

Hysterothylacium rhamdiae sp.n., (Ascaridoidea: Anisakidae) from a Neotropical Catfish, *Rhamdia sapo* (Pisces: Pimelodidae)

Sandra M Brizzola, Ruben D Tanzola

Laboratorio de Parasitología, Departamento de Biología y Bioquímica, Universidad Nacional del Sur, San Juan 670, (8000) Bahía Blanca, Provincia de Buenos Aires, Argentina

A new species of Hysterothylacium is described and figured. The nematodes were collected from the intestine of a neotropical catfish, Rhamdia sapo, collected from its southernmost locality (Napostá stream and Sauce Grande river, Buenos Aires Province). The specimens resemble H. murrayense but differ in having shorter spicules, in the number and distribution of papillae and the relative size of intestinal caecum and ventricular appendix.

Key words: *Hysterothylacium rhamdiae* sp.n. - Anisakidae - *Rhamdia sapo* - freshwater parasite - Argentina - nematodes

The genus *Hysterothylacium* Ward and Magath, 1917 comprises about fifty species, most of them parasites of marine teleosts (Deardorff & Overstreet 1981, Rye & Baker 1984, Moravec et al. 1985, Petter & Radujkovic 1986, Petter & Maillard 1987, Bruce & Cannon 1989, Bruce 1990). Several species, such as *H. analarum* (Rye & Baker 1984), *H. bidentatum* (Mozgovoi 1953), *H. brachyurum* (Rye & Baker 1984), *H. dollfusi* (Schmidt et al. 1973), *H. murrayense* (Johnston & Mawson 1940) and *H. macquariae* (Johnston & Mawson 1940), were also recorded in freshwater fishes from Holarctic and Oriental regions. *H. aduncum* and *H. clavatum* (Mozgovoi 1953) were reported from both marine and freshwater hosts.

Torres et al. (1988) recorded *Hysterothylacium* sp. in *Basilichthys australis* and *Cauque mauleanum* from Valdivia river, Chile.

A sample of nematodes belonging to *Hysterothylacium* was collected from the gut of a neotropical catfish, *Rhamdia sapo*. They belong to a hitherto undescribed species and are described and figured herein.

MATERIALS AND METHODS

The nematodes were found in the intestinal lumen of *R.sapo* (Valenciennes 1840)(Pisces, Pimelodidae). The hosts were caught with line and hook in Napostá stream (38°08'S; 61°47'W) and Sauce Grande river (38°43'S; 62°15'W) in Buenos Aires province, Argentina. The worms were removed from hosts and prepared according to several methods. Some specimens were fixed in

