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ORIGINAL ARTICLE / ARTÍCULO ORIGINAL

A NEW SPECIES OF *MEXICANA* (MONOGENEA: DACTYLOGYRIDAE) PARASITIC ON TWO SPECIES OF *ANISOTREMUS* (PERCIFORMES: HAEMULIDAE) FROM THE BRAZILIAN COASTAL ZONE

UNA NUEVA ESPECIE DE *MEXICANA* (MONOGENEA: DACTYLOGYRIDAE) PARÁSITO DE DOS ESPECIES DE *ANISOTREMUS* (PERCIFORMES: HAEMULIDAE) DE LA COSTA BRASILEÑA

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Abstract

Mexicana anisotremum n. sp. (Monogenea) a gill filaments parasite of two species of fishes of the genus *Anisotremus* from the coast of the state of Rio de Janeiro, Brazil (approx. 21-23º S, 42-45º W), is described and illustrated. The monogeneans were collected from 32 specimens of *Anisotremus virginicus* (Linnaeus, 1758), and 13 specimens of *A. surinamensis* (Bloch, 1791) (Haemulidae). The new species of *Mexicana*, differs from *M. atlantica* Luque, Amato & Takemoto, 1992 by: 1. presence of a sclerotized structure with six spines in vaginal vestibule; 2. absence of bilobed testes; and 3. Presence of copulatory organ without sclerotized piece at its base.

Key words: *Anisotremus* - Atlantic Ocean - Brazil - Marine fish - Monogenea - Neotropics.

Resumen

Mexicana anisotremum n. sp. (Monogenea) un parásito branquial de las especies de peces del género *Anisotremus* de la costa del estado de Rio de Janeiro, Brasil (aprox. 21-23º S, 42-45º W), es descrita e ilustrada. Los monogéneos se obtuvieron de 32 especímenes de *Anisotremus virginicus* (Linnaeus, 1758), y 13 *A. surinamensis* (Bloch, 1791) (Haemulidae). La nueva especie de *Mexicana* difiere de *M. atlantica* Luque, Amato y Takemoto, 1992 por: 1. presencia de una estructura esclerotizada con seis espinas en el vestíbulo vaginal, 2. el testículo no es bilobulado, y 3. órgano copulador, sin pieza esclerotizada en la base.

Palabras clave: *Anisotremus* - Brasil - Monogenea - Neotrópico - Océano Atlántico - Peces marinos.

INTRODUCTION

Haemulid fishes of the genus *Anisotremus* (Linnaeus, 1758) are widely distributed in the Neotropics (Froese & Pouly, 2011). In the Brazilian littoral, three species are known: *Anisotremus virginicus* (Linnaeus, 1758), *A. surinamensis* (Bloch, 1791) and *A. bicolor* (Castelnau, 1850) (Menezes & Figueiredo, 1980). Nevertheless, none monogeneans species were recorded in Brazilian species of this fish genus.

During the study of parasite biodiversity in haemulids from the coast of state of the Rio de Janeiro, several specimens of monogeneans identified as a new species of *Mexicana* Caballero & Bravo-Hollis, 1959 were collected. This new species is discribed and illustrated herein. This is the second record of *Mexicana* species in the South American Atlantic Ocean, and the first record in *Anisotremus* species.

MATERIAL AND METHODS

Thirty-two specimens of *Anisotremus virginicus* (Linnaeus, 1758), and 13 specimens of *Anisotremus surinamensis* (Bloch, 1791) were examined between March 2010 and June 2011. Fishes were captured from the coast of the State of Rio de Janeiro (nearly 21-23S and 42-45W) by professional fishermen. The specimens of *A. virginicus* measured 23.1 to 35.3 cm in standard length and weighted 202.6 to 774 g, and the specimens of *A. surinamensis* measured 23 to 54 cm in standard length and weighted 220 to 2620 g. The identification of the host was made according to Menezes & Figueiredo (1980).

