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On the Plant-parasitic Nematode Genera *Merlinius* gen. n. and *Tylenchorhynchus* Cobb and the Classification of the Families Dolichodoridae and Belonolaimidae n. rank

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ABSTRACT: *Merlinius* gen. n. is proposed for 32 species of *Tylenchorhynchus*, *sensu lato*, which have six incisures in the lateral fields, rather cylindroid spicules with prominently notched distal end, a non-protruding gubernaculum and a moderately developed bursa. *Tylenchorhynchus* Cobb is redefined and *T. uliginosus* sp. n. and *T. papyrus* sp. n. are described from swampy areas in Uganda. The diagnoses, composition and relationships of Dolichodoridae and Belonolaimidae n. rank are detailed. *Tetylenchus* Filipjev is placed in a new subfamily Tetylenchinae under Tylenchidae.

In his review of the genus *Tylenchorhynchus* Cobb, 1913, Allen (1955) pointed out the existing diversity in the morphological characters exhibited by various species and propesied the creation of new genera within this group; two related genera, *Nagelus* and *Geocenamus*, have since been proposed by Thorne and Malek (1968). Tarjan (1964) and de Guiran (1967) gave differential keys for 68 and 71 valid species of *Tylenchorhynchus* respectively and 25 more new species have since been described. I had the opportunity of studying the specimens of over fifty valid species in this genus including the type species, *T. cylindricus* Cobb (made available by Dr.

Allen) and *T. dubius* (Bütschli) from Holland, Belgium and England which was regarded as type by Filipjev (1934) for his new subgenus *Bitylenchus*, later (1936) synonymized by him with *Tylenchorhynchus*.

This study shows that whereas *T. dubius* and *T. cylindricus* are congeneric, a number of other species show considerable differences in their morphology which are considered of generic status. Consequently, *Merlinius* gen. n. is here proposed for those species of *Tylenchorhynchus*, *sensu lato*, which have six incisures in the lateral fields, deirids frequently present, a small trough-shaped nonprotrusible gubernaculum and characteristic spicules which

markedly differ from those of *Tylenchorhynchus*. Both the genera are described below.

*Merlinius*¹ gen. n.

DIAGNOSIS: Tylenchorhynchinae: Dolichodoridae. Lateral fields with six incisures. Deirids frequently present. Lip region symmetrical, with four or more annules but without a perioral disc. Amphids prominent pores or oblique slits close to oral opening. Labial framework lightly to heavily sclerotized. A single papilla on outer margins of each submedian lip. Protrudor muscles of spear attached to the base of labial framework. Basal bulb large, with well developed cardia. Vulva usually with double epiptygma and lateral membranes; cloaca with two pedunculate papilla-like protuberances ventro-laterally, here named as hypopygma. Ovaries symmetrical. Female tail cylindroid to subcylindroid; male tail enveloped by a moderately developed bursa. Spicules stout, rather cylindroid; distal end broadly rounded, notched and devoid of large ventral flanges. Gubernaculum small, trough-shaped in lateral view, not protrusible.

Type species

Merlinius brevidens (Allen, 1955) comb. n.
syn. *Tylenchorhynchus brevidens* Allen, 1955

Other species

Merlinius affinis (Allen, 1955) comb. n.
syn. *Tylenchorhynchus affinis* Allen, 1955
M. alpinus (Allen, 1955) comb. n.
syn. *T. alpinus* Allen, 1955
M. bavaricus (Sturhan, 1966) comb. n.
syn. *T. bavaricus* Sturhan, 1966
M. berberides (Sethi and Swarup, 1968) comb. n.
syn. *T. berberides* Sethi and Swarup, 1968
M. bogdanovikatjkovi (Kirjanova, 1941) comb. n.
syn. *T. bogdanovikatjkovi* (Kirjanova, 1941) Loof, 1959
Anguillulina bogdanovikatjkovi Kirjanova, 1941
M. conicus (Allen, 1955) comb. n.
syn. *T. conicus* Allen, 1955
M. cylindricaudatus (Ivanova, 1968) comb. n.
syn. *T. cylindricaudatus* Ivanova, 1968

