

Description of the male of *Mesodorylaimus chipevi* Nedelchev & Peneva, 2000 (Nematoda: Dorylaimidae) from Livingston Island, Antarctica

Sevdan Nedelchev* and Vlada Peneva**

*Sofia University St Kliment Ochriski, Dragan Tzankov 8, 1421 Sofia, Bulgaria, e-mail: nedelchev@biofac.uni-sofia.bg,

**Central Laboratory of General Ecology, 2 Gagarin Street, 1113 Sofia, Bulgaria, e-mail: vpeneva@ecolab.bas.bg

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Summary. The male of *Mesodorylaimus chipevi* Nedelchev & Peneva, 2000 from Livingston Island, South Shetland Islands, Antarctica, is described and illustrated. The male is similar to the female in general morphology, but body curved ventrally in 'J' shape. Body and odontostyle medium sized and slightly shorter than in females (1875 μm and 15 μm , respectively), spicules 57 μm long, an adanal pair and a series of ten non contiguous small supplements, tail dorsally conoid and broadly rounded, 32 μm long, $c'=0.85$. Male is functional, sperm cells have been observed in the uterus and *pars dilatata* of the oviduct in the majority of females from the population studied.

Key words: Antarctica, *Mesodorylaimus*, male, morphology.

The genus *Mesodorylaimus* in Antarctica is represented by four species: *Mesodorylaimus imperator* Loof, 1975, *M. chipevi* Nedelchev & Peneva, 2000, *M. antarcticus* Nedelchev & Peneva, 2000 and *M. masleni* Nedelchev & Peneva, 2000. *Mesodorylaimus imperator* occurs in populations with abundant males, while for the other three species males are unknown. During the investigation on the ecology and distribution of omnivorous nematodes on Livingston Island (Bulgarian Antarctic Campaign summer of 2000/2001), in a population of *M. chipevi* one male specimen was recovered. Here we present the description of this male.

MATERIAL AND METHODS

Nematodes were recovered from the samples using the Baermann funnel method. They were killed by gentle heat, fixed in TAF and processed to anhydrous glycerine (Seinhorst, 1959). Materials are kept in the Nematode collection of the Central Laboratory of General Ecology, Sofia.

DESCRIPTION

Mesodorylaimus chipevi Nedelchev & Peneva, 2000 (Fig. 1)

Measurements.

Male: L = 1875 μm ; a = 39.0; b = 4.8; c = 58.6; $c' = 0.85$; odontostyle = 15 μm ;

odontophore = 22.5 μm ; spear = 37.5 μm ; neck length = 392 μm ; cardia length = 27 μm ; body width at: lip region = 14 μm , mid-body = 48 μm ; anus = 37.5 μm ; lateral chord = 15.5 μm ; pre-rectum = 132 μm ; tail = 32 μm ; spicule = 52 μm .

Female (n=9): L = 2019 \pm 98.2 (1880-2188) μm ; a = 38.5 \pm 2.6 (34.6-43.5); b = 5.1 \pm 0.1 (4.9-5.3); c = 15.9 \pm 1.5 (13.3-18.2); $c' = 4.5\pm 0.3$ (4.2-4.9); V = 49.9 \pm 1.8 (48-53); G1 = 15.9 \pm 1.2 (14.0-17.5); G2 = 15.0 \pm 0.8 (13.7-16.1); odontostyle = 16.5 \pm 0.5 (16-17) μm ; odontostyle aperture = 6.0 \pm 0.3 (5-6); Odontophore = 22.6 \pm 0.9 (20-24); spear = 39.0 \pm 1.2 (36-40) μm ; neck length = 394 \pm 12.5 (376-410) μm ; cardia length = 31.0 \pm 3.4 (26-37) μm ; body width at: lip region = 14.0 \pm 0.7 (13-15) μm ; mid-body = 53.0 \pm 3.7 (48-56) μm ; anus = 29.0 \pm 1.3 (27-31) μm ; lateral chord = 19.0 \pm 1.3 (16.5-21) μm ; pre-rectum = 100 \pm 12 (85-120) μm ; rectum = 46.0 \pm 1.6 (43-48) μm ; tail = 128 \pm 9.5 (116-148) μm ; J = 23.0 \pm 5.8 (14-28) μm ; J% of tail length = 17.7 \pm 4.3 (11-22).

