

## A NEW SPECIES OF *CAPILLARIA* (NEMATODA: CAPILLARIIDAE) PARASITIZING *CONGER ORBIGNIANUS* (PISCES: CONGRIDAE) FROM ARGENTINA

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**ABSTRACT:** *Capillaria (Procapillaria) navoneae* n. sp. is described from the congrid fish *Conger orbignianus* from waters off Mar del Plata, Argentina (38°08'S, 57°32'W) (prevalence 29.17%, mean intensity  $\pm$  SD 6.07  $\pm$  6.59). The new species is assigned to the subgenus *Procapillaria* Moravec, 1987, despite the absence of vulvar appendages in gravid females. Of the 3 species so far known in the subgenus, the new one most closely resembles *C. (P.) margolisi*, from which it is distinguished by lacking a medial expansion in the spicule and a slightly elevated anterior lip of vulva, and by having a shorter esophagus, a larger number of stichocytes, and a shorter tail.

*Capillaria* Zeder, 1800 comprises a large group of nematodes parasitic in fishes and other vertebrates, but excluding reptiles. This genus is, at present, represented by 6 subgenera, 4 of them parasitizing fishes, including the subgenus *Procapillaria* Moravec, 1987, which comprises 3 species (Moravec, 2001).

During a parasitological survey carried out on samples of *Conger orbignianus* Valenciennes, 1842, landed by fishermen at Mar del Plata Port, Argentina, parasitic nematodes were found in the intestines of fishes. On examination in the laboratory, they were determined to be a new species of *Capillaria (Procapillaria)*, and are described herein.

### MATERIALS AND METHODS

A total of 48 specimens of *C. orbignianus* caught by commercial trawlers at the Mar del Plata port (38°08'S, 57°32'W), from March, 2004 to April, 2005 was examined for nematodes immediately after capture. Fish were dissected, and the intestines were removed and examined under a stereoscopic microscope. A total of 85 capillariid nematodes was collected and fixed in 4% formaldehyde solution, preserved in 70% ethanol, cleared in glycerine–water for several hours, and then studied and measured under the light microscope. Drawings were made with a drawing tube. All measurements are given in millimeters, unless otherwise indicated; means are given, followed by standard deviations and ranges in parentheses. Prevalence and mean intensity were calculated according to Bush et al. (1997). The studied material was deposited in the Helminthological Collection of the Museo de La Plata (CHMLP), La Plata, Argentina.

### DESCRIPTION

#### *Capillaria (Procapillaria) navoneae* n. sp. (Figs. 1–9)

**General:** Medium-sized nematodes, males smaller than females. Cephalic end narrow and rounded. Cephalic papillae indistinct. Cuticle smooth. Lateral bacillary bands extending along whole body. Nerve ring in first third of esophagus. Muscular esophagus–stichosome junction oblique. Stichosome a single row of 35–51 large stichocytes, each one subdivided into approximately 11–15 annuli and bearing a large, irregular, central nucleus. Two large glandular cells at esophagus–intestinal junction.

**Male (measurements based on 9 specimens, means followed by range in parentheses):** Body 11.16 (8.88–14.45) long and 0.06 (0.05–0.08) maximum wide. Bacillary bands 0.023 (0.021–0.025) wide at posterior region of body. Nerve ring situated at 0.12 (0.11–0.14) from apex. Muscular esophagus 0.34 (0.25–0.41) long; stichosome 6.45 (5.25–7.35) long, composed of 35–46 stichocytes; entire esophagus 6.79 (5.60–

7.76) long, representing 61.71 (50.61–70.92)% of body length. Seminal vesicle not differentiated from vas deferens and testis, ejaculatory duct sac-like, 0.20 (0.13–0.34) long. Intestine joining cloaca immediately posterior to ejaculatory duct. Cloaca 1.10 (0.87–1.32) long, representing 9.93% (8.40–11.19) of body length. Spicules pointed, well sclerotized, with transverse grooves throughout, 0.23 (0.21–0.26) long, representing 2.14% (1.60–2.62) of body length, 0.013 (0.011–0.015) wide at proximal end, 0.010 (0.008–0.013) wide at midlength, and 0.005 (0.004–0.006) wide near tip, in lateral view. Spicular canal 0.086 (0.048–0.11) long. Spicular sheath with long prespicular section and covered with minute spines at distal end, spinose posterior region 0.18 (0.16–0.22) long (measurement based on invaginate sheaths). Caudal end rounded, bearing 2 ventrolateral lobes provided with wide cuticular margins, each bearing a large papilla at its base, which gives a bilobate appearance to ventrolateral lobes, posterior to cloacal aperture. Pair of small papillae near cloacal aperture not observed. Tail short, 0.027 (0.021–0.033) long.