M. dubius (Steiner, 1914) comb. n.
syn. *Aphelenchus dubius* Steiner, 1914
Anguillulina macrura Goodey, 1932
Tylenchorhynchus macrurus (Goodey, 1932) Filipiev, 1936
? *T. graminicola* Kirjanova, 1951
M. galeatus (Litvinova, 1946) comb. n.
syn. *T. galeatus* Litvinova, 1946
M. grandis (Allen, 1955) comb. n.
syn. *T. grandis* Allen, 1955
M. hexagrammus (Sturhan, 1966) comb. n.
syn. *T. hexagrammus* Sturhan, 1966
M. hexincisus (Jairajpuri and Baqri, 1968) comb. n.
syn. *T. hexincisus* Jairajpuri and Baqri, 1968
M. icarus (Wallace and Greet, 1964) comb. n.
syn. *T. icarus* Wallace and Greet, 1964
M. laminatus (Wu, 1969) comb. n.
syn. *T. laminatus* Wu, 1969
M. lenorus (Brown, 1956) comb. n.
syn. *T. lenorus* Brown, 1956
M. leptus (Allen, 1955) comb. n.
syn. *T. leptus* Allen, 1955
M. lineatus (Allen, 1955) comb. n.
syn. *T. lineatus* Allen, 1955
M. macrodens (Allen, 1955) comb. n.
syn. *T. macrodens* Allen, 1955
M. microdorus (Geraert, 1966) comb. n.
syn. *T. microdorus* Geraert, 1966
M. nothus (Allen, 1955) comb. n.
syn. *T. nothus* Allen, 1955
M. obscurisulcatus (Andrássy, 1959) comb. n.
syn. *T. obscurisulcatus* Andrássy, 1959
M. obscurus (Allen, 1955) comb. n.
syn. *T. obscurus* Allen, 1955
M. quadrifer (Andrássy, 1954) comb. n.
syn. *T. quadrifer* Andrássy, 1954
T. ornatus Allen, 1955
M. rugosus (Siddiqi, 1962) comb. n.
syn. *T. rugosus* Siddiqi, 1962
M. socialis (Andrássy, 1962) comb. n.
syn. *T. socialis* Andrássy, 1962
M. stegus (Thorne and Malek, 1968) comb. n.
syn. *T. stegus* Thorne and Malek, 1968
M. superbus (Allen, 1955) comb. n.
syn. *T. superbus* Allen, 1955
M. tartuensis (Krall, 1959) comb. n.
syn. *T. tartuensis* Krall, 1959
M. tessellatus (Goodey, 1952) comb. n.
syn. *T. tessellatus* Goodey, 1952
M. undyferrus (Haque, 1967) comb. n.
syn. *T. undyferrus* Haque, 1967

¹ Named in honor of Dr. Merlin W. Allen, University of California, U. S. A.

