

Nematodes of high altitudes in India.

X. Two new species of *Drepanodorylaimus* Jairajpuri, 1966 from Manipur, India

C. DHANACHAND and M. Shamin JAIRAJPURI

Section of Nematology, Department of Zoology, Aligarh Muslim University, Aligarh-202001, India.

SUMMARY

Two new species of nematodes belonging to the genus *Drepanodorylaimus* Jairajpuri, 1966 are described from Manipur, India. *Drepanodorylaimus maqsoodi* n. sp., 1.40-1.64 mm long, labial papillae projecting above the contour of truncated lip region, amphidial apertures large, odontostyle 33-35 μm long, prerectum about three anal body widths long and tail filiform, six to seven anal body widths long. *D. similis* n. sp., 1.54-1.65 mm long, odontostyle 24-26 μm long, prerectum about two and half anal body widths long and tail filiform about eight anal body widths long. A key to the species of the genus *Drepanodorylaimus* is provided.

RÉSUMÉ

Nématodes des hautes altitudes en Inde. X. Deux nouvelles espèces de Drepanodorylaimus Jairajpuri, 1966 découvertes à Manipur, Inde

Deux nouvelles espèces de *Drepanodorylaimus* Jairajpuri, 1966, provenant de Manipur, Inde, sont décrites et illustrées. *D. maqsoodi* n. sp. a les caractères suivants : L = 1,40-1,64 mm, région labiale tronquée avec papilles en relief, ouvertures amphidiennes larges, odontostyle long de 33-35 μm , pérectum long d'environ trois diamètres anaux, queue filiforme ($c' = 6-7$). *D. similis* n. sp. a les caractères suivants : L = 1,54-1,65 mm, odontostyle = 24-26 μm , prérectum long d'environ deux diamètres anaux et demi, queue filiforme ($c' = 8$). Une clé des espèces de *Drepanodorylaimus* est proposée.

Two new species of nematodes belonging to the genus *Drepanodorylaimus* Jairajpuri, 1966 were present in soil samples collected October 1978 from the hilly regions of Manipur, India. Both species share some typical characters of the genus, viz., the odontostyle is long, asymmetrical and somewhat bent in the middle; the anterior slender part of oesophagus expands very gradually and almost imperceptibly to form the posterior expanded portion; the cardia is elongate-conoid; the tail is long and filiform; and males are absent. A key to species of *Drepanodorylaimus* is provided.

Measurements and observations were made on specimens mounted in dehydrated glycerine after being killed in hot 4% formalin and dehydrated by the slow method.

Drepanodorylaimus maqsoodi n. sp.

(Fig. 1)

DIMENSIONS

Paratype females (9) : L = 1.40-1.64 mm ; a = 37-43 ; b = 3.3-3.6 ; c = 10-12 ; $c' = 6-7$; V = 52-56 ; $G_1 = 11-13$; $G_2 = 11-13$; odontostyle = 33-35 μm ; odontophore = 36-39 μm .

Holotype, female : L = 1.55 mm ; a = 40 ; b = 3.6 ; c = 11 ; $c' = 6$; V = 53 ; $G_1 = 13$; $G_2 = 12$; odontostyle = 34 μm ; odontophore = 36 μm .

DESCRIPTION

Female : Body ventrally curved upon fixation, tapering slightly anterior to base of oesophagus,