**Female (measurements based on 10 specimens, means followed by range in parentheses):** Body 21.48 (19.28–27.25) long and 0.10 (0.07–0.11) maximum wide. Bacillary bands 0.036 (0.029–0.046) wide at posterior region of body. Nerve ring situated at 0.09 (0.08–0.10) from apex. Muscular esophagus 0.39 (0.29–0.43) long; stichosome 8.22 (6.82–10.76) long, composed of 39–51 stichocytes; entire esophagus 8.61 (7.22–11.18) long, representing 40.09% (36.61–51.20) of body length. Vulva without elevated lips, situated at 0.14 (0.06–0.24) from esophagus end; vagina directed posteriorly from vulva, 0.39 (0.29–0.52) long, containing eggs arranged in a single row. Eggs elongate, uncleaved, with slight equatorial constriction, protruding polar plugs 72.6  $\mu$ m (65–78) long including polar plugs, 30.5  $\mu$ m (27–34) wide; polar plugs 8  $\mu$ m long, 9  $\mu$ m wide, protruding part of polar plugs 5  $\mu$ m long; egg wall thick, with 3 layers, composed of an inner hyaline layer, a middle opaque layer, both of similar thickness, and a thinner outer vitelline layer; thickness of entire wall 2  $\mu$ m. Ovary extending to approximately the distal end of intestine, 0.14 (0.08–0.20) from caudal end. Rectum 0.12 (0.09–0.14) long. Caudal end rounded, anus subterminal. Tail 0.028 (0.015–0.039) long.

### Taxonomic summary

**Type host:** *Conger orbignianus* Valenciennes, 1842 (Anguilliformes: Congridae).

**Site:** Intestine.

**Type locality:** Mar del Plata (Buenos Aires Province, Argentina, 38°0'S, 57°32'W).

**Date of collection:** March 2004–April 2005.

**Type specimens:** Holotype: 1 male (CHMLP coll. no. 5529); allotype: 1 female (CHMLP coll. no. 5530); paratypes: 3 males and 5 females (CHMLP coll. no. 5531).