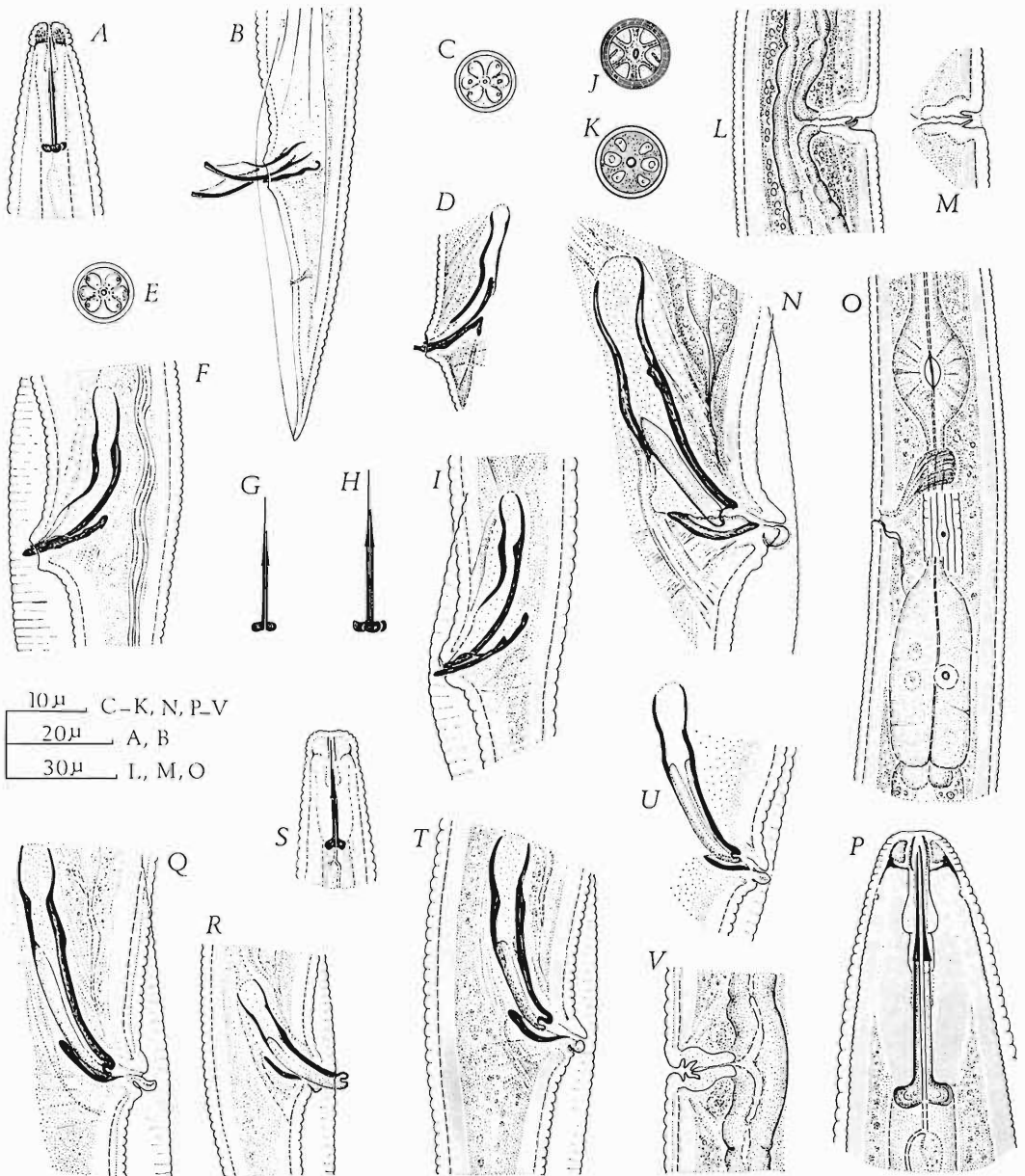


Figure 1. A-I. *Tylenchorhynchus*, J-V. *Merlinius*. A and B. *T. cylindricus*. C and D. *T. capitatus*. E-G. *T. dubius*. H and I. *T. nudus* from blue grass, Wisconsin, U.S.A. J-P. *M. icarus* from grasses, St. Albans, England. Q. *M. alpinus*, paratype. R. *M. nanus* from Belgium. S. *M. microdorus* from onion soil, Rampur City, India. T. *M. grandis*, paratype. U and V. *M. quadrifer* from Belgium. C, E and J. En face of female. K. Transverse section through basal plate. A and P. Head end of female. S. Head end of male. L, M and V. Vulval region showing epiptygma. B, D, F, I, N, Q, R, T and U. Spicular regions. J. Part of female esophagus showing deirid in lateral field.

M. varians (Thorne and Malek, 1968) comb. n.
syn. *T. varians* Thorne and Malek, 1968

Tylenchorhynchus brachycephalus Litvinova, 1946 is a problematical species. The female measuring 0.70–0.77 mm long has head-end and tail-end like those of *Helicotylenchus* whereas the male measuring 0.93–1.20 mm is apparently a *Merlinius*. However the female is reported to have six incisures in the lateral field which is contrary to the definition of *Helicotylenchus*.

RELATIONSHIP: *Merlinius* differs from *Tylenchorhynchus* in having six incisures in the lateral field, usual presence of deirids, the males having characteristic spicules lacking large ventral flanges and small, nonprotruding gubernaculum.

Nagelus Thorne and Malek, 1968 lacks a labial framework, has asymmetrical lip region, angular spear knobs and protractor muscles of the spear attached to the cuticularized inner walls of the labial cavity.

Geocenamus Thorne and Malek, 1968 is characterized by having a refractive labial disc from which a slender spear guide extends back almost one-third length of the exceedingly slender spear. According to Thorne and Malek (1968) the head and spear of *Geocenamus* are reminiscent of those of *Dolichodoros* rather than *Tylenchorhynchus*.

I have seen deirids in the following species: *Merlinius affinis*, *M. alpinus*, *M. brevidens*, *M. conicus*, *M. dubius*, *M. grandis*, *M. icarus*, *M. microdorus* and *M. nanus*. Figure 1 (J–V) gives further information on certain species of this genus.

Genus *Tylenchorhynchus* Cobb, 1913 syn. *Bitylenchus* Filipjev, 1934

DIAGNOSIS (emended): *Tylenchorhynchinae*: *Dolichodoridae*. Lip region symmetrical, offset or continuous with body; labial framework lightly to heavily sclerotized; labial disc absent. Lateral fields with 3–5 incisures. Deirids rarely present. Spear usually well developed with prominent basal knobs and anteriorly tapering portion appearing nontubular and needle-like distally; protractor muscles attached to the base of the labial framework. Median and basal bulbs of esophagus well developed. Convoluted tubules running along entire intestinal region present in many species. Spicules cephalated, ventrally arcuate, with distal

portion pointed and prominently flanged ventrally. Gubernaculum large, rod-like in lateral view, sometimes with proximal portion dorsally bent, capable of protruding through anus. Bursa terminal, well developed.

TYPE SPECIES: *Tylenchorhynchus cylindricus* Cobb, 1913.