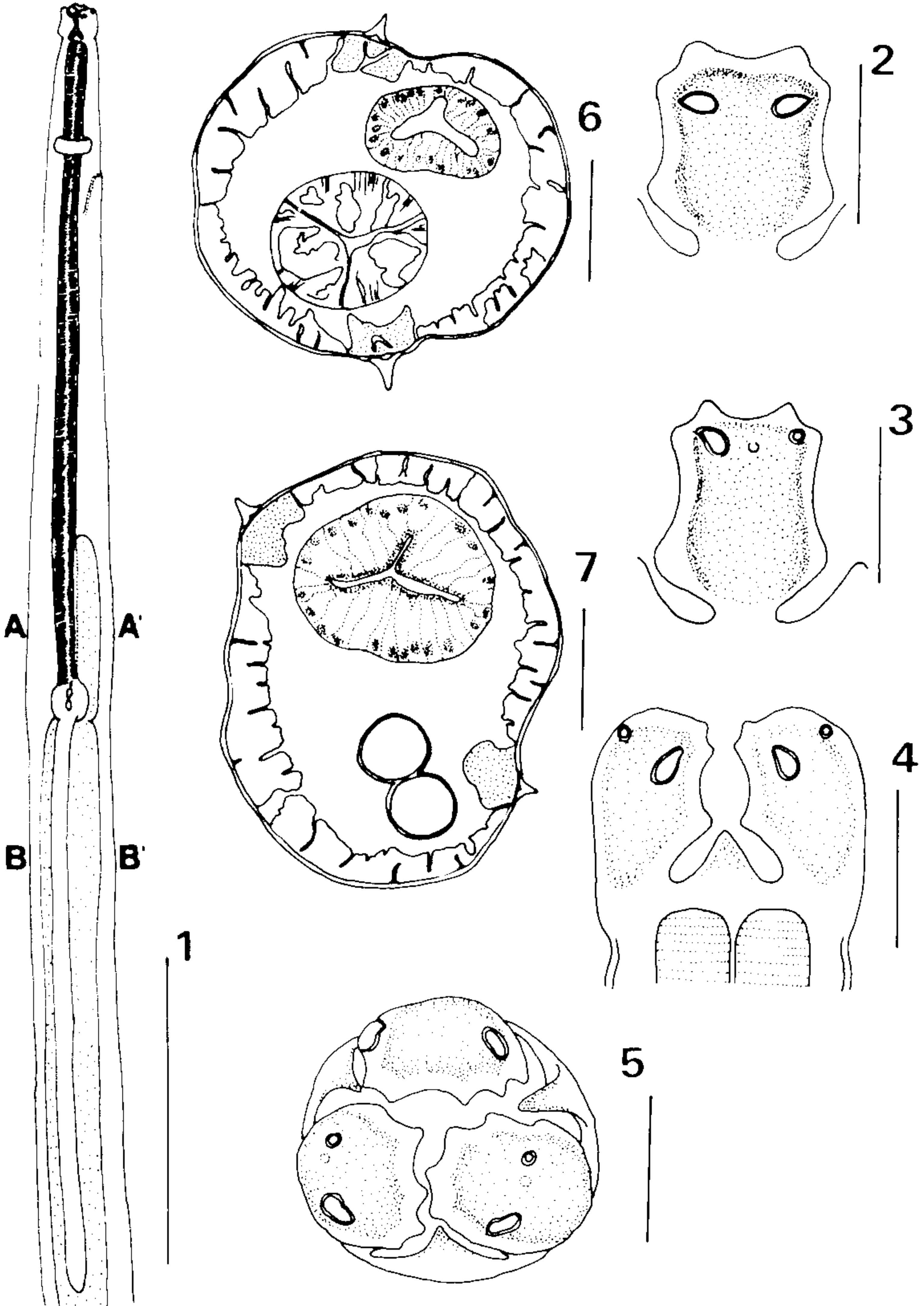
glacial acetic acid and preserved in 70° ethanol; others were fixed in ethanol-glycerine and a few were cleared in Amann's lactophenol. Histological sections were stained with Erlich's haematoxylin and eosin. Some specimens were examined by SEM using routine methods. All measurements are given in µm unless otherwise indicated. Mean and range (in parentheses) are stated for each feature. Figures were drawn with the aid of a drawing tube.

DESCRIPTION

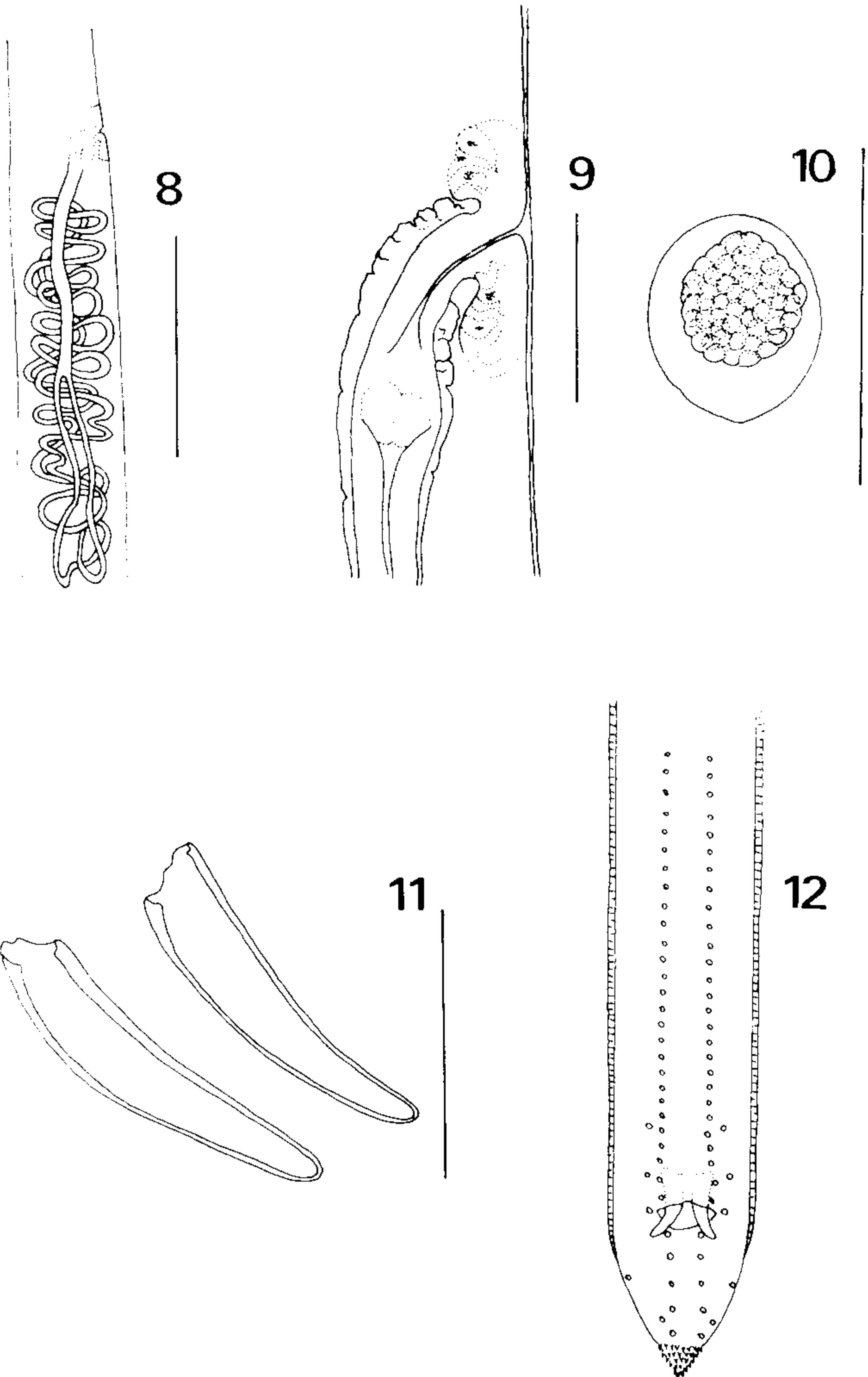
Hysterothylacium rhamdiae sp.n.
(Figs 1-12)