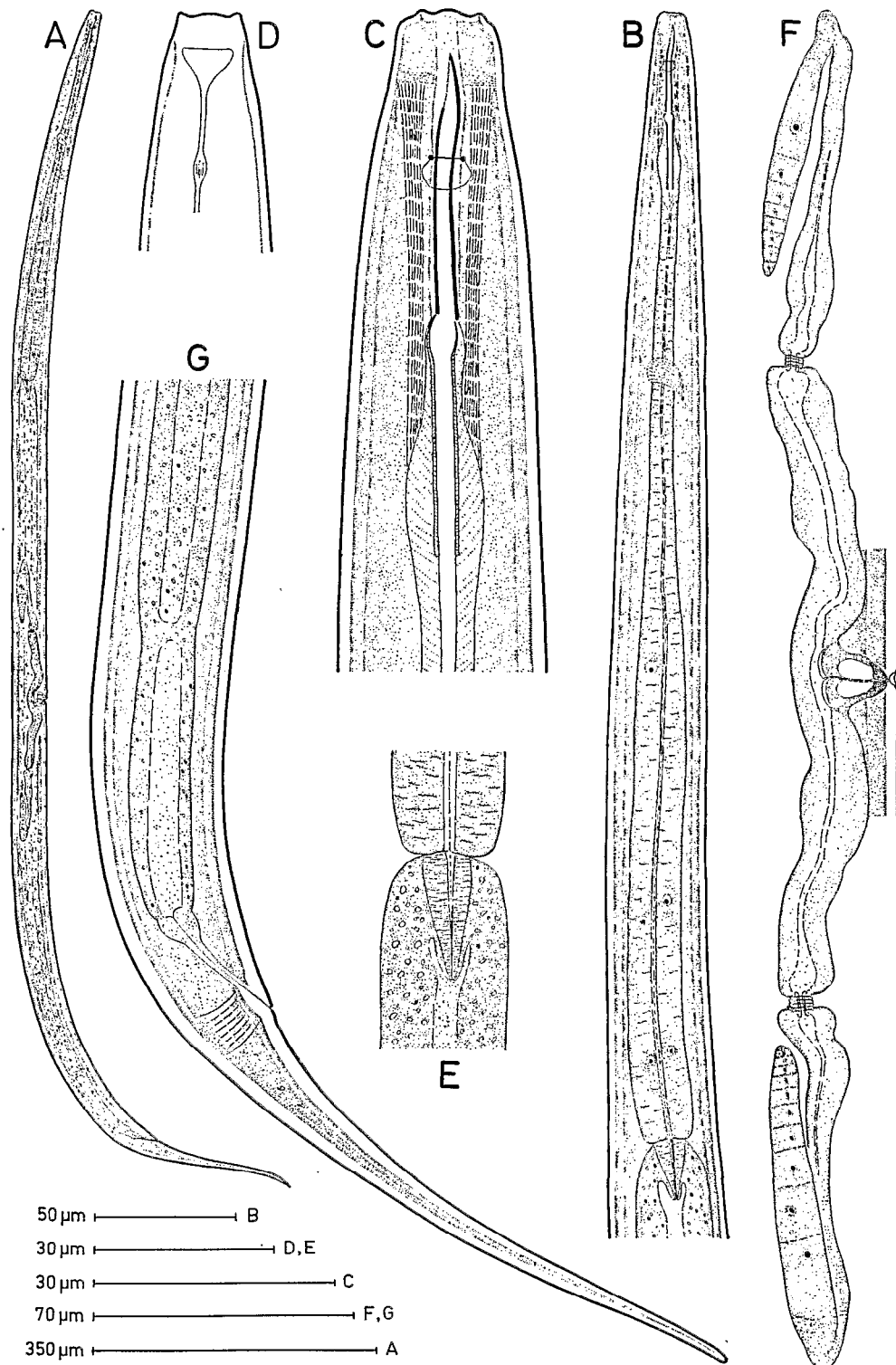


Fig. 1. *Drepanodorylaimus maqsoodi* n. sp. A : Entire female ; B : Oesophageal region ; C : Anterior end ; D : Anterior region showing amphid ; E : Oesophago-intestinal junction ; F : Gonad ; G : Posterior region.

posteriorly ending in a filiform tail. Cuticle with faint transverse striations. Lateral chords distinct, about one-fifth of body width at midbody. Dorsal, ventral and lateral body pores indistinct.

Lip region truncated, almost continuous with body contour, 13-15 μm or about one-third of body width at base of oesophagus. Labial papillae projecting above contour of lip region. Amphids cup-shaped, apertures 7-9 μm or about two-thirds of corresponding body width. Sensillar pouches 15-17 μm below amphidial slits. Odontostyle arcuate and asymmetrical, 33-35 μm or about two lip widths long, apertures about 3-5 μm . Guiding ring at 22-25 μm from anterior end. Odontophore simple, rod-like, 36-39 μm or slightly longer than odontostyle; junction with oesophageal lumen surrounded by faint swelling. Oesophagus almost cylindroid; separation between anterior slender part and posterior expanded portion not clear-cut. Nerve ring at 135-207 μm from anterior end of body. Basal expanded portion of oesophagus occupying 43-45% of total oesophageal length. Cardia elongate-conoid, 21-23 μm or about one-half body width long. Location of oesophageal gland nuclei and their orifices as follows:

DO = 54-59; DN = 58-63; DO-DN = 3-4; S₁N₁ = 66-79; S₁N₂ = 67-81; S₂N = 87-88; S₂O = 88-90.

Vulva transverse. Vagina with thick walls, 20-23 μm or about half of the corresponding body width long. Reproductive organs amphidelphic. Oocytes few, arranged in single row, except at tip. Uterus separated from oviduct by distinct sphincter.

