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A new species of *Demidospermus* Suriano, 1983 (Monogenea) parasite of gills of *Auchenipterus osteomystax* (Auchenipteridae), from the upper Paraná river floodplain, Brazil

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ABSTRACT. A new species of *Demidospermus* Suriano, 1983 is described from the gills of *Auchenipterus osteomystax* Miranda-Ribeiro, 1918 (Auchenipteridae), collected in the upper Paraná river floodplain, Brazil. The gills were removed and preserved in 5% formalin. Later the parasites were removed from the gills with the aid of a stereomicroscope and conserved in 70% alcohol. Some specimens were stained with Gomori's trichrome, dehydrated in absolute alcohol and cleared with faia creosote to observe the internal organs. Other specimens were mounted in Hoyer's medium for the study of the sclerotized structures. The present study describes a new monogenetic species, *Demidospermus osteomystax* n. sp., characterized by: tandem gonads; V-shaped haptor bars with articulation; sinistral, non-sclerotized vagina; same-size anchors and absence of bulb in the cirrus.

Keywords: *Auchenipterus osteomystax*, *Demidospermus*, parasite, Monogenea, Paraná river.

RESUMO. Uma nova espécie de *Demidospermus* Suriano, 1983 parasita de brânquias de *Auchenipterus osteomystax* da planície de inundação do alto rio Paraná, Brasil. Uma nova espécie de *Demidospermus* Suriano, 1983 parasita de brânquias de *Auchenipterus osteomystax* Miranda-Ribeiro, 1918 (Auchenipteridae) é descrita. Os peixes foram coletados na planície de inundação do alto rio Paraná, Brasil. As brânquias foram removidas e conservadas em formalina 5% e posteriormente os parasitas foram removidos com o auxílio de um esteromicroscópio e conservados em álcool 70%. Alguns espécimes foram corados com Tricômio de Gomori, desidratados em álcool absoluto e clarificados com creosoto de faia para a observação dos órgãos internos. Outros espécimes foram montados em Hoyer para estudo das estruturas esclerotizadas. O presente estudo descreve uma nova espécie de monogenético, *Demidospermus osteomystax* n. sp., caracterizada pela presença de gônadas em tandem; barras do haptor em forma de V, com articulação; vagina sinistra, não-esclerotizada; ancoras do mesmo tamanho e ausência do bulbo do cirro.

Palavras-chave: *Auchenipterus osteomystax*, *Demidospermus*, parasito, Monogenea, rio Paraná.

Introduction

Auchenipterus osteomystax Miranda-Ribeiro, 1918 (Auchenipteridae) is a siluriform fish that inhabits benthopelagic freshwater environments and is found in the basins of the rivers Paraná, Tocantins and Amazonas. There are only a few studies about this species and its helminth parasites.

During a survey on parasites of *A. osteomystax* from the upper Paraná river floodplain, a new species of *Demidospermus* was collected from the gills. The parasite is described and illustrated. This is the first record of a monogenean parasitizing the gills of these hosts.

Material and methods

Forty-one specimens of *Auchenipterus osteomystax* were collected through gill-nets in the Baía river, Patos Lagoon, Iguatemi river and Ivinheima river, all located in the upper Paraná river floodplain, between March 2004 and March 2005. The gills were removed and preserved in 5% formalin. Later the parasites were removed from the gills with the aid of a stereomicroscope and conserved in 70% alcohol. Some specimens were stained with Gomori's trichrome, dehydrated in absolute alcohol and cleared with faia creosote to observe the internal organs. Other specimens were mounted in Hoyer's medium for the study of the sclerotized structures

(EIRAS et al., 2006). Measurements, all in micrometers, are expressed as the mean, followed by the range and number of specimens measured in parenthesis. Illustrations were made with the aid of a drawing tube and a Nikon YS2 microscope. Holotype and paratypes were deposited in the Helminthological Collection of 'Instituto Oswaldo Cruz' (CHIOC), Rio de Janeiro State, Brazil. The ecological terminology follows Bush et al. (1997) and the terminology of the haptor sclerites follows Kritsky and Mizelle (1968) and related papers.

Results

Demidospermus Suriano, 1983

Demidospermus osteomystax n. sp. (Figures 1 and 2)

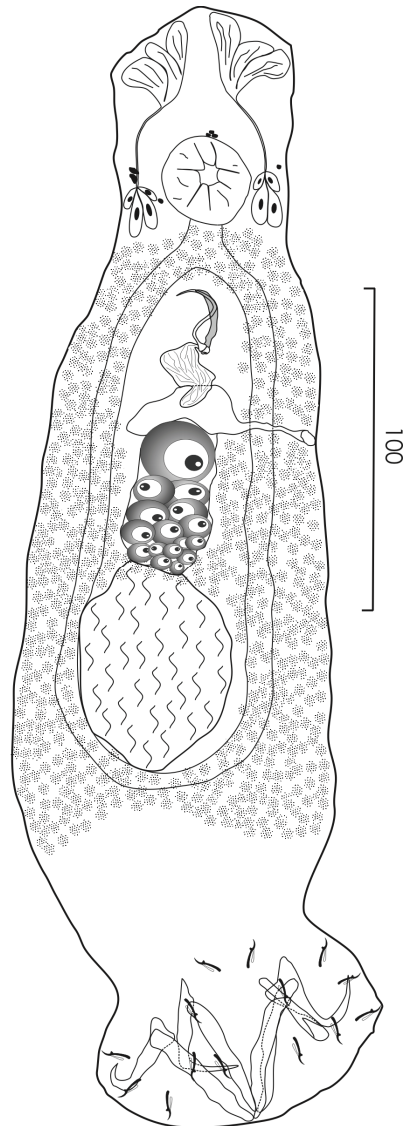


Figure 1. Composite drawing of *Demidospermus osteomystax* n. sp., ventral view.

