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XIPHINEMA BARENSE SP. N.
(NEMATODA: DORYLAIMIDA) FROM ITALY¹

by

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A new bisexual species of *Xiphinema* Cobb was found in the rhizosphere of olive trees and of blackberry bushes near Bari, Italy.

Nematodes were extracted by the Cobb wet sieve technique, killed and fixed in 5% hot formalin and mounted in glycerine by the slow method. Specimens were measured with the aid of a camera lucida.

XIPHINEMA BARENSE sp. n. (Fig. 1 - Table I)

Holotype female: L=3.7 mm; a=64; b=8.5; c=100; c'=1; V=49; odontostyle=135 μ m; odontophore=74 μ m; oral aperture to guiding ring=118 μ m; tail=37 μ m; J=14 μ m; body diam at lip region=15 μ m; body diam at guiding ring=37 μ m; body diam at base of oesophagus=48 μ m; body diam at vulva=58 μ m; body diam at anus=38 μ m; body diam at beginning of J=21 μ m; caudal peg=9 μ m.

Allotype male: L=3.7 mm; a=75; b=7.8; c=98; c'=1; odontostyle=136 μ m; odontophore=75 μ m; oral aperture to guiding ring=119 μ m; tail=38 μ m; J=15 μ m; body diam at lip region=14 μ m; body diam at guiding ring=35 μ m; body diam at base of oesophagus=45 μ m; body diam at mid body=50 μ m; body diam at anus=38 μ m; body diam at beginning of J=25 μ m; caudal peg=6 μ m; spicules=67 μ m; supplements: the adanal pair plus three ventromedian.

¹ The assistance of Mr. V. Radicci in preparing the illustrations is acknowledged.

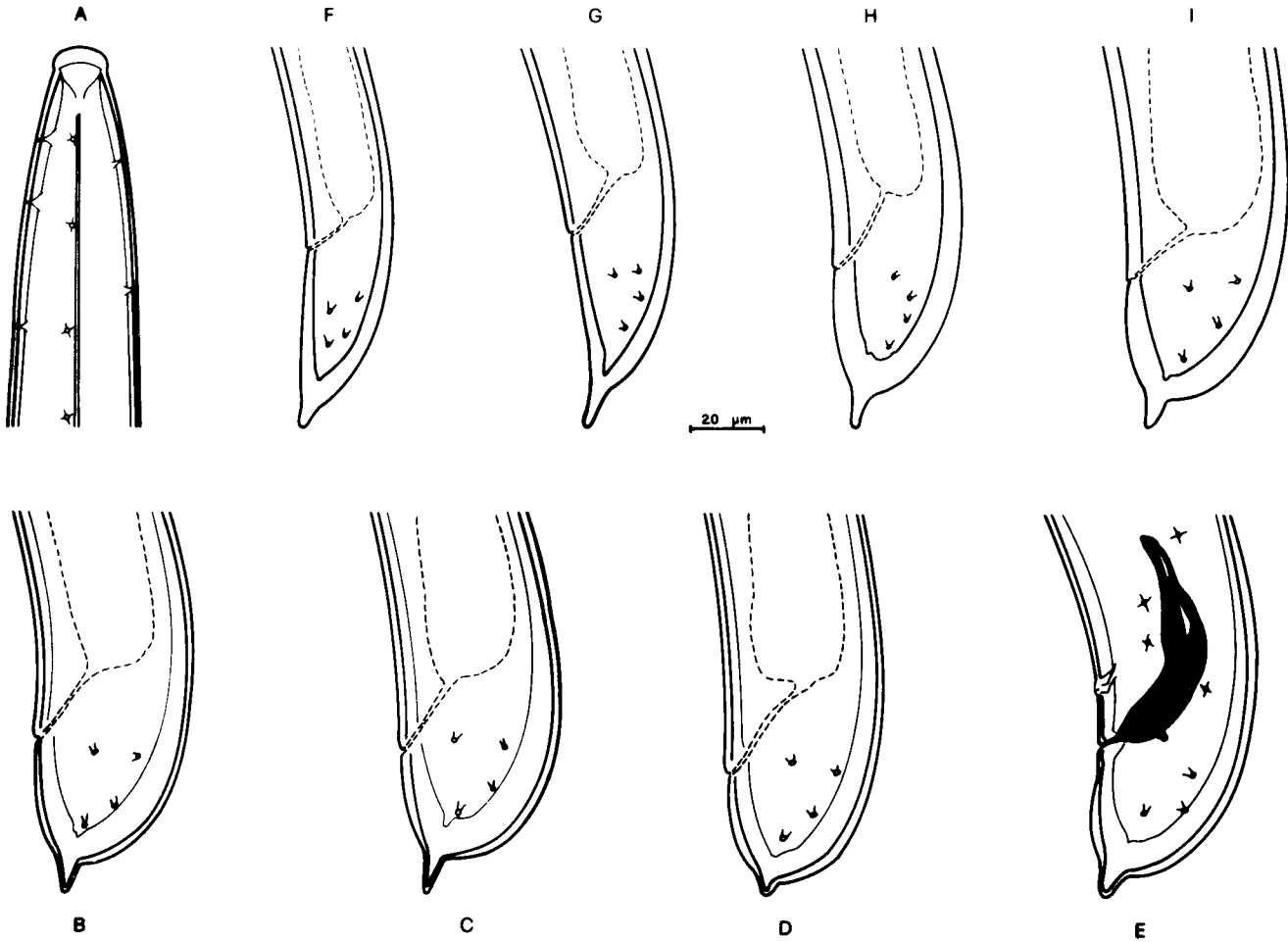


Fig. 1 - *Xiphinema bareense* sp. n.: A, anterior region of female; B, C and D, posterior region of females; E, posterior region of male; F, G, H and I, posterior region of first, second, third and fourth juvenile stages.

Description

Female: habitus when dead coiled in a more or less open C; body robust, cylindrical, tapering very gradually toward the anterior extremity; cuticle very finely transversely striated, 2-3 μm thick along body, more thickened in the caudal region where it is 6-6.5 μm in the post anal portion; lateral pores numerous along body, four in a single line in the range of the odontostyle; dorsal and ventral pores are also evident in the fore region; labial region anteriorly rounded, 7-8 μm high, slightly expanded and offset from rest of body by a shallow depression; amphidial pouches stirrup shaped with wide aperture; odontostyle, odontophore and guiding sheath typical of the genus; oesophagus dorylaimoid with the basal bulb occupying one third of its total length; basal bulb measuring 115 μm long and 30 μm wide; oesophago-intestinal valve small, hemispherical to disk-like; vulva a transverse slit situated at mid body; vagina occupying one half of the corresponding body diameter; gonads amphidelphic, reflexed with the uteri, joined to the oviduