

STUDIES ON SOIL NEMATODES OF MANIPUR - X : SPECIES OF THE FAMILY QUDSIANEMATIDAE

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Four species belonging to the family Qudsianematidae Jairajpuri, 1965 of Nematoda are reported. One of the species *Labronema sphincta* is proposed as a new one. It is characterised by having a slightly curved body, 1.4-1.6mm long, an odontostyle 22.4µm long, amphidelphic reproductive system, digitate tail 30.4-32.0µm long in females and presence of 8 spaced ventromedian supplements in males.

INTRODUCTION

During the course of investigation of soil samples for their nematode fauna, a number of species belonging to the family Qudsianematidae Jairajpuri, 1965 were encountered. These were *Discolaimus tenax* Siddiqi, 1964, *Myiodiscus nanus* Thorne, 1939, *Paraxonchium parvus* Dhanachand and Jairajpurri, 1981 and *Labronema sphincta* n.sp. Their dimensions, description and illustrations of the new species are provided.

MATERIALS AND METHODS

Soil samples were processed by Cobb's sieving and decanting method followed by Baermann's funnel technique. The nematodes were fixed in warm 4% formalin and dehydrated by the slow glycerine method. Measurements were taken with an ocular micrometer and diagrams were drawn with the help of camera lucida.

RESULTS

Discolaimus tenax Siddiqi, 1964

Dimensions : Females (5) : L=1.08-1.13mm (1.1mm), a=29-32 (30.9), b=3.5-3.7 (3.6), c=41-49 (45), c'=1-1.4 (1.2), V=40-42 (40), G₁=5.7-8.1 (6.9), G₂=6.4-7.8 (7.2), odontostyle=14-16µm (15 µm), odontophore=24-26µm (24 µm). Oesophagus=296-320µm (307 µm) from anterior end, expanded part of oesophagus=162-178µm (169 µm), nerve ring at 99-110µm (105 µm) from anterior end of body, reproductive system amphidelphic, prerectum=28-35 µm (31 µm), rectum=16-21µm (19 µm), tail=22-27µm (25 µm). ABD=19-21µm (20 µm).

Male : Not found

Habitat and locality : Soil around the root of Banana, *Musa* sp. variety Jahaji (AAA group) from Potsangbam, Bishnupur, Manipur.

Remarks : The present specimens agree in dimensions with those of Siddiqi (1964) except in length of odontostyle, odontophore, tail and position of vulva.

Myiodiscus nanus Thorne, 1939

Dimensions : Females (6) : L=1.3-1.35mm (1.3 mm), a=32-33 (32.5), b=3.9-4.0 (3.95), c=54-55 (54.5), c'=0.9-1.0 (0.95), V=55-56 (55.5), G₁=11-12 (11.5), G₂=10-11 (10.5), lip region disc like bearing cuticularized shallow bowl-like plate, lips 11.2µm wide, 4.0µm high. Amphid width=4.8µm, odontostyle=9.6-10µm (9.8 µm), odontophore=19.2-20.8µm (20 µm), oesophagus=328-400µm (364 µm), expanded part 47-48% of total oesophageal length, nerve ring=97.6-100µm (98.8 µm) from anterior extremity. Cardia=4.8µm. DO=60-62, DN=62-68, reproductive system amphidelphic, pre-rectum=38.4µm, rectum=22.4µm. Tail=22-25µm (24.5 µm), terminus rounded.

Male : Not found

Habitat and locality : Soil around the roots of *Mangifera indica* from Mantak, Chandel district, Manipur.

Remarks : *Myiodiscus nanus* Thorne, 1939 was reported for the first time from India by Dhanachand & Jairajpuri (1980). The present specimens are almost similar to those described by the above authors but these have slightly smaller values of a, b and c. The present specimens also come close to that of Thorne (1939) and Coomans & Loof (1978) except in some minor differences in the length of odontostyle, odontophore, broadly rounded tail and absence of sphincter in between oviduct and uterus.

Paraxonchium parvus Dhanachand and Jairajpuri, 1981

Dimensions : Females (6) : L=0.58-0.81mm (0.70 mm), a=23-27 (25), b=2.7-3.1 (2.9), C=16-18 (17), c'=2-3 (2.5), V=66-72 (68), G₁=7-9 (8), G₂=7-12 (9), lip rounded, set off, 6-7 µm (6.5 µm) wide. Odontostyle=15-18µm (16.5 µm), odontophore=39-54µm (46.5 µm), nerve ring 95-105µm (100 µm) from anterior end of body. Expanded part of oesophagus 40-43% of total oesophageal length. Female reproductive system amphidelphic, prerectum=45-68µm (56.5 µm), rectum=15-18 µm (16.5 µm). Tail=35-50µm (43 µm).

