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VERSITA

A new species of *Kritskyia* (Monogenea, Dactylogyridae) parasitic in the urinary bladder of *Salminus brasiliensis* (Characiformes) from the Pantanal wetlands, Brazil

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Abstract

A new species of *Kritskyia* Kohn, 1990 (Monogenea, Dactylogyridae, Ancyrocephalinae) is described from the urinary bladder of *Salminus brasiliensis* (Cuvier, 1816) (Characiformes, Characidae) from the Cuiabá River, the Pantanal wetlands, Brazil. The male copulatory apparatus of the new species differs from those of other species of the genus by the presence of a bipartite accessory piece (distally and proximally linked), one part grooved, serving as guide for distal portion of the MCO. Moreover, the vagina of the new species differs from those of congeners by possessing distal digitiform processes.

Keywords

Monogenea, Dactylogyridae, *Kritskyia salmini* sp. nov., *Salminus brasiliensis*, Characidae, Cuiabá River, Brazil

Introduction

Salminus brasiliensis (Cuvier, 1816) (Characidae), Dourado, is a potamodromous fish widely distributed in Paraná, Paraguay, and Uruguay river basins, the Laguna dos Patos drainage in Brazil and the upper Chaparé and Mamoré river basins in Bolivia (Froese and Pauly 2010). To date, the only monogenean species recorded parasitizing *S. brasiliensis* is *Rhinoxenus bulbovaginatus* Boeger, Domingues et Pavanelli, 1995, found in the nasal cavities of host specimens collected from the Paraná River, Brazil (Boeger *et al*. 1995).

Kritskyia Kohn, 1990 is a dactylogyrid genus which includes species with a semicircular haptor, well set off from trunk, armed with 14 ventrally-orientated marginal hooklets and no other haptor sclerites and anchors, bars and 4A's hooks absent (see emended diagnosis made by Boeger *et al*. 2001). These species are parasites of urinary bladders and ureters of freshwater Neotropical fishes. Currently, four species of *Kritskyia* Kohn, 1990 have been described: *K. moraveci* Kohn, 1990, *K. annakohnae* Boeger, Tanaka et Pavanelli, 2001, *K. boegeri* Takemoto, Lizama et Pavanelli, 2002 and *K. eirasi* Guidelli, Takemoto et Pavanelli, 2003.

During a parasitological survey of *S. brasiliensis* from Cuiabá River, State of MatoGrosso, Brazil, a previously undescribed species of *Kritskyia* was found in the urinary bladder and is described in this paper.

Materials and methods

Thirty three specimens of *S. brasiliensis* were collected from the Cuiabá River (17°50'48"S, 57°24'6"W), in the PARNA (National Park of Pantanal wetlands), State of Mato Grosso, Brazil, during 2008 and 2009. The monogenean specimens were removed from the urinary bladder and preserved in 4% formalin.

Some specimens were stained with Gomori's trichrome and mounted in Canada balsam for anatomical study of internal organs. Other specimens were mounted in Gray and Wess's medium (Humason 1979) for the study of sclerotized structures. Measurements, all in micrometers, are expressed as the mean, followed in parentheses by the range and number of specimens measured. The illustrations were made with the aid of a drawing tube mounted on a Hund Wetzlar H-600

