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Acolpenteron australe sp. n. (Dactylogyridae: Dactylogyrinae), a new species from the ureters of *Percichthys trucha* (Perciformes: Percichthyidae) in Patagonia (Argentina)

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Abstract. *Acolpenteron australe* sp. n. (Dactylogyridae, Dactylogyrinae) is described from ureters and renal tubules of *Percichthys trucha* (Cuvier et Valenciennes) (Perciformes, Percichthyidae) from Andean Patagonian lakes. The new species has a haptor with 14 hooks, with shanks comprised of two subunits. It has overlapped intercaecal gonads, male copulatory organ as a sclerotized tube with one counterclockwise coil and a J-shaped accessory piece. It differs from the other species of *Acolpenteron* by having a non-forked accessory piece. This is the first monogenean species described from a percichthyid host in South America.

Eight monogenean species have been described from the urinary systems of teleostean fishes: *Urogyrus cichlidarum* Bilong Bilong, Birgi et Euzet, 1994 from Cameroon; *Kritskyia moraveci* Kohn, 1990, *K. annakohnae* Boeger, Tanaka et Pavanelli, 2001 and *K. boegeri* Takemoto, Lizama et Pavanelli, 2002 from Brazil; *Philureter trigoniopsis* Viozzi et Gutiérrez, 2001 from Argentina; *Acolpenteron ureteroecetes* Fischthal et Allison, 1940 and *A. catostomi* Fischthal et Allison, 1942 from North America and *A. nephriticum* Gvozdev, 1945 from Russia (Fischthal and Allison 1940, 1941, 1942, Yamaguti 1963, Kohn 1990, Bilong Bilong et al. 1994, Boeger et al. 2001, Viozzi and Gutiérrez 2001, Takemoto et al. 2002). Two species of *Pseudacolpenteron* Bychowsky et Gussev, 1955 have been described from gills and fins of cyprinid fishes: *P. pavlovskii* Bychowsky et Gussev, 1955 and *P. ignotum* Gussev, 1955 (Yamaguti 1963, Rogers 1968). Although Yamaguti (1963) synonymized *Pseudacolpenteron* with *Acolpenteron*, Rogers (1968) considered *Pseudacolpenteron* a valid genus due to differences in the eyes, head organs and the site of infection. Kritsky et al. (1978) considered those characters not different enough to separate the genera.

Species of *Acolpenteron* from ureters have been described from species of Perciformes and Cypriniformes in the North Hemisphere: *A. nephriticum* from balitorid fishes, *A. catostomi* parasitizing catostomids and *A. ureteroecetes* centrarchids. Species of the genus have not been described in the South Hemisphere, although *A. ureteroecetes* has been found in different countries due to the introduction of centrarchid fishes (Du Plessis 1948, Hoffman 1970, Bunkley-Williams and Williams 1995). In the present study, a new species from the ureters and renal tubules of *Percichthys trucha* (Cuvier et Valenciennes) from Patagonian lakes is described.

MATERIALS AND METHODS

Specimens of *Percichthys trucha* from three northwestern Patagonian glacial lakes (Argentina) were collected with aid of gill nets, and then transported to the laboratory and examined. The fish were dissected and parasites removed from ureters with the aid of a dissecting microscope. Monogenean specimens were relaxed in tap water, killed in 1:4,000 formalin and preserved in 5% formalin. Specimens were stained in Gomori's trichrome and mounted in Canada balsam. Illustrations were prepared with the aid of camera lucida; measurements of male copulatory organ length and the accessory piece were obtained by using a curvimeter on camera lucida drawings. Measurements are expressed in micrometres, averages are followed by the range and number of specimens measured (n) in parentheses.

RESULTS

Acolpenteron australe sp. n. Fig. 1

Description: Body elongate, 767 (586–998; n = 30) long; greatest width 140 (106–202; n = 30) near midlength. Sensory hairs absent. Cephalic lobes and two head organs present. Cephalic glands lateral to pharynx; divided in two pre- postpharyngeal groups. Anterior pair of eyes closer together, posterior pair larger. Pharynx spherical in ventral view, 43 (34–53, n = 30) in diameter. Oesophagus short. Caeca lacking diverticula, confluent posterior to testis. Peduncle distinguishable from trunk. Haptor 58 (46–79, n = 28) long, 108 (94–127, n = 26) wide, cup-like ventral extension of peduncle. Hooks similar; each 26 (23–28, n = 32) long, ventrally orientated, with short broad thumb, delicate

