada. A nova espécie pode ser diferenciada da outra espécie de *Mexicana* pela forma da peça esclerotizada transversal da base do órgão copulador e pelas características das peças esclerotizadas do haptor. A diagnose genérica do *Mexicana* é emendada. Este é o primeiro registro do gênero *Mexicana* no Oceano Atlântico.

ACKNOWLEDGEMENTS

To Dr. José Lima de Figueiredo (Seção de Peixes do Museu de Zoologia da Universidade de São Paulo, USP) for the identification of the fishes; to Dr. Rafael Lamothe-Argumedo (Curator of the Colección Helmintológica de la Universidad Nacional Autónoma de México) for the loan of type specimens deposited at his Institution; and to Prof. Abner Chiquieri (Instituto de Ciências Humanas e Sociais, Universidade Federal Rural do Rio de Janeiro) for the suggestion on the specific name of the new species.

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(Received December 12, 1992)