Body less than 30 mm long. Maximum width in midportion. Cuticle bearing transverse striae about 1 µm apart. Lips similar in shape about as long as wide. Dorsal lip with pair of double lateral papillae. Lateroventral lips with double lateroventral papillae, a simple laterodorsal papilla and amphid between them. Dentigerous bars absent. Interlabia present. Lateral alae extending from cervical region to tail. Muscular esophagus about 13-15% of body length. Ventriculus as long as wide. Ventricular appendix longitudinally septate. Excretory pore slightly posterior to level of nerve ring. Short conical tail ending in thorny apex. Cervical papillae absent.

Male (based on 14 mature specimens). Body 16.98 (12.08-29.07) mm long by 0.33 (0.14-0.46) mm maximum width. Lips similar in size and shape, 58 (40-84) long, 70 (64-76) wide at base. Interlabia approximately 30 in length. Nerve ring 430 (360-600) from anterior end. Excretory pore 530 (390-700) from anterior end. Esophagus 2.44 (1.65-4.10) mm long. Ventricular appendix 2.09 (1.53-3.42) mm long. Intestinal caecum 660 (480-876) long. Length ratios: intestinal caecum -



Hysterothylacium rhamdiae sp.n. Fig.1: anterior portion of adult worm, male, bar= 1 mm. Fig.2: dorsal lips, male, bar= 0.05 mm. Fig.3: lateroventral lip, male, bar= 0.05 mm. Fig.4: interlabium, male, bar= 0.05 mm. Fig.5: anterior end, frontal view, male, bar= 0.05 mm. Fig.6: transverse section by the level A-A', bar= 0.05 mm. Fig.7: transverse section by the level B-B', bar= 0.05 mm.



Hysterothylacium rhandiae sp.n. Fig.8: vagina and uteri, bar= 0.05 mm. Fig.9: vulva (detail), bar= 0.1 mm. Fig.10: egg, bar= 0.05 mm. Fig. 11: spicules, bar= 0.1 mm. Fig. 12: posterior end of male, ventral view (schematic).

ventricular appendix 1:2.13 to 1:3.9; intestinal caecum - muscular esophagus 1:2.69 to 1:4.68; and ventricular appendix - muscular esophagus 1:1 to 1:2. Spicules equal, short, slightly curved with rounded end, 0.130 (0.100-0.200) mm in length. Spicules 0.4-1.34% of body length. Gubernaculum absent. Caudal papillae 33 to 38 pairs; 27-31 preanal, one paranal, 6 postanal and one lateral postanal pairs. Medioventral papillated preanal organ inconspicuous. Tail 129 (98-152) long including thorny mucronated process.