The monogeneans were removed from de gills, washed in 0.65% saline solution and fixed and preserved in formaline 5%. Some specimens were stained with Gomori's trichome and mounted in Canada balsam. Other specimens were mounted in Gray & Wess medium (Humason, 1979) for study their sclerotized pieces. The illustrations were made with the aid of a drawing tube. The measurements are given in micrometers (m) unless otherwise indicated and the range is followed by the mean within parentheses. The terms mean intensity of infestation and prevalence were used according to Bush *et al.* (1997). The holotype and paratypes were deposited in the Helminthological Collection of Instituto Oswaldo Cruz (CHIOC), Rio de Janeiro, RJ, Brazil.

DESCRIPTION

Monogenea van Beneden, 1858
Dactylogyridae Bychowsky, 1933
Mexicana anisotremum n. sp.

DESCRIPTION (based on 15 specimens stained and mounted, 6 specimens measured): Body elongate (Fig. 1). Total length 684 – 997 (826), maximum width at ovary level 142 - 256 (213). Cephalic region with three terminal, well developed lobes. Cephalic organs and glands extended to eyes. Eyes four, similar size equidistant. Haptor poorly differentiated 51-75 (66) long, 102-165 (123) wide, cephalic lobes indistinct. Anchors subequal, dorsal anchor (Fig. 2) 38-51 (46) long, ventral anchor (Fig. 3) 47-53 (50) long; anchors nakedand robust, curvature to the middle part; dorsal bar (Fig. 4) 35-44 (37) long, with ondulated surfaces; ventral bar 29-33 (31) long, ventral bar (Fig. 5) with high lateral and medial prominence; hooks 14 (Fig. 6), similar in shape and size, short shank, erect thumb, curved shaft, delicate point, filamentous hook about 90% of shank length. Pharynx pyriform or ovoid 39-63 (51) long, 33-54 (43) wide; intestinal ceca confluent posteriorly. Testis 72-144 (118) long, 42-117 (65) wide, ovoid; vas deferens thick; prostatic glands well developed, prostatic reservoir subspherical; copulatory organ long (Fig. 7), slightly sinuous, curved distal point. Ovary bilobed, 79-197 (129) long, 118-256 (162) wide; Mehlis' gland upon ovary, with elongate and pedunculated cells; vagina sacciform; vaginal pore dextrolateral; vaginal vestibule with six spines (Fig. 8); at level of copulatory organ base; vitellaria scattered throughout trunk, absent in region of reproductive organs. Eggs not observed.

Taxonomic Summary

Type host: *Anisotremus virginicus* (Linnaeus, 1758) (Haemulidae)

Other host: *Anisotremus surinamensis* (Bloch, 1791) (Haemulidae)

Type locality: coastal zone of the State of Rio de Janeiro, Brazil (nearly 21-23S and 42-45W).

