

Studies on the genus *Lenonchium* (Nematoda : Dorylaimida) with description of *L. macrodorum* n. sp.

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SUMMARY

Lenonchium macrodorum n. sp. is described and illustrated. It has 2.54-3.28 mm long body, 33-35 μm long odontostyle, 29-31 μm long odontophore and a transverse vulva. Additional data are provided on *L. oryzae* Siddiqi, 1965 and *L. longidens* (Furstenberg & Heyns, 1966) Jairajpuri, 1967.

RÉSUMÉ

Études sur le genre *Lenonchium* (Nematoda : Dorylaimida) et description de *L. macrodorum* n. sp.

Lenonchium macrodorum n. sp. est décrit et illustré. Il est caractérisé par un corps long de 2,54-3,28 mm, un stylet long de 33-35 μm , un odontophore long de 29-31 μm et une vulve transversale. Des données supplémentaires sont fournies sur *L. oryzae* Siddiqi, 1965 et *L. longidens* (Furstenberg & Heyns, 1966) Jairajpuri, 1967.

Soil sample from around roots of paddy from Mangeshi, Goa, yielded specimens of the genus *Lenonchium* Siddiqi, 1965 which upon study were found to represent a new species, *L. macrodorum* n. sp. Type material of *L. longidens* (Furstenberg & Heyns, 1966) Jairajpuri, 1967, and a large number of specimens from several populations of *L. oryzae* Siddiqi, 1965 were also available for study and comparison.

The specimens were killed in hot 4 % formalin, processed to glycerine by the slow method and mounted in anhydrous glycerine.

Lenonchium macrodorum n. sp.

(Fig. 1)

MEASUREMENTS

Females (paratypes; n = 6) : L = 2.54-3.28 (3.01) mm; a = 52-71 (61); b = 5.9-7.5 (6.8); c = 9.3-12.5 (10.7); c' = 7.4-10.0 (8.4); V = 44-50 (47); G¹ = 12-15 (14); G² = 13-16 (14); odontostyle = 33-35 (34) μm ; odontophore = 29-31 (30) μm ; oesophagus = 428-451 (436) μm ; prerectum = 308-455 (359) μm ; rectum = 31-39 (34) μm ; tail = 256-322 (278) μm ; ABD = 32-35 (33) μm .

Males (paratypes; n = 3) : L = 3.01-3.33 (3.19) mm; a = 67-71 (68); b = 6.9-7.6 (7.2); c = 14.6-17.3 (16); c' = 5.0-5.3 (5.2); T = 53-59 (57); odontostyle = 33-35 (34) μm ; odontophore = 29-31 (30) μm ; oesophagus = 434-447 (438) μm ; spicules = 59-64 (61) μm ; lateral guiding pieces = 15-18 (16) μm ; ventromedian sup-

plements = 20-21 (21); prerectum = 360-400 (386) μm ; tail = 183-220 (198) μm ; ABD = 36-37 (36) μm .

Holotype (female) : L = 3.28 mm; a = 71; b = 7.2; c = 10; c' = 10; V = 45; G¹ = 12; G² = 13; odontostyle = 35 μm ; odontophore = 31 μm ; oesophagus = 451 μm ; prerectum = 336 μm ; rectum = 32 μm ; tail = 322 μm ; ABD = 32 μm .

DESCRIPTION

Female : Body slightly ventrally curved upon fixation, tapering towards both extremities. Cuticle finely striated, subcuticle loose. Lateral hypodermal chords about one-fourth of body width at mid-body. Two ventral body pores in the odontostyle-odontophore region. Lip region offset by slight depression, domeshaped, 13-14 μm or about one-fourth of body width at mid-body. Amphids stirrup-shaped, apertures 9-10 μm or about three-fourths corresponding body width, sensillar pouches near base of odontostyle. Odontostyle attenuated, 2.5-2.7 lip region widths long. Guiding ring "double", fixed ring at 1.5-1.6 lip region widths from anterior end. Odontophore rod-like, 0.8-0.9 odontostyle length long, basal region distinctly swollen. Nerve ring at 120-140 μm from anterior end. Expanded part of oesophagus about 52-59 % of oesophageal length. Cardia short, conoid, 8-10 μm long. Oesophageal glands nuclei and orifices are located as follows :

DO = 43-47; DN = 47-51; DO-DN = 3.0-3.5; S¹ N¹ = 59-66; S¹ N² = 73-79; S² N = 85-88; S² O = 86-89.