Female (based on nine mature specimens). Body 16.19 (10.44-22.3) mm long by 0.27 (0.14-0.51) mm maximum width. Lips 75 (56-100) long. Nerve ring 420 (370-490) from anterior end. Excretory pore 510 (420-610) from anterior end. Esophagus 2.28 (1.59-3.00) mm long. Ventriculus 96 (68-110) long. Intestinal caecum 543 (372-684) long. Ventricular appendix 2.02 (1.74-2.38). Length ratio of intestinal caecum - ventricular appendix 1:3.05 to 1:5.85; intestinal caecum - muscular esophagus 1:3.06 to 1:7.35 and ventricular appendix - muscular esophagus 1:0.76 to 1:1.32. Ovojector muscular, about 100 long. Vulva opening 7.43 (4.61-9.98) mm from anterior end. Eggs with smooth, thin shell, morulated, 30 (25-31) by 24 (22-27) in diameter. Tail 181 (110-288) long, including thorny mucronated process. Cervical papillae absent.

Host type: *Rhamdia sapo* (Valenciennes, 1840) (Pisces: Pimelodidae) "catfish"

Site of infection: intestine

Locality: Argentina, Buenos Aires Province, Napostá stream (38°08'S, 61°47'W) and Sauce Grande river (38°43'S, 62°15'W).

Type material: deposited in Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina, Parasitological Collection. Holotype male and allotype female No. 373. Paratypes (two males and females No. 001-004) in Laboratorio de Parasitología, Departamento de Biología y Bioquímica, Universidad Nacional del Sur, Bahía Blanca, Argentina.

Etymology: *Rhamdiae* is taken from the generic name of the host.

REMARKS

The present species is most similar to *H. murrayense* Johnston and Mawson, 1917, from freshwater Australian percichthyids. In spite of the similar shape of male spicules in both species, the relative size ratio *H. rhamdiae* sp.n. versus *H. murrayense* is approximately 1:1.5. The spicules of the catfish worms are the smallest ones in the genus.

The caudal papillae arrangement differs in number and distribution. *H. murrayense* has 12 pairs of preanal and 5 pairs of postanal papillae against 27-31 preanal, one paranal and 6 postanal pairs in our specimens. Another differential features may be the displacement of the excretory pore to the nerve ring level and the relative size of both intestinal caecum and ventricular appendix.

In the description of *H. murrayense* the dimensions of the eggs were not given.

REFERENCES

- Bruce N 1990. *Hysterothylacium* Ward and Magath, 1917, and *Ichthyascaris* Wu, 1949, ascaridoid nematodes from Australian demersal fishes. *Mem Queensland Mus* 28: 389-426.
- Bruce N, Cannon L 1989. *Hysterothylacium*, *Iheringascaris* and *Maricostula* new genus, nematodes (Ascaridoidea) from Australian pelagic marine fishes. *J Nat Hist* 23: 1397-1441.
- Deardorff T, Overstreet R 1981. Review of *Hysterothylacium* and *Iheringascaris* (both previously = *Thynnascaris*) (Nematoda: Anisakidae) from the Northern Gulf of Mexico. *Proc Biol Soc Wash* 93: 1035-1079.
- Johnston T, Mawson P 1940. Some nematode parasites in Australian freshwater fish. *Trans R Soc South Aust* 64: 340-352.
- Moravec F, Nagasawa K, Urawa S 1985. Some fish nematodes from freshwaters in Hokkaido, Japan. *Folia Parasitologica (Praha)* 32: 305-316.
- Mozgovoi A 1953. *Ascaridata of animals and man and diseases caused by them. II Osnovy nematodologii II. Moskva.* [In Russian.]
- Petter A, Radujkovic B 1986. Nematodes parasites de poissons de la mer Adriatique. *Bull Mus Nat Hist Natl Paris* 4^e sér. 8, Section A, 3: 487-499.
- Petter A, Maillard C 1987. Ascarides de poissons de Méditerranée occidentale. *Bull Mus Nat Hist Natl Paris* 4^e sér. 9, Section A, 4: 773-798.
- Rye L, Baker M 1984. *Hysterothylacium analarum* n.sp. (Nematoda: Anisakidae) from pumpkinseed, *Lepomis gibbosus* (Linnaeus), in southern Ontario. *Can J Zool* 62: 2307-2312.
- Schmidt G, Leiby P, Kritsky D 1973. Studies on helminths of North Dakota. VIII. Nematodes from the paddlefish, *Polyodon spathula* (Walbaum), including *Thynnascaris dollfusi* sp.nov. (Nematoda: Stomachidae). *Can J Zool* 52: 261-263.
- Torres P, Arenas J, Neira A, Cabezas X, Covarrubias C, Jara C, Gallardo C, Campos M 1988. Nematodos anisakidos en peces autoctonos de la cuenca del rio Valdivia, Chile. *Bol Chil Parasitol* 43: 37-41.