Prerectum 75-90 μm or 3-4 anal body widths long. Rectum 35-38 μm or 1.5-1.7 anal body widths long. Tail long filiform, 142-150 μm or 6-7 anal body widths long. A pair of caudal pores present on each side of tail.

Male: Not found; no spermatozoa were seen in uteri.

TYPE HABITAT AND LOCALITY

Soil around roots of unidentified wild plants from Sanjanbung hills, Tamenglong, Manipur, India.

TYPE SPECIMENS

Collected October 1978. Holotype female on slide MNP/*Drepanodorylaimus maqsoodi* n. sp./1; paratypes on slides MNP/*Drepanodorylaimus maqsoodi* n. sp./2-4; deposit in the nematode collection of Zoology Department, Aligarh Muslim University, Aligarh. A single female paratype deposited at Muséum national d'Histoire naturelle, Laboratoire des Vers, Paris, France.

DIFFERENTIAL DIAGNOSIS

Drepanodorylaimus maqsoodi n. sp. resembles *D. flexus* (Thorne & Swanger, 1936) Andrassy, 1969 and *D. renwicki* (Van der Linde, 1938) Andrassy, 1969. From *D. flexus* it differs in having a short slender body, a thinner odontostyle, a longer oesophagus, posteriorly located vulva and shorter tail (L = 1.8-2.3 mm; a = 31; b = 4.1; c = 7.1; V = 51 in *D. flexus*). From *D. renwicki* it differs in having a short slender body, longer odontostyle and oesophagus, more posteriorly located vulva, longer prerectum and a shorter tail (L = 1.9 mm; a = 34; odontostyle = 30 μm ; b = 4.1; V = 50; prerectum less than one anal body width long and c = 6.1 in *D. renwicki*).

The new species has been named after Dr. Maqsood Ahmad of this Department in recognition of his work on the dorylaim nematodes of India.

Drepanodorylaimus similis n. sp.

(Fig. 2)

DIMENSIONS

Paratype females (3): L = 1.54-1.65 mm; a = 40-42; b = 4.0-4.4; c = 8-9; c' = 8-9; V = 47-50; G₁ = 7-8; G₂ = 4-8; odontostyle = 24-26 μm ; odontophore = 30-32 μm .

Holotype, female: L = 1.56 mm; a = 38; b = 4.0; c = 8; c' = 8; V = 46; G₁ = 9; G₂ = 5; odontostyle = 26 μm ; odontophore = 30 μm .