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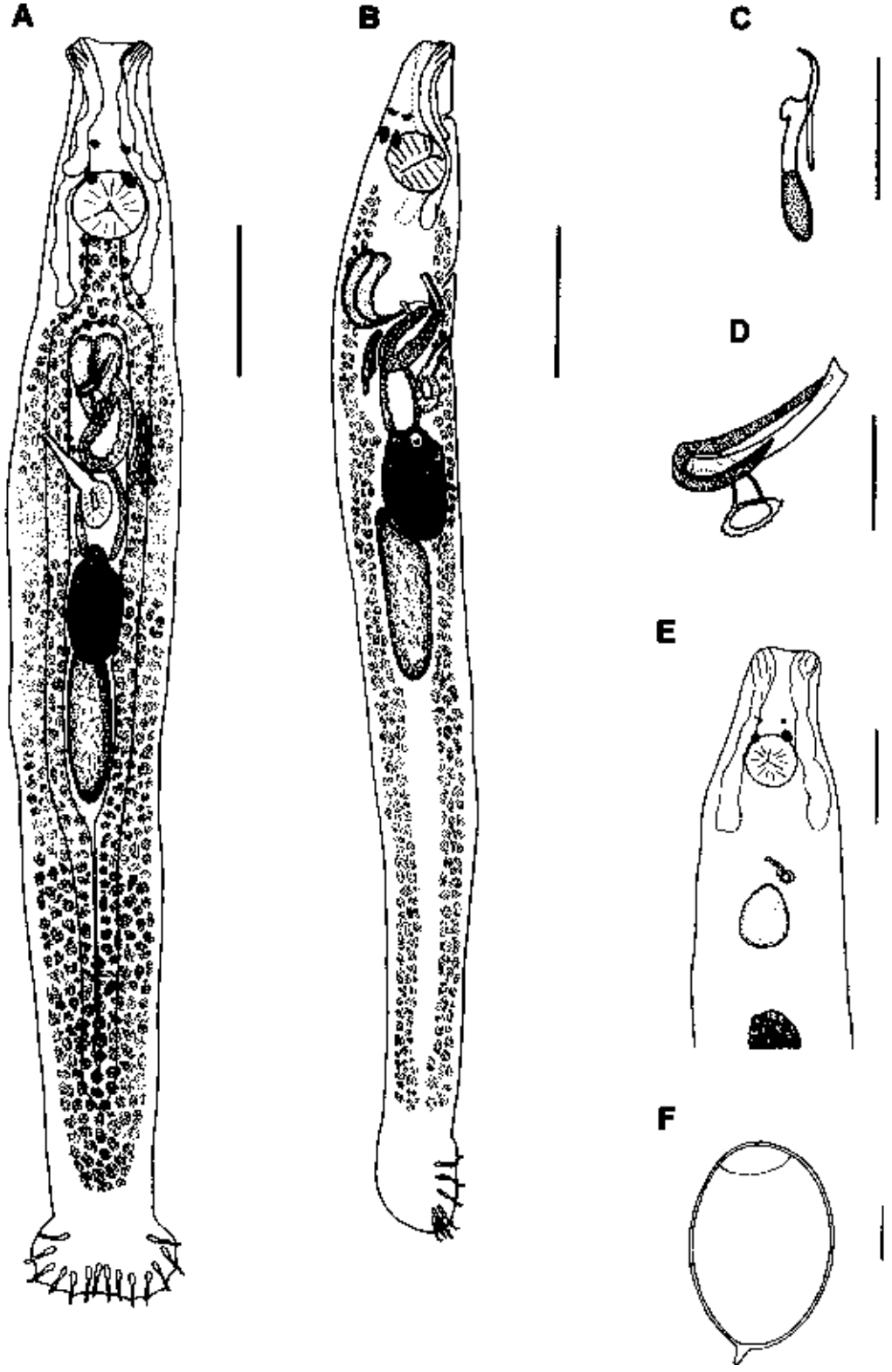

Fig. 1. *Acolpenteron australe* sp. n. **A** – whole mount adult (composite, ventral view); **B** – whole mount adult (partial lateral view); **C** – hook (lateral view); **D** – male copulatory organ (ventral view); **E** – anterior part of paratype with egg (dorsal view); **F** – egg. Scale bars: A, B, E = 100 μm; C, D, F = 20 μm.