Two new species of this genus, *T. uliginosus* and *T. papyrus*, collected from swampy areas in Uganda are described below. These come close to *T. rhopalocercus* Seinhorst, 1963, which was transferred by Seinhorst (1968) to the genus *Trichotylenchus* Whitehead, 1959. I have collected specimens of *T. rhopalocercus* from sugarcane soil samples originating in Jebba, Nigeria and these fit well the original description. The species has a definite basal esophageal bulb and is, therefore, retained in *Tylenchorhynchus*.

Tylenchorhynchus uliginosus sp. n. (Fig. 2, A–I)

Measurements

FEMALES (25): L = 0.40–0.64 mm; a = 30–37; b = 4.4–5.6; c = 10.5–13.0; V = 52–58; spear = 14–16 μ .

FEMALE (HOLOTYPE): L = 0.6 mm; a = 34; b = 4.8; c = 12; V = ²⁶54–²⁵; spear = 15.5 μ .

MALES (10): L = 0.48–0.54 mm; a = 31–37; b = 4.4–5.5; c = 12–14; T = 55–62; spear = 14–15 μ ; spicules (measured along dorsal line) = 19–21 μ ; gubernaculum = 9.5–10.5 μ .

Description

FEMALE: Body in an open "C" form when relaxed by gentle heat; transverse striae rather coarse, 1.25 μ apart near middle. Lateral fields aerolated, about one-fourth body width; three incisures; outer ones crenate. Phasmids distinct, variable in position from a little anterior to slightly posterior to middle of tail. Lip region conoid-rounded, with 6–7 annules; framework lightly sclerotized, with outer margins extending 2–3 body annules from basal plate. *En face* of female head shows six papillae in inner and eight in outer circlet of which four nearer to amphids are most prominent and large, and circular openings of the amphids (Fig. 2, B). Three-fourths of anterior part of spear needle-like, not tubular; orifice of dorsal esophageal

