

A new species of *Trichostrongylus* (Nematoda, Trichostrongyloidea) parasitizing the subterranean rodent *Ctenomys talarum* (Rodentia, Octodontidae) from Mar de Cobo, Argentina

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Abstract

A new nematode species, *Trichostrongylus duretteae* sp. nov., found in the small intestine of *Ctenomys talarum* from Argentina is described. The new species more closely resembles *T. suis* Iwanitsky, 1930 a parasite of *Sus scrofa* in the USSR. However, the new species can be distinguished by the morphology of male genital bursa: Rays 6 distant from rays 8 and a larger dorsal ray in relation to the length of rays 2 to 8. The present finding is the first record of the genus *Trichostrongylus* in rodents of the family Octodontidae.

Key words

Trichostrongylus duretteae sp. nov., Nematoda, *Ctenomys talarum*, subterranean rodent, Argentina

Introduction

Members of the genus *Trichostrongylus* Looss, 1905 are parasites of birds, ruminants and rodents are distributed worldwide (Anderson 2000). At present, 42 species are known, 27 occur in ruminants, 6 of them are also parasites of lagomorphs; 4 species are known exclusively in lagomorphs, 5 are parasites of birds, and 6 are found in other groups of mammals (Audebert *et al.* 2002). Among the latter, two species are known parasites of American rodents: *Trichostrongylus sigmodontis* Baylis, 1945 a parasite of *Sigmodon hispidus* (Baylis 1945), *Myocastor coypus*, in North America (Babero and Lee 1961) and *Oryzomys palustris* (Anderson 2000); *T. yoshidai* Travassos, 1939 a parasite of *Cavia aperea* in Brazil (Travassos 1939).

During a parasitological survey carried out on samples of the Southamerican subterranean rodent *Ctenomys talarum* Thomas, 1898 (Rodentia, Octodontidae) from Mar de Cobo (Buenos Aires Province, Argentina), a new species belonging to the genus *Trichostrongylus* was found. It is described and illustrated herein.

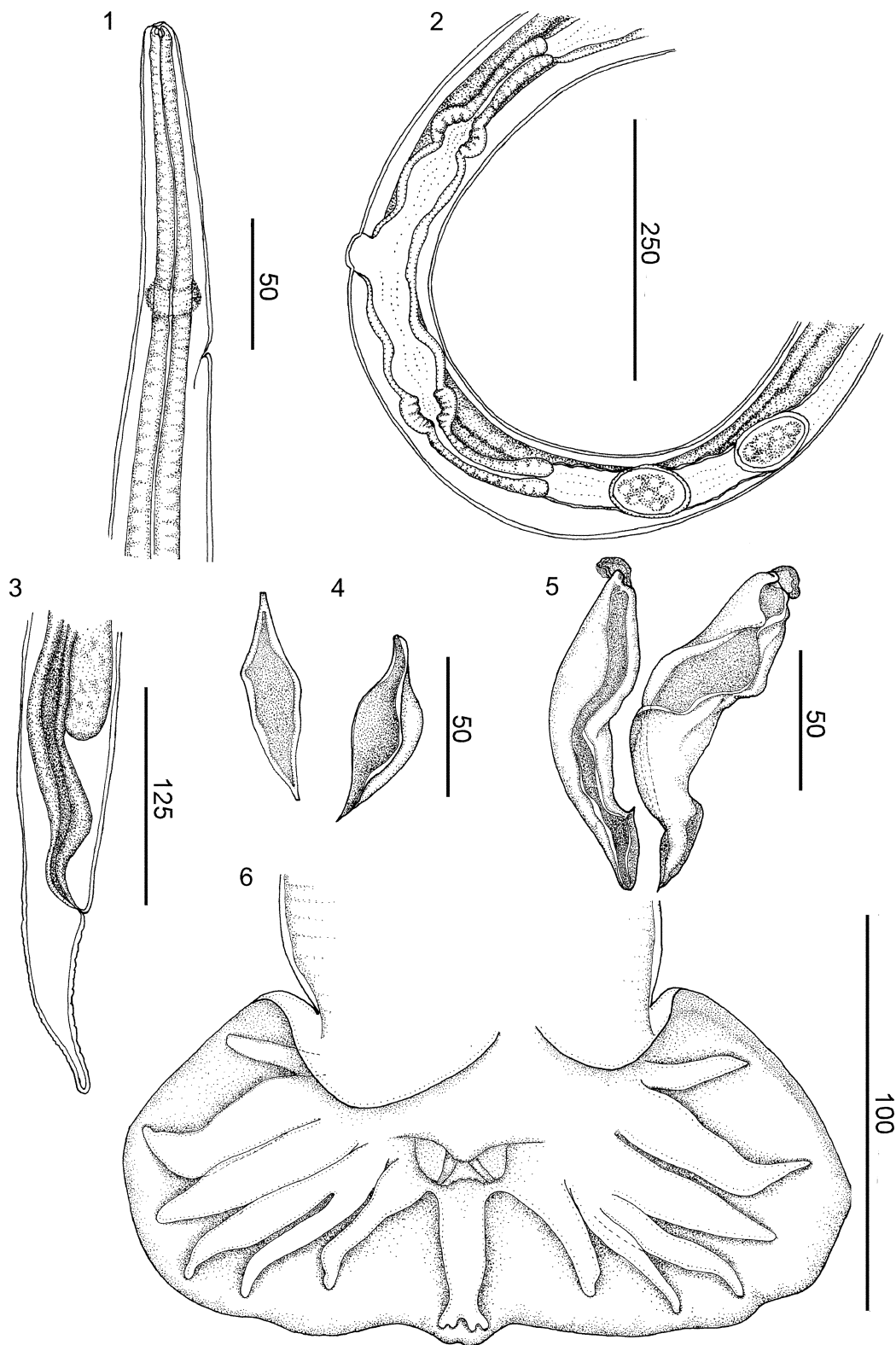
Materials and methods

Eighty one specimens of *Ctenomys talarum* were collected during 2001 and 2002 at Mar de Cobo (37°58'S, 57°34'W, Buenos Aires Province, Argentina). Hosts were dissected and a total of 10 nematodes (3 females and 7 males) were collected from the small intestine of 4 rodents. Living nematodes were fixed in 4% formaldehyde solution and preserved in 70% ethanol. For scanning electron microscopy, 2 specimens were dehydrated using series of ethanol, dried by evaporation with hexamethyldisilazane, coated with gold-palladium and scanned in a JEOL JSM 6460-LV SEM. All measurements are given in micrometers unless otherwise indicated.

Nomenclature of caudal bursa follows Durette-Desset and Chabaud (1981). Prevalence and mean intensity were calculated according Bush *et al.* (1997).

The studied material was deposited at the Helminthological Collection of the Museo de La Plata (CHMLP), La Plata, Argentina.

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Figs 1–6. *Trichostrongylus duretteae* sp. nov. in *Ctenomys talarum*. **1.** Female, anterior part, right lateral view. **2.** Ovijector, left lateral view. **3.** Tail, right lateral view. **4.** Male, gubernaculum, ventral and left lateral view. **5.** Spicules, *in situ*, right and left, ventral view. **6.** Caudal bursa, ventral view. Scale bars in µm

Results

Trichostrongylus duretteae sp. nov. (Figs 1–8.)

General: Small nematodes, uncoiled. Width of body increases from head to level of bursa and vulva in males and females, respectively. Annular cuticular striations clearly marked all along the body. Distance between striations, 0.60 proximately (Fig. 8). Deirids not observed. Excretory pore situated just behind nerve ring. Synlophe absent. Head: Cephalic vesicle absent, mouth opening triangular with three lobes, two amphids, four interno-labial papillae, four externo-labial papillae (Fig. 7). Cephalic papillae not observed.

Male (Figs 4–6; seven specimens measured, measurements of holotype are followed by means, and ranges in parentheses): Body 3.53, 2.67 (2.15–3.53) mm long, 87, 75 (70–87) wide at midbody and 130, 102 (82–130) maximum width. Nerve ring and excretory pore situated at 83, 79 (62–100) and 85, 87 (65–110) from the anterior end of the body, respectively. Oesophagus 465, 459 (347–575) long. Caudal bursa symmetrical, of pattern type 1–4. Rays 2 small. Rays 3 strongly developed with tips curved ventrally almost at right angle. Rays 4 thick with rounded extremity and of equivalent size to rays 5. Rays 6 distant from rays 8. Ray 8 thick and shorter than dorsal ray. Dorsal ray very thick. Rays 9 and 10 of equivalent size. Phasmids not visible. Genital cone rounded with papilla 0 on ventral side and two papillae 7 on dorsal side (Fig. 6). Spicules thick, bent, twisted, dark brown in color, with a sharpened distal end. They are unequal in length, left being longer. Right spicule 144, 115 (97–144) long, left spicule 160, 131 (115–160) long (Fig. 5). Gubernaculum slightly chitinized and spindle-shaped, 70, 66 (60–70) long (Fig. 4).

Female (Figs 1–3; two specimens measured, one juvenile and one adult – allotype): Body 2.40, 4.44 mm long, 75 maximum wide. Nerve ring and excretory pore situated at 100, 105 and 112, 125 from the anterior end of the body, respectively (Fig. 1). Oesophagus 330, 620 long. Didelphic. Longitudinal vulvar opening at 625, 1000 from the caudal end. Slightly asymmetrical ovjector, anterior branch of genital apparatus larger than posterior one. Anterior branch: Vestibule 112, 142 long, sphincter 35 × 30, 42 × 52, infundibulum 62, 120 long, uterus 262 long, number of eggs in adult specimen 3. Posterior branch: Vestibule 88, 115 long, sphincter 35 × 30, 43 × 53, infundibulum 68, 105 long, uterus 212 long without eggs. Eggs in morula stage inside, 80.4 to 82.5 long and 42.5 to 49.1 wide (Fig. 2). Tail with rounded extremity, 70, 105 long (Fig. 3).

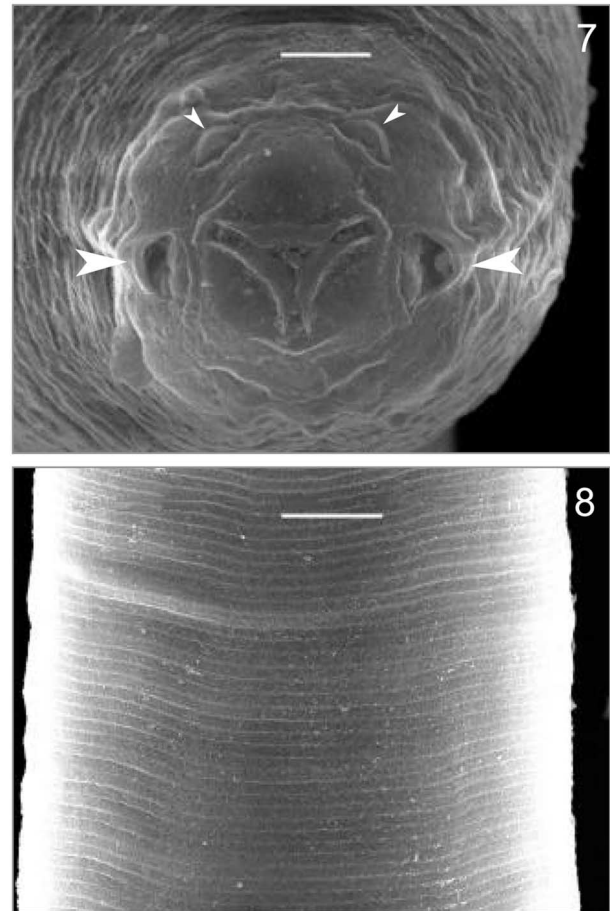
Type host: *Ctenomys talarum* Thomas, 1898 (Rodentia, Octodontidae).

Site of infection: Small intestine.

Type locality: Mar de Cobo, Buenos Aires Province, Argentina (37°58'S, 57°34'W).

Date of collection: September 2001 – July 2002.

Type specimens: Holotype: 1 male (CHNLP coll. No. 5595); allotype: 1 female (CHNLP coll. No. 5596); paratypes: 3 males and 1 female (CHNLP coll. No. 5597).



Figs 7 and 8. *Trichostrongylus duretteae* sp. nov. in *Ctenomys talarum*. 7. Male, head, apical view (amphids – large arrows; interno- and externo-labial papillae – small arrows). Scale bar = 2 μ m. 8. Male, annular cuticular striations at midbody. Scale bar = 5 μ m

Prevalence: 4.93%.

Abundance: 0.12 (1–2).

Etymology: The specific name is in honour of Dr. Marie-Claude Durette-Desset for her valuable contribution to the knowledge of the trichostrongyloid nematodes.

Discussion

Among trichostrongylids, nematodes from *Ctenomys talarum* were identified as members of the genus *Trichostrongylus* by the presence of gubernaculum and caudal bursa of type 1–4 and by lacking synlophe.

The specimens herein described are characterized by the great thickness of the dorsal ray. This feature differentiates them from all the other species described in the genus, except, *Trichostrongylus suis* Iwanitsky, 1930 a parasite of *Sus scrofa* in the USSR. This species is related to the new species by presenting a similar morphology of caudal bursa, by the division of the dorsal ray into two very short branches which are

bifurcated into two twigs of equivalent size (rays 9 and 10), and by the spicules similar in shape and size (even if the shoes are less developed). However, it is easily differentiated by having the extremity of rays 6 and rays 8 joined up and by having a shorter dorsal ray in relation to the length of rays 2 to 8.

Some cosmopolitan species such as *T. axei* (Cobbold, 1879), *T. colubriformis* (Giles, 1892), and *T. capricola* Ramson, 1907, which have great host spectra and have been reported from Argentina (Suarez and Buseti 1995, Romero and Boero 2001), show similar spicules to those of the new species. However, in *T. colubriformis* rays 9 and 10 are not of equivalent size (Audebert *et al.* 2000, 2003); in *T. axei*, rays 2 are very long, and in *T. capricola* rays 8 are longer than rays 9 (Skryabin *et al.* 1954).

When congeners parasitizing American rodents are compared with the new species, *T. sigmodontis* shows longer and more slender rays 8, spicules with 4 to 5 ventral barbs and a more posterior vulva (Babero and Lee 1961). On the other hand, *T. yoshidai* shows longer and more slender rays 8, even longer than the dorsal ray, and shorter spicules (Travassos 1939).

Therefore, a new species, *Trichostrongylus duretteae* sp. nov. is proposed. The present finding is the first record of the genus *Trichostrongylus* in rodents of the family Octodontidae.

Acknowledgements. Financial support was provided by Universidad Nacional de Mar del Plata (Argentina). We also want to thank Dr. M.C. Durette-Desset (Muséum National d'Histoire Naturelle, Paris, France) for her critical comments on the first version of the manuscript. This work is a part of M.A. Rossin's Doctoral Thesis.

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