

***Gastromermis kolleonis* n. sp. (Nematoda: Mermithidae), a Parasite of Midges (*Chironomus* sp. Chironomidae) from Argentina¹**

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Abstract: *Gastromermis kolleonis* n. sp. (Nematoda: Mermithidae) is described from the Arroyo Saldan River in Córdoba, Argentina. This species parasitizes midges of the genus *Chironomus* (Chironomidae: Diptera). It is distinguished from other members of the genus by the presence of six longitudinal chords, vulval flaps, degree of ventral displacement of the mouth, and size and shape of the spicule and amphids.

Key words: mermithid nematode, chironomid host, taxonomy.

While sampling stream bottoms during the winter of 1981, the senior author collected some mermithid nematodes in the Arroyo Saldan, a tributary of the Rio Primero, in Córdoba, Argentina. Mermithid adults and post-parasitic juveniles were found in the samples as well as chironomid midge larvae parasitized by the mermithid. The mermithid was new to science and is described below.

MATERIALS AND METHODS

Post-parasitic and adult mermithids and infected *Chironomus* larvae were recovered from sand at the bottom of a small stream called the Arroyo Saldan in Córdoba, Argentina. After molting and oviposition, the adults were heat killed at 80 C, fixed in 4% formalin, and processed to glycerin. Living material was maintained in petri dishes containing stream water at 20 C for 6 weeks.

En face views were prepared in glycerine jelly (1).

In the description below, all measurements are given in micrometers (μm) unless otherwise specified. The number following the character represents the average value and the numbers in parentheses give the range of that character.

RESULTS

Description: Mermithidae Braun, 1883, *Gastromermis* Micoletzky, 1923, *Gastromermis kolleonis* n. sp. (Figs. 1-11). Name derived from the Greek noun *kolla*, meaning glue and referring to the gelatinous matrix containing the eggs in this species.

General morphology: Cuticle smooth and relatively thin, without visible crisscross fibers. Mouth ventrally displaced, opening anterior to the circle of six cephalic papillae. Amphids flask-shaped, shifted slightly to the dorsal side; commissures between amphids distinct, amphidial openings slightly posterior to the circle of cephalic papillae. Hypodermal chords and muscle fields six at midbody; lateral chords wider than the others; female with a vulval flap; vagina elongate, extends posteriorly, then bends toward the anterior end. Male with a single elongate spicule, with the tip bent ventrally; genital papillae arranged in three broken rows, pharyngeal tube extends almost to midbody in adults.

Measurements. Females (4): Length = 8.8 mm (8.2-9.8); greatest width = 107 (90-129); distance from head to nerve ring = 149 (141-154); V = 56 (53-58); length of amphid = 10 (6-12); width of amphid = 7 (4-10); length of vagina = 340 (300-375); eggs spherical, diameter = 45 (43-47). Eggs are deposited in a gelatinous matrix. One matrix contained approximately 45 eggs.

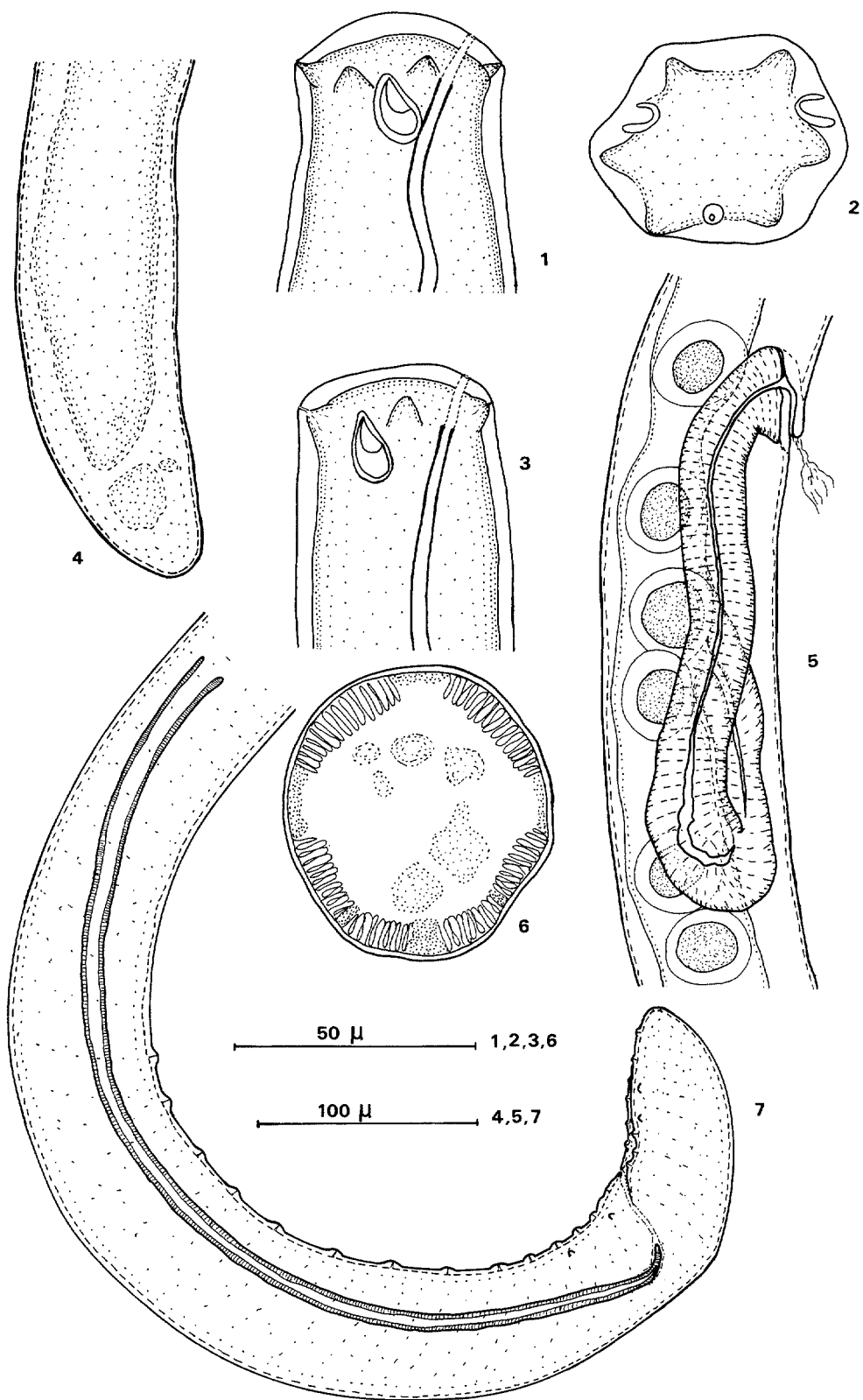
Males (4): Length = 8.4 mm (6.7-10.6); greatest width = 77 (65-90); distance from head to nerve ring = 169 (154-188); length of amphids = 13 (10-15); width of amphids = 8 (6-10); length of tail = 86 (64-103); width of cloaca = 63 (60-64); length