Male. General morphology – similar to the female but body curved ventrally in J shape when fixed. Genital system diorchid, testes opposed, well developed. Spermatozoa fusiform (12-14 μm long, about 1/4 of corresponding body width) in the distal end of maturation zone of testes. Posteriorly, towards the proximal end of the same zone, sperm cells are elongate oval. Spicules 52 μm , and 57 μm long when measured along the axis. Lateral guiding pieces 12.5 μm long. Supplements consisting of an adanal pair and ventromedian non contiguous series of ten,

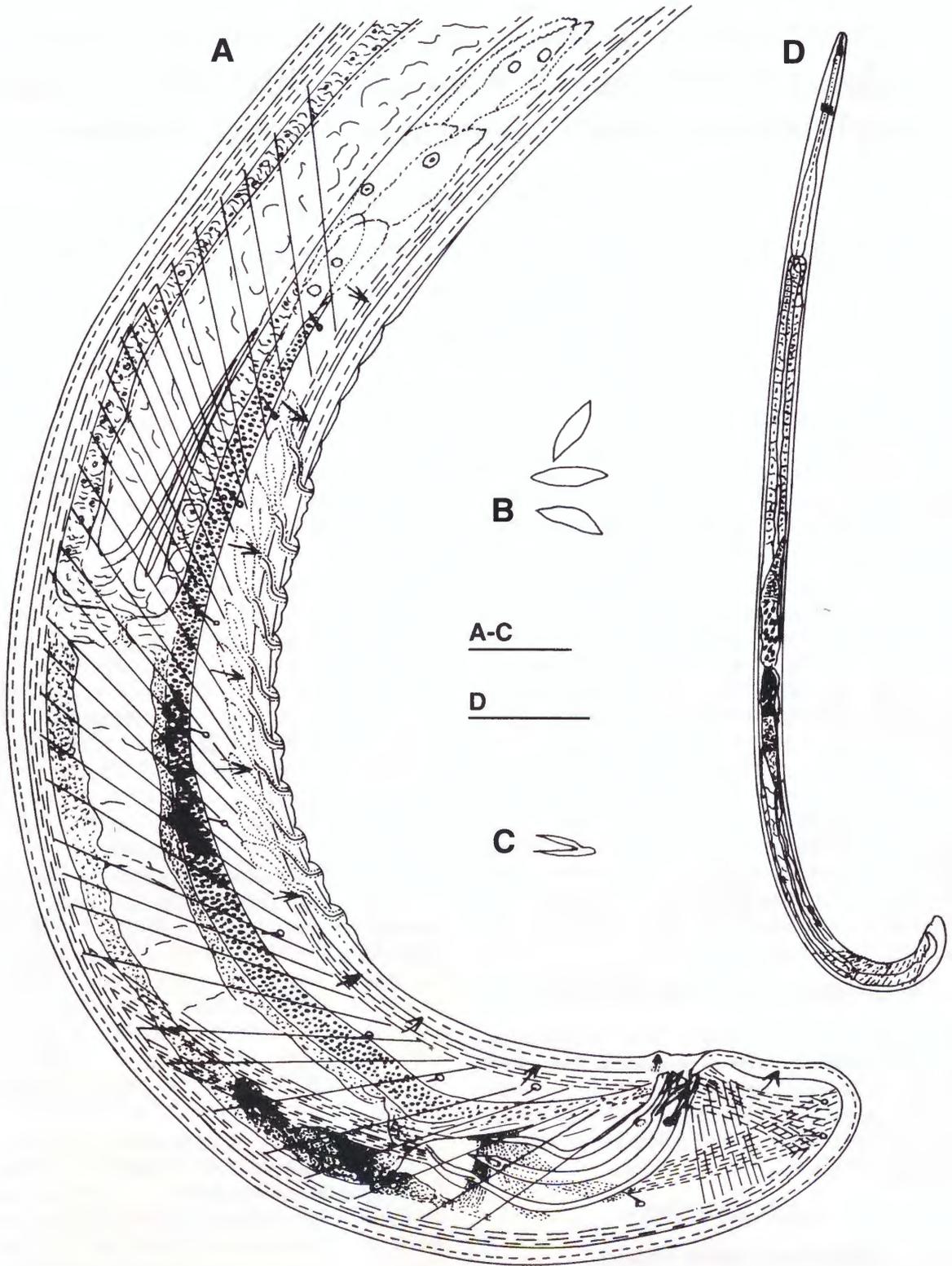


Fig. 1. *Mesodorylaimus chipevi* sp. n. A-D: Male; A: posterior end of body; B: sperm cells; C: lateral piece; D: habitus; Scale bars: A-C = 20 μ m; D = 200 μ m.