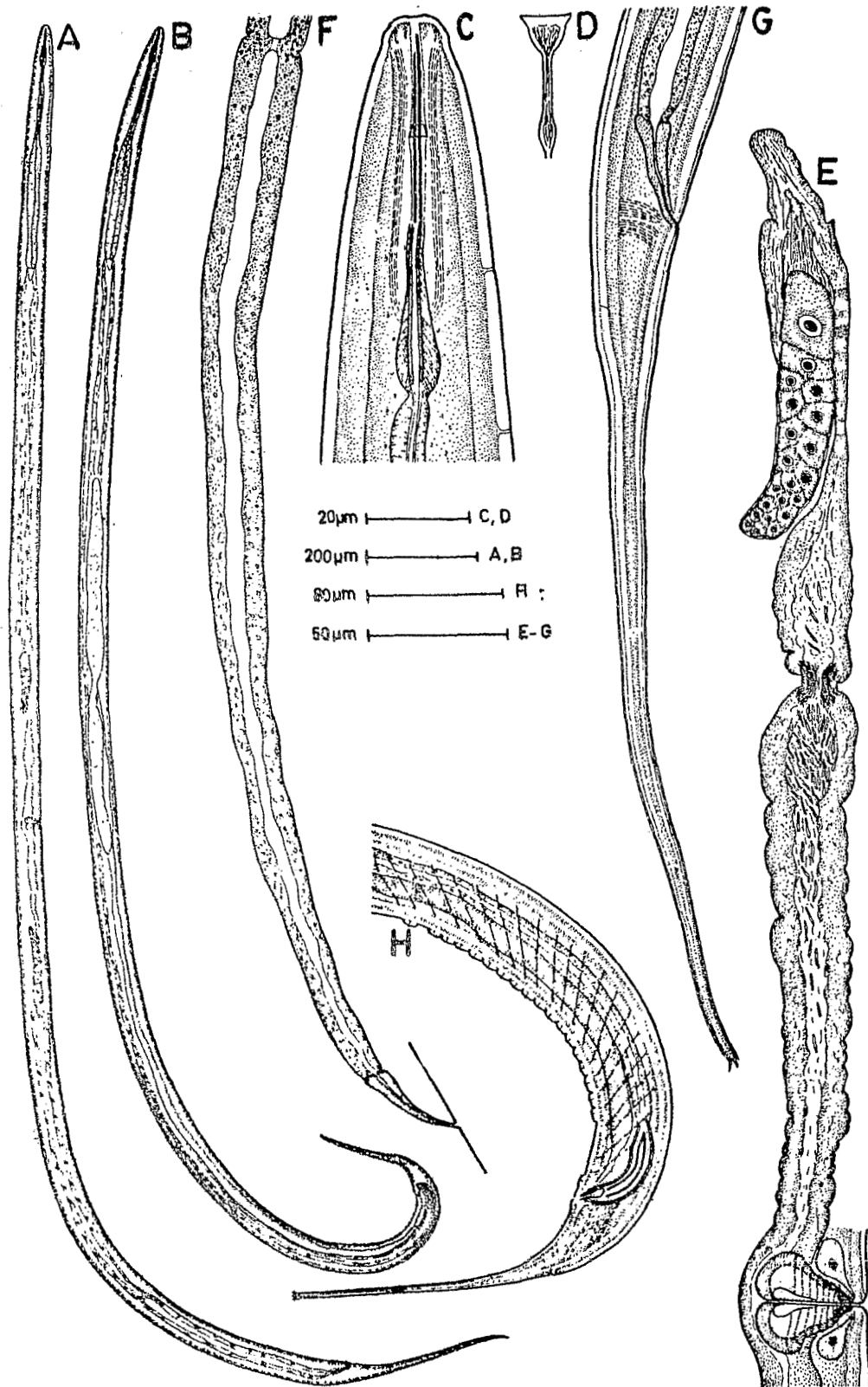


Fig. 1. *Lenonchium macrodorum* n. sp. A : Entire female; B : Entire male; C : Anterior region; D : Amphid; E : Female genital branch (anterior); F : Prerectum (female); G : Female posterior end; H : Male posterior region.

Reproductive system amphidelphic. Vulva transverse; Vagina 31-34 μm or about three-fifth of the corresponding body width wide. Prerectum 9-13 anal body widths long. Rectum about one anal body width long. Tail long filiform, 7-10 anal body widths long with a pair of caudal pore on each side, tip mucronate.

Male : Supplements : adanal pair and 20-21, contiguous mammiform ventromedians beginning in front of spicule head. Sperms elongate with tapering ends. Spicules 1.6-1.8 anal body widths long. Lateral guiding pieces about one-fourth of spicule length. Prerectum 10-11 anal body widths long. Tail long filiform, five anal body widths long.

TYPE HABITAT AND LOCALITY

Soil around roots of paddy, *Oryza sativa* L., from Mangeshi, Goa, India.