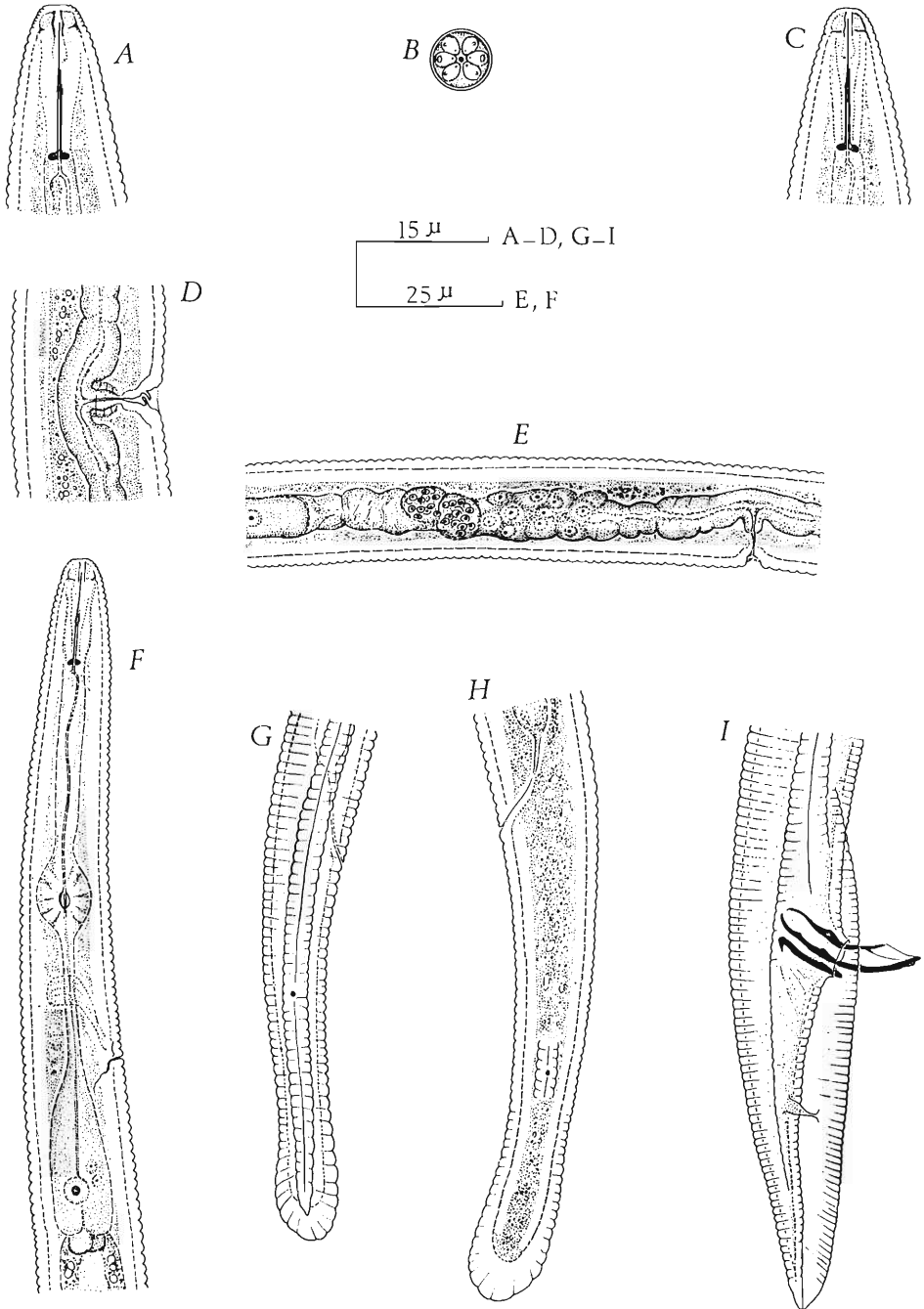


Figure 2, A-I. *Tylenchorhynchus uliginosus* n. sp. A, B and D-H. Female. C and I. Male. A and C. Head ends. B. En face view. D. Vulval region. E. Part of anterior reproductive branch. F. Esophageal region. G-I. Tail ends.

gland $2\ \mu$ behind spear base. Esophagus typical (Fig. 2, F), cardia apparently made up of two large cells. Excretory pore near anterior end of basal esophageal bulb. Hemizonid two body annules long, just anterior to excretory pore. Vulva with double epitygma; vagina extending half-way across body (Fig. 2, D); spermatheca packed with round sperms $2\ \mu$ in diameter; ovaries with 1–2 rows of oocytes. Tail elongate-clavate, $4.6\text{--}5.0 \times$ anal body-width long; tail terminus with thick cuticle, coarsely striated.

MALE: Essentially similar to female. Bursa large, finely crenate arising at about $1\frac{1}{2}$ spicular lengths in front of anus. Phasmids near middle of tail. Lateral field, spicule and gubernaculum as shown in Figure 2, I.

RELATIONSHIP: This species is close to *T. rhopalocercus* Seinhorst, 1963, *T. bifasciatus* Andr ssy, 1961 and *T. palustris* Merny and Germani, 1968. *T. rhopalocercus* has females with $0.62\text{--}0.81$ mm long body, spear measuring $17\text{--}19\ \mu$ long and tail almost six anal body-widths long. *T. bifasciatus* has $0.65\text{--}0.73$ mm long body, $19\text{--}20\ \mu$ long spear and female tail only $2.6\text{--}2.7$ anal body-widths long. *T. palustris* has fewer labial annules and female tail measuring $2.7\text{--}3.9$ anal body-widths long and having unstriated terminus.

TYPE HABITAT AND LOCALITY: Collected by Prof. W. B. Banage from swampy soil near a fish pond in Kabanyolo, near Kampala, Uganda.

TYPE MATERIAL: Holotype female, four paratype females and two paratype males at Nematology Department, Rothamsted Experimental Station, Harpenden, England; two paratype females and two paratype males at each of the following centers: Nematology Department, University of California, Davis, California, USA; Nematology Department, Landbouwhogeschool, Wageningen, The Netherlands; Department of Zoology, Aligarh Muslim University, Aligarh, India; the remainder at the Commonwealth Bureau of Helminthology, St. Albans, England.

Tylenchorhynchus papyrus sp. n. (Fig. 3, A–F)

Measurements

FEMALES (5): L = $0.80\text{--}0.94$ mm; a = $37\text{--}43$; b = $5.5\text{--}6.6$; c = $12.5\text{--}16.0$; V = $52\text{--}55$.

FEMALE (HOLOTYPE): L = 0.93 mm; a = 40 ; b = 6.6 ; c = 14.3 ; V = $^{28}\text{--}52\text{--}^{30}$; spear = $23.5\ \mu$.

MALES (4): L = $0.69\text{--}0.75$ mm; a = $35\text{--}40$; b = $5.1\text{--}5.7$; c = $14\text{--}15$; T = $55\text{--}65$.

Description

FEMALE: Body ventrally arcuate, transverse striae $1.2\text{--}1.8\ \mu$ apart near mid-body. Lateral fields with three incisures. Lip region conoid-rounded, with 7–8 annules; framework lightly sclerotized. Spear very thin $23\text{--}24\ \mu$ long, with minute, backwardly directed basal knobs, its anterior part longer than the posterior. Dorsal esophageal gland opening $2.5\text{--}3.0\ \mu$ behind base of spear. Hemizonid three body annules long, a little behind nerve ring. Excretory pore in the region of the hemizonid or just behind. Basal esophageal bulb rather elongate, its base applied to anterior face of intestine. Cardia large, rounded to slightly discoidal. Large spherical granules present in the intestinal cells. A post-intestinal sac absent but coiled tubules possibly associated with excretory system extend into tail cavity a little behind anal region. Tail elongate-subclavate with striated terminus, $3.7\text{--}4.2$ times anal body-width long; phasmids at middle of tail or further anterior (Fig. 3, E). Vulva depressed. Spermatheca irregularly rounded. Ovaries with single row of oocytes.

