

# *Limnomermis subtropicalis* n. sp. (Nematoda: Mermithidae) a Parasite of Larvae of *Simulium orbitale* Lutz (Diptera: Simuliidae) in Argentina

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*Limnomermis subtropicalis* n. sp. (Nematoda: Mermithidae) a parasite of *Simulium orbitale* Lutz (Diptera: Simuliidae) found in Argentina is described and illustrated.

This species is characterized by having medium sized amphids, pocket-shaped, medium sized vagina, sculptured spicule, and by having 9 preanal, 7 postanal papillae in the ventral row, and 12 papillae in the lateral rows.

Key words: *Limnomermis subtropicalis* n. sp. - Mermithidae - *Simulium orbitale* - Simuliidae - Argentina

Mermithids parasitizing simuliids (Diptera: Simuliidae) in Argentina belong to the following genera: *Mesomermis* Daday, 1911; *Isomermis* Coman, 1953; *Gastromermis* Micoletzky, 1923; *Octomyomermis* Johnson, 1963; *Ditremamermis* Camino et Poinar, 1988; and *Bathymermis* Daday, 1911.

In this paper we report for the first time the presence of the genus *Limnomermis* Daday, 1911 represented by a parasite of blackflies in Argentina, with the new species *L. subtropicalis* n. sp., found in Misiones province, Argentina.

## MATERIALS AND METHODS

Larvae of *Simulium orbitale* Lutz were found parasitized by mermithids in Iguazú River, Puerto Iguazú, Misiones, Argentina. The insect larvae were kept in containers with dechlorinated tap water and an airpump at 8°C ± 2. Adults and post-parasitic juveniles were observed alive and then killed, by immersing in distilled water at 60°C for 2 min, fixed in TAF: formalin (40% formaldehyde) 7 ml, triethanolamine 2 ml and distilled water 91 ml (Courtney et al. 1955) and processed to glycerol-ethanol by Seinhorst's method (Seinhorst 1959) for taxonomic studies. Transversal sections were made by hand and prepared in glycerine jelly (Hooper 1970). Drawings and measurements were made from live and fixed specimens with a camera lucida connected to a Zeiss light microscope. Measurements (in micrometres) are for the holotype male and allotype female and for paratypes the range is in parenthesis.

## DESCRIPTION

*Limnomermis* Daday, 1911

Type species: *Limnomermis limnobia* Daday, 1911

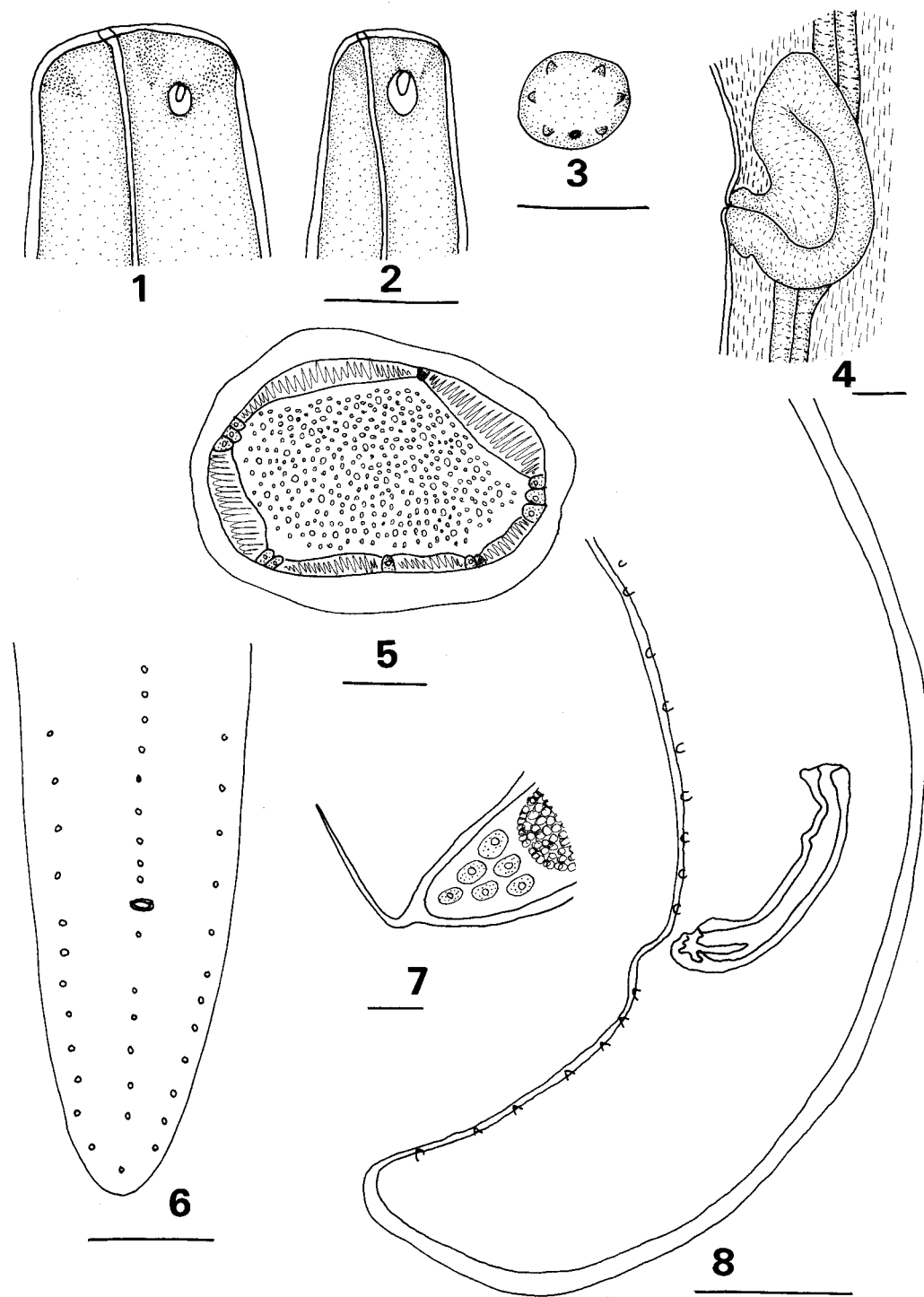
Cuticle thin without visible crisscross fibres. Six cephalic papillae. Hypodermal chords six. Lateral chords have two to three rows of cells. Mouth terminal and shifted ventrally. Amphids small, more rarely large, oval-pyriform. Tail in both sexes blunt or pointed. Spicule one, relatively short, the tip of the spicule sometimes sculptured. Vagina cylindrical and slightly S-shaped.

