

A new genus and five species of nematodes from Ethiopian lakes

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SUMMARY

Out of sixteen species of nematodes from benthos of lake Zway and from other Ethiopian lakes, six have been recognized as new. Five of them are described. *Aphanolaimus tudoranceai* n. sp. is characterized by an anteriorly originating lateral field, kidney-shaped amphids, four supplements and a pore-like spinneret. *Prodesmodora nurta* n. sp. has large amphids situated at 1.2-1.5 cephalic diameters from the anterior end and body length about 0.5 mm. *Tobrilus africanus* n. sp. is characterized by a not very muscular vagina, a junction between the *ductus ejaculatorius* and *vas deferens* 130-200 μm anterior to S1, six supplements (S2 and S3 particularly close to each other), tail somewhat clavated with a terminal seta. *Mesodorylaimus macrospiculum* n. sp. has a visible buccal vestibulum, a 13-16 μm long spear, a posteriorly bent vagina, 18-20 supplements and large spicules (47-63 μm long). *Lanzavecchia fafner* n. gen., n. sp. (Nordidae) is about 8 mm long, has a thick and somewhat irregularly faintly corrugated subcuticula, spear more than two cephalic diameters long, vulva longitudinal, tail conical. Moreover, the hitherto unknown male of *Actinolaimus perplexus* Heyns & Argo, 1969 is described : it has 19-22 supplements grouped in three groups.

RÉSUMÉ

Un nouveau genre et cinq espèces de nématodes provenant de lacs éthiopiens

L'examen de nombreux nématodes récoltés dans le benthos du Lac Zway et d'autres lacs éthiopiens a permis de reconnaître la présence de six espèces nouvelles dont cinq sont décrites ici. *Aphanolaimus tudoranceai* n. sp. est caractérisé par la naissance très antérieure du champ latéral, les amphides à contour réniforme, la présence de quatre suppléments et le débouché des glandes caudales réduit à un simple trou. *Prodesmodora nurta* n. sp. est long de 0,5 mm et pourvu de grandes amphides situées à 1,2-1,5 diamètres céphaliques en arrière de l'extrémité antérieure. *Tobrilus africanus* n. sp. possède un vagin peu musclé, une jonction entre *ductus ejaculatorius* et *vas deferens* située à 130-200 μm en avant du supplément S1, six suppléments (S2 et S3 étant les plus proches entre eux), l'extrémité de la queue quelque peu renflée et pourvue d'une soie terminale. *Mesodorylaimus macrospiculum* n. sp. a un vestibule buccal bien visible, un stylet long de 13-16 μm , un vagin incurvé postérieurement, 18-20 suppléments et des spicules robustes, longs de 47-63 μm . *Lanzavecchia fafner* n. gen., n. sp. (Nordidae) est long de 8 mm; la subcuticule est épaisse et irrégulièrement plissée, le stylet plus long que deux diamètres céphaliques, la vulve est longitudinale et la queue conique. Le mâle d'*Actinolaimus perplexus* Heyns & Argo, 1969 est décrit pour la première fois; il possède 19-22 suppléments, répartis en trois groupes.

In the course of a joint limnological project between University of Waterloo (Canada) and Addis Ababa University (Ethiopia) funded by the Canadian International Development Agency, Dr. Claudiu Tudorancea collected monthly a great number of benthic samples in Ethiopia. He sent me the nematodes he had collected and I have examined about 12 400 specimens, mainly originating from the Lake Zway, but also from the Lakes Shala, Abijata, Awasa, Aranguedi, Ardibo, Abaya, Kiloli, Koka and Langano. Ten known species have been identified; they will be presented in a separate paper. In addition, six new species (with a new genus) and the unknown male of an already known species have been found. They will be described here with exception of a *Dorylaimus* species which is being determined by Prof. I. Andrassy (Budapest) since he is currently revising the taxonomy of that genus.

*Aphanolaimus tudoranceai** n. sp.

(Fig. 1)

MEASUREMENTS

Female (n = 5) : L = 1.19-1.36 mm; a = 38-50; b = 5.4-6.2; c = 8.2-8.7; c' = 7.0-8.0; V = 48-51.

Male (n = 3) : L = 1.10-1.34 mm; a = 46-53; b = 5.6-5.8; c = 9.4-11; c' = 5.1-6.0; spicules = 26-30 μm ;

Holotype (female) : L = 1.35 mm; a = 45; b = 5.9; c = 8.6; c' = 7.6; V = 49.

Allotype (male) : L = 1.23 mm; a = 53; b = 5.6; c = 11; c' = 5.1; spicules = 30 μm .

* This species is named for Dr Claudiu Tudorancea who collected all the nematodes described here and gave me the opportunity to study this interesting material.

DESCRIPTION

Female : Bodies variously curved upon fixation. Head width 19-22 % of the maximum body width and 20-25 % of the body width at the esophago-intestinal junction.

Cuticle 2.0-2.5 μm thick, with about 800 small but distinct annules along the body. In a straight portion of the body near the middle they average 1.4-1.8 μm . No longitudinal striations. Lateral field originating at the

