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Sciadicleithrum meekii sp. n. (Monogenea: Ancyrocephalinae) from the gills of *Cichlasoma meeki* (Pisces: Cichlidae) from cenotes (= sinkholes) of the Yucatan Peninsula, Mexico

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Abstract. *Sciadicleithrum meekii* sp. n. is described from the gills of the cichlid fish *Cichlasoma meeki* (Brind) from cenotes (= sinkholes) of the Yucatan Peninsula, Mexico.The new species differs from congeners by having a dorsal hamuli with a prominent superficial root articulated with a straight shaft and curved point, and a vagina with a coiled tube comprised of one ring.

The genus *Sciadicleithrum* Kritsky, Thatcher et Boeger, 1989 accommodates dactylogyrids possessing overlapping gonads, a coiled male copulatory organ with clockwise rings, unmodified anchors, a ventral bar with two umbelliform membranes or cavities on the anterior bar margin, and similar marginal hooks with undilated shanks and erected thumb. Three species of *Sciadicleithrum* have been described from the native cichlids of the Peninsula of Yucatan (Kritsky et al. 1994), namely *S. mexicanum* Kritsky, Vidal-Martínez et Rodríguez-Canul, 1994 from *Cichlasoma urophthalmus; S. bravohollisae* Kritsky, Vidal-Martínez et Rodríguez-Canul, 1994 from *C. pearsei* and *C. synspilum;* and *S. splendidae* Kritsky, Vidal-Martínez et Rodríguez-Canul, 1994 from *Petenia splendida.* In addition, nine species of *Sciadicleithrum* have been described from endemic cichlids from South-America (Kritsky et al. 1989) as follows: *S. uncinatum* Kritsky, Thatcher et Boeger, 1989; *S. umbilicum* Kritsky, Thatcher et Boeger, 1989; and *S. ergensi* Kritsky, Thatcher et Boeger, 1989 from *Cichla ocellaris; S. tortrix* Kritsky, Thatcher et Boeger, 1989 from *Uaru amphiacanthoides*; *S. iphthimum* Kritsky, Thatcher et Boeger, 1989 from *Pterophyllum scalare; S. geophagi* Kritsky, Thatcher et Boeger, 1989 from *Geophagus surinamensis; S. variabilum* Kritsky, Thatcher et Boeger, 1989 from *Symphysodon discus,* and *S. aequidens;* and *S. cavanaughi* Kritsky, Thatcher et Boeger, 1989 from *Aequidens maroni.* Therefore, twelve species of *Sciadicleithrum* have been described for tropical America so far. Even though, the study of this genus is rather incomplete and taxonomical studies are necessary, especially in Southern Mexico and Central America.

During investigations into the helminth fauna of fishes from cenotes, unique water habitats of the Yucatan Peninsula, another species of *Sciadicleithrum* was found on the gills of the cichlid, *Cichlasoma meeki* (Brind). Herein it is described as a new species.

MATERIALS AND METHODS

Cichlasoma meeki (Brind) fishes were collected in cenotes of the Yucatan Peninsula by line and hook or casting between September 1993 and in January 1995 and July 1996 (Scholz et al. 1995). The gills were removed to Petri dishes with tap water and examined under a dissecting microscope. Monogeneans were fixed with ammonium picrate (Ergens 1969). All measurements are in micrometres (μm) unless otherwise stated; the mean is followed by the range and number of specimens measured in parentheses. Drawings were made with the aid of an Olympus optical drawing tube.

RESULTS

Sciadicleithrum meekii sp. n. Figs. 1–9

Description (based on 13 specimens): Body fusiform 233 (192–265; n = 5) long; maximum width 61 (50–75; n = 3) near midlength or in posterior trunk. Cephalic

