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# A NEW SPECIES OF *GASTROMERMIS* (NEMATODA: MERMITHIDAE) A PARASITE OF *SIMULIUM PERTINAX* (DIPTERA: SIMULIIDAE) IN ARGENTINA

by
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**Summary**. *Gastromermis iguazuensis* sp. n. (Nematoda: Mermithidae) was found parasitizing larvae of the blackfly *Simulium pertinax* (Diptera: Simuliidae) in Argentina. The species is characterized by the long, muscular, S-shaped and cylindrical vagina, simple spicule, three rows of genital papillae comprising 19 preanal papillae and 12 postanal papillae in the ventral row and 18 lateral papillae in each of the lateral rows.

Species of the genus *Gastromermis* Micoletzky, 1923 are frequently found as parasites of simulids, particularly in Europe and America (Poinar, 1975, 1977). Some species, namely *G. cordobensis* Camino, 1991, *G. doloresi* Camino, 1993, *G. fidelis Doucet*, 1982, *G. kolleonis* Doucet et Poinar, 1984 and *G. vaginiferous* Camino, 1985, have been reported from Argentina. In this paper, *Gastromermis iguazuensis* sp. n. parasitizing larvae of *Simulium pertinax* Kollar, from Misiones, Argentina is described.

## Material and methods

*Simulium pertinax* larvae were collected from the Iguazú river and maintained in aerated, dechlorinated tap water at 10 °C, until the nematodes emerged. The post-parasitic juveniles were placed in distilled water at 10 °C ± 2 in a Petri dish with a layer of sand at the bottom. Adults and post-parasitic juvenile nematodes were observed alive and then killed in 60 °C distilled water for 3 seconds, fixed in TAF and processed to glycerol by Seinhorst's method. To determine the histology of the longitudinal chords nematodes were fixed in Bouin's fluid, passed through an alcohol series to paraplast, sectioned at 10 µm thickness and stained with hematoxilin-eosin. Specimens were prepared in glycerine jelly for an apical view of the head. Drawings and measurements were made from live and fixed specimens with a camera lucida and a micrometer on a Zeiss light microscope.

## *GASTROMERMIS IGUAZUENSIS* sp. n.

(Fig. 1)

Description: medium sized nematodes. In live specimens the trophosome is a light green color. Cuticle without criss-cross fibres. Six cephalic papillae. Amphids medium sized, pocket-shaped. Mouth terminal and ventrally shifted. Eight hypodermal chords: lateral chords containing three rows of cells; dorsal and ventral rows with two rows of cells; subdorsal and