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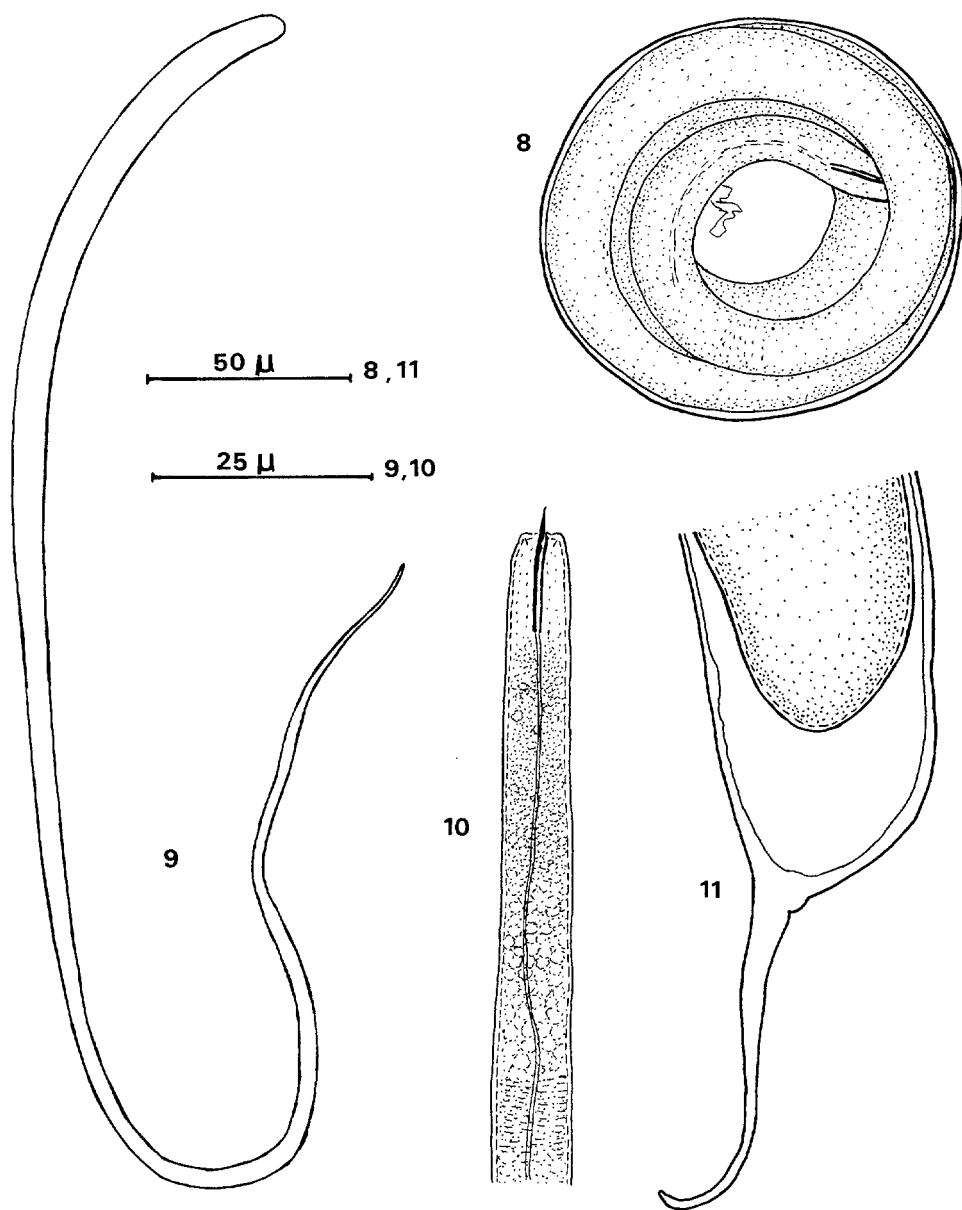
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FIGS. 1-7. *Gastromermis kolleonis* n. sp. 1) Lateral view of female head. 2) En face view of female. 3) Lateral view of male head. 4) Lateral view of female tail. 5) Lateral view of vagina. 6) Cross section of male at midbody. 7) Lateral view of male tail.



