

# *Xiphinema machoni* n. sp. (Nematoda : Longidoridae) from St. Lucia, West Indies

David J. HUNT

Commonwealth Institute of Helminthology, 103 St. Peter's Street,  
St. Albans, Herts., England.

## SUMMARY

*Xiphinema machoni* n. sp. is described from sandy soil about the roots of *Coccoloba uvifera* (L.) in St. Lucia. It is closest to *X. ebriense* (differs in body length, number of caudal pores, spicule length and number and arrangement of the male supplements) and *X. coxi* (differs in stylet length, form of female tail and in having abundant males). *X. machoni* n. sp. fed readily on roots of *C. uvifera* seedlings growing in water agar.

## RÉSUMÉ

*Xiphinema machoni* n. sp. (Nematoda : Longidoridae) de Ste-Lucie, Antilles

*Xiphinema machoni* n. sp., parasite des racines de *Coccoloba uvifera* (L.) à Ste-Lucie (Antilles), est décrit et figuré. Cette espèce est proche de *X. ebriense* dont elle diffère par la longueur du corps, le nombre de pores caudaux et la disposition des suppléments ventraux chez le mâle; elle est proche également de *X. coxi* dont elle se sépare par la longueur du stylet, la forme de la queue des femelles et l'abondance des mâles. La nutrition de *X. machoni* n. sp. sur racines de *C. uvifera* croissant sur eau gélosée a été observée.

*Xiphinema machoni* n.sp. was recovered from sandy soil about the roots of seagrape, *Coccoloba uvifera* (L.), growing near the shoreline in southern St. Lucia. Nematodes were heat relaxed at 60°, fixed in TAF and then processed to glycerol before mounting.

***Xiphinema machoni* n. sp.**  
(Fig. 1)

## DIMENSIONS

*Female* (n = 14) : L = 3.08 mm (2.79 – 3.34); a = 62.9 (50-68); b = 8.2 (6.9 – 9.1); c = 79 (68 – 104); c' = 1.1 (1 – 1.3); V = 43.3 (40.8 – 45.1); odontostyle = 105 µm (99 – 110); odontophore = 59 µm (55 – 63); stylet = 164 µm (156 – 170); basal « guide ring » = 90 µm (82 – 94) from anterior end.

*Holotype female* : L = 3.01 mm; a = 67.0; b = 7.3; c = 70; c' = 1.3; V = 43.6; odontostyle = 107 µm; odontophore = 58 µm; stylet = 165 µm; basal « guide ring » = 92 µm.

*Male* (n = 15); L = 2.99 mm (2.82 – 3.16); a = 69.4 (62.3 – 74.6); b = 8.0 (7.6 – 9.4); c = 65 (61 – 90); c' = 1.2 (0.9 – 1.3); odontostyle = 105 µm (100 – 110); odontophore = 57 µm (53 – 60); stylet = 162 µm (155 – 169); basal « guide ring » = 89 µm (81 – 95); spicules (curved median line) = 63 µm (60 – 66).

## DESCRIPTION

Heat relaxed specimens are ventrally arcuate with the tail region more sharply curved. Cuticle with fine transverse striae. Lip region slightly offset with the amphidial aperture extending virtually across the head. Lateral chord one-sixth of body width. Lateral, ventral and dorsal series of pores present.