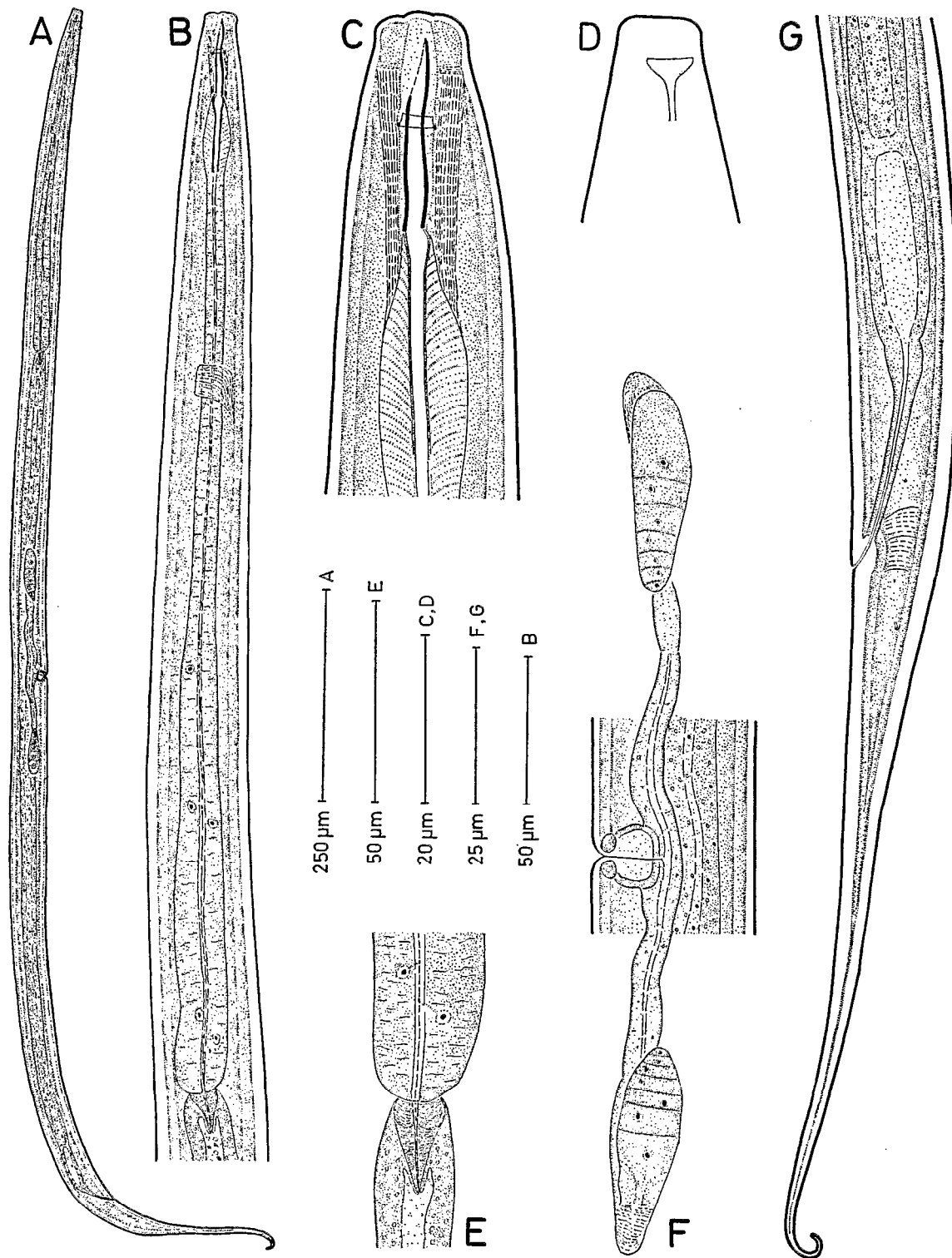


Fig. 2. *Drepanodorylaimus similis* n. sp. A : Entire female ; B : Oesophageal region ; C : Anterior end ; D : Anterior region showing amphid ; E : Oesophago-intestinal junction ; F : Gonad ; G : Posterior region.

DESCRIPTION

Female: Body slightly ventrally arcuate upon fixation, tapering anterior to base of oesophagus. Cuticle with faint transverse striations. Lateral chords about one-fifth of body width at mid-body. Dorsal, ventral and lateral body pores indistinct.

Lip region truncated, almost continuous with body contour, 10-11 μm or about one-third of body width at base of oesophagus. Labial papillae not projecting above contour of lip region. Amphids cup-shaped, apertures 5-6 μm or about one-half of corresponding body width. Sensillar pouches not visible. Odontostyle arcuate and asymmetrical, 24-26 μm or about two and one-half lip widths long; apertures about 4-6 μm . Guiding ring at 18-20 μm from anterior extremity. Odontophore simple, rod-like, 26-30 μm or nearly equal to odontostyle length. Oesophagus almost cylindroid, separation between anterior slender part and posterior expanded portion not clear-cut. Nerve ring at 130-140 μm from anterior end of body. Basal expanded portion of oesophagus occupying 35-40% of total oesophageal length, cardia elongateconoid, 13-18 μm or one-third body width long. Location of oesophageal gland nuclei and their orifices as follows:

DO = 62-63; DN = 63-65; DO-DN = 1-2;
 S_1N_1 = 74-76; S_1N_2 = 76-78; S_2N = 90-92;
 S_2O_2 = 94-95.

Vulva transverse. Vagina with thick walls, 18-20 μm or about one-half of corresponding body width long. Reproductive organs amphidelphic. Oocytes few, arranged in single row, except at tip. No sphincter present at the uterus-oviduct junction.

Prerectum 56-60 μm or about two and a half anal body widths long. Rectum 45-53 μm or about two anal body widths long. Tail long filiform, 180-203 μm or about eight anal body widths long, distal part of tail recurved dorsally. A pair of caudal pores present on each side of tail.

Male: Not found; no spermatozoa were seen in uteri.

TYPE HABITAT AND LOCALITY: Soil around roots of unidentified grasses from Chingmeirong hills, Imphal, Manipur, India.

TYPE SPECIMENS: Collected October 1978. Holotype female on slide MNP/*Drepanodorylaimus similis* n. sp./1; paratypes on slides MNP/*Drepanodorylaimus similis* n. sp./2-3; deposited in the nematode collection of Zoology Department, Aligarh Muslim University, Aligarh. A single female paratype deposited at Muséum national d'Histoire naturelle, Laboratoire des Vers, Paris, France.

