

TWO NEW SPECIES OF DORYLAIMIDAE (DORYLAIMIDA :
NEMATODA) FROM TAMIL NADU, INDIA

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ABSTRACT

Two new species of nematodes belonging to the family Dorylaimidae de Man, 1876 have been described. One of these new species of the genus *Oriverutus* Siddiqi, 1971, described as *O. arcuatus*, is characterized by having subangular lips, 13-14 μm long odontostyle, 13-16 μm long odontophore and amphidelphic female reproductive system. The other new species belongs to the genus *Chitwoodius* Furstenberg & Heyns, 1966, named as *C. seshadrii*, which is distinguished by a set off lip region with centrally protruding portion, 25-29 μm long odontostyle, 22-26 μm long odontophore and the amphidelphic female reproductive system with less developed ovaries.

INTRODUCTION

While carrying out the faunistic survey of district Salem, Tamil Nadu in December, 1975, a tour party led by Dr. A. N. T. Joseph from the Zoological Survey of India collected few soil samples from around roots of coffee. These samples yielded a new species of the genus *Oriverutus* Siddiqi, 1971 and one new species of the genus *Chitwoodius* Furstenberg and Heyns, 1966. The genus *Chitwoodius* has been recorded for the first time from India.

MATERIAL AND METHODS

The nematodes were fixed in hot 4% formalin, dehydrated slowly in desiccator and mounted in anhydrous glycerine. The type specimens have been registered and deposited

with the National Zoological Collection, Zoological Survey of India, Calcutta. *Oriverutus arcuatus* : Holotype female along with paratype male mounted on slide WN/308 ; *Chitwoodius seshadrii* : Holotype and 8 paratype females mounted on slides WN/309-310.

Oriverutus arcuatus n. sp.

(Fig. 1)

Dimensions : Holotype female : L= 0.79 mm ; a=33 ; b=3.7 ; c=15 ; V=1250 μm^3 .

Paratype male : L=0.82 mm ; a=37 ; b=4.0 ; c=13 ; T=48.

Description : Body ventrally curved upon fixation, tapering gradually towards both ends. Cuticle transversely striated, 1-2 μm thick (thickest on tail). Lateral, ventral and