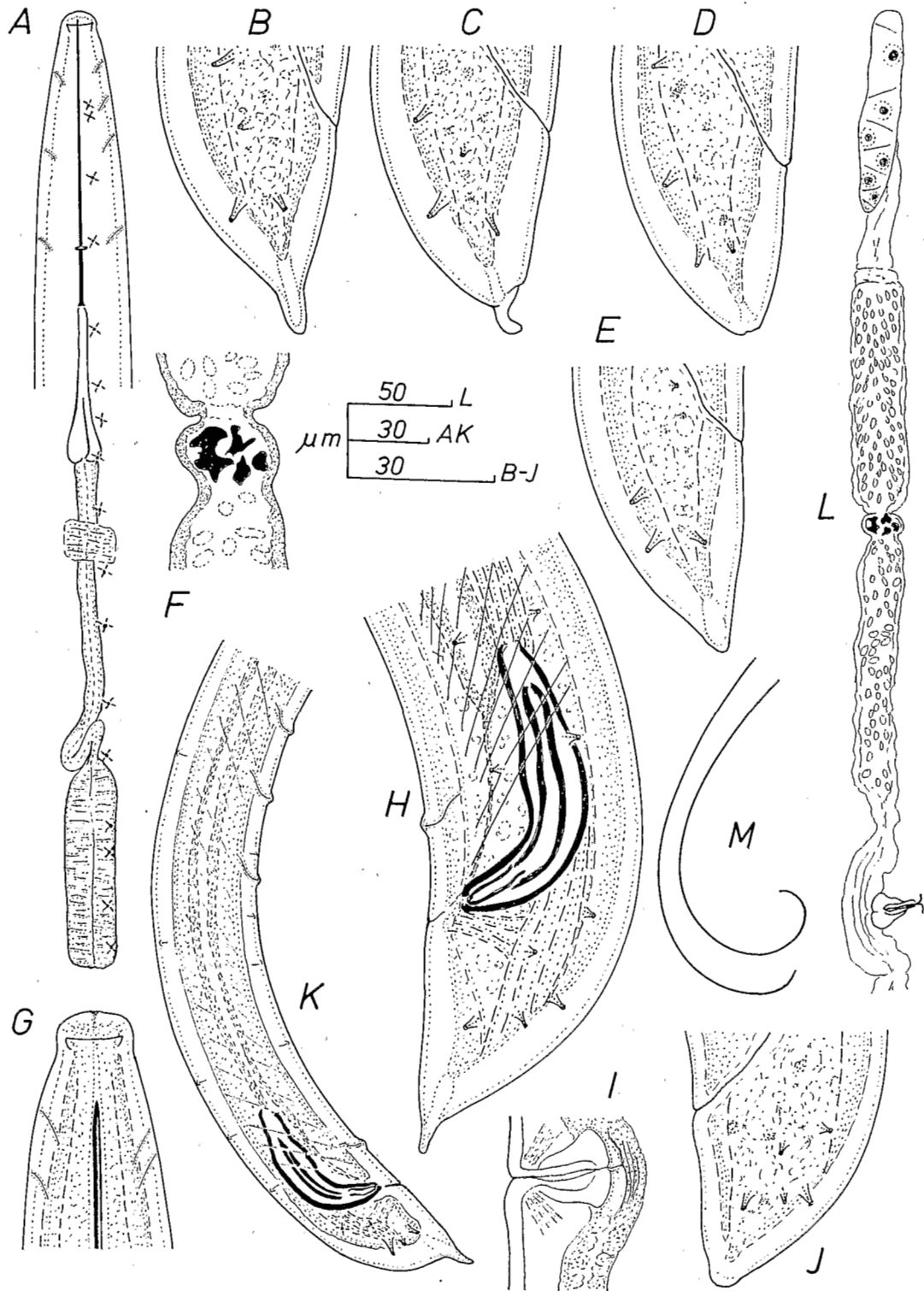


Fig. 1. *Xiphinema machoni* n. sp. A : Female oesophageal region. B, C, D, E : Female tail. F : Z-organ. G : Female head region. H : Male tail. I : Vulva. J : Male tail. K : Posterior portion of male. L : Anterior genital tract. M : Heat relaxed female (left) and male (right).

Odontostyle, odontophore and oesophagus typical of the genus. Nerve ring about a body width behind the basal flanges with the 5-6  $\mu\text{m}$  long hemizonid at the same level. Hemizonion 2-3  $\mu\text{m}$  long and just under two body widths posterior to the hemizonid. Cardia rounded conoid.

Vulva a transverse slit, the lips not protuberant. Vagina muscular and extends about half-way across the body. Both genital tracts fully developed and functional. Each consists of a long uterus (often packed with sperm), a barrel-shaped Z-organ composed of cells containing transverse muscle fibres and containing four or five cuticularized pieces, an oviduct and a reflexed ovary with oocytes in a single row. Uterine eggs measure about  $160 \times 28 \mu\text{m}$ .

Female tail variable, but usually rounded convex-conoid with a distinct ventral peg. There are usually three, but occasionally four, pairs of pores and a blind terminal canal is present. The hyaline portion of pegged tails is about  $15 \mu\text{m}$  long.

Male testes paired; one outstretched, the other reflexed. Spicules paired, simple, about  $63 \mu\text{m}$  long with guiding pieces  $12 \mu\text{m}$  long. Supplements consist of a preanal pair and then a series of three or four starting at about three anal body widths from the cloaca. Tail rounded convex-conoid with a ventral peg. Four pairs of pores and a blind terminal canal are also present. Hyaline portion is about  $15 \mu\text{m}$  long.

The species is named after Ms J. Machon of the Commonwealth Institute of Helminthology.

#### TYPE HOST AND LOCALITY

Roots of *Coccoloba uvifera* (L.) growing in sandy soil near the shoreline at Anse de Sables, Vieux Fort, St. Lucia, West Indies.

#### TYPE SLIDES

Holotype female, nine paratype females and ten paratype males at the Commonwealth Institute of Helminthology, St. Albans, Herts., England; two paratype females and four paratype males at Rothamsted Experimental Station, Harpenden, Herts., England; and three paratype females and a paratype male at the

Laboratoire des Vers, Muséum national d'Histoire naturelle, Paris, France.

#### DIAGNOSIS AND RELATIONSHIPS

*Xiphinema machoni* n.sp. is characterized by: presence of a true Z-organ; body length of about 3 mm; tail shape and number of caudal pores; abundant males with spicules c.  $63 \mu\text{m}$  long and number and arrangement of male supplements. It should be quoted as A4, B1, C3, D4, E4, F3, G2, H3/4, I3, L2 in the lattice of Luc and Dalmasso (1975). It is closest to *X. ebriense* Luc, 1958 and *X. coxi* Tarjan, 1964. It can be distinguished from *X. ebriense* by virtue of considerably longer body length in both sexes (c. 3:2 mm), three pairs of caudal pores (as opposed to two in *ebriense*) in the female; four or five pairs of caudal pores in the male (three in *ebriense*); much longer spicules ( $60 - 66 \mu\text{m}$  as opposed to  $39 - 45 \mu\text{m}$ ) and in the arrangement and greater number of the male supplements. From *X. coxi* it differs in shorter stylet length ( $156 - 160 \mu\text{m}$  as opposed to  $185 - 210 \mu\text{m}$ ), the shape of the female tail (more elongate in *X. coxi*) and in having abundant males.

#### BIONOMICS

*Xiphinema machoni* n.sp. fed readily on roots of *C. uvifera* seedlings growing in 1.5 % water agar sandwiched between 80 mm coverslips (see Hunt and Towle (1979) for details of the method). Nematodes fed gregariously and were particularly attracted to damaged sections of root although the area immediately behind the root tip was also favoured. In the latter case the root tip became swollen and eventually stopped growing. Nematodes often remained in the immediate vicinity of a favourable feeding point for one to two weeks, frequently withdrawing the odontostyle and reinserting it into the damaged tissues.

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