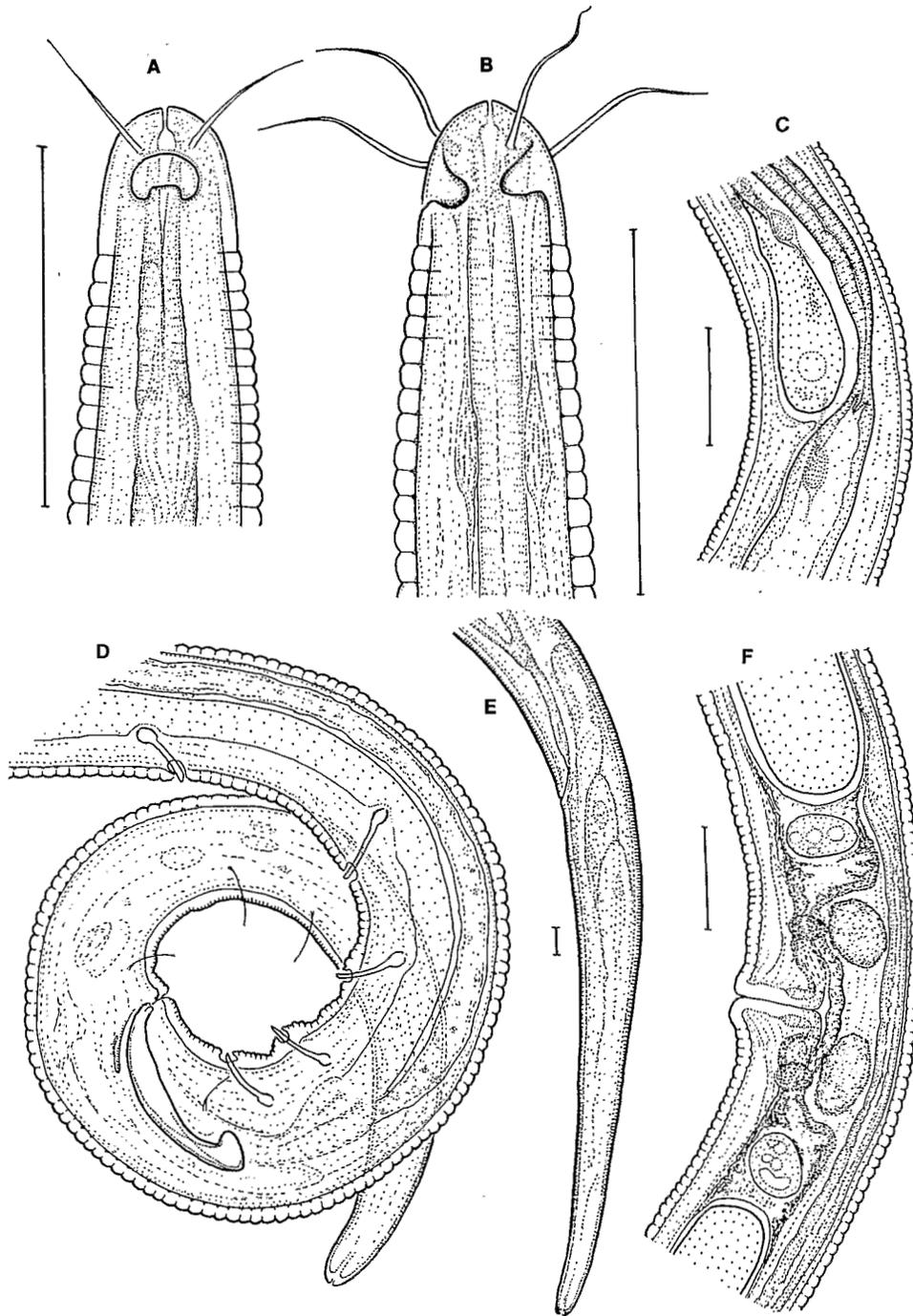


Fig. 1. *Aphanolaimus tudoranceai* n. sp. A : Head (lateral view); B : Head (dorso-ventral view); C : Esophago-intestinal junction; D : Posterior part of the male; E : Tail of the female; F : Vulvar region. (Bar = 20 μm .)

33th-42th annule, 40-75 μm from the anterior end of the body, i. e., 3-8 annules behind the first cuticular pore; the beginning of the lateral field is barely visible, and therefore its beginning has been defined as the level at which cuticular annules begin to appear broken along the lateral line. Lateral field marked off by two crenated lines, 1.2 μm wide, very faintly indented opposite the transverse striae of the cuticle. About 22-24 body pores on each side, irregularly distributed along the dorsal and the ventral sides of the lateral field. Inside each pore a minute projection can often be observed. Each pore is connected with a granular, oval epidermal gland cell. The first pore occurs at the 26th-42th annule, the second pore at the 48th-65th annule. Head 6.0-6.8 μm broad at the level corresponding to the base of the cephalic setae. Four well-developed cephalic setae present, 8.5-9.0 μm long. Amphideal fovea large, about 4 μm large (i. e., about 57-67 % of the corresponding head width), with halfmoon or reniform outline wider than high, but sometimes almost as high as wide. The anterior margin of the amphids opposite the base of the cephalic setae. Fusus starts opposite the 4-8th annule and extends over 6-7 annules. Stoma small, barely visible. Esophagus 210-225 μm long, forming a narrow, weakly muscularized cylinder. Esophago-intestinal junction cylindrical with conical tip. Ventral gland large, situated at the level of the esophago-intestinal junction. Nerve ring surrounds the esophagus at 51-54 % of its length. Female reproductive system typical for the genus. Position of both genital branches variable in relation to the intestine : specimens have been observed with both branches at the right of the intestine or with both branches at the left side or with the anterior branch to the left and the posterior to the right of the intestine; one specimen had the anterior branch on the right side and the posterior situated dorsally to the intestine. Vagina 12-15 μm long, extending inward over 38-44 % of the corresponding body width. Intestine forming a uniform tube; rectum 34-40 μm long, i. e., 1.7-2.0 anal body widths. Tail 145-165 μm long. Three caudal glands present but often obscure, anterior one may extend dorsally from the rectum. Spinneret not offset, but as a pore opening at the tail tip.

Male : Resembling female in most respects. Body more or less curved upon fixation but with the rear part usually tightly rolled-up. Esophago-intestinal gland less well developed than in female. Amphideal fovea like those of the female, but in some specimens slightly more isodiametric. 18 to 22 prominent pores present. They differ from those of the females in having much longer setae. Male reproductive system typical for the genus. Spermatozoa rounded. Gubernaculum faint, slightly bent. Five pre-anal tuboid supplements present : their length almost constant, i. e., 11-12 μm . Tail 108-115 μm long. Post-anal region provided with four pairs of well developed setae and one pair of dorsal setae.