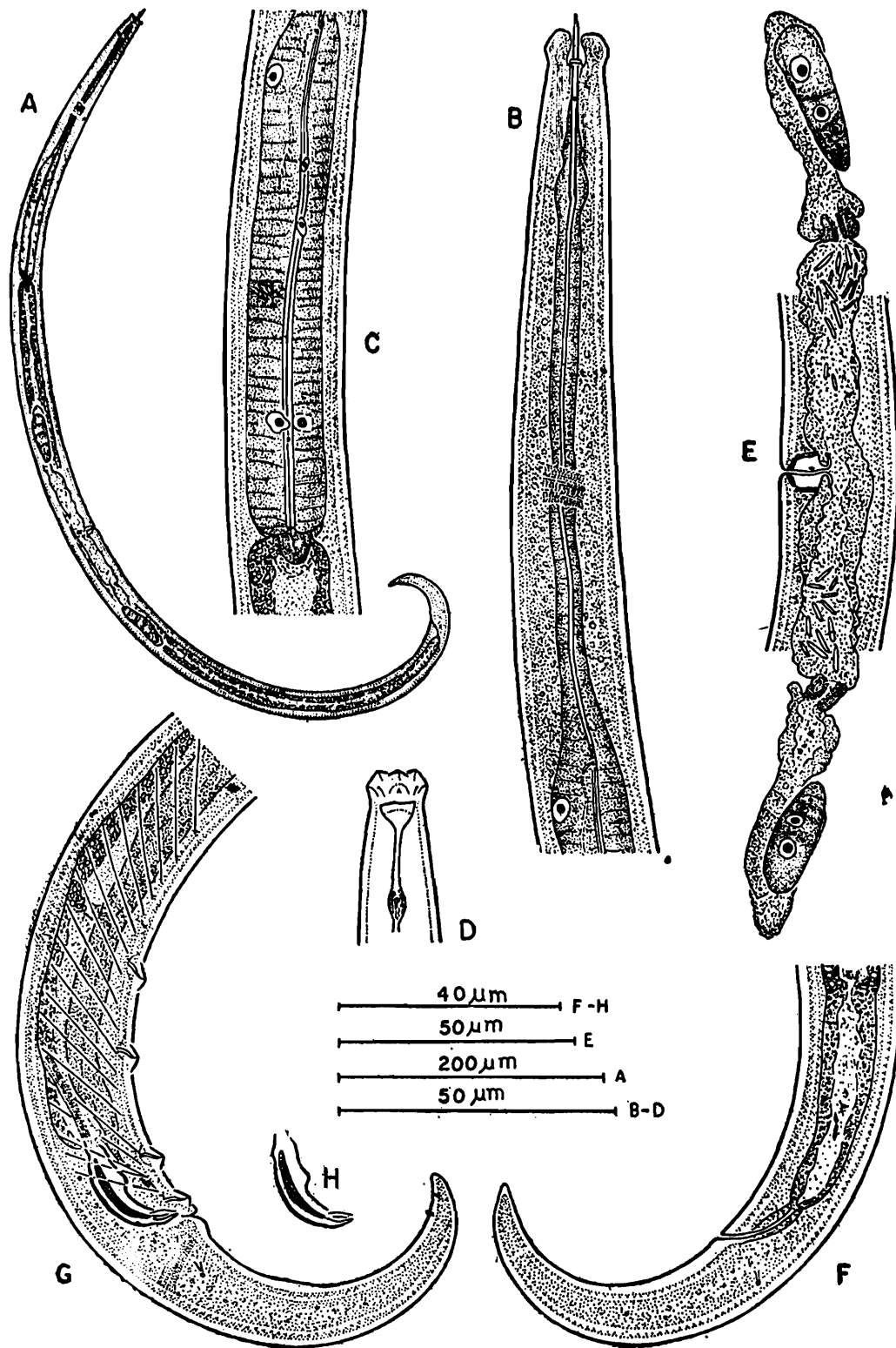


Fig. 1 *Oriverutus arcuatus* n. sp. A.—Entire ♀ B—Anterior region, C—Basal expanded part of oesophagus region, D—Surface view of anterior end, E—♀ reproductive system, F—Posterior region of ♀, G—Posterior region of ♂, H—Spicule and lateral guiding piece.

dorsal body pores not distinct. Lateral chords about $\frac{1}{3}$ rd of body-width near middle. Lip region set off, wider than adjoining body, about $\frac{1}{2}$ of body-width at base of oesophagus ; lips subangular bearing the usual number of papillae. Amphids cup-shaped ; their apertures 5–6 μm from anterior extremity and 6 μm wide or occupying 65% of the corresponding body-width. Sensillar pouches 17–18 μm from amphidial slits.

Odontostyle narrow, 13–14 μm or about 1.2 head-width long ; aperture 2.5 μm or about 20% of odontostyle length. Odontophore 13–16 μm or 1.0–1.2 times the odontostyle length. Guiding ring 6–7 μm or about 60–65% of head-width from anterior end. Basal expanded part of oesophagus occupies 43–44% of the total oesophageal length. Nerve ring located at 77–80 μm or 37–38% of oesophageal length from anterior end. Cardia rounded, enveloped by intestinal tissue. Locations of oesophageal gland nuclei and their orifices in holotype as follows :

DO=59.7	S ₁ N ₁ =70	S ₂ N=91
DN=63.6	S ₁ N ₂ =75	S ₂ O=93
DO-DN=3.9		

Female : Vulva a transverse slit. Vagina extending inward 10 μm or less than $\frac{1}{2}$ of corresponding body-width, sclerotized distally. Reproductive system amphidelphic. Uterus and oviduct separated by a sphincter. Oocytes arranged in single row except at growth region. Sperms present in uteri. Prerectum 40 μm or about 3 anal body-widths long. Rectum 15 μm or about one anal body-width long. Tail ventrally arcuate conoid, 53 μm or about 4 anal body-widths long, with one caudal pore on each side.

Male : Spicules 22 μm medially. Lateral guiding pieces 5 μm long. In addition to the

adanal pair, three ventromedian supplements present which are spaced nearly at regular intervals. Copulatory muscles 17, reaching anterior to the supplement region. Prerectum 42 μm or about 2.5 anal body-widths long. Tail ventrally arcuate conoid, 62 μm or about 3.5 anal body-widths long, with one caudal pore on each side.

Type habitat and locality : From soil around roots of coffee at Kumbakund, district Salem, Tamil Nadu.

Differential diagnosis : *Ortverutus arcuatus* n. sp. comes close to *O. hastatus* (Andrássy, 1963) Siddiqi, 1971 but differs from it in having more angular lips, differently shaped amphids (amphidial pouches more deeper in *O. hastatus*), shorter odontostyle (odontostyle 23–24 μm in *O. hastatus*), longer odontophore than odontostyle (odontophore shorter than odontostyle length in *O. hastatus*), distally sclerotized vagina and more arcuate tail.

*Chitwoodius seshadrii** n. sp.

(Fig. 2)

Dimensions : Holotype female : L=1.65 mm ; a=27 ; b=4.6 ; c=61 ; V=14 56¹².

Paratype females (8) : L=1.21–1.71 mm ; a=28–31 ; b=4.0–4.6 ; c=50–68 ; V=8–16 53–56^{9–13}.

Description : Body slightly ventrally curved upon fixation, tapering slightly towards both ends. Outer cuticle smooth ; inner layer with transverse striae, irregularly wrinkled and loosened from outer layer ; 2–3 μm thick at mid-body and 5–7 μm thick on tail. Lateral chords $\frac{1}{4}$ th– $\frac{1}{3}$ rd of body-width near middle. Lateral body pores irregularly arranged on both the sides of lateral chords,

* The species is named after Dr. A. R. Seshadri, Joint Director and Dean, I. A. R. I., New Delhi.