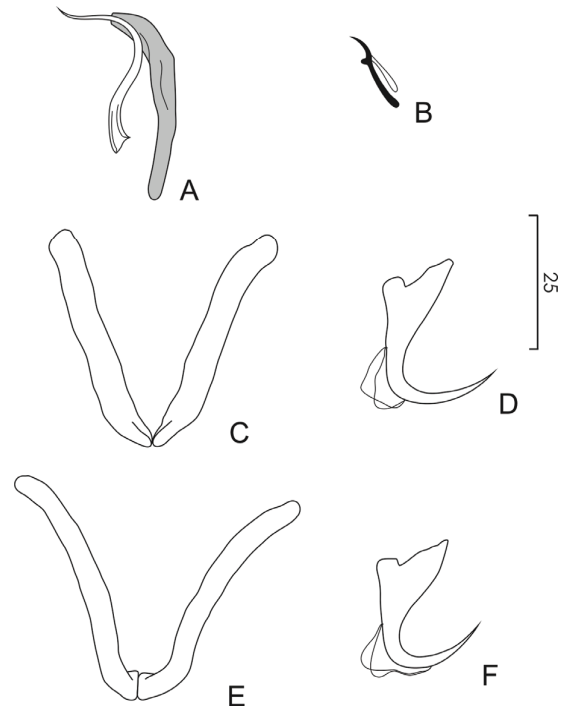


Figure 2. *Demidospermus osteomystax* n. sp.: A. Copulatory complex; B. Hook; C. Ventral bar; D. Ventral anchor; E. Dorsal bar; F. Dorsal anchor.

Description [Based upon 15 specimens.] Body 408 (320-540; n = 11) long, fusiform; greatest width 109 (80-190; n = 11) near the level of testis. Head organs and cephalic lobes present; cephalic glands posterolateral to pharynx. Eyes formed by dispersed granules. Pharynx subspherical, 29 (25-34; n = 5) long, 26 (23-30; n = 5) wide; oesophagus short. Peduncle broad and short; Haptor subhexagonal, 61 (39-74; n = 9) long, 85 (71-108; n = 9) wide. Ventral anchors 25 (23-28, n = 8) long, base 15 (14-16; n = 8) wide. Dorsal anchors 24 (21-27, n = 8) long, base 15 (11-16, n = 7) wide. Bars V-shaped; ventral bar 35 (28-41; n = 9) long, distance between ends 43 (33-61, n = 9); dorsal bar 39 (33-47, n = 9) long, distance between ends 41 (30-50, n = 9). Haptor with 7 pairs of hooks, similar in form and size, 14 (13-15, n = 10) long. Shaft with recurved point; FH loop about 8/9 shank length. Cirrus 36 (29-48, n = 12) long; accessory piece associated with half of the copulatory organ, 30 (25-38, n = 12) long. Gonads tandem; testis posterior to ovary, 41 (33-48, n = 4) long, 27 (20-34, n = 4) wide. Eggs not observed. Sinistral vaginal aperture; vaginal canal composed of delicate non-sclerotised pipe. Vitellaria throughout the trunk, except in the areas of the reproductive structures.

Type host: *Auchenipterus osteomystax* Miranda-Ribeiro, 1918.

Type locality: upper Paraná river floodplain, Brazil (22°50'–22°70'S and 53°15'–53°40'W).

Site: Gills.

Infestation: Prevalence 68.3% (28 of 41 examined fish). Mean intensity: 24.4.

Specimens deposited: CHIOC no. 37252a (holotype); nos 37252b, 37253, 37254 (paratypes).

Etymology: The specific epithet refers to the specific name of the host.

Remarks

Demidospermus was proposed by Suriano (1983) for *D. anus* Suriano, 1983 from de gills of *Loricaria anus* Valenciennes, 1836 (Loricariidae) in Argentina and is commonly found parasitizing Neotropical siluriform fishes (Loricariidae, Pimelodidae and Auchenipteridae) (KOHN; COHEN, 1998). Gutiérrez and Suriano (1992) added generic characteristics and Kritsky and Gutiérrez (1998) proposed an emended diagnosis which characterizes *Demidospermus* as species having: tandem gonads; counterclockwise coiled male copulatory organ; sinistral vaginal aperture; U-, W-, or V-shaped haptor bars; subspherical eye granules and a sheath like accessory piece serving as a guide for the male copulatory organ. Suriano (1983) considered the presence of encapsulated sperm (sperm packets) within the testis of adult worms an autapomorphic feature of the genus. But, according to Kritsky and Gutiérrez (1998) the sperm packets are not always present or visible in some specimens of the described species and they also did not observe them in any of their specimens. Thus, the authors considered that this characteristic is not reliable in defining the genus. Species of the genus *Demidospermus* was recorded parasitizing another siluriform fish, *Iheringichthys labrosus*, from the upper Paraná river floodplain by França et al. (2003).

Demidospermus osteomystax n. sp. is similar to *D. anus* Suriano, 1983 in the following characteristics: marginal hooks of same form and size, dorsal and ventral bars V-shaped (similar to the dorsal bar of *D. anus*) and similar anchors. *Demidospermus osteomystax* n. sp. is also similar to *D. mandi* França et al., 2003 from the gills of *Iheringichthys labrosus* in the following characteristics: similar accessory piece of the male copulatory organ, ventral and dorsal bars V-shaped, and accessory piece associated with half of the male copulatory organ. However, *D. osteomystax* n. sp. differs from these species by the presence of non-sclerotized vagina, ventral and dorsal bars with articulation and absence of bulb in the cirrus.

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