TYPE MATERIAL

Holotype and allotype deposited at Laboratorium voor Nematologie, University of Wageningen, Holland.

Paratypes deposited at University of California, Nematode Survey Collection, Davis California USA; Commonwealth Institute of Parasitology, Saint Albans, Herts, UK; Muséum national d'Histoire naturelle, Laboratoire des Vers, Paris, France.

TYPE LOCALITY

Lake Zway, Ethiopia. This species was also found in Lake Awasa.

DIAGNOSIS AND RELATIONSHIPS

Aphanolaimus tudoranceai n. sp. differs from other species of its genus in having a lateral field originating a few annules behind the first cuticular pore (40-75 μm from anterior extremity), amphids more or less kidney-shaped, five tuboid supplements, and tails of both sexes ending in a pore-like (not tubular) spinneret.

Aphanolaimus tudoranceai n. sp. differs from *A. aquaticus* Daday, 1894 in having a longer esophagus, a non-rounded amphideal outline, a different number of supplements, and in the lack of a tubular spinneret.

The new species differs from *A. louisae* Coombs & De Waele, 1979 in having a longer and slimmer body, a cuticle without longitudinal striations, a more posterior beginning of the lateral field, spicules less arcuated and with a blunter tip, and no tubular spinneret.

*Prodesmodora nurta** n. sp. (Fig. 2)

MEASUREMENTS

Female (n = 6) : L = 0.49-0.59 mm; a = 22-24; b = 6.0-6.6; c = 5.9-6.6; c' = 5.5-6.9; V = 43-46.

Holotype (female) : L = 0.54 mm; a = 22; b = 6.0; c = 6.6; c' = 5.5; V = 46.

DESCRIPTION

Female : Body straight or more or less curved, somewhat swollen at midbody in correspondence with the ovum. Adults rather constant in dimensions and somatic ratios. Cuticle thin, faintly annulated over the whole body except on the lip region; sometimes the subcuticula contains black pigment and is therefore more evident than the cuticula : in such case, the subcuticular pigment can give the impression of a faint punctuation. Transverse striation not resolvable into points. At midbody the transverse annules measure 0.7-0.9 μm . Outline of the amphids circular or only slightly elliptic; their diameter 4.2-4.7 μm , i. e., 30-40 %

* The name of this species is a local East-African term meaning « bright ».

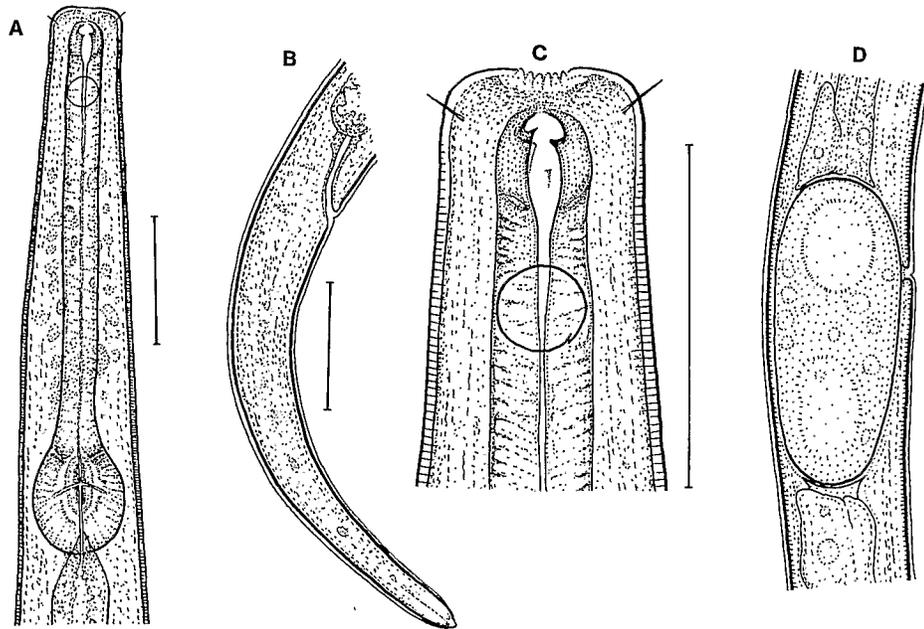


Fig. 2. *Prodesmodora nurta* n. sp. A : Esophageal region; B : Tail; C : Head region; D : Vulvar region. (Bar = 20 μ m.)

of the body width at their level; the central point of the amphids is distant from the anterior end 1.2-1.5 times the cephalic diameter. Lips barely distinguishable, round. Four thin cephalic setae about 2.5 μ m long. Sometimes a faint longitudinal striation is visible in the buccal vestibulum. Outline of stoma cavity difficult to detect, with small denticles difficult to ascertain; in some specimens the dorsal tooth is anteriorly placed, in other specimens the dorsal and ventral denticles appear at the same level. Anterior part of esophagus encircling stoma cylindrical, not swollen, but at the base of the stoma cavity the esophageal musculature is ruptured, simulating a rounded muscular anterior sphere. Posterior part of esophagus swollen into a bulb; its length corresponds to about 20-25 % of the whole esophageal length. Nerve ring situated at 50-62 % of the length of the esophagus. Excretory pore at 18-25 μ m anterior to esophago-intestinal junction. Vulva pore-like, without visible musculature. Gonads very short; in six examined specimens, four had gonads on the right, and two had gonads on the left of the intestine. In each specimen, only a single egg was seen, 42-47 μ m long. Rectum length 1.0-1.1 anal body widths. End of the tail with diameter corresponding to 45-57 % of the anal body width. Spinneret short. Body cavity containing small crystalloids.

TYPE MATERIAL

Holotype deposited at Laboratorium voor Nematologie, University of Wageningen, Holland.

Paratypes deposited at University of California, Nematode Survey Collection, Davis, California, USA; Commonwealth Institute of Parasitology, Saint Albans, Herts, UK; Muséum national d'Histoire naturelle, Laboratoire des Vers, Paris, France.

TYPE LOCALITY

Lake Zway, Ethiopia. This species was not found in the other lakes.

DIAGNOSIS AND RELATIONSHIPS

Prodesmodora nurta n. sp. is unique in its genus in having the following combination of characters : centre of amphids at 1.2-1.5 head widths from anterior end; their diameter is 30-40 % of corresponding body width; bulb length about 20-25 % of the whole esophageal length; subcuticula sometimes more-or-less pigmented with black; body length about half millimeter.

Prodesmodora nurta n. sp. differs from *P. circulata* (Micoletzky, 1913) Micoletzky, 1925 in having a smaller body, larger amphids (30-40 % of corresponding body width vs 25 %) and shorter ova (42-47 vs 60 μ m). It differs from *P. terricola* Altherr, 1950 in having relatively larger and more anterior amphids, a less swollen peribuccal esophageal bulb; crystalloids in the body cavity; larger ova (42-47 μ m vs 30 μ m), and shorter rectum. The new species differs from *P. pantalicae* Colomba & Vinciguerra, 1979 in having a smaller body;

more posterior amphids; larger rectum (1.0-1.1 times the anal body width *vs* 0.67), and a more cylindrical tail. It differs from *P. minuta* W. Schneider, 1937 in having a longer body (0.49-0.59 mm *vs* 0.33-0.36 mm), more anteriorly placed amphids (1.2-1.5 head widths from the anterior end *vs* 3), a shorter rectum (1.0-1.1 anal body widths *vs* 2), and a slenderer tail. The new species differs from *P. leptura* (De Cillis, 1917) in having a less swollen cephalic end, much larger amphids, and a shorter not clavated tail ($c = 5.9-6.6$ *vs* 3.0-4.3).

***Tobrilus africanus* n. sp.**
(Fig. 3)

MEASUREMENTS

Female (n = 9) : L = 1.38-1.97 mm; a = 25-33; b = 4.2-5.5; c = 8.0-10; c' = 5.1-6.2; V = 45-49.

Male (n = 9) : L = 1.37-2.47 mm; a = 26-40; b = 4.3-5.8; c = 10-14; c' = 3.7-4.2; spicules 35-49 μ m.

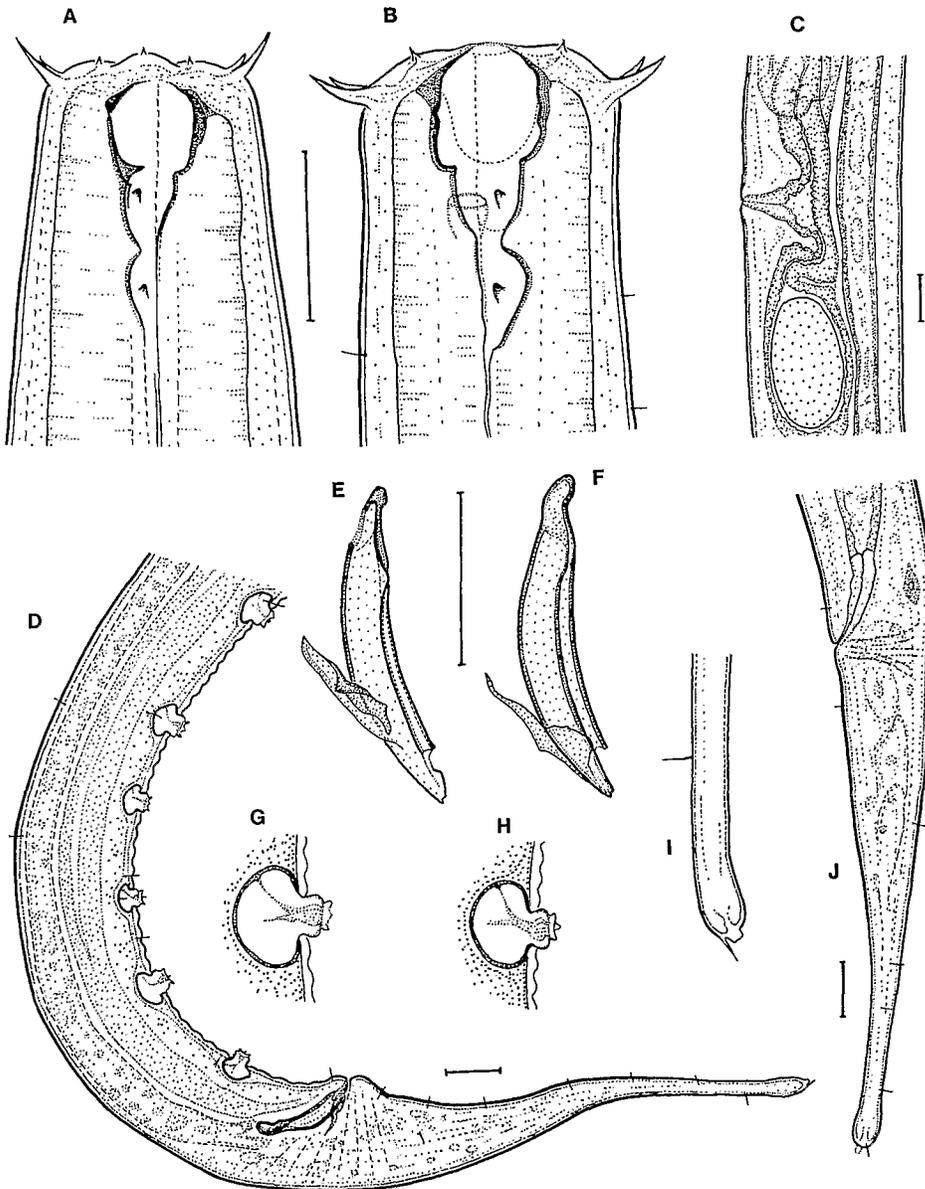


Fig. 3. *Tobrilus africanus* n. sp. A, B : Head regions; C : Vulvar region; D : Posterior region of the male; E, F : Spicular apparatus; G : male supplement S1; H : Male supplement S6; I : Tip of the male tail; J : Female tail. (Bar = 20 μ m.)

