

## TWO NEW SPECIES OF DORYLAIMIDA FROM MANIPUR, INDIA

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Two new species of Dorylaimida have been described and illustrated. *Xiphinemella moreatum* n.sp. from soil around roots of Burmese Ing (*Dipterocarpus tuberculatus* Roxb.) is distinctive in having longer oesophagus, length of odontostyle and odontophore, position of vulva, size of spicules and number of ventromedian supplements. *Oostenbrinkella shamimi* n.sp. from soil around roots of sugarcane (*Saccharum officinarum* Linn.) is distinguished by its differently shaped and size of basal expanded part of oesophagus and stylet.

### INTRODUCTION

In the soil samples collected in Manipur, two new species of Dorylaimida belonging to *Xiphinemella* Loos, 1950 and *Oostenbrinkella* Jairajpuri, 1965 were present. *Xiphinemella moreatum* n.sp. were collected from around roots of Burmese Ing (*Dipterocarpus tuberculatus* Roxb.) and *Oostenbrinkella shamimi* n.sp. from around roots of sugarcane (*Saccharum officinarum* Linn.).

### MATERIAL AND METHODS

The nematodes were killed and fixed in hot 4% formalin, dehydrated in the dessicator by slow glycerine method and mounted in anhydrous glycerine. Measurements were taken with an ocular micrometer and diagrams were drawn with the help of a camera Lucida.

### OBSERVATIONS

*Xiphinemella moreatum* n.sp. (Fig. 1)

#### Dimensions

*Paratype females* (4) : L = 2.27 - 2.62 mm, a = 41 - 43, b = 7.4 - 8.6, c = 94 - 96, c' = 0.6 - 0.7, V = 54 - 55, G<sub>1</sub> = 13.6 - 14.5, G<sub>2</sub> = 12.4 - 14.1, odontostyle = 38 - 40  $\mu$ m, odontophore = 32 - 35  $\mu$ m, oesophagus = 304 - 306  $\mu$ m, prerectum = 216 - 250  $\mu$ m, rectum = 29 - 34  $\mu$ m, tail = 24 - 27  $\mu$ m, ABD = 40 - 41  $\mu$ m.

*Paratype males* (3) : L = 2.0 - 2.1 mm, a = 47 - 48, b = 7.2 - 7.7, c = 86 - 88, c' = 0.6 - 0.7, T = 41.0 - 41.8, odontostyle = 37 - 40  $\mu$ m, odontophore = 32 - 33  $\mu$ m, oesophagus = 262 - 283  $\mu$ m, prerectum = 330 - 335  $\mu$ m, rectum = 43 - 45  $\mu$ m, spicules = 44 - 50  $\mu$ m, lateral guiding pieces = 11 - 12  $\mu$ m, ventromedian supplements = 4 - 6, tail = 24 - 25  $\mu$ m, ABD = 35 - 36  $\mu$ m.