Male : Not found

Habitat and locality : Soil around the roots of *Bambusa balcooa* Roxb. (l.n. Saneibi) from Shora, Thoubal, Manipur.

Remarks : Dimensions of the present specimen conform well with those described by Dhanachand & Jairajpuri (1981).

Labronema sphincta n.sp. (Fig. 1)

Dimensions : Holotype female : L=1.6mm, a=28.4, b=3.8, c=50.8, c'=1.1, v=51.9, G₁=15.5, G₂=14.5, lip width=14.4µm, lip height=4.8µm, odontostyle=22.4µm, odontophore=22.4µm. Guiding ring 9.6µm from anterior end, expanded part of oesophagus=200µm, oesophagus=408µm. Cardia=12.8µm, prerectum=58.4µm, rectum=32µm, tail=30.4µm, ABD=28.8µm.

Paratype females (9) : L=1.4-1.6mm (1.5 mm), a=27.1-29.0 (28.2), b=3.8-4.1 (3.9), c=44.7-50.8 (48.1), c'=1.1-1.3 (1.2), V=51.9-54.6 (53.4), G₁=14.0-17.6 (15.7), G₂=14.5-15.8 (15.3), lip

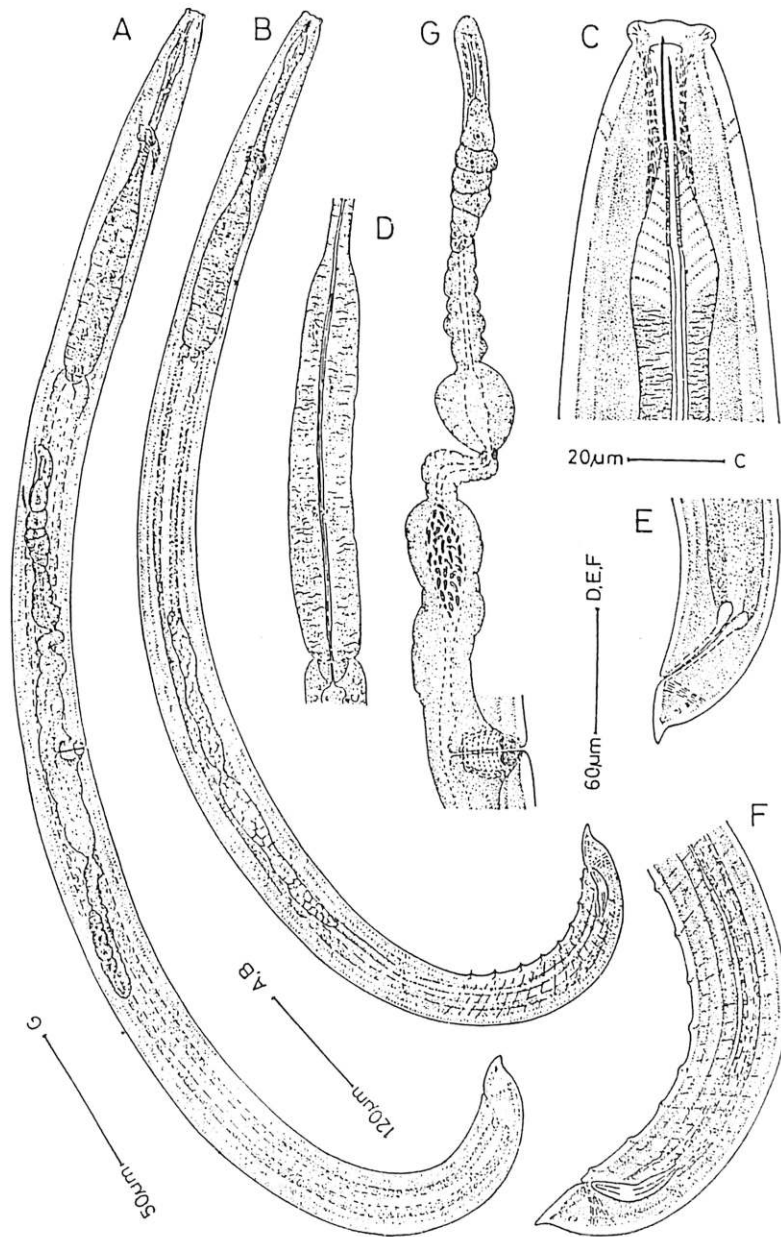


Fig. 1 : *Labronema sphincta* n.sp. A. Female, entire body; B. Male, entire body; C. Anterior body; D. Expanded part of oesophagus; E. Female tail; F. Male tail; G. Female reproductive system.

width=14.4-16.0 μ m (15.5 μ m), lip height=4.8 μ m, odontostyle=22.4 μ m, odontophore=22.4-33.6 μ m (26.1 μ m). Guiding ring 9.6-16.0 μ m (13.3 μ m) from anterior end, expanded part of oesophagus=180.8-200.0 μ m (188.3 μ m), oesophagus=364.8-408.0 μ m (382.9 μ m). Cardia=9.6-12.8 μ m (11.2 μ m), prerectum=58.4-59.2 μ m (58.7 μ m), rectum=32.0-44.8 μ m (38.9 μ m), tail=30.4-32.0 μ m (30.9 μ m), ABD=25.6-28.8 μ m (27.2 μ m).