FIGS. 8-11. *Gastromermis kolleonis* n. sp. 8) Second-stage pre-parasitic juvenile inside egg (note remains of shed cuticle in center of egg). 9) General shape of second-stage pre-parasitic juvenile. 10) Anterior portion of second-stage pre-parasitic juvenile. 11) Lateral view of post-parasitic juvenile tail.

of spicule = 482 (437-604); width of spicule base = 16 (13-20). Three broken rows of genital papillae, the middle row extending from the tail tip about 300 μm anteriorly.

Post-parasitic juveniles (10): Cephalic papillae and amphids rudimentary, with a tail appendage approximately 90 μm in length.

Pre-parasitic juveniles (15): Length = 550; distance from head to nerve ring = 58 (50-60); width at the nerve ring = 7 (7-8); one molt occurs in the egg and the second-stage juvenile emerges.

Type locality: Arroyo Saldan, Córdoba, Argentina.

Type host: *Chironomus* sp. (Chironomi-

dae). Further studies may indicate that more than one species of *Chironomus* serves as host.

Type specimens: Deposited in the Nematology Collection at the University of California, Davis, California.

DISCUSSION

Gastromermis kolleonis can be separated from most described *Gastromermis* compiled by Rubtsov (6) by the presence of six longitudinal chords at midbody. Eight chords are more common in members of this genus. The six-chord condition seems to be more common in tropical species, excepting *G. hexachordalis* Voslyte & Kontrimavichus (7), *G. brevispicularis* Voslyte & Kontrimavichus (7), and *G. metae* Curran & Hominick (2). Other six-chorded *Gastromermis* include *G. leberrei* Mondet, Poinar, & Bernadou (4), *G. cloacachilus* Poinar & Takaoka (5), and *G. fidelis* Doucet (3). The presence of a vulval flap in *G. kolleonis* separates this species from *G. philipponi* Mondet, Poinar, & Bernadou (4), *G. fidelis*, *G. cloacachilus*, *G. metae*, and *G. hexachordalis*. *Gastromermis leberrei* and *G. brevispicularis* also have a vulval flap, but the mouth opening of the former has not shifted as far ventral as in *G. kolleonis* and the spicule is significantly shorter in the latter species than in *G. kolleonis*. The spicule in *G. metae* is significantly longer than that of *G. kolleonis*, and the tip of the spicule is not bent ventrally in *G. leberrei* as it is with *G. kolleonis*. The anterior portion of the amphids is pointed in *G. kolleonis* but rounded in *G. leberrei*, and the tail projection on the post parasites of *G. leberrei* and *G. brevispicularis* is much shorter than that of *G. kolleonis*.

Mermithids reared from *Chironomus* larvae were identical to those collected free in the sand from the bottom of the stream.

KEY SEPARATING *G. KOLEONIS* FROM PREVIOUSLY DESCRIBED SPECIES OF *GASTROMERMIS* POSSESSING SIX HYPODERMAL CHORDS

1. Mouth opening of females shifted ventrally to level of head papillae; parasites of Chironomidae 2

1. Mouth opening of females shifted ventrally, but not to the level of the head papillae; mostly parasites of Simuliidae (one species attacks Chironomidae) 3
2. Spicule tip straight
..... *G. hexachordalis* Vos. & Kont.
2. Spicule tip curved ventrally
..... *G. brevispicularis* Vos. & Kont.
3. Vulvar flap present; spicule tip curved ventrally; anterior portion of amphidial opening pointed; parasites of Chironomidae
..... *G. kolleonis* Doucet & Poinar
3. Vulvar flap absent; spicule tip straight; anterior portion of amphidial opening rounded; parasites of Simuliidae
..... *G. metae* Curran & Hominick;
..... *G. leberrei* Mondet, Poinar, & Bernadou;
..... *G. cloacachilus* Poinar & Takaoka;
..... *G. fidelis* Doucet

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