TYPE SPECIMENS

Collected in March 1982; holotype female and a paratype male on slide *Lenonchium macrodorum* n. sp./1; paratypes on slides *Lenonchium macrodorum* n. sp./2-5; deposited in the nematode collection of Zoology Department, Aligarh Muslim University, Aligarh. A paratype female and a male deposited at Muséum national d'Histoire naturelle, Laboratoire des Vers, Paris, France.

DIFFERENTIAL DIAGNOSIS

Lenonchium macrodorum n. sp. third species of the genus differs : (i) from *L. oryzae* Siddiqi, 1965 in having a comparatively longer body, longer odontostyle and odontophore, and longer spicules (L = 2.20-2.85 mm; odontostyle = 14-20 μm ; odontophore = 16-21 μm ; spicules = 48-50 μm in *L. oryzae*); (ii) from *L. longidens* (Furstenberg & Heyns, 1966) Jairajpuri, 1967 it differs in having a smaller body, longer odontostyle and odontophore, in the shape of vulva and in the size of spicules (L = 5.0-7.0 mm; odontostyle = 26-30 μm ; vulva longitudinal; spicules = 82-97 μm in *L. longidens*).

Lenonchium oryzae Siddiqi, 1965

MEASUREMENTS

Siwan (Bihar) population

Females (n = 2) : L = 2.83-2.85 mm; a = 63-68; b = 7.4; c = 10.4-13.6; c' = 6.9-7.7; V = 47-52; G¹ = 13-16; G² = 12-14; odontostyle = 15 μm ; odontophore = 20-21 μm ; oesophagus = 381-384 μm ; prerectum = 354-403 μm ; rectum = 34-35 μm ; tail = 207-273 μm ; ABD = 28-30 μm .

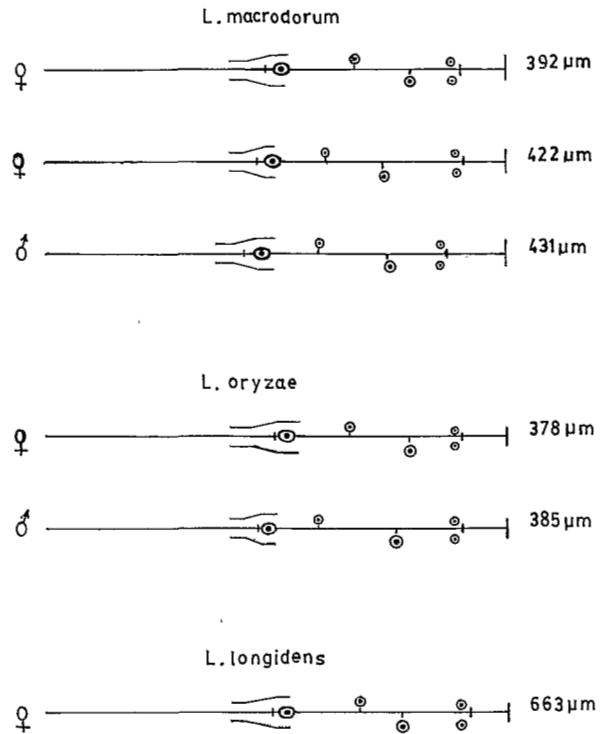


Fig. 2. Oesophageal gland nuclei and their orifices, in the three species of the genus *Lenonchium*.

Male : L = 2.81 mm; a = 62; b = 6.8; c = ?; odontostyle = 17 μm ; odontophore = 20 μm ; oesophagus = 410 μm ; spicules = 49 μm ; lateral guiding pieces = 17 μm ; ventromedian supplements = 22; prerectum = 357 μm ; tail = 140 μm (broken); ABD = 36 μm .

Madras (Tamil Nadu) population

Females (n = 3) : L = 2.25-2.57 (2.45) mm; a = 55-59 (56); b = 5.9-6.6 (6.2); c = 9.3-11.4 (10.4); c' = 6.0-7.8 (6.9); V = 41-51 (45); G¹ = 16-18 (17); G² = 11-16 (13); odontostyle = 18-20 (19) μm ; odontophore = 21 μm ; oesophagus = 378-421 (393) μm ; prerectum = 365-385 (370) μm ; rectum = 27-35 (32) μm ; tail = 221-244 (235) μm ; ABD = 28-35 (30) μm .

Males (n = 3) : L = 2.21-2.67 (2.39) mm; a = 55-74 (62); b = 5.8-6.9 (6.3); c = 17-19 (17.5); c' = 3.5-5.1 (4.1); T = 61-66 (64); odontostyle = 20 μm ; odontophore = 20-21 (21) μm ; oesophagus = 354-385 (372) μm ; prerectum = 365-388 (380) μm ; spicules = 51-56 (52) μm ; lateral guiding pieces = 13-14 (14) μm ; ventromedian supplements = 17-18 (18); tail = 119-175 (136) μm ; ABD = 34-35 (34) μm .

