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TWO NEW SPECIES OF *XIPHINEMA* FROM INDIA

by

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During the course of investigations on the distribution of *Xiphinema* species in India, two new species were found. They are described here.

XIPHINEMA LAMBERTII N. SP.

(Fig. I)

Dimensions: Table I.

Description:

Female: Body 'C' shaped when fixed, tapering towards both extremities. Cuticle in two layers, thickest in the region of vulva and on tail. Lateral chords about 1/4th of midbody width.

Lip region rounded, slightly offset from body. Amphids stirrup-shaped with slit-like apertures located at base of lip region and about 3/5th of lip-width. Odontostyle 6-7 lip-widths long, odontophore nearly 2/3rd of the odontostyle length. Fixed guiding ring at 5-6 lip-widths from the anterior extremity.

Basal bulb of oesophagus 2.4 times the corresponding body-width and 24% of stomodaeum. The positions of oesophageal gland nuclei and their orifices as in Table I. Cardia short and conoid. The nerve ring surrounds the anterior slender part of oesophagus at 2

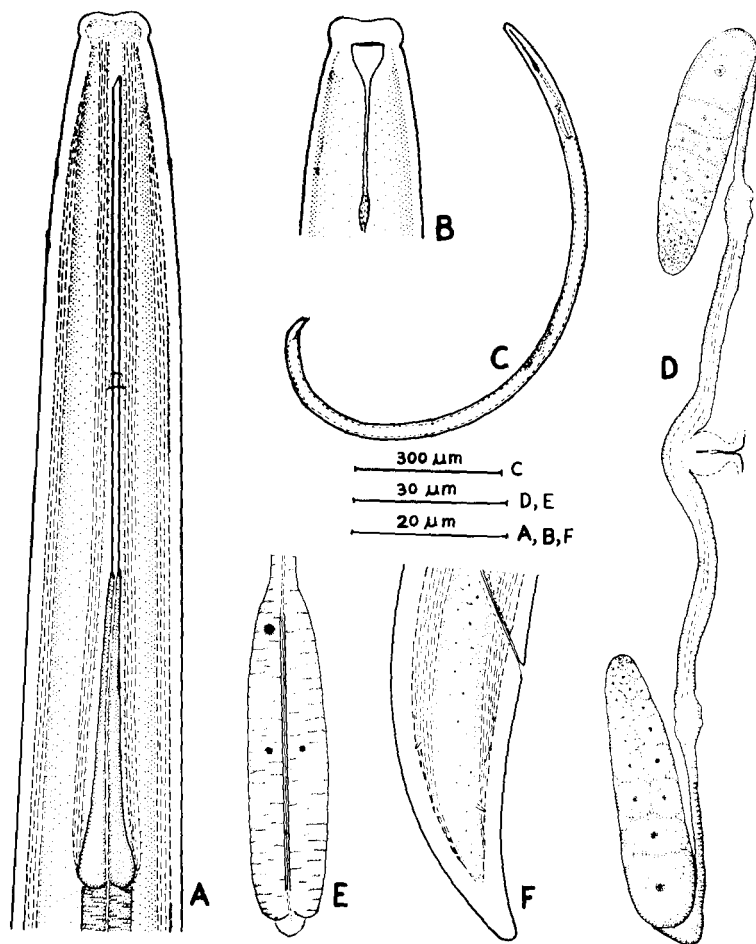


Fig. 1 - *Xiphinema lambertii* n. sp.: A = anterior region; B = anterior end; C = entire female; D = reproductive organs of female; E = oesophageal bulb; F = female tail.

lip-widths from base of odontophore. Prerectum 5-6 times anal body-widths long; rectum 0.9 time anal body-width.

Gonads amphidelphic, each branch consisting of a reflexed ovary, an oviduct narrowed distally and expanded proximally, and a uterus. Vagina is about 1/3rd of the corresponding body-width. Vulva at 49-53% from anterior extremity.

Tail narrow, elongate conoid, 1.6-2.0 times the anal body-width long and provided with two papillae on each side.

Table I - *Biometrical characters of Xiphinema lambertii n. sp., and X. neoelongatum n. sp.*

Characters	<i>Xiphinema lambertii</i>		<i>X. neoelongatum</i>	
	Holotype	Paratypes 13	Holotype	Paratypes 3
L (mm)	1.3	1.3-1.46	1.4	1.4-1.7
a	48	47-51	43	37-46
b	5.2	5.2-5.9	5.1	4.3-6.9
c	37	37-50	40	40-50
V%	53	49-53	55	54-55
G ₁ %	11	10-13	12	12-14
G ₂ %	11	10-14	12	12-14
Odontostyle length (μm)	62	55-64	92	92-96
Odontophore length (μm)	40	38-40	42	42-46
Position of fixed guiding ring from ant. end (μm)	50	48-54	64	64-69
DN%	15	13-15	13	13
DO%	12	12-15	12	12
S ₁ V ₁ N%	60	55-60	60	60-63
S ₁ V ₂ N%	60	55-60	60	60-63
S ₂ O%	80	75-80	78	77-80
c'	2.0	1.6-2.0	1.6	1.4-1.8

Male: Not found.

Type habitat and locality: Soil around roots of *Cajanus cajan* from Rajkot, Dehradun, and from the roots of *Mangifera indica* from Bareilly, U.P.

Type specimens: Holotype mounted on slide PNS- *Xiphinema lambertii* n. sp. / 1; paratypes mounted on slides PNS- *Xiphinema lambertii* n. sp. / 2-4 deposited in Zoological Museum, Aligarh Muslim University, Aligarh.

Differential diagnosis: This species is closest to *Xiphinema americanum* Cobb, 1913 (sensu Siddiqi, 1959) but is smaller (body length 1.6-1.8 mm in *X. americanum*), has a smaller spear (spear 120-140 μm in *X. americanum*) and a longer and differently shaped tail (tail conoid, sharp curvature on dorsal side in *X. americanum*).

The new species is named after Professor Franco Lamberti.

XIPHINEMA NEOELONGATUM N. SP.

(Fig. II)

Dimensions: Table I.

Description:

Female: Body 'C' shaped when fixed with tapering extremities. Cuticle in two layers and thickest in the region of vulva and on tail. Fine radial striations clearly visible in neck region and on tail. Lateral chords about 1/4th of midbody-width.

Lip region low, slightly offset from body. Amphids stirrup-shaped with slit-like apertures which are less than one-half of lip-width and located at base of lip region. Odontostyle 8-9 lip-widths long, odontophore nearly one-half the odontostyle length. The fixed guiding ring is at 7-8 lip-widths from anterior extremity.

Basal bulb of oesophagus 1.5 times the corresponding body-width and 17% of neck length. The positions of oesophageal gland nuclei and their orifices as in Table I. Cardia short and conoid. Nerve ring surrounds the anterior slender part of oesophagus at 2 lip-widths from the base of odontophore. Prerectum indistinguishable from intestine. Rectum 0.7 anal body-width long.

Gonads amphidelphic, each branch consisting of a reflexed ovary, an oviduct narrowed distally and expanded proximally, and a uterus. Vagina is thick-walled, about 1/3rd of the corresponding body-width. Vulva at 55% from anterior extremity.

Tail short, convex-conoid ending in a subdigitate terminus, 1.4-1.8 anal body-widths long and provided with 2 papillae on each side.

Male: Not found.

Type habitat and locality: Soil around roots of *Psidium guajava* from Ambala, Punjab.

Type specimens: Holotype mounted on slide PNS- *Xiphinema neoelongatum* n. sp. / 1; paratypes mounted on slide PNS- *Xiphinema neoelongatum* n. sp. / 2 deposited in Zoological Museum, Aligarh Muslim University, Aligarh.

Differential diagnosis: *Xiphinema neoelongatum* n. sp. is closest to *X. mediterraneum* Martelli *et* Lamberti, 1967 and *X. elongatum* Schuurmans Stekhoven *et* Teunissen, 1938. From the former it differs in being more robust (a = avg. 62 in *X. mediterraneum*), in having a differently shaped and less offset lip region (lip region round-