DIFFERENTIAL DIAGNOSIS: *Drepanodorylaimus similis* n. sp. resembles *D. flexus* (Thorne & Swanger, 1936) Andrassy, 1969; *D. brevicaudatus* Andrassy, 1970 and *D. maqsoodi* n. sp. From *D. flexus* it differs in having a short slender body, a smaller odontostyle, and in having shorter prerectum and tail ($L = 1.8-2.3$ mm; $a = 31$; odontostyle = 30-35 μm : prerectum about four anal body widths long and $c = 7$ for *D. flexus*). From *D. brevicaudatus* it differs in having a long slender body, smaller amphidial apertures, a longer oesophagus and prerectum, and in having the tail tip recurved dorsally ($L = 1.15-1.28$ mm; $a = 26-29$; amphidial apertures about two-thirds of corresponding body width; $b = 3.3-4.0$; prerectum less than one anal body width long and tail tip straight in *D. brevicaudatus*). From *D. maqsoodi* n. sp. it differs in having a smaller odontostyle, oesophagus and cardia and smaller amphidial apertures, more anterior vulva, a longer rectum and smaller and differently shaped tail (odontostyle = 33-35 μm ; amphidial apertures about two-thirds of the corresponding body width; $b = 3.3-3.6$; cardia = 21-23 μm long; $V = 52-56$; $c = 10-12$ and tail tip straight in *D. maqsoodi*).

Key to species of *Drepanodorylaimus*

1. Tail 11-20 anal body widths long ($c = 4-6$) 2
 Tail 5-10 anal body widths long ($c = 6-12$) 5
2. Mouth distinctly sunken; lip region with depression *picardi* (Altherr, 1963) Monteiro, 1970
 Mouth flat, not sunken; lip region continuous 3
3. Body length 1.15-1.28 mm; vulva longitudinal
 *arganoi* Zullini, 1973
 Body length 1.4 mm or more; vulva transverse 4
4. Odontostyle 28 μm long; guiding ring behind middle of odontostyle; amphidial apertures about one-half head width wide
 *szekessyi* (Andrassy, 1960) Andrassy, 1969
 Odontostyle 21-24 μm long; guiding ring at middle of odontostyle; amphidial apertures about three-

- fourths head width wide
 *fliformis* Jairajpuri, 1966
5. Prerectum less than one anal body width long . . . 6
 Prerectum more than two anal body widths
 long 7
6. Body length 1.9 mm ; odontostyle 30 µm long ; tail
 longer (c = 6)
 ... *renwicki* (Van der Linde, 1938) Andrassy, 1969
 Body length 1.29-1.33 mm ; odontostyle 23-25 µm
 long ; tail shorter (c = 8-9)
 *brevicaudatus* Andrassy, 1970
7. Amphidial apertures nearly one head width ; pre-
 rectum more than five anal body widths long
 *macramphidius* Andrassy, 1971
 Amphidial apertures less than one head width ;
 prerectum less than four anal body widths long . . . 8
8. Amphidial apertures about two-thirds head width ;
 tail shorter, tip straight (c = 10-12)
 *maqsoodi* n. sp.
 Amphidial apertures about half head width, tail
 longer, tip curved (c = 7-9) 9
9. Body length 1.8-2.3 mm (a = 31) ; prerectum about
 four anal body widths long
 ... *flexus* (Thorne & Swauger, 1936) Andrassy, 1969
 Body length 1.5-1.7 mm (a = 38-42) ; prerectum
 about two and one-half anal body widths long
 *similis* n. sp.

Accepté pour publication le 11 août 1980.

ACKNOWLEDGEMENTS

The authors are thankful to the Head, Department of Zoology for necessary facilities. The first author thanks the UGC, New Delhi, for financial assistance.

REFERENCES

- ANDRÁSSY, I. (1969). Taxonomische Übersicht der Familien Prodorylaimidae n. fam. und Dorylaimidae de Man, 1876. *Opusc. zool. Bpest.*, 9 : 187-233.
- ANDRÁSSY, I. (1970). Freilebende Nematoden aus Vietnam. *Opusc. zool. Bpest.*, 10 : 5-31.
- ANDRÁSSY, I. (1971). Freilebende Nematoden aus Angola, II. Über zwei *Drepanodorylaimus* Arten. *Publ. Cult. Comp. Diam. Angola, Lisboa*, 8 : 49-54.
- JAIRAJPURI, M.S. (1966). *Drepanodorylaimus fliformis* n. gen. (Nematoda : Dorylaimida). *Labdev J. Sci. Technol.*, 4 : 181-183.
- ZULLINI, A. (1973). Some soil and freshwater nematodes from Chiapas (Mexico). In : "Sub-terranean Fauna of Mexico, Part 11". *Quaderni Acc. naz. Lincei*, 171 : 55-96.