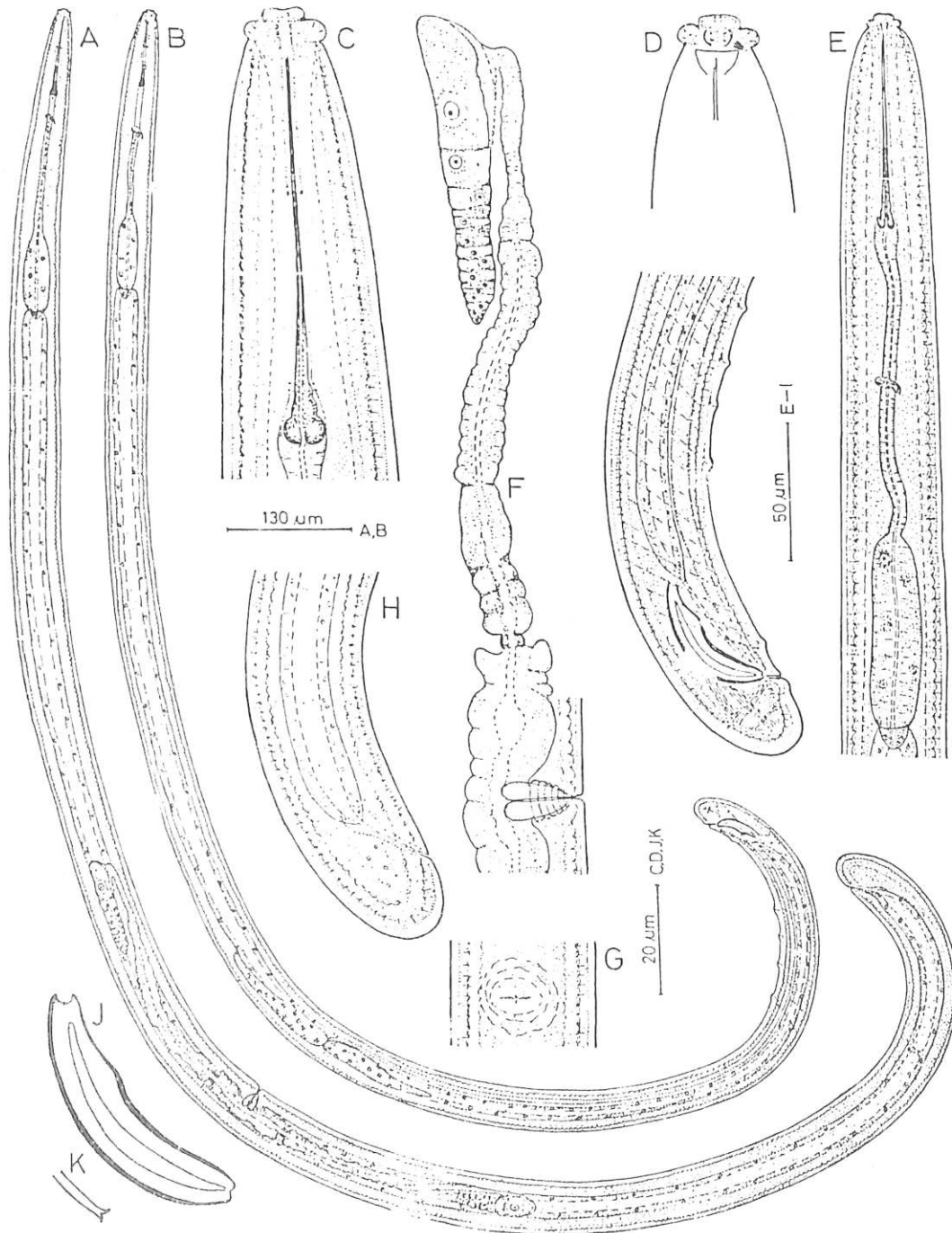


Fig. 1. *Xiphinemella moreatum* n.sp. A. Female, entire; B. Male, entire; C. Anterior end; D. Anterior end showing amphid; E. Oesophageal region; F. Female genital branch, anterior; G. Vulval opening, surface view; H. Tail, female; I. Tail, male; J. Spicule; K. Lateral guiding piece.

*Holotype female* : L = 2.61 mm, a = 43, b = 8.5, c = 96, c' = 0.7, V = 54, G<sub>1</sub> = 13.5, G<sub>2</sub> = 12.6, odontostyle = 40 µm, odontophore = 35 µm, oesophagus = 305 µm, prerectum = 250 µm, rectum = 34 µm, tail = 27 µm, ABD = 40 µm.

### Description

*Female* : Body slightly ventrally curved upon fixation. Outer cuticle smooth, 2-3 µm thick at mid body and 5-7 µm on tail, inner cuticle wavy and coarsely striated. Lateral hypodermal chords about one-third of body width near mid-body. Lip region offset from the rest of the body by a deep constriction and provided with a well developed labial disc. Lips rounded and separated from each other. Stomatal region narrow and without labial sclerotization. Amphids cup-shaped with slit-like apertures measuring 7-8 µm wide or about 2/3rd of lip region-widths. Fixed guiding ring 35-36 µm from anterior end or at about three lip-region widths from anterior end. Odontophore rod-like, slightly less than the odontostyle length, flanged at base with inner core appearing sclerotized. Nerve ring encircling the anterior slender part of oesophagus at 130-131 µm or about two and half body-widths from anterior end. Basal bulb of oesophagus 70-75 µm or 22-26% of total oesophageal length. Cardia rounded conoid, 7-8 µm long. Oesophageal gland nuclei and their orifices are located as follows : DO = 68-70, DN = 72-73, S<sub>1</sub>N<sub>1</sub> = 81-82, S<sub>2</sub>N<sub>1</sub> = 87-88, S<sub>1</sub>N<sub>2</sub> = 74-75, S<sub>2</sub>N<sub>2</sub> = 85-86 (sub oesophageal gland orifices not distinct). Reproductive system amphidelphic, each sexual branch consists of a reflexed ovary with 14 to 17 oocytes, distal narrow and proximal expanded part of oviduct, a distinct sphincter followed by short uterus, vulva a transverse slit, vagina thick-walled, extending about one third of corresponding body-width. Prerectum about five and half anal-body widths long. Rectum less than one anal body-width. Tail hemispheroid and less than one anal body-width long with two caudal pores on each side.

*Male* : Supplements an adanal pair and four to six irregularly spaced ventromedians. First supplement 65 µm from adanal pair. Copulatory muscles weakly developed. Spicules arcuate, 44-50 µm or about one and half anal-body-width long. Lateral guiding pieces 11-12 µm or about one fourth of spicular length. Tail hemispheroid, less than one anal-body-width long, with two caudal pores on each side.