Holotype (female) : L = 1.68 mm; a = 25; b = 5.2; c = 8.4; c' = 6.2; V = 46.

Allotype (male) : L = 2.47 mm; a = 40; b = 5.6; c = 14; c' = 4.2; spicules 37 μ m. This male is far larger and slimmer than all other observed males.

DESCRIPTION

Female : Width of lip region 30-34 μ m, about 51-64 % the body width at the vulva. Cuticle smooth, but a very faint punctuation is visible, especially in the posterior half of the body; it is about 1 μ m thick. The entire body is provided with short setae. Head outline sometimes slightly swollen. Length of longer cephalic setae 7-8 μ m or 22-27 % of corresponding body width; the shorter setae measure 4-5 μ m. Stoma with two pockets adjacent to one another; each with one tooth, the distance between the teeth being 10-15 μ m. Amphids opening near the level of anterior tooth, at 12-18 μ m from anterior end. Esophagus 320-390 μ m long; cardiac glands 15-25 μ m long, length equal to width in frontal view, or slightly greater. Vulva transverse; vagina about 1/3 body width deep; vaginal musculature not very developed nor striated. Vulva-anus distance about 3.2-4.1 times the tail length. Advulvar subdorsal setae very short, 3 μ m. Intra-uterine eggs measure 60-65 \times 33-34 μ m; maximum one ovum per uterus. Rectum 32-43 μ m long, i.e., about 0.9-1.3 anal body width. Dorsally to the rectum a large coelomocyte 13-14 μ m long is visible. Tail slightly clavate, 170-230 μ m long. Terminal seta present, and also a dorsal subterminal seta is present at one, two or more tail-terminus widths anterior to the tail tip. Spinneret is a short tubule.

Male : Resemble female in most respects. Head width 26-32 μ m. Testes two; *vas deferens* swollen at anterior end. *Vas deferens* joins *ductus ejaculatorius* 130-200 μ m anterior to S1. Six supplements disposed as follows (distances in μ m; in parentheses the mean for ten specimens) :

- S1 - S2 = 22-50 (34)
- S2 - S3 = 14-33 (23)
- S3 - S4 = 22-39 (32)
- S4 - S5 = 28-35 (31)
- S5 - S6 = 29-51 (40)
- S6 - anus = 35-42 (39)

Major diameter (i.e., antero-posterior) of the globular, internal part of the supplements, 10-13 μ m. The supplement S6 is anterior to spicules. Tail 122-168 μ m long; spinneret and terminal setae as in females.

TYPE MATERIAL

Holotype and allotype stored at Laboratorium voor Nematologie, University of Wageningen, Holland.

Paratypes deposited at University of California, Nematode Survey Collection, Davis, California, USA; Commonwealth Institute of Parasitology, Saint Albans, Herts, U K; Muséum national d'Histoire naturelle, Laboratoire des Vers, Paris, France.

TYPE LOCALITY

Lake Zway, Ethiopia. This species was also found in Lake Koka, Lake Shala and in Lake Awasa.

DIAGNOSIS AND RELATIONSHIPS

Tobrius africanus n. sp. is unique in the genus in having the following combination of characters : not very muscular vagina; junction between *ductus ejaculatorius* and *vas deferens* 130-200 μ m anterior to S1; six supplements not at equal distance from each other : S2 and S3 very near each other (mean 23 μ m) and S5-S6 relatively distant from each other (mean 40 μ m); tails of both sexes somewhat clavated and with terminal seta directed posteriorly.

Tobrius africanus n. sp. is similar to *T. stefanski* (Micoletzky, 1925), but differs from this species in having a larger cephalic diameter (30-34 μ m vs 20-23 μ m in females); longer cephalic setae (7-8 μ m vs 5.0-5.8 μ m); larger ova (60-65 μ m vs 47-50 μ m long); the junction and sphincter between *ductus ejaculatorius* and *vas deferens* is 130-200 μ m anterior to S1 (and not immediately anterior to S1); the sphincter is not so well developed; ventral papillae extending much more anteriorly to S1; supplements not at equal distance from each other; tip of the tail more swollen; terminal seta present (Andrássy, 1971).

Mesodorylaimus macrospiculum n. sp. (Fig. 4)

MEASUREMENTS

Female (n = 5) : L = 1.35-1.78; a = 33-38; b = 5.5-6.8; c = 11-16; c' = 3.9-5.6; V = 40-45.

Male (n = 5) : L = 1.21-1.61 mm; a = 34-45; b = 5.3-6.2; c = 67-78; c' = 1.0-1.1; spicules 47-63 μ m.

Holotype (female) : L = 1.65 mm; a = 35; b = 5.9; c = 16; c' = 4.5; V = 43.

Allotype (male) : L = 1.50 mm; a = 36; b = 6.0; c = 69; c' = 1.0; spicules 50 μ m.