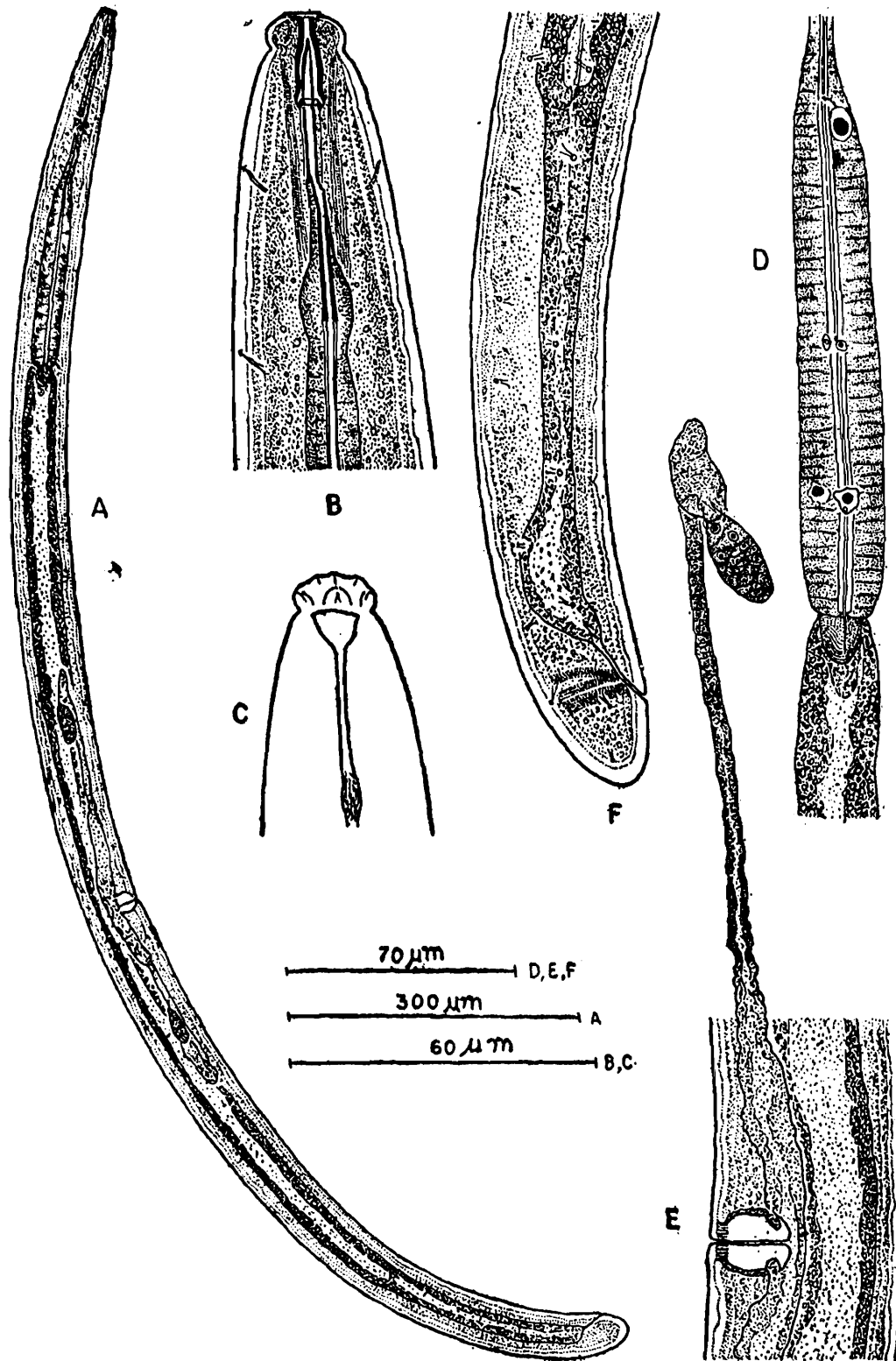


Fig. 2 *Chitwoodius seshadrui* n. sp., A—Entire ♀, B—Anterior region, C—Surface view of anterior end, D—Basal expanded part of oesophagus, E—Vulva region and anterior sexual branch, F—Posterior region.

83-102 in number ; of which 19-21 in oesophageal region, 59-68 between cardia and prerectum, 11-15 in prerectum-rectum region, and 3 in caudal region. Ventral body pores 5-8 and dorsal body pores 3. Lip region set off by a deep constriction, cap-like, the central portion somewhat protruding and forming a labial disclike structure, about $\frac{1}{3}$ rd of body-width at base of oesophagus. Amphids cup-shaped ; apertures occupying about 8 μm or 55-58% of the corresponding body-width and situated at 6-7 μm from anterior extremity. Sensillar pouches 31-33 μm from amphidial slits.

Odontostyle 25-29 μm or 1.8-2.1 lip region-width long ; aperture 3-4 μm or 10-14% of its own length. Odontophore 22-26 μm or 0.8-0.9 times the odontostyle length. Guiding ring 16-18 μm or 1.1-1.3 lip region-width from anterior end. Basal expanded part of oesophagus occupies 46-49% of the total neck length. Oesophageal gland nuclei and their orifices as follows :

DO=52.4-54.7 S₁O=74-76 S₂N=90-91

DN=54.4-57.7 S₁N=75-77 S₂O=91-92

DO-DN=2.2-3.1

Nerve ring 108-129 μm or 32-35% of the oesophageal length from anterior end. Cardia rounded, enveloped by intestinal tissue. Prerectum 126-193 μm or about 4-5 anal body-widths long. Rectum 22-27 μm or less than one anal body-width long.

Vulva a transverse slit. Vagina with a thick-walled muscular tube having a fringed appearance. ; 19-25 μm long or extending inward less than $\frac{1}{2}$ of the corresponding body-width. Reproductive system amphidelphic. Uterus and oviduct separated by a weak sphincter. Ovaries reflexed, less developed ; oocytes arranged in multiple rows.

Tail rounded, 23-27 μm or 0.7-0.8 anal body-width long, with 3 caudal pores on each side.

Male : Not found.

Type habitat and locality : From soil around roots of coffee at Kumbakund, district Salem, Tamil Nadu.

Differential diagnosis : *Chitwoodius seshadrii* n. sp. comes close to *C. transvaalensis* Furstenberg and Heyns, 1966 but differs from it in having more set off and differently shaped lip region having a disc-like structure in the centre (lip region without a disc-like structure in *C. transvaalensis*), more posteriorly situated guiding ring (guiding ring 15-16 μm from anterior end in *C. transvaalensis*), oesophagus with only a single ellipsoidal swelling in odontophore region before nerve ring (oesophagus with two swellings anterior to nerve ring in *C. transvaalensis*), transverse vulva (vulva longitudinal in *C. transvaalensis*), and 3 caudal pores (caudal pores absent in *C. transvaalensis*).

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