MALE: General characters as for female. Spear averaging $23.5\ \mu$ long. Spicules $26\text{--}29\ \mu$ long as measured along their dorsal side, with large ventral flanges; gubernaculum $13\ \mu$ long, with a large dorsal spine at proximal end; lateral fields aerolated, disappear before the phasmids; bursa distinctly crenate (Fig. 3, C). Phasmids prominent, anterior to middle of tail.

RELATIONSHIP: *T. papyrus* sp. n. differs from *T. bifasciatus* in having a longer spear, a subclavate female tail measuring over three anal body-widths long and in the more anterior position of the phasmids (in latter species spear = $19\text{--}20\ \mu$ long, tail = $2.6\text{--}2.7$ times anal body-widths and phasmids in female behind the middle of the tail). *T. rhopalocercus* has spear $17\text{--}19\ \mu$, spicules $21\ \mu$ and gubernaculum $8\ \mu$ long and the female tail is almost six anal body-widths in length.

TYPE HABITAT AND LOCALITY: Collected by Professor W. B. Banage from soil in Papyrus swamp, Namulonge, Uganda.

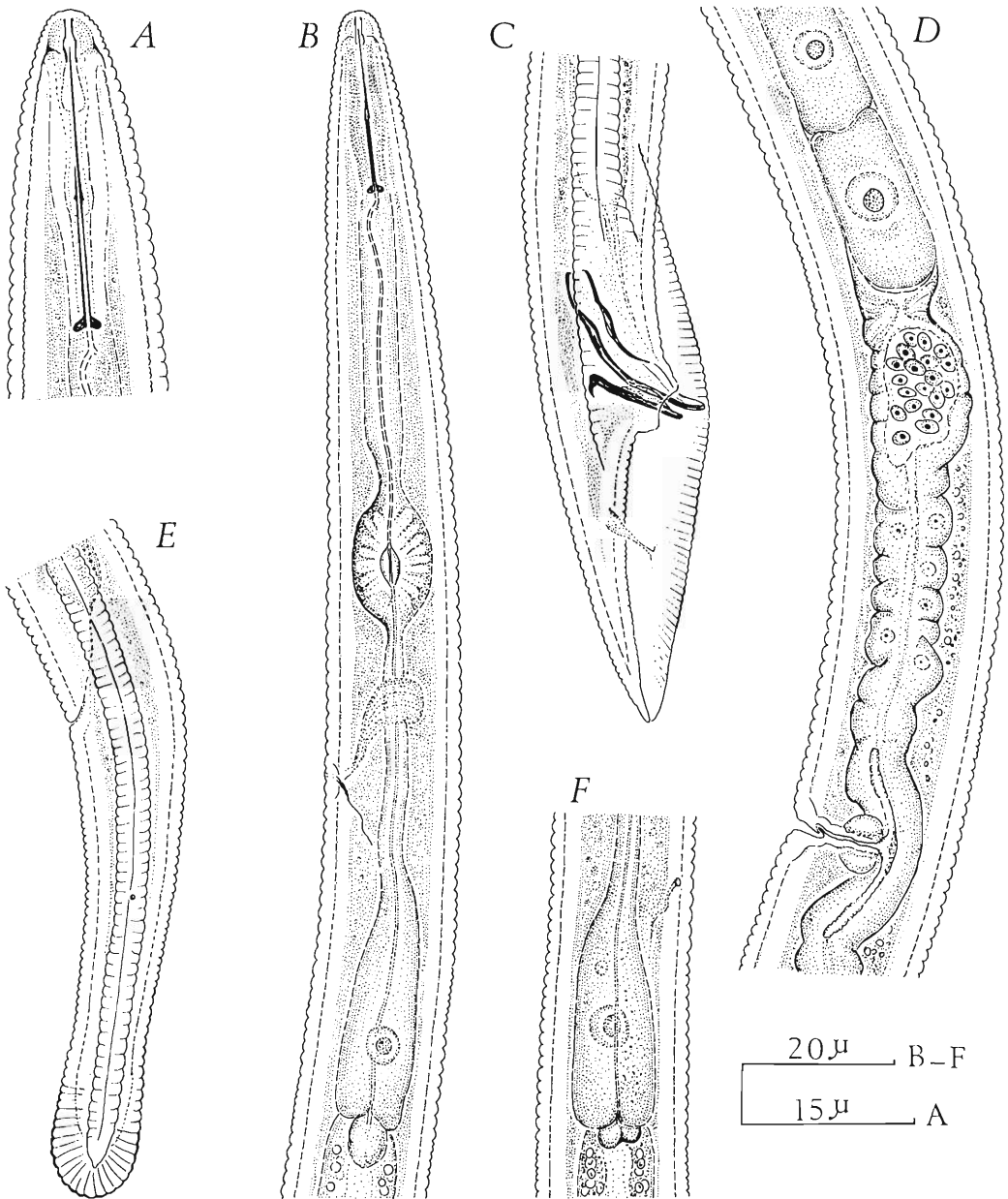


Figure 3, A-F. *Tylenchorhynchus papyrus* n. sp. C. Male, rest female. A. Head end. B. Esophageal region. C and E. Tail ends. D. Part of anterior reproductive branch. F. Basal Esophageal bulb and cardia.

TYPE MATERIAL: Holotype female and a pair of paratypes (1 ♂, 1 ♀) at Nematology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire, England; a pair of paratypes (1 ♂, 1 ♀) at Nematology Department, University of California, Davis, California, USA and the remainder at Commonwealth Bureau of Helminthology, St. Albans, England.

The systematic position of Tylenchorhynchinae Eliava, 1964 is not clear at the moment. Allen and Sher (1967) assigned this subfamily along with Dolichodorinae, Telotylenchinae, Belonolaiminae, Hoplolaiminae, Pratylenchinae etc., to the family Tylenchidae. Paramonov (1967) considered it under Hoplolaimidae along with Hoplolaiminae, Rotylenchoidinae, Belonolaiminae, Dolichodorinae and Trophurinae. Husain and Khan (1967) defined it as a subfamily of Tylenchidae considering under it the genus *Telotylenchus* Siddiqi, 1960. Thorne and Malek (1968) questioned this latter action and gave an emended diagnosis of the subfamily to exclude *Telotylenchus*.