DESCRIPTION

Female : Bodies variously bent when relaxed. Cuticle about 1 μ m thick, thinner than the buccal spear. Sometimes the subcuticula appears faintly annulated. Head end not set off or only slightly set off, its diameter

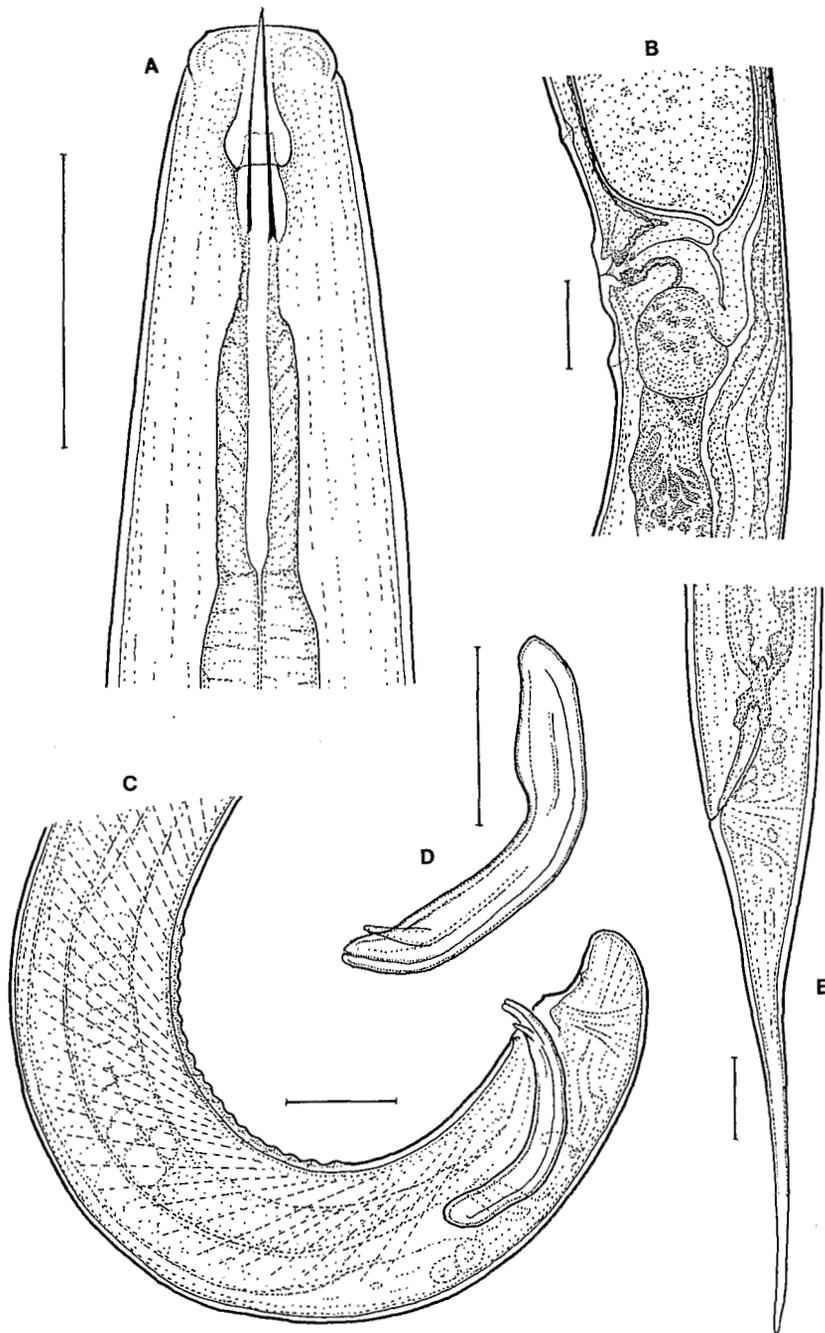


Fig. 4. *Mesodorylaimus macrospiculum* n. sp. A : Anterior end; B : Vulvar region; C : Posterior end of the male; D : Spicule; E : Female tail. (Bar = 20 μ m.)

10-11 μ m. Body diameter at cardia 3.0-3.8 times the head width. Amphid practically indistinguishable. Bucal vestibulum with lined walls; spear 14-16 μ m long, i.e. 1.4-1.5 times the head diameter; spear thicker than the cuticle at its level. Esophagus widens at 58-62 % of its

length; dorsal esophageal gland nucleus (DN) about 66 % of the esophageal length. Cardia conical. Vulva transverse, encircled by thick and transparent cuticula; anteriorly and posteriorly, at 23-25 μ m from vulva, two ventral papillae (not visible in some specimens); vagina

often posteriorly bent, extending more than half the body width. Genital apparatus amphidelphic; spermathecae filled with sperm. Uteri with maximum one egg each; eggs (not completely ripe) measure 70-80 × 25-40 µm. Rectum 1.4-1.6 times and prerectum 4.3-5.1 times the anal body width. Distance vulva-anus 5.8-8.7 the tail length.

Male : Similar to female but with the following differences : body usually more coiled when relaxed, especially in the posterior region. Spear 13-15 µm long; cephalic width 9.5-11.0 µm. Prerectum anterior to first supplement as much as 2.4-3.3 body diameters at its level. Supplements 18-20, contiguous; caudal supplement slightly anterior to proximal extremity of spicules. Spermatozoa fusiform, 11-12 µm long.

TYPE MATERIAL

Holotype and allotype deposited at Laboratorium voor Nematologie, University of Wageningen, Holland.

Paratypes deposited at University of California, Nematode Survey Collection, Davis, California, USA; Commonwealth Institute of Parasitology, Saint Albans, Herts, UK; Muséum national d'Histoire naturelle, Laboratoire des Vers, Paris, France.

TYPE LOCALITY

Lake Shala, Ethiopia. This species was also found in Lake Kiloli and in Lake Abijata.

DIAGNOSIS AND RELATIONSHIPS

Mesodorylaimus macrospiculum n. sp. differs from the other species of the genus in having a visible buccal vestibulum, vagina often posteriorly bent; advulvar ventral papillae; male prerectum anterior to first supplement; spicules very large in comparison with tail.

Mesodorylaimus macrospiculum n. sp. comes close to *M. orientalis* Andrassy, 1970 (labial region continuous with neck, advulvar papillae present, supplements contiguous, etc.), but differs from that in having a larger body (1.3-1.8 *vs* 1.0-1.1 mm), a longer spear (13-16 *vs* 10-11 µm), a shorter female tail (4-6 *vs* 9-10 anal body diameters), and more numerous supplements (18-20 *vs* 13).