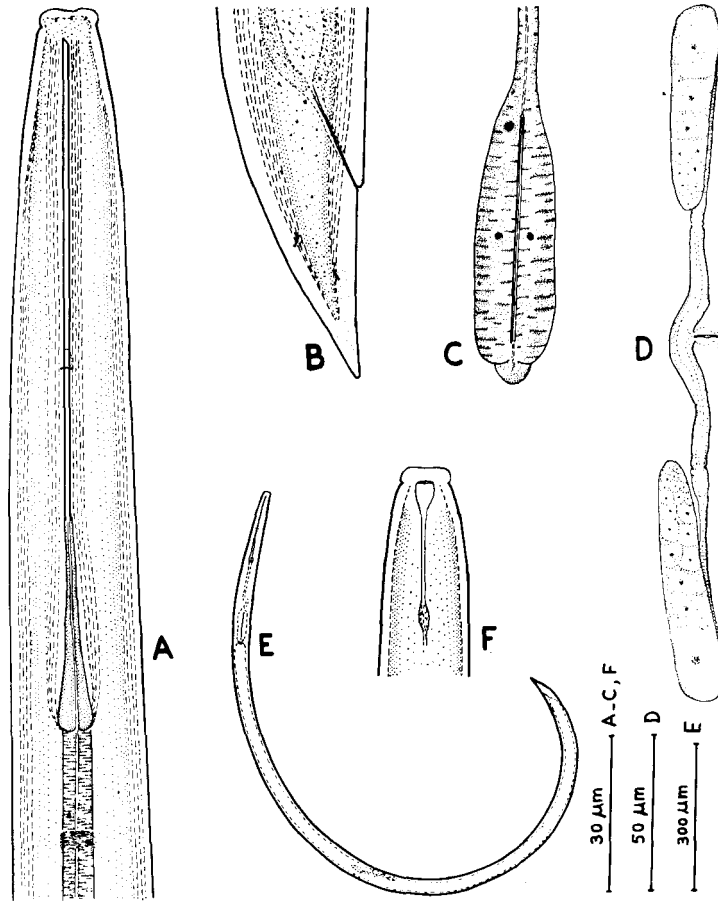


Fig. 2 - *X. neoelongatum* n. sp.: A = anterior region; B = female tail; C = oesophageal bulb; D = reproductive organs of female; E = entire female; F = anterior end.

ed and offset by a deep constriction in *X. mediterraneum*), in tail shape (tail without clear radial striations in *X. mediterraneum*), and in lower value of c ratio ($c = \text{avg. } 67$ in *X. mediterraneum*). From *X. elongatum* it differs in becoming almost 'C' shaped when fixed (body only slightly ventrally arcuate in *X. elongatum*), in the size of tail ($c' = 2.5$ in *X. elongatum*), in the post-equatorial position of vulva ($V = 40-44\%$ in *X. elongatum*) and in having a comparatively shorter uterus than in *X. elongatum*.

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S U M M A R Y

Two new species of the genus *Xiphinema* Cobb, 1913 are reported from India. One of them, *X. lambertii* n. sp. is close to *X. americanum* Cobb but can be differentiated in having smaller body and spear (odontostyle + odontophore) and longer and differently shaped tail. The other new species *X. neoelongatum* is close to *X. elongatum* Schuurmans Stekh. et Teunissen but differs in its body posture after fixation, in having a post-equatorial vulva and in its smaller size of uterus.

R I A S S U N T O

Due specie nuove di Xiphinema trovate in India.

In India sono state trovate due specie indescritte appartenenti al genere *Xiphinema* Cobb. *X. lambertii* è simile a *X. americanum* Cobb, ma si differenzia per avere dimensioni del corpo e dello stiletto (odontostile + odontoforo) più piccole e coda più lunga e di forma diversa. *X. neoelongatum* è simile a *X. elongatum* Schuurmans Stekh. et Teunissen, ma differisce da esso per avere *habitus* differente dopo la fissazione, la vulva in posizione post-equatoriale e gli uteri di dimensioni inferiori.

R É S U M É

Deux nouvelles espèces de Xiphinema en Inde.

Deux nouvelles espèces du genre *Xiphinema* Cobb, trouvées en Inde sont décrites. *X. lambertii* est comparable à *X. americanum* Cobb, mais présente des dimensions du corps et du stylet (odontostyle et odontophore) plus petites, la queue plus longue et de forme différente. *X. neoelongatum* ressemble à *X. elongatum* Schuurmans Stekh. et Teunissen, mais présente un *habitus* différent après fixation, la vulve post-équatoriale et l'utéro de taille plus réduit.

L I T E R A T U R E C I T E D

- LAMBERTI F. and MARTELLI G.P., 1971 - Notes on *Xiphinema mediterraneum* (Nematoda: Longidoridae). *Nematologica*, 17: 75-83.
- SIDDIQI M.R., 1959 - Studies on *Xiphinema* spp. (Nematoda: Dorylaimoidea) from Aligarh (North India), with comments on the genus *Longidorus* Micoletzky, 1922. *Proc. helm. Soc. Wash.*, 26: 151-163.
- SIDDIQI M.R., 1961 - On *Xiphinema opisthohysterum* n. sp. and *X. pratense* Loos, 1949, two dorylaim nematodes attacking fruit trees in India. *Z. Parasitenkde*, 20: 457-465.

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