As elaborately discussed by Paramonov (1967, 1968) there are sufficient reasons, both morphological and ecological, to support the view that the subfamilies Dolichodorinae, Tylenchorhynchinae, Trophurinae, Tyldorinae, Belonolaiminae, Telotylenchinae, and Aphasmatylenchinae do not belong in the family Tylenchidae but are closer to Hoplolaimidae in being sufficiently advanced ectoparasites of plant roots. However, the first four of these have a fundamentally different type of esophagus than the rest, in that the esophageal glands do not lie free in the body cavity but form a compact basal esophageal bulb joined to the intestine through a prominent cellular cardia. The former group of subfamilies is regarded to constitute the family Dolichodoridae (Chitwood and Chitwood, 1950) Skarbilovich, 1959 and the latter is here proposed to form a separate family Belonolaimidae (Whitehead, 1959) n. rank. Diagnoses, composition and relationships of these two families are given below.

Dolichodoridae (Chitwood and Chitwood, 1950) Skarbilovich, 1959

DIAGNOSIS (EMENDED): Tylenchoidea. Lateral fields with six or less incisures. Labial framework lightly to heavily sclerotized, absent

in *Nagelus*. Spear usually well developed and over 15 μ in length, with prominent basal knobs; its protractor muscles almost parallel to body axis. Amphids labial; deirids sometimes present; phasmids pore-like, near middle of tail. Median esophageal bulb strongly muscular. Esophageal glands enclosed in and forming basal esophageal bulb. A cellular cardia present, projecting into lumen of intestine. Ovaries usually paired; spermatheca a small pouch; sperms small, rounded, with little cytoplasm. Bursa completely enveloping tail except in Tyldorinae, with phasmid extending as a false rib. Tail in female elongate (very rarely under twice anal body-width), conoid, cylindrical or filiform. Ectoparasitic on roots of higher plants.

Dolichodoridae is related to Tylenchidae in having a basal esophageal bulb enclosing the esophageal glands but is differentiated by its sclerotized labial framework, well developed spear with tubular arrangement of the protractor muscles, a strongly muscular median esophageal bulb and large bursa which is usually terminal. Members of this family represent a higher stage over those of Tylenchidae in their adaptation to the parasitism of the roots of the spermatophytes (see Paramonov, 1967 and 1968).