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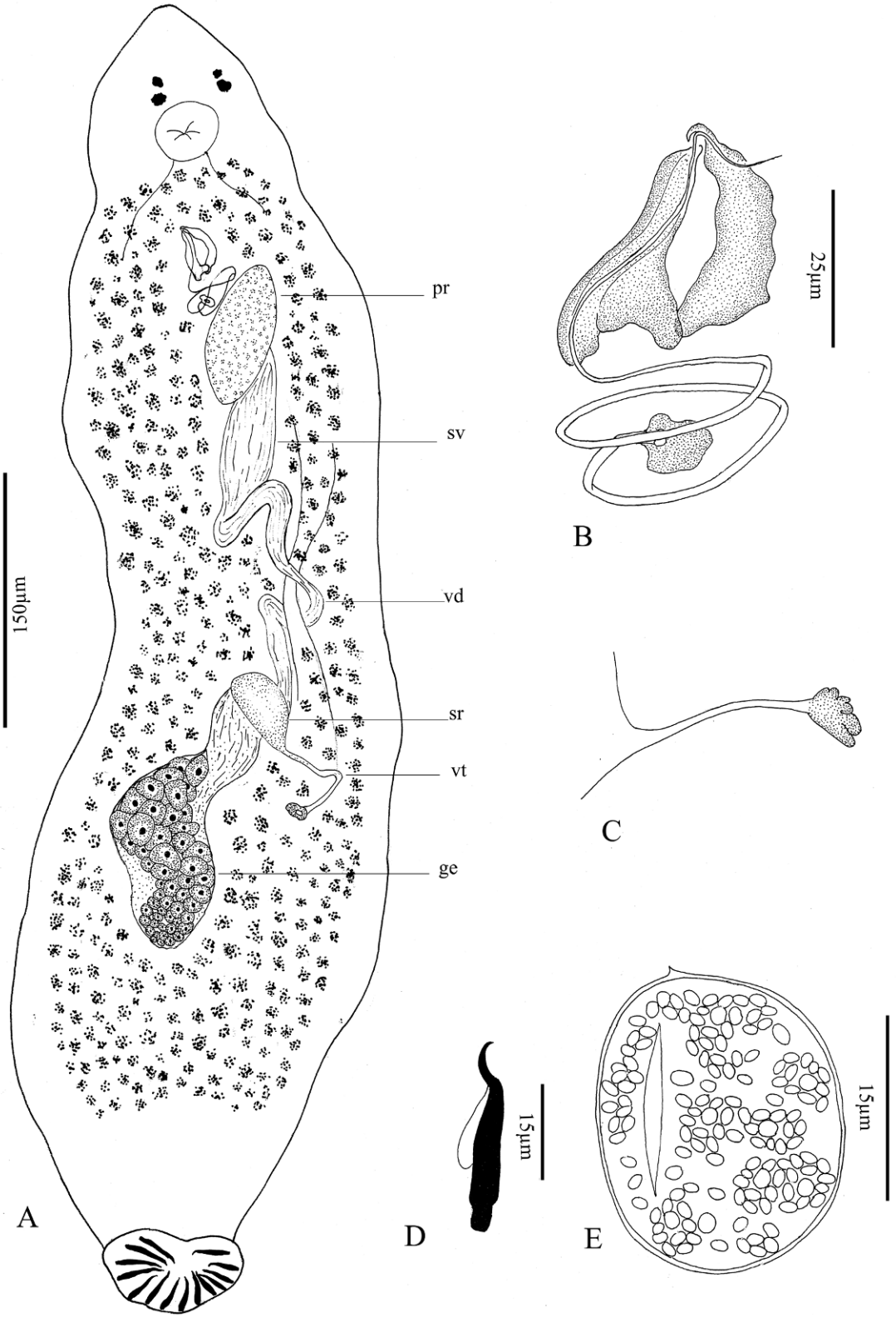

Fig. 1. *Kritskyia salmini* sp. nov.: **A** – holotype, ventral view; pr – prostatic reservoir, sv – seminal vesicle, vd – vas deferens, sr – seminal receptacle, vt – vaginal tube, ge – germarium; **B** – copulatory complex (ventral view); **C** – vagina; D – hook; **E** – egg

phase contrast microscope. The terminology used to describe hooks and anchors is that of Boeger *et al*. (2001). Type specimens were deposited in the Helminthological Collection of the Institute Oswaldo Cruz (CHIOC), Rio de Janeiro, and in the Invertebrates Collection of the Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil.