*Type habitat and locality* : Collected from soil around roots of Burmese Ing (Khangra) *Dipterocarpus tuberculatus* R. from Yaingoupokpi hills, Lokchao, Moreh, Manipur state.

*Type specimens* : Collected in May, 1990. Holotype female on slide MN9/*Xiphinemella moreatum* n.sp./1, paratype females and males on slide MN9/*Xiphinemella moreatum* n.sp./1-8, deposited in the Parasitology Laboratory, Department of Life Sciences, Manipur University, Canchipur, Imphal - 795003.

### Differential diagnosis

*Xiphinemella moreatum* n.sp. comes close to *X. esseri* Chitwood, 1957 and *X. ornatum* (Loos, 1949) Loos, 1950. From *X. esseri*, it differs in having a longer oesophagus slightly posteriorly located vulva, shorter odontostyle and longer odontophore, bigger spicules, less number of ventromedian supplements and a smaller size of expanded part of oesophagus (b = 11.4-14, v = 42-47, odontostyle = 55-60 µm, odontophore = 15-17 µm, spicules = 40-45 µm, ventromedian supplements = 1 + 8 or 9 and expanded part of oesophagus = 75-85 µm in *X. esseri*). From *X. ornatum*, it differs in having a shorter tail, slightly posteriorly located vulva, shorter total stylet length and less number of ventromedian supplements (c = 78-85, V = 48-53, total stylet length = 83-93 µm and ventromedian supplements = 1 + 3 in *X. ornatum*).