**Prevalence:** 29.17%.

**Mean intensity  $\pm$  SD (range):** 6.07  $\pm$  6.59 (1–23).

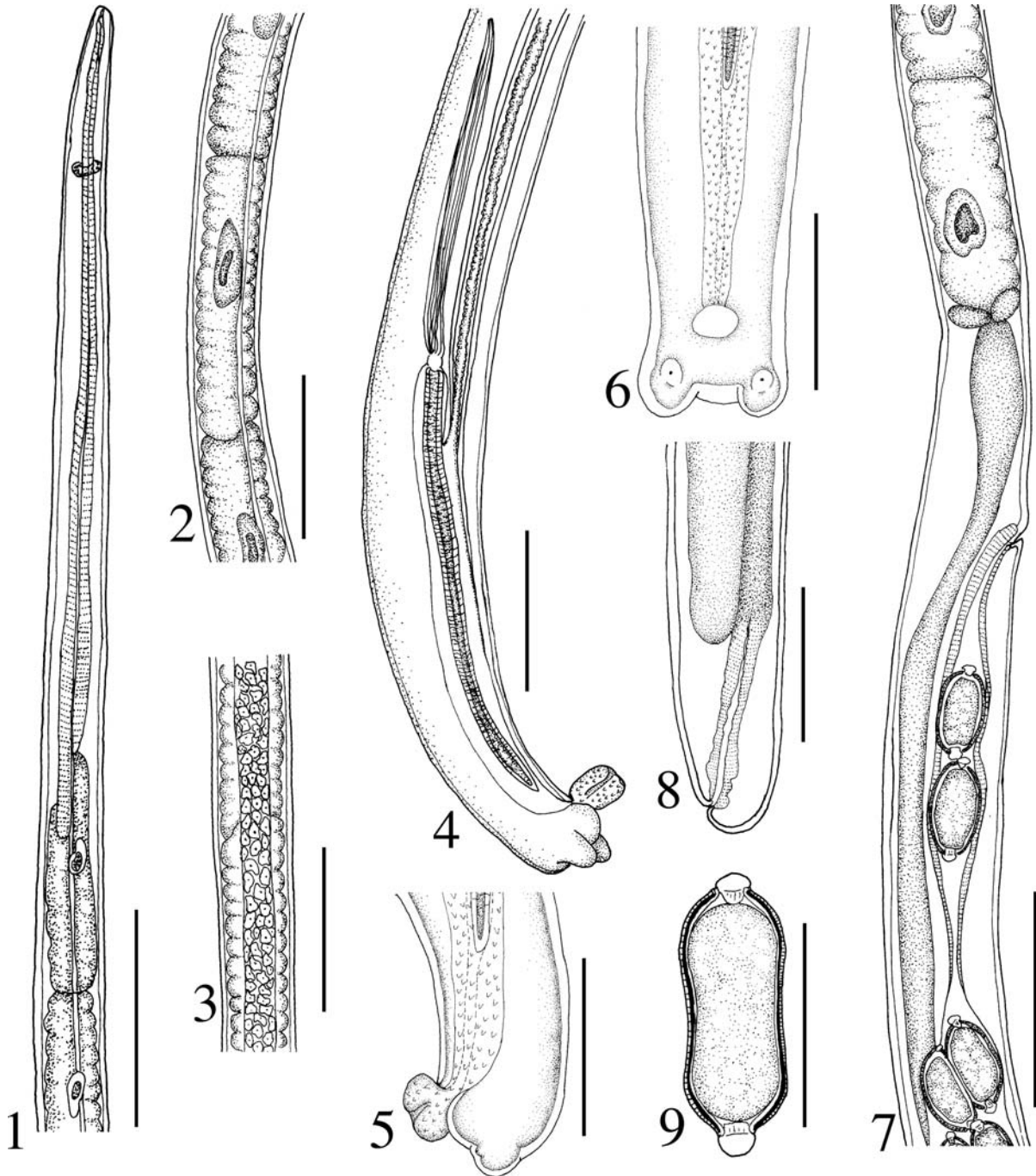
**Etymology:** The new species is named in honor of our friend and colleague Dr. Graciela T. Navone for her contribution to the knowledge of parasitic nematodes in Argentina.

### REMARKS

By the presence of elongate stichocytes with large nuclei, large ventrolateral caudal lobes bearing a basal papilla and pro-

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FIGURES 1–9. *Capillaria (Procapillaria) navoneae* n. sp. (1) Anterior end, lateral view. (2) Stichosome. (3) Bacillary band, at level of stichosome. (4) Male posterior end, lateral view. (5) Male tail, lateral view. (6) Male tail, ventral view. (7) Female, region of vulva, lateral view. (8) Tail of female, lateral view. (9) Egg. Bars: 1, 2, 3, 4, 7, 8: 0.1 mm; 5, 6, 9: 0.05 mm.

vided with wide cuticular margins, and a well sclerotized spicule, *C. (P.) navoneae* is placed in the subgenus *Procapillaria* Moravec, 1987, despite the absence of a vulvar appendage in gravid females.

Three species are so far known in the subgenus *Procapillaria*: *C. (P.) gracilis* (Bellingham, 1840) Travassos, 1915; *C. (P.) margolisi* Moravec and MacDonald, 1981; and *C. (P.) schmidtii* Arya, 1985, with *C. (P.) gracilis* as the unique representative of the subgenus in Atlantic waters (Moravec, 2001).

The new species is readily distinguished from both *C. (P.) gracilis* and *C. (P.) schmidtii* by the length of the spicule, this being distinctly longer in *C. (P.) gracilis* (0.975–1.375), and shorter in *C. (P.) schmidtii* (0.080–0.092). On the other hand, *C. (P.) margolisi*, a parasite of cottid and pleuronectid fish from north Pacific waters, possesses a spicule of a size similar to that of the new species, although expanded at the middle third. Additionally, males of *C. (P.) margolisi* differ from the new species in having a larger esophagus, a larger number of sticho-

cytes, and a shorter tail, whereas females have a vulva with a slightly elevated anterior lip and situated at the level of, or slightly posterior to, the junction of esophagus and intestine; the eggs possess a rough and longitudinally wrinkled outer layer (Moravec, 2001).

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