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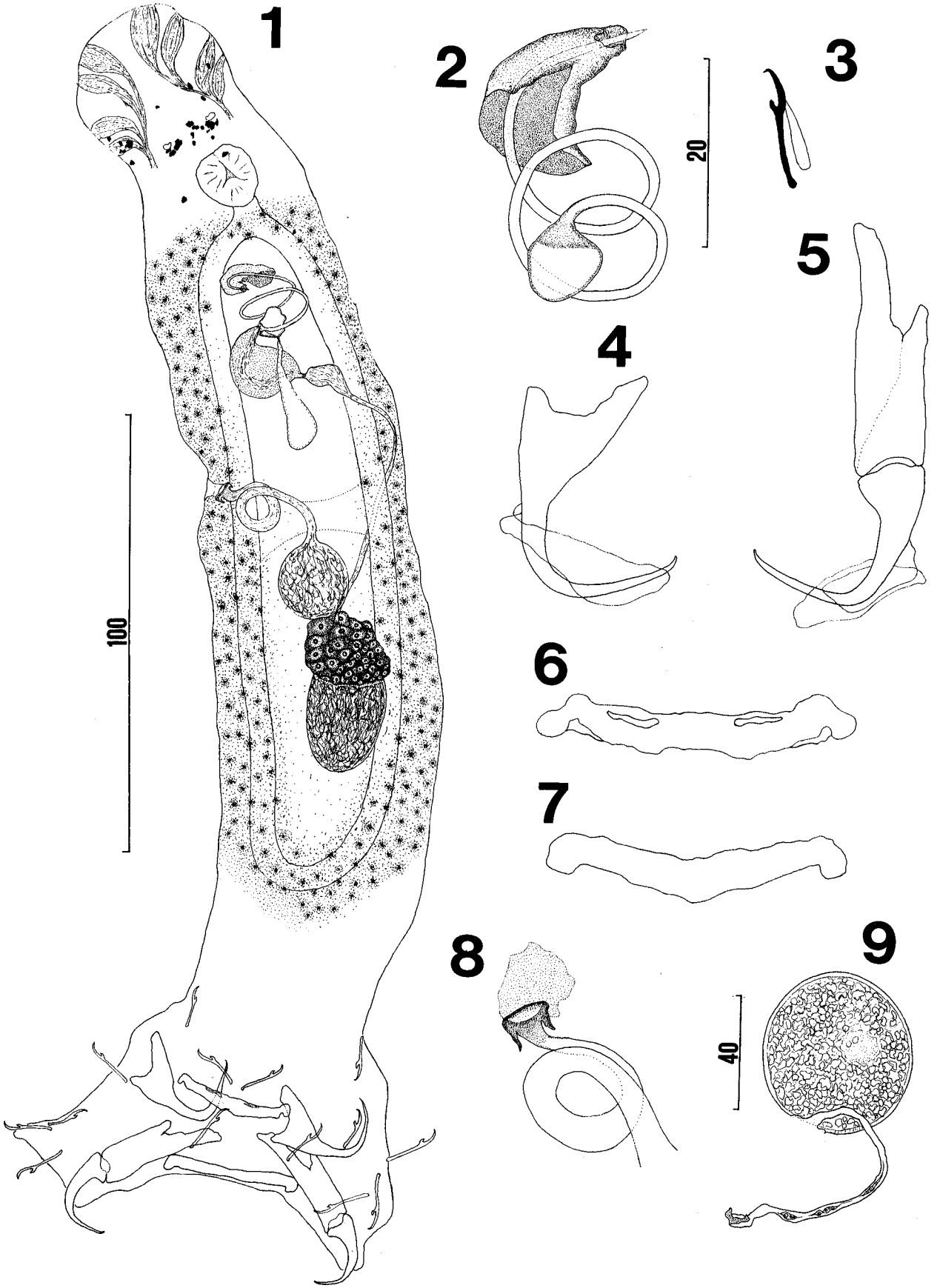
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lobes moderately developed. Eyes 4; members of posterior pair with conspicuous lens, closer together than those of anterior pair; eye granules variable in size, elongate ovoid; oesophagus short. Pharynx spherical, 18 (12–22; n = 9) in diameter. Peduncle broad; haptor subtrapezoidal, 83 (65–107; n = 6) wide, 45 (35–62; n = 6) long. Ventral hamuli 23 (21–25; n = 19) long, with short deep root, tapering superficial root, straight shaft, curved point with filament; base width 13 (12–15; n = 20). Dorsal hamuli 40 (36–43; n = 17) long, with enlarged superficial root, clearly appressed roots, straight shaft, curved point with filament; base 13 (12–14; n = 10) wide. Ventral bar 33 (30–34; n = 10) long, slender, with umbelliform membranes and enlarged ends; dorsal bar 32 (30–37; n = 12) long, slender V-shaped, with enlarged ends. Marginal hooks 13 (11–14; n = 20) long, with upright thumb, delicate point, shank; domus representing 3/4 of shank length. Gonads overlapping. Seminal vesicle elongate, thick-walled; prostatic reservoir fusiform. Coil of male copulatory organ loose, with 3 rings; base of copulatory organ with sclerotized margin, lacking proximal lobed projection. Copulatory organ 22 (21–23; n = 3) long. Accessory piece 15 (15–16; n = 7) long, comprising delicate sheath enclosing subterminal portion of shaft of copulatory organ. Vaginal opening dextral; proximal part of coiled vagina with sclerotized margin; distal part sclerotized funnel; seminal receptacle midventral; vitellarium formed by follicles densely scattered throughout trunk, except absent in regions of reproductive organs.