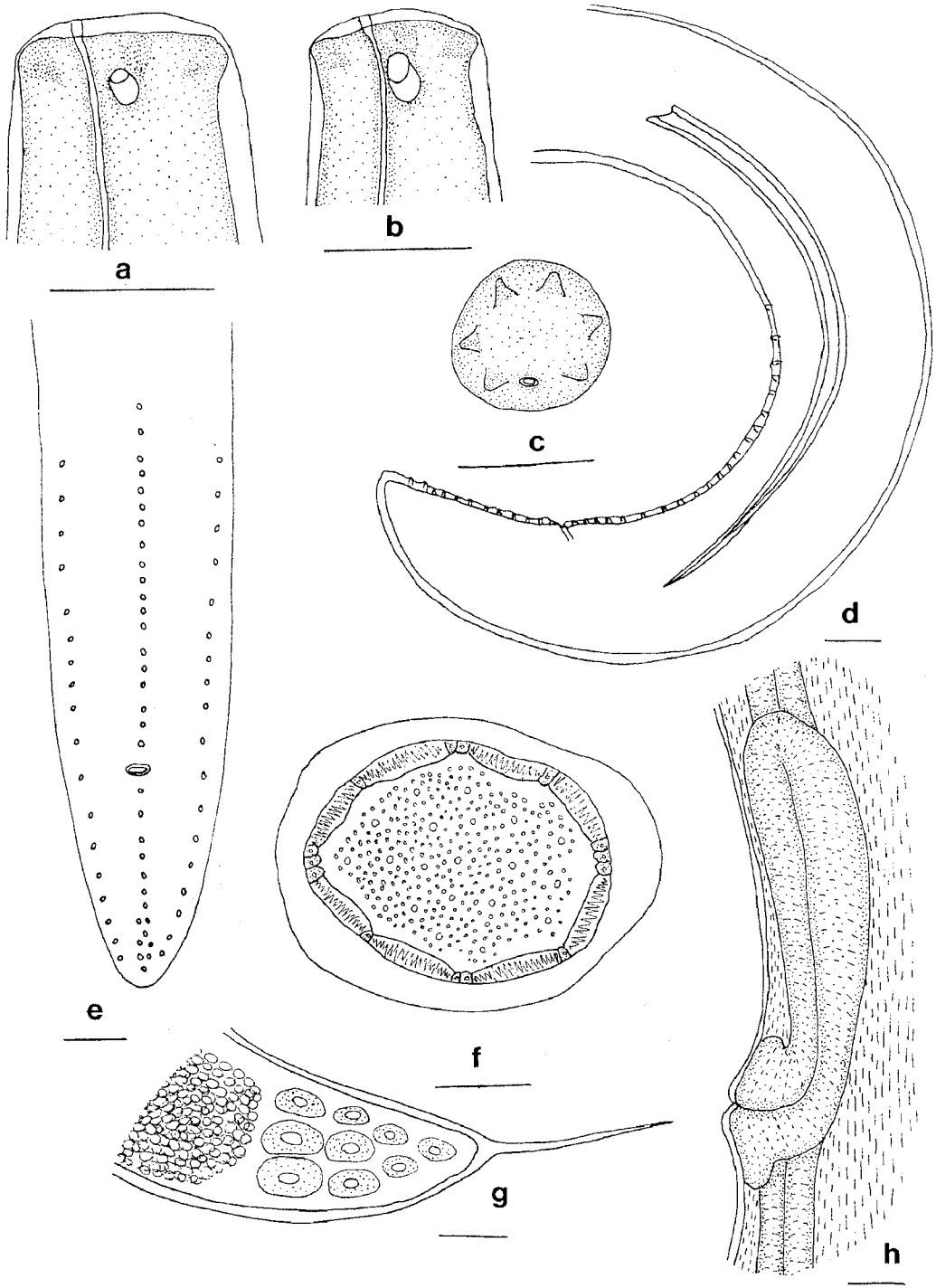


Fig. 1 - *Gastromermis iguazuensis* sp. n.: a, head of the female in lateral view; b, head of the male in lateral view; c, apical view of the male head; d, lateral view of male tail; e, ventral view of male tail; f, cross section at midbody; g, lateral view of post-parasitic juvenile tail; h, vagina; (Bars = 50 μm).

subventral chord containing one row of cells, along the length of the body. Vulva protruding, vulval lips well development. Vagina cylindrical, long, muscular and S-shaped with three loops, the second being the longest. Spicule single and long. The tip of the spicule is sharp-pointed and not sculptured. Genital papillae arranged in three rows: 18 papillae in each of the lateral rows, and in the ventral row 19 preanal papillae and 12 postanal papillae of which the 8th, 10th and 11th are double. Post-parasitic juveniles with a long and thin tail appendage. Measurements are for holotype male and allotype female and for paratypes the range in parenthesis.

*Male*: (n = 15); total length 12.5 mm (11-13); head diam. at level of cephalic papillae 57 µm (56-60); body diam. at level of nerve ring 105 µm (96-116); greatest width of body 158.5 µm (144-172); width of body at level of anus 123 µm (112-136); distance from anterior end to nerve ring 194 µm (180-208); distance from anus to tail 162 µm (156-168); spicule length 562 µm (560-568); width at mid-spicule 15 µm (12-18); length amphid 18 µm (16-20); width of amphid 14.5 µm (12-16).

*Female*: (n = 16); total length 19.5 mm (18-20); head diam. at level of cephalic papillae 65 µm (64-68); body diam. at level of nerve ring 119 µm (116-124); greatest width of body 213 µm (208-220); width of body at level of vulva 227.5 µm (220-238); width of body at level of posterior end of trophosome 135.5 µm (135-136); distance from anterior end to nerve ring 258 µm (256-262); length of vagina 356 µm (308-396); width of vagina 71.5 µm (71-73); V = 46.5% (43-50); length of amphid 14 µm (14-16); width of amphid 11.5 µm (10-12).

*Eggs*: Oval with smooth shell, unembryonated, laid without any additional covering. Length and width 62 µm (60-64) x 48 µm (44-52).

*Post-parasitic juvenile*: n = 12; dimensions as in adults. Tail appendage long and thin, mean length 108 µm (106-110).

*Type host*: larvae of *Simulium pertinax* Kollar (Diptera: Simuliidae). Ident. Dr. Coscarón, Museo de La Plata.

*Type locality*: Iguazú River, Cataratas del Iguazú, Misiones Province, Argentina.

*Type material*: Types deposited in the CEPAVE, División Entomonemátodos, Argentina. Series numbered: M115-M118.

## Discussion

*Gastromermis iguazuensis* sp. n. has a spicule typical of nine other species of the genus *Gastromermis*: *G. aquatilis* (Dujardin, 1845), *G. clinogaster* Rubzov, 1967, *G. cloacachilus* Poinar et Takaoka, 1981, *G. crassicauda* Rubzov, 1967, *G. deltensis* Hominick *et* Welch, 1971, *G. longispicula* Ruzov, 1967, *G. pachopeos* Mulvey *et* Nickle, 1978, *G. vaginiferous* Camino, 1985 and *G. viridis* Welch, 1962.

*G. aquatilis* is separated from *G. iguazuensis* by having 24 preanal papillae and 8 postanal papillae in the male.

*G. clinogaster* differs from *G. iguazuensis* by the arrangement of the genital papillae in four rows: 33 to 34 papillae in medial rows, of which 18 to 19 are preanal; 26 papillae in each of the lateral rows, of which 10 to 11 are located before the genital aperture.

The males of *G. cloacachilus* are characterized by a pair of lips surrounding the cloacal opening. Both sexes possess a mouth cone and only six hypodermal chords.

*G. crassicauda* can be distinguished from other species by the swollen posterior end of body and by the 12 to 13 preanal papillae and 3 to 4 postanal papillae.

*G. deltensis* has a vagina as a "reversed J-shaped" and the genital papillae arranged in 18 to 26 preanal papillae and 11 postanal papillae.

*G. longispicula* differs from *G. iguazuensis* in having a very long spicula (900 µm), 6 to 7 preanal papillae and only 3 postanal papillae; also the female is unknown in this species.

*G. pachopeos* is distinguished by the body cuticle, which is very thick and longitudinally

striated, and the large, closely spaced genital papillae.

*G. vaginiferous* has a short spicule (300 µm) and a long vagina (510 µm).

*G. viridis* is distinguished by the very long spicule (800-1000 µm), and by having 22 preanal papillae and 11 postanal papillae.

Two species described from Argentina, *G. fidelis* Doucet, 1982 and *G. kolleonis* Doucet and Poinar, 1984, have six hypodermal chords, a character which separates them from *G. iguazuensis* which has eight. The other two Argentinian species are *G. cordobensis* Camino, 1991 and *G. doloresi* Camino, 1993 which can be distinguished from *G. iguazuensis* by having the irregular walls of the spicule.

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