Results

***Kritskyia salmini* sp. nov.** (Fig. 1A-E)

Description (based on 20 specimens: 12 stained with Gomori's trichrome, 8 mounted in Gray and Wess's medium): Body elongate 1105 (656–1876, n = 13) long; maximum width 225 (142–392, n = 13). Cephalic lobes poorly developed; head organs and cephalic glands indistinct. Eye spots 4, lying dorsal to anterior margin of pharynx. Pharynx spherical, 54 (38–68, n = 13) in diameter; oesophagus short. Peduncle broad; haptor semicircular 40 (23–56, n = 16) long; 108 (80–164, n = 16) wide. Hooks similar in size and shape, 32 (29–35, n = 14) long, each with flattened thumb, delicate point, expanded shank comprising two subunits; filamentous hooklet (FH) loop about 1/2 shank length. Male copulatory organ (MCO) a clockwise coil of about two rings, base with a sclerotized fringe, proximal ring diameter 45 (43–50, n = 6). Accessory piece 57 (52–65, n = 8) long, bipartite (distally and proximally linked), one part grooved, serving as guide for distal portion of the MCO. One prostatic reservoir, elongated. Gonads overlapping; testis 37 (21–60, n = 5) long, 52 (44–64, n = 5) wide, dorsal; germarium elongate, 163 (110–198, n = 9) long, 5 (38–60, n = 9) wide; vas deferens loops left; seminal vesicle a dilatation of vas deferens. Vagina a sclerotized tube, sinistral, equatorial, opening into fusiform seminal receptacle. Vaginal aperture with distal digitiform processes. Egg spherical 112 (88–144, n = 4) long, filament not observed.

Type host: *Salminus brasiliensis* (Cuvier, 1816) (Characidae).

Site of infection: Urinary bladder.

Type locality: Cuiabá River, Pantanal wetlands, State of Mato Grosso, Brazil (17°50′ 48″S, 57°24′6″W), July 2008 and 2009.

Type specimens: holotype CHIOC No. 37533a; paratypes CHIOC No. 37533b-j, INPA No. 485a-j.

Etymology: The specific name refers to genus name of the type host.

Discussion

All species of *Kritskyia*, except *K. salmini* sp. nov., were described from southern Brazil: *K. moraveci* parasitic on *Rhamdia quelen* (Quoy et Gaimard, 1824) from Passo Fundo, State of Rio Grande do Sul; *K. annakohnae* on *Serrasalmus marginatus* Valenciennes, 1836 and *S. spilopleura* Kner, 1858 from the Baía River, Paraná; *K. boegeri* in *Prochilodus lineatus* (Valenciennes, 1836) and *K. eirasi* on *Leporinus lacustris* Campos, 1945 from Upper Paraná River (Kohn 1990, Kritsky *et al*. 1996, Boeger *et al*. 2001, Takemoto *et al*. 2002, Guidelli *et al*. 2003).

The new species differs from the other congeners mainly by the shape of the accessory piece of the MCO and by the distal digitiform ornamentation of the vagina. *K. salmini* sp. nov. most resembles *K. moraveci* by the morphology of the accessory piece. *K. moraveci* Kritsky *et al*. (1996) was redescribed having a unipartite accessory piece, sheath-like with a longitudinal groove at the distal end. In the new species, the accessory piece is bipartite (distally and proximally linked), one part grooved, serving as guide for distal portion of the MCO. *K. salmini* sp. nov. is also differentiated from *K. moraveci* in the size of the first ring of the MCO (i.e. 45 *vs* 28 in *K. moraveci*) and accessory piece (i.e. 57 *vs* 28 in *K. moraveci*). In other features, *K. salmini* sp. nov. differs from *K. moraveci* by having the vagina as a digitiform sclerotized tube, equatorial. *K. moraveci* presents a vagina lightly sclerotized, without the digitiform processes.

The original diagnosis of the genus (Kohn 1990), the first emended diagnosis made by Kritsky *et al*. (1996) and the second emended diagnosis made by Boeger *et al*. (2001) indicated the presence of two prostatic reservoirs. However, with exception of *K. moraveci*, all known species of *Kritskyia* (including the new species described here) exhibit only one prostatic reservoir. Thus, we recommended the addition of this latter characteristic in the generic diagnosis of *Kritskyia* in order to include species with one prostatic reservoir. Present study provides the first description and/or report of one species of *Kritskyia* off Southern Brazil.

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