*Limnomermis subtropicalis* n. sp.  
(Figs 1-8)

Medium sized nematodes. Cuticle without crisscross fibres visible under light microscope. Six cephalic papillae. Amphids medium sized, pocket-shaped. Six hypodermal chords present all along the body: lateral chords containing three rows of cells each, dorsal and ventral chords with one row of cells each one, subventral chords containing two rows of cells. Mouth terminal and shifted ventrally. Vulva protruding, vulval lips developed. Vagina S-shaped and muscular. One spicule, medium sized and sculptured. Three rows of genital papillae: the ventral row has 9 preanal and 7 postanal papillae, the subventral rows with 12 papillae each. Both sexes with long, thin and pointed tail.

Male: (n = 12). Body length: 10.400 (8.700-11.400); width of head at level of cephalic papillae: 42.6 (40-44); width of body at level of nerve ring: 71.4 (70-73); greatest width of body: 84 (76-92); distance from anterior end to nerve ring: 180 (164-200); distance from anus to tail: 134 (124-144); length of the spicule: 90 (88-96); width of spicule in the middle: 11 (11-12.5); length and width of amphids: 16x12.

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*Limnomermis subtropicalis* n. sp. Fig. 1: head of the female in lateral view. Fig. 2: head of the male in lateral view. Fig. 3: apical view of male head. Fig. 4: vagina in lateral view. Fig. 5: cross section at midbody. Fig. 6: ventral view of male tail. Fig. 7: post-parasitic juvenile tail in lateral view. Fig. 8: lateral view of male tail (Bars = 50  $\mu$ m).

Female: (n = 15). Body length: 17.340 (16.370-18.520); width of head at level of cephalic papillae: 70.5 (68-73); width of body at level of nerve ring: 98 (88-107); greatest width of body: 231 (190-272); width of body at level of vulva: 236 (232-240); width of body at level of posterior end of trophosome: 146 (136-156); distance from head to nerve ring: 224 (204-240); length of vagina: 252 (244-260); width of vagina: 83.5 (82-84); V: 50% (49-50.5); length and width of amphids: 12x8.

Post-parasitic juveniles: n = 10. Tail appendage long, thin and pointed. Mean length 144 (138-150).

Eggs: oval with smooth shell, unembryonated, without any additional covering. 58 (56-60) x 38 (36-40).

Type host: larvae of *Simulium orbitale* Lutz (Diptera: Simuliidae). det. Dr Sixto Coscarón, Museo de La Plata.

Type locality: Iguazú River, Puerto Iguazú, Misiones Province, Argentina.

Type material: holotype male, allotype female and paratypes are deposited in the Centro de Estudios Parasitológicos y de Vectores (CEPAVE), Division Entomonematodes, Argentina. Series numbered M0123-M0125.

#### REMARKS

The new species *L. subtropicalis* n. sp. has a sculptured spicule typical of two other species of the genus *Limnomermis* Daday, 1911, namely: *L. angustifrons* Rubzov, 1974, from USSR and the host unknown; and *L. fluviatilis* (Hagmeier, 1912), from Germany and parasitizing chironomids.

*L. angustifrons* differs from our new species by the long spicule (190 µm), the genital papillae numerous: 49 papillae in medial row, of which 16 are postanal, lateral rows have approximately 30 papillae each, and it has a long vagina (800 µm).

*L. fluviatilis* is characterized by the short spicule (66 µm), oar-shaped, surface of spicule with longitudinal hexahedral cells, which become shorter at the end and merge with each other, the amphids are very large and the ventral row of genital papillae in the male has 8 preanal and 7 postanal papillae.

The other species of the genus found in Argentina is *L. bonaerensis* Camino, 1989, a parasite of amphipods (Crustacea). It can be separated from our new species by having the spicule not sculptured, the vagina long (150 µm) and by the number of the genital papillae, in which 12 are pre and 12 postanal; 28 papillae are in the lateral rows.

*L. subtropicalis* n. sp. is characterized by having medium sized amphids, pocket-shaped, medium sized vagina, spicule sculptured; it has 9 pre, 7 postanal papillae, and 12 papillae in lateral rows.

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