HABITATS AND LOCALITIES

Soil around roots of paddy (Harihans, Siwan; Jayanagar, Madhubani; Kudwara, Sitamarhi; Janki Asthan, Sitamarhi, Bihar; Muttapulan, Madras, Tamil Nadu); of pulses (Barharaganjan, Gorakhpur; Lakshmipur, Gorakhpur, Uttar Pradesh); and of banana (Ponammalae, Madras, Tamil Nadu).

REMARKS

Siddiqi (1965) described *L. oryzae* from soil around roots of paddy from Patna city, Bihar. The description was based on a single female, a male and a juvenile specimens. Jairajpuri (1967) recorded this species from a sugarcane field which was surrounded on all sides by paddy fields. The specimens collected by Jairajpuri differ from those of Siddiqi in the lengths of odontostyle, oesophagus, tail, etc. The measurements of specimens, collected by the present authors from two localities, which are about 3 000 kms apart, has been provided above for comparison. There are differences in some body measurements and in the arrangement of ventromedian supplements. In the Siwan population the first ventromedian supplement is situated near the middle of spicule (as described by Siddiqi, 1965) while in the Madras population it is located near the head of spicules. These differences are considered here only as intra-specific variations.

Lenonchium longidens

(Furstenberg & Heyns, 1966) Jairajpuri, 1967
= *Dorylaimoides longidens*
Furstenberg & Heyns, 1966

The measurements and description of the species conform with those of Furstenberg and Heyns (1966). We support Jairajpuri (1967) who transferred this species from *Dorylaimoides* to *Lenonchium*.

Genus *Lenonchium* Siddiqi, 1965

DIAGNOSIS

(Lenonchiinae, Nordiidae). Body 2.0-7.0 mm long. Cuticle with fine striations, subcuticle loose. Lip region either continuous with body or offset by a slight depression. Amphids stirrup-shaped with slit-like apertures. Odontostyle long, attenuated with fine lumen and aperture. Guiding ring single or "double". Odontophore rod-like, basal region swollen, muscular. Expanded part of oesophagus about half of oesophageal length. DO close to the beginning of oesophageal expansion, S¹ N widely separated, and S¹ N² well developed. Cardia conoid. Vulva transverse or longitudinal. Female reproductive system amphidelphic. Males with

well developed spicules, lateral guiding pieces and a series of mammiform ventromedian supplements. Tail long filiform, similar in both the sexes, tip usually mucronate.

TYPE SPECIES

Lenonchium oryzae Siddiqi, 1965

OTHER SPECIES

L. longidens (Furstenberg & Heyns, 1966) Jairajpuri, 1967
= *Dorylaimoides longidens* Furstenberg & Heyns, 1966
L. macrodorum n. sp.

SPECIES INQUIRENDA

L. denticaudatum (Imamura, 1931) Siddiqi, 1969
= *Dorylaimus denticaudatus* Imamura, 1931

DISCUSSION

Siddiqi (1965) proposed the genus *Lenonchium* with type and only species *L. oryzae*, characterized by the presence of an attenuated odontostyle, simple rod-like odontophore with slight basal thickenings, transverse vulva, amphidelphic gonad and long filiform tails in both the sexes. Jairajpuri (1967) provided additional date on *L. oryzae* and transferred *Dorylaimoides longidens* Furstenberg & Heyns, 1966 to *Lenonchium*. Siddiqi (1969b) transferred *Dorylaimus denticaudatus* Imamura, 1931 also to this genus but since this species is poorly described its position under *Lenonchium* is doubtful. At the moment it seems best to regard it as a *species inquirenda*. With the addition of *Lenonchium macrodorum* n. sp., there are now three species in this genus. All the three possess an attenuated odontostyle, odontophore with distinct basal swellings. DO close to the beginning of oesophageal expansion, S¹ N widely separated and S¹ N² well developed. *L. oryzae* and *L. macrodorum* n. sp. have transverse vulva while *L. longidens* has a longitudinal vulva. The subcuticle in all the three species appears loose somewhat similar to tylencholaimids but the cross section of body show polymyarian type of musculature.

Siddiqi (1969a) placed *Lenonchium* under Thorne-nematidae while Ferris (1971) in Dorylaimidae. Eliava (1978) proposed a new subfamily, Lenonchinae, under Nordiidae. The placement of *Lenonchium* under Nordiidae appears justified. The subfamily Lenonchinae should be changed to Lenonchiinae as per rules of the Zoological nomenclature.

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