Paratype mâles (4) : L=1.46-1.53mm (1.5 mm), a=29.0-30.3 (29.7), b=4.0-4.1 (4.05), c=41.6-45.5 (43.6), c'=1.2-1.3 (1.25), T=53.1-57.1 (55.1), lip width=14.4-16.0 μ m (15.2 μ m), lip height=4.8-5.6 μ m (5.2 μ m), odontostyle=20.8-22.4 μ m (21.6 μ m), odontophore=32.0-38.2 μ m (35.1 μ m). Guiding ring 12.8 μ m from anterior end, expanded part of oesophagus=176-192 μ m (184 μ m), oesophagus=364.8-376.0 μ m (370.4 μ m). Cardia=8.0-9.6 μ m (8.8 μ m), spicule=52.8-56.0 μ m (54.4 μ m), lateral guiding piece=24 μ m, ventromedian supplements=8, tail=32.0-36.8 μ m (34.4 μ m). ABD=28.0-30.4 μ m (29.2 μ m).

Description : Female : Body slightly curved ventrally upon fixation, tapering towards both extremities. Cuticle finely striated, 1.6-3.2 μ m thick at mid-body and 2.4-3.2 μ m on tail. Lips well developed, angular. Amphids stirrup shaped, their apertures 9.6-11.2 μ m wide, situated 8 μ m from anterior end, odontostyle 1.4-1.6 lip widths long, its aperture less than one-third of its length. Guiding ring double 9.6-16.0 μ m from anterior end, odontophore simple, rod like 1.0-1.5 of the odontostyle length. Nerve ring 132.8-136.0 μ m from the anterior end of the body. Expanded portion of the oesophagus occupying 48.9-49.6% of oesophageal length. Cardia conoid extending into intestine. Location of oesophageal gland nuclei and their orifices are as follows :

DO = 52 - 61
S₁N₁ = 72 - 80

DN = 57 - 60
S₁N₂ = 67 - 73
S₂N₂ = 81 - 88

DO - DN = 3 - 4
S₂N₁ = 86 - 94

Reproductive system amphidelphic. Valva transverse, sclerotized, 25.6-32 μ m long, with distinct vulval sphincter surrounding it. Sphincter present at oviduct-uterus junction. Prerectum 2.0-2.3 anal body widths long. Rectum about 1.6 anal body width long. Tail short, digitate, 1.1-1.3 anal body width long, with a pair of caudal pores.

Male : Body similar with female, 1.46-1.53mm long, odontostyle about 1.4 labial width long, odontophore 1.4-1.8 odontostyle length. Expanded part of oesophagus occupying 48.2-51.1% of the total oesophageal length. Nerve ring 112-145.6 μ m from anterior end of the body, spicule 1.8-1.9 anal body widths long. Lateral guiding piece simple, rod like. Supplements an adanal pair and 8 equally spaced ventromedians. Tails digitate, about 1.2-1.3 anal body width long with a pair of caudal pores.

Habitat and locality : Soil around roots of wild unidentified grass from Kangkhui Khullen (altitude 1750 m above sea level), Ukhrul district, Manipur.

Type specimens : Collected in January, 1991. Holotype on slide MN67(3)/*Labronema sphincta* n.sp./1 and paratype females and males on slide MN67/*Labronema sphincta* n.sp./2-11 deposited in the Parasitology Laboratory, Life Sciences Department, Manipur University, Canchipur.

Differential diagnosis : *Labronema sphincta* n.sp. comes close to *Labronema pararapax* Ahmad and Jairajpuri, 1982 but can be distinguished from the later by its slightly smaller body

size, smaller odontostyle, odontophore, tail, spicule, greater length of the expanded part of oesophagus, presence of spaced 8 ventromedian supplements in males (L=1.53-1.85mm, odontostyle=25-27 μ m, odontophore=36-39 μ m. Tail=36-38 μ m, spicule=57-65 μ m, expanded part of oesophagus=42-48% of oesophageal length, absence of vulval sphincter, ventromedian supplements=15-20 in *L. pararapax*).

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