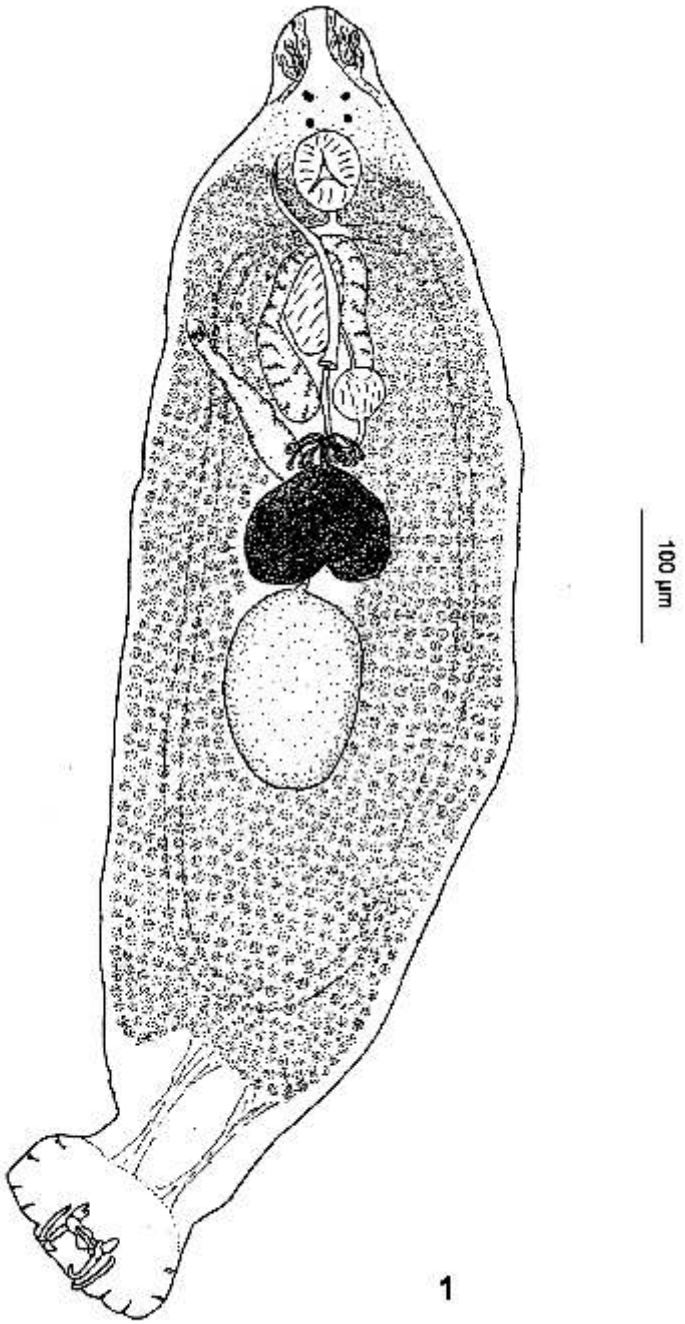
Site of infestation: gills.