these being small, shallow and regularly spaced: the ventromedian series occupying a distance of 88 μm . Adanal pair of supplements at 8 μm from anus and ventromedian ones 8-11 μm apart (measured from tip to tip). A copulatory protuberance, 65 μm long and consisting of five bulges, located immediately anterior to the supplement series. Posteriormost supplement lying at 82 μm from the anal opening. Pre-rectum 3.6 times anal body diameter. The junction of prerectum and mid - intestine at the level of the fourth supplement from anterior end of the series. Ejaculatory glands (Coomans & Loof, 1986) lying anterior to the copulatory muscles, rectal glands opposite to the region after posteriormost supplement. Tail dorsally conoid and broadly rounded, 32 μm in length which is 0.85 times the anal body diameter. One pair of subventral papillae at the middle, and one subdorsal and one subterminal pair of pores on the tail. Ten pairs of preanal papillae (between the first bulge and anus).

Diagnosis and relationships. The male of *M. chipevi* is compared to the male of *M. imperator*, the only Antarctic species of this genus previously known to have males. The male of *M. chipevi* can be differentiated from *M. imperator* by its longer body and odontostyle, well developed testes and *vas deferens* (in *M. imperator* $L=1.13-1.49$ mm; odontostyle 13 μm ; testes and *vas deferens* not developed). Further, it is differentiated from the other two species [*M. plicatus* Andrassy, 1986 and *M. intervallis* (Thorne & Swanger, 1936) Andrassy, 1959], which have females very similar in morphology to *M. chipevi* females (Nedelchev & Peneva, 2000). The newly described male differs from the male of *M. plicatus* by having a longer body and spicule and shorter odontostyle ($L = 1.42-1.50$ mm, spicule 45-48 μm ; odontostyle 17-19 μm). The male of *M. chipevi* can be distinguished from the *M. intervallis* male by its longer body, smaller 'b' and higher 'c' values (in *M. intervallis* $L= 1.3$ mm; $b= 5.6$; $c = 50$).

Remarks. Sperm and eggs were observed in female gonads as follows: two females with sperm in uterus and with no synchronous eggs; three females without both sperm and eggs; four females with sperm in the *pars dilatata* of the oviduct and synchronous eggs.

All females from the type population (collected in 1994) contained synchronous eggs (1-5); hardly discernable spermatozooids in *pars dilatata* of oviduct were detected.

Habitat and locality. Upper part of turf with moss *Sanionia georgico-uncinata* (Muell. Kal. In Neum.) and grass *Deschampsia antarctica* Desv.

Livingston Island, Antarctica (62°38'52''S-60°22'24''W). Collected on 27.01.2001 by Dr. R Mecheva, Institute of Zoology, Sofia.

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Nedelchev S., Peneva V. Описание самца *Mesodorylaimus chipevi* Nedelchev & Peneva, 2000 (Nematoda: Dorylaimidae) с острова Ливингстон, Антарктика.

Резюме. Приводятся описание и рисунки самца *Mesodorylaimus chipevi* Nedelchev & Peneva, 2000 с острова Ливингстон, Южные Шетландские острова, Антарктика. По общей морфологии самец сходен с самкой этого вида, однако имеет загнутое на вентральную сторону тело в виде буквы 'J'. Тело и одонтостиль средних размеров и несколько короче, чем у самок (1875 мкм и 15 мкм, соотв.), спикулы 57 мкм длиной, имеется аданальная пара и серия из 10 небольших суппLEMENTОВ, хвостовой конец дорсально конический, широко закругленный, длиной 32 мкм, $c'=0.85$. Самцы функциональные, сперму обнаружили в матке и *pars dilatata* яйцевода у большинства самок исследованной популяции.