Type-host : *Cichlasoma meeki* (Brind).

Type-locality : Dzaptún (20°51'19''N; 90°14'09''W; 30 July 1996) – 2 fish infected of 11 examined; mean intensity 11 (range 6–16).

Other localities: Noc-choncunchey cenote (20°48' N; 90°12'W; 22 September 1993) – 5/6; 34 (6–60); Cabañas cenote (20°07'N; 87°28'W; 9 May 1994) – 1/3; Los Cuates cenote (17°55'N; 88°53' W; 5 April 1994) – 1/3; the Río Hondo river at the village of Ramonal (18°17'N; 88°38'W; January 26 1995) – 1/9; 4.

Location: gills.

Type specimens: Holotype and one paratype are deposited in the Instituto de Biología, UNAM, México City, Coll. Nos. 2915 and 2916; other paratypes (9 specimens) are deposited at U.S. National Parasite Collection, Beltsville, Maryland, USA. (Coll. No. USNPC 86884); the Natural history Museum, London (Coll. No. 1996. 10.22.21-22); Museum d'histoire naturelle, Geneva, Switzerland (Coll. No. INVE 22096); Nebraska State Museum, Lincoln, Nebraska, USA (Coll. No. 39176 and 39176); Institute of Parasitology, Academy of Sciences of the Czech Republic, České Budějovice (Coll. No. M-347); and Laboratorio de Parasitología, CINVESTAV-IPN, Mérida, México (Coll . No. 0128).

Etymology: *Sciadicleithrum meekii* is named after its host.

Remarks: *Sciadicleithrum meekii* differs from other congeners by the shape of dorsal hamuli: it has a base with a notably enlarged superficial root, and is articulated with a straight shaft and curved point (Fig. 5). Another distinctive characteristic of *S. meekii* is the presence of a tubular vagina forming one ring (Fig. 8).

DISCUSSION

Sciadicleithrum meekii exhibits some features which seem to be unique among members of *Sciadicleithrum* and which differentiate this taxon from congeners. The most distinctive feature is the presence of dorsal anchors composed of two articulated parts. The presence of hamuli composed of two articulated parts has not hitherto been recorded in *Sciadicleithrum*. In this feature, *S. meekii* resembles members of *Gussevia* Kohn et Paperna, 1964. This might be an evidence of close phylogenetic relationship of both genera, members of which are specific parasites of Neotropical cichlids. However, *Gussevia* species possess conspicuous anchor filament, and elongate, delicate hook pair 5 associated with the ventral hamuli (Kritsky et al. 1986). The presence of a coiled vagina in *S. meekii* is also a unique characteristic within *Sciadicleithrum*. Nevertheless, other morphological features of *S. meekii*, including those on the haptor, correspond to those typical for *Sciadicleithrum* as defined by Kritsky et al. (1989).

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← **Figs. 1–9.** *Sciadicleithrum meekii*. **Fig. 1.** Composite illustration of entire specimen (ventral). **Fig. 2.** Dorsal copulatory complex. **Fig. 3.** Hook. **Fig. 4.** Ventral hamulus. **Fig. 5.** Dorsal hamulus. **Fig. 6.** Ventral bar. **Fig. 7.** Dorsal bar. **Fig. 8.** Vagina. **Fig. 9.** Egg. All scale bars 20 μm except for Figs. 1 (100 μm) and 9 (40 μm).

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