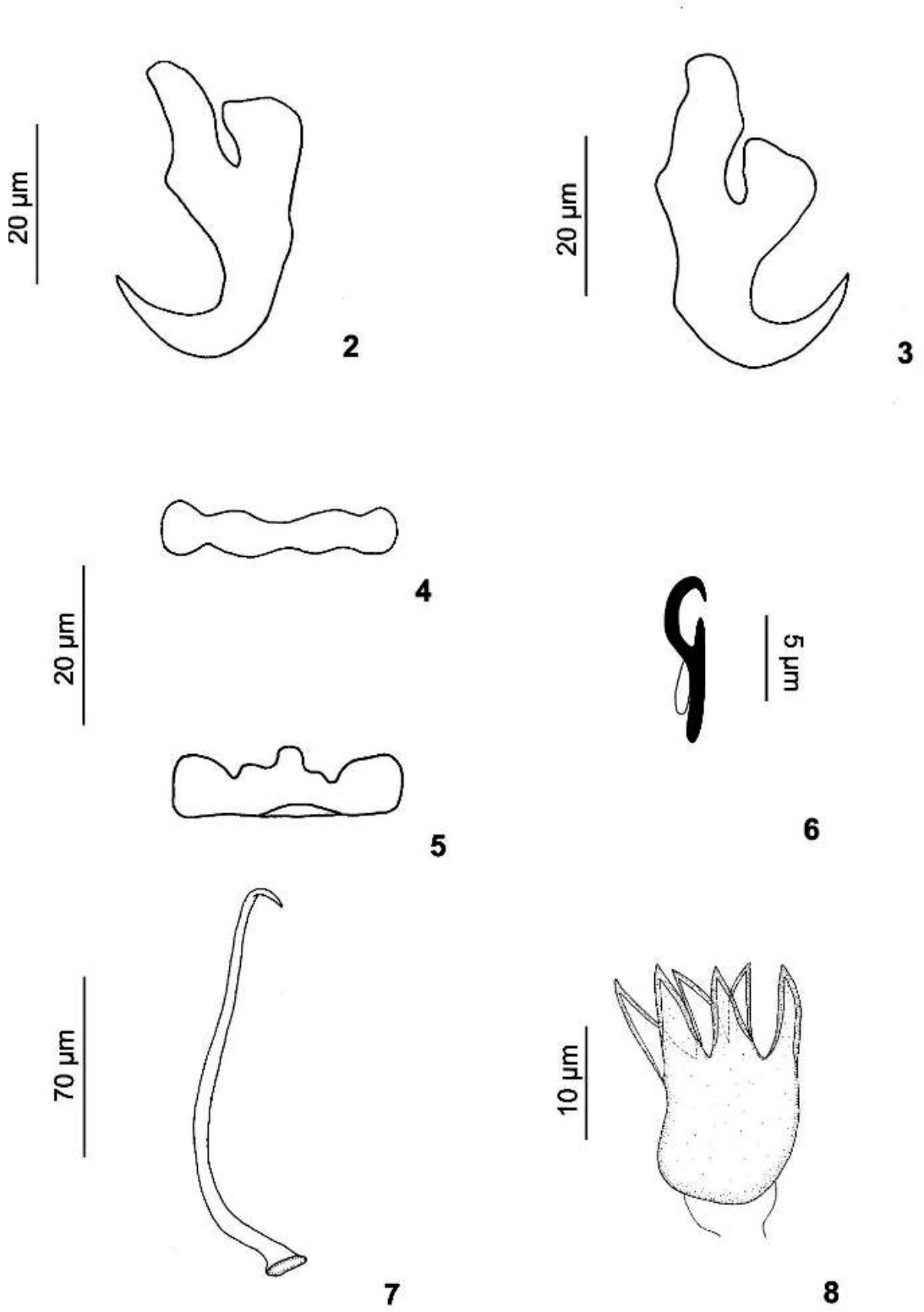
Type specimens: Holotype CHIOC N°37767, two paratypes CHIOC N°s 37768 and 37769.

Etymology: The specific name is refers to genus of the hosts.

Prevalence: 23 % on *A. surinamensis* and 31 % on *A. virginicus.*

Mean Intensity of infestation: 5.3 on *A. surinamensis* and 13.5 *A. virginicus.*





Figures 1-8. *Mexicana anisotremum* n. sp. Fig. 1. Holotype, ventral view. Fig. 2. dorsal anchor. Fig. 3. ventral anchor. Fig. 4. dorsal bar. Fig. 5. ventral bar. Fig. 6. hook. Fig. 7. copulatory organ. Fig. 8. vaginal vestibule

DISCUSSION

The genus *Mexicana* was proposed by Caballero & Bravo-Hollis (1959) with the description of *Mexicana bychowsky* Caballero & Bravo-Hollis, 1959 using specimens collected from an undetermined host, from the Mexican Pacific Ocean. The other species the same genus from the Mexican Pacific waters is *Mexicana littoralis* described by Caballero & Bravo-Hollis (1961) a parasite from *Haemulon sexfasciatum* Gill, 1862. Later, Luque *et al.* (1992) described *Mexicana atlantica* parasitizing *Haemulon steindachneri* (Jordan & Gilbert, 1882) from de Brazilian coast and recorded by the first time *Mexicana* species from Atlantic Ocean. Based on the morphology of male and female reproductive system and also the structures of the haptor, the new species is most similar to *M. atlantica*, but the new species can be separated by the following characteristics: 1. presence six spines in vaginal vestibule which is absent in the other *Mexicana* species. 2. no bilobed testes. The other species of the genus have bilobed testes in their posterior portion; and 3. copulatory organ, long, without sclerotized piece at its base, while *M. atlantica* has copulatory organ base with transversal fusiform piece sclerotized.

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