point, shank comprised of two subunits; proximal subunit expanded. FH loop as long as distal subunit of shank. 4A hooks not observed. Male copulatory organ one counterclockwise coil, 63 (55–73, n = 12) long. Accessory piece J-shaped, 54 (50–59, n = 22) long. Gonads partially overlapping. Testis 111 (72–161, n = 27) long, 55 (24–98, n = 30) wide, dorsal to ovary. Two prostatic reservoirs dorsal to male copulatory organ. Seminal vesicle elongate vertically at left of male copulatory organ. Germarium ovate, 73 (53–96, n = 23) long, 41 (29–60, n = 24) wide. Oviduct elongate. Uterus thick-walled. Genital pore midventral in anterior trunk. Vagina tube sclerotized, 37 (35–38, n = 4) long, opening ventrally near right margin of body. Seminal receptacle ventral to oviduct. Vitellaria dense, coextensive with gut. Single large, oval, brownish egg 75 (74–76, n = 5) long, 56 (54–58, n = 5) wide, operculate with short polar filament.

T y p e h o s t : *Percichthys trucha* (Cuvier et Valenciennes).

T y p e l o c a l i t y : Lake Escondido (41°05'S, 71°35'W), Patagonia, Argentina.

O t h e r l o c a l i t i e s : Lake Moreno (41°04'S, 71°33'W), Lake Aluminé (38°55'S, 71°10'W), Patagonia, Argentina.

S i t e o f i n f e c t i o n : Ureters, renal tubules.

P r e v a l e n c e : 76% (October 1997, Lake Escondido, n = 17).

M e a n i n t e n s i t y : 6.5 (October 1997, Lake Escondido, n = 17).

M a x i m u m i n t e n s i t y : 117 (May 1999, Lake Moreno).

S p e c i m e n s d e p o s i t e d : Holotype No. 420/1, five paratypes Nos. 420/2–6 deposited in the Colección Nacional de Parasitología del Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina; 6 paratypes Nos. 5097 and 5098 deposited in the Colección Helmintológica del Museo de La Plata, Museo de La Plata, Argentina; 17 paratypes Nos. 162/1–10 and 163/1–7 deposited in the Colección Parasitológica de la Universidad Nacional del Comahue, (Bariloche, Argentina) and two paratypes No. M-379 deposited in the helminthological collection, Institute of Parasitology, Academy of Sciences of the Czech Republic, České Budějovice.

E t y m o l o g y : The specific name refers to the latitude of the distribution range of the host species; from Latin *australis*: southern.

DISCUSSION

The new species can be designated with *Acolpenteron* by virtue of the site of infection, the lack of anchors and bars, the presence of 14 ventral marginal hooks, two pre- postpharyngeal cephalic glands, a copulatory complex as a sclerotized tube with a counterclockwise coil, a sclerotized vagina opening ventrally near the right margin of the body, and intestinal caeca lacking diverticula and united posteriorly. Although Kritsky et al. (1978) observed 4A hooks in the haptor of *A. catostomi* and *Pseudacolpenteron pavlovskii*, that type of hooks was not observed in the haptor of *A. australe*.

Acolpenteron australe can be differentiated from all other *Acolpenteron* species by having a non-forked accessory piece. It also differs from *A. nephriticum* by having a distinguishable haptor, overlapping gonads and the shank divided into two subunits. It differs from *A. ureteroecetes* by the straight vaginal tube and from *A. catostomi* by having a unspined male copulatory organ base, a larger distance between testis and the confluence of the intestinal caeca, and by a smaller egg. Additionally, *A. australe* differs from both, *A. ureteroecetes* and *A. catostomi*, by lacking sensory hairs. Although *A. australe* was not observed in the urinary bladder, it parasitizes ureters and renal tubules like *A. ureteroecetes* (Fischthal and Allison 1941, Petrie-Hanson 2001).

The maximum intensity observed in nature was higher in *A. australe* than in *A. ureteroecetes* (compare Fischthal and Allison 1941), although pathological signs were not observed. The culture conditions in hatcheries can lead to mortality due to extremely high infections. Mortality and degenerative renal changes due to the heavy infections with *A. ureteroecetes* in cultured *Micropterus salmoides* were reported in South Africa and USA (Du Plessis 1948, Petrie-Hanson 2001).

Acolpenteron australe is the first species of the genus *Acolpenteron* described from the South Hemisphere.

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