Key to subfamilies and genera of Dolichodoridae

1. Tail in both sexes filiform, bursa adanal Tyldorinae Paramonov, 1967;
..... *Tyldorus* Meagher, 1964
Tail in both sexes not filiform, bursa terminal 2
2. Bursa trilobed Dolichodorinae
Chitwood and Chitwood, 1950 3
Bursa simple 4
3. Spear abnormally long, lip region four-lobed *Dolichodorus* Cobb, 1914
Spear not as long, lip region smoothly rounded *Brachydorus* de Guiran and Germani, 1968
4. Body cuticle abnormally thick especially on tail, indistinctly striated
Trophurinae Paramonov, 1967 5
Body cuticle not abnormally thick, distinctly striated
Tylenchorhynchinae Eliava, 1964 6

5. Ovaries paired, spear abnormally long
----- *Macrotrophurus* Loof, 1958
Ovary single, spear not as long -----
----- *Trophurus* Loof, 1956
(syn. *Clavaurotylenchus* Caveness, 1958)
6. Lateral fields with 6 incisures ----- 7
Lateral fields with 3-5 incisures -----
----- *Tylenchorhynchus* Cobb, 1913
7. Protractors of spear attached to the
cuticularized inner walls of the
labial cavity, labial framework ab-
sent *Nagelus* Thorne and Malek, 1968
Protractors of spear attached to the
base of the labial framework ----- 8
8. Labial disc very conspicuous -----
----- *Geocenamus* Thorne and Malek, 1968
Labial disc absent .. *Merlinius* gen. n.

Belonolaimidae (Whitehead, 1959) n. rank

DIAGNOSIS: Tylenchoidea. Body with prominent transverse striae; lateral fields with four incisures or less. Female tail elongate-conoid or cylindroid, very rarely under twice anal body-widths in length, with phasmids located near middle; male tail completely enveloped by bursa. Lip region offset or continuous, not low or flattened, with light to heavy sclerotization. Amphids labial, a single papilla on outer margins of each submedian lip. Spear well developed, with tubular protractor muscles. Median esophageal bulb strongly muscular; basal bulb absent. Esophageal glands free, forming a long overlap over anterior end of intestine; dorsal gland enormously enlarged, extending past subventrals which are often greatly reduced. Cardia reduced or absent. Ovaries paired, opposed, outstretched. Spicules and gubernaculum well developed. Ectoparasitic on roots of higher plants.

Belonolaimidae differs from Hoplolaimidae (Filipjev, 1934) Wieser, 1953 in having the dorsal esophageal gland prominently larger and extending well past the subventrals which are considerably reduced and the elongate tails in both sexes with phasmids located near the middle. From Pratylenchidae (Thorne, 1949) Siddiqi, 1963 this family differs in having a lip region which is neither low nor flattened, a large dorsal esophageal gland extending past the subventrals and in not being endoparasites of roots.

Key to subfamilies and genera of Belonolaimidae

1. Phasmids absent, esophageal glands mostly on ventral side of intestine
--- Aphasmatylenchinae Sher, 1965;
Aphasmatylenchus Sher, 1965
Phasmids present, esophageal glands mostly on dorsal and lateral sides of intestine ----- 2
2. Lip region four-lobed with lateral lips considerably reduced ----- 3
Lip region not so -----
Telotylenchinae Siddiqi, 1960 ----- 4
3. Labial disc circular ----- *Belonolaimus* Steiner, 1949
Labial disc lemon-shaped due to lateral extensions -----
----- *Morulaimus* Sauer, 1966
4. Labial disc present, prominent -----
----- *Carphodorus* Colbran, 1965
Labial disc indistinct or absent ----- 5
5. Spear well developed, lateral fields with 4 incisures -----
Telotylenchus Siddiqi, 1960
Spear greatly attenuated, lateral fields with 3 incisures -----
Trichotylenchus Whitehead, 1959

Thorne and Malek (1968) considered the genus *Tetylenchus* Filipjev, 1936 under Tylenchorhynchinae. However, it appears to belong to Tylenchidae because the protruder muscles of the spear are oblique to body axis being attached to the cuticular band at the base of the lip region (see Thorne and Malek, 1968); the labial-framework, spear and median esophageal bulb are weakly developed and the bursa is not terminal. The genus does not fit any of the existing subfamilies of Tylenchidae i.e. Tylenchinae, Psilenchinae Paramonov, 1967 or Anguininae Paramonov, 1962, and therefore a new subfamily, Tetylenchinae, is proposed to receive it.

Tetylenchinae subfam. n.

DIAGNOSIS: Tylenchidae. Deirids and phasmids usually distinct. Amphids pore-like, labial, close to oral opening. Four prominent submedian papillae on the outer contour of lip region. Spear elongate-slender, with or without basal knobs. Median esophageal bulb oval;

cardia usually discoidal. Vulva median; ovaries paired, outstretched. Tail in both sexes elongate-conoid, not filiform; in male enveloped by a subterminal bursa.

TYPE AND ONLY GENUS: *Tetylenchus* Filipjev, 1936.

Tetylenchinae differs from Psilenchinae in having pore-like amphids which are labial in position, conoid tail and large, subterminal bursa. From Tylenchinae it is differentiated in having conoid tail, paired ovaries and large, subterminal bursa.

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