*Lanzavecchia** n. gen.

DIAGNOSIS

Nordiidae, Pungentinae. Large dimensions. Cuticle smooth or with faint irregular dots. Subcuticle thick and somewhat faintly irregularly corrugated, but without forming transverse striae. Spear more than two head diameters long, with a single guiding ring. Stomatal

* The new genus is named after Prof. Giulio Lanzavecchia, zoologist of the University of Milan, and is masculine in gender. This name (literally : old spear) also fits the well-developed buccal spear that is characteristic of this genus.

vestibulum lined with thick hyaline walls. Spear extension the same length as the spear. Vulva longitudinal. Gonads paired in both sexes. Female apparatus reflexed and with spermatheca filled with sperms. Tails of both sexes conical.

RELATIONSHIPS

This genus is unique in the family for its body length : hitherto the larger known species was a *Pungentus* 4.5 mm long. It differs from *Enchodelus* Thorne, 1939 in having different cuticle and subcuticle, a single guiding ring (usually *Enchodelus* species have a double guiding ring), testes placed on the right side of the intestine and a larger number of supplements (20 *vs* 4-12).

The new genus differs from *Vanderlindia* Heyns, 1964 in the lack of a ringed subcuticle, a less-curved spear, a knobless spear extension, a single row of supplements and different guiding pieces near the spicules.

The new genus, moreover, differs from *Chitwoodius* Furstenberg & Heyns, 1966 not only in its dimensions, but in the different spear apparatus and in the conical tail.

TYPE SPECIES

Lanzavecchia fafner. The name of this species refers, for its large dimensions, to the mythological dragon.

Lanzavecchia fafner n. sp. (Figs 5 & 6)

MEASUREMENTS

Female (holotype) : L = 8.08 mm; a = 66; b = 15; c = 120; c' = 1; V = 47.

Male (allotype) : L = 7.56 mm; a = 97; b = 13; c = 87; c' = 1.8; spicules = 93 µm.

DESCRIPTION

Female : Body straight when relaxed. Cuticle smooth and without dots or radial elements, about 2 µm thick. Subcuticle about 3 µm thick at midbody, and 4 or more µm thick near the anterior part of the body. Towards anterior and posterior extremities, irregularly corrugated transversally, but without forming visible subcuticular rings. Refractive circular elements scattered over the body cavity. Lip region slightly set off in lateral view, clearly set off in dorso-ventral projection (compare female and male lip regions in Figs 5 & 6). Cephalic diameter 23 µm, corresponding to 20 % of the body diameter at the cardia. Spear length 58 µm, or 2.5 lip region widths, very slightly bent ventrally in the specimen examined. Vestibulum massive and hyaline. Spear extension with moderately developed flanges, 67 µm long. Amphid stirrup shaped with large aperture. Esophagus gradually expanding at about half its length;

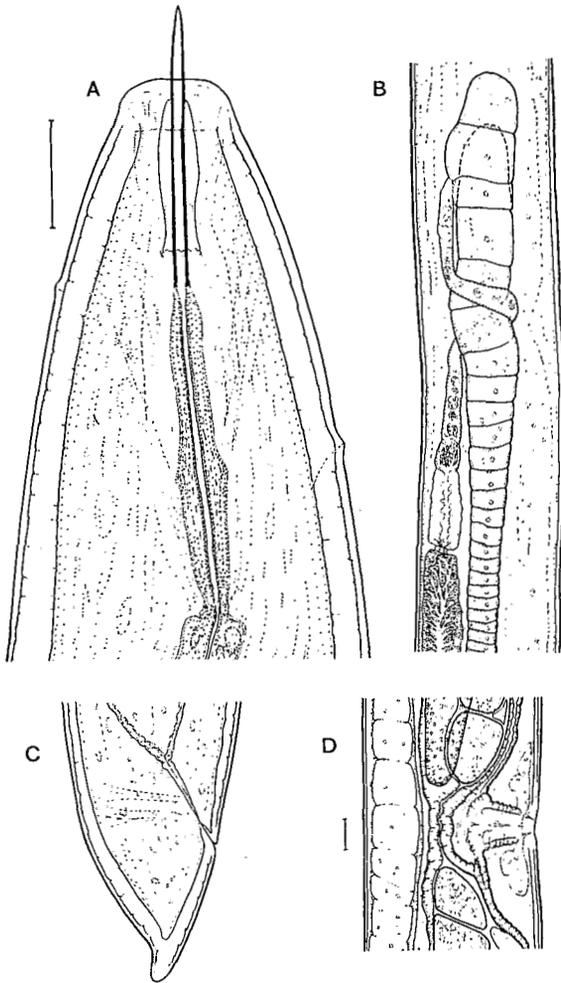


Fig. 5. *Lanzavecchia fafner* n. gen., n. sp., female. A : Anterior end; B : Anterior portion of the genital apparatus (ovary, oviduct and spermatheca); C : Tail; D : Vulvar region. (Bar = 20 μ m.)

lumen clearly visible. Cardia not conspicuous. Genital apparatus didelphic and reflexed. Vulva longitudinal, vagina extending about 40 % across the body. Ovary followed by a thin oviduct that is twisted around ovary; it follows a sphincter and a spermatheca. Uterus muscular. Reproductive apparatus extending from vulva 1.5 mm anteriorly and 1.6 mm posteriorly. Beginning of preectum not distinguishable in the observed specimen. Rectum 50 μ m long, i. e., more than 80 % of the anal body width. Tail conical.