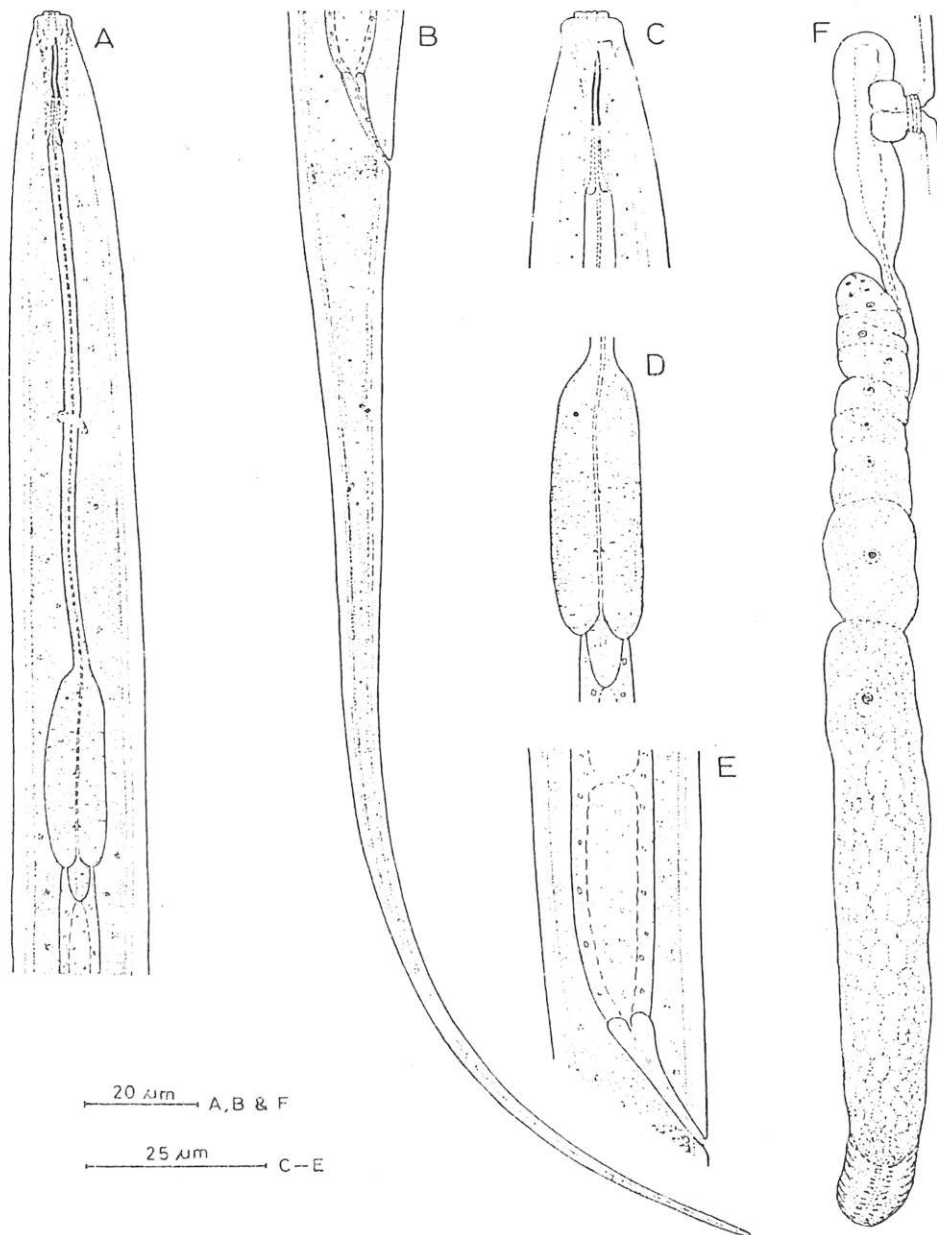


Fig. 2. *Oostenbrinkella shamimi* n.sp.; A. Oesophageal region; B. Tail, female; C. Anterior end; D. Expanded part of oesophagus; E. Prerectum region; F. Female reproductive system.

*Oostenbrinkella shamimi* n.sp. (Fig. 2)

## Dimensions

*Paratype females* (10) L = 1.05 - 1.10 mm, a = 41.0 - 46.2, b = 6.1 - 6.6, c = 4.3 - 5.8, c' = 11.2 - 14.2, V = 27.3 - 28.2, G<sub>1</sub> = 1.2 - 1.4, G<sub>2</sub> = 12.2 - 19.0, odontostyle = 12.8 - 13.0  $\mu$ m, odontophore = 8 - 10  $\mu$ m, guiding ring = 8.0  $\mu$ m from anterior end of body, oesophagus = 162 - 173  $\mu$ m from anterior end, expanded part of oesophagus = 35.2 - 40.0  $\mu$ m, nerve ring = 80 - 83.2  $\mu$ m from anterior end of body, prerectum = 33 - 35  $\mu$ m, rectum = 20 - 26  $\mu$ m, tail = 184 - 224  $\mu$ m, ABD = 16  $\mu$ m.

*Holotype female* : L = 1.05 mm, a = 41.0, b = 6.14, c = 4.36, c' = 11.2, V = 27.3, G<sub>1</sub> = 1.2, G<sub>2</sub> = 19.0, odontostyle = 12.8  $\mu$ m, odontophore = 8.0  $\mu$ m, guiding ring = 8.0  $\mu$ m from anterior end of body, oesophagus = 171.2  $\mu$ m from anterior end of body, expanded part of oesophagus = 40.0  $\mu$ m, nerve ring = 80  $\mu$ m from anterior end of body, prerectum = 35  $\mu$ m, rectum = 20.6  $\mu$ m, tail = 244  $\mu$ m, ABD = 16  $\mu$ m.

*Male* : Not found.

## Description

*Female* : Body cylindroid, almost straight upon fixation, tapering towards both extremities, lip region slightly set off, about half as wide as neck and forming a prominent labial disc. Amphids stirrup-shaped, their apertures about three-fourths as wide as head. Odontostyle about two lip-widths long and odontophore slightly longer than one-lip-width, broadly flanged at base. Stylet muscles weakly developed, stoma faint. Guiding ring distinct and situated near the anterior region of odontostyle. Oesophagus about six times the body-widths long, with a long narrow anterior portion and a short basal bulb which is more than thrice as long as wide or measuring about one and half body-widths long. Cardia elongate-cylindroid, measuring 6-8  $\mu$ m in length. Reproductive system opisthodelphic. Vulva a transverse slit, vagina about half of the body-width with thick cuticular walls. Anterior uterine sac less than one body-width long. Posterior sexual branch normal, ovary reflexed almost back to vulva. Oocytes arranged in a single row except in the region of multiplication. Rectum about one anal-body-width long, prerectum about one and half as long as rectum. Tail long, filiform, about fourteen anal-body-widths long.

*Type habitat and locality* : Collected from soil around roots of sugarcane, *Saccharum officinarum* L. from Jiribam, Imphal District, Manipur.

*Type specimens* : Collected in May 1990. Holotype female on slide RN57/*Oostenbrinkella shamimi* n.sp./1 and paratype females on slide RN57/*Oostenbrinkella shamimi* n.sp./2-10, Deposited in the Parasitology Laboratory, Life Sciences Department, Manipur University, Canchipur, Imphal - 795003.

## Differential diagnosis

*Oostenbrinkella shamimi* n.sp. comes close to *Oostenbrinkella oostenbrinki* Jairajpuri, 1965 but with a major difference in the shape and size of basal expanded part of oesophagus. It differs from *O. oostenbrinki* in having a longer oesophagus, slightly posteriorly located vulva, shape and size of expanded part of oesophagus and a shorter prerectum (b = 7.0 - 7.6, V = 24 - 27, Expanded part of oesophagus is about twice as long as wide and prerectum about thrice as long as rectum, in *O. oostenbrinki*).

### ACKNOWLEDGEMENTS

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