Male : Similar to the female. Body straight when relaxed, except at the posterior end, where it is somewhat curved. Cuticle smooth, similar to that of female, but with the surface irregularly scattered with dots. Cephalic diameter 21 μ m, spear 50 μ m long and spear extensions, provided with moderately developed flanges, 52 μ m

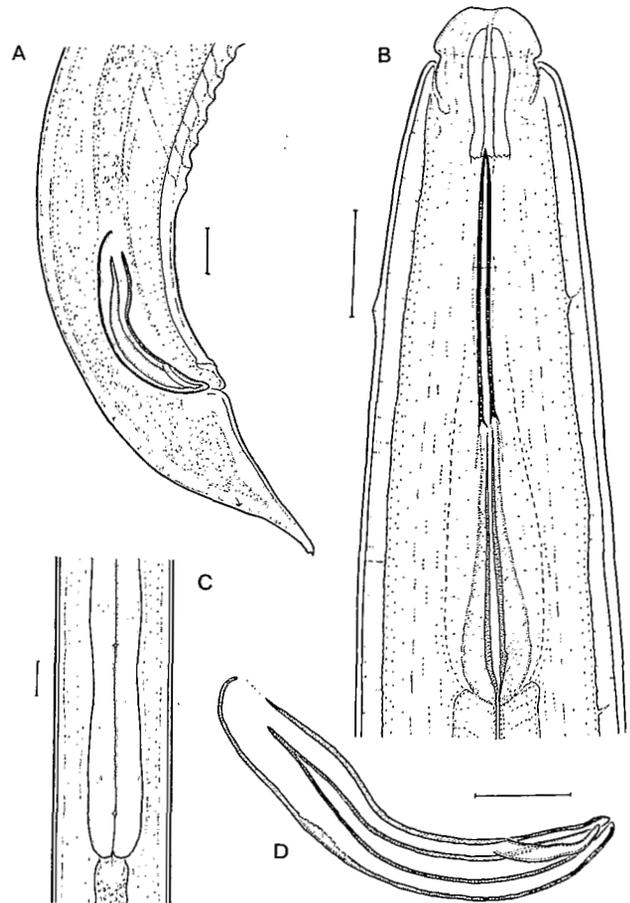


Fig. 6. *Lanzavecchia fafner* n. gen., n. sp., male. A : Posterior end; B : Anterior end; C : Base of the esophagus; D : Spicule. (Bar = 20 μ m.)

long. In the observed specimen the buccal spear is retracted and the guiding ring looks simple. Anterior to the esophageal expansion, the esophagus is surrounded by ganglia similar to those described by Heyns (1964) for *Vanderlindia*. Nerve ring at 33 % of the esophageal length. Positions of the esophageal gland nuclei and outlets as follows : DO = 58.2; DN = 59.0; S₁ N = 76.2; S₁ O = 79.0; S₂ N = 92.5; S₂ O = 95.3. Esophageal length 573 μ m.

Two outstretched testes, one anterior and one posterior, to the right of the intestine or to the *vas deferens*. Spermatozoa 8-9 μ m long, fusiform. The ventral cuticle near cloaca appears faintly striated transversally. One pair of adanal papillae and, more anteriorly, a row of 20 spaced papillae. Spicules with two lateral guiding pieces. Tail a bit longer than that of female.

TYPE MATERIAL

Holotype and allotype deposited at Laboratorium voor Nematologie, University of Wageningen, Holland.

TYPE LOCALITY

Lake Zway, Ethiopia.

Actinolaimus perplexus Heyns & Argo, 1969
(Fig. 7)

MEASUREMENTS

Female (n = 9) : L = 2.40-3.40 mm; a = 43-54; b = 4.5-5.6; c = 11-16; c' = 7.2-9.5; V = 42-48.

Male (n = 4) : L = 2.49-2.80; a = 48-55; b = 4.3-4.8; c = 61-79; c' = 1.0-1.2; spicules = 54-63 μ m.

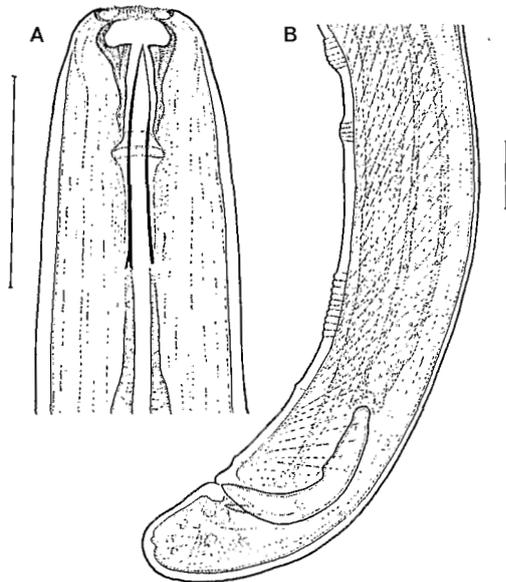


Fig. 7. *Actinolaimus perplexus* Heyns & Argo, 1969, male. A : Anterior end; B : Posterior end. (Bar = 20 μ m.)

DESCRIPTION

Female : Fit completely the original description of this species (Heyns & Argo, 1969). Cephalic diameter 11-12 μ m; spear 22 μ m in all measured specimens. Up to five ova per uterus (70-90 \times 25-38 μ m); spermathecae sometimes filled with sperm. Prerectum long, from 5.4 to seven times the corresponding body diameter. Tail a little shorter than that of the original description.

Male : Not previously known. Similar to females. Body more or less straight when relaxed but, unlike for

females, the rear part is often tightly coiled one, two or three times. Cephalic diameter 11-12 μ m; spear 21-22 μ m long. Spermatozoa fusiform, about 11 μ m long. Supplements in three groups, located as follows (from anterior to posterior group) : (5-6) + (4-6) + (9-11) totalling 19-22 supplements. Junction intestine/prerectum anterior to the first group of supplements.

COLLECTED MATERIAL

Specimens stored at Laboratorium voor Nematologie, University of Wageningen, Holland; University of California, Nematode Survey Collection, Davis, California, USA.; Commonwealth Institute of Parasitology, Saint Albans, Herts, UK.

LOCALITY

This species was hitherto known for a single female specimen from South Africa (Bizana District, Transkei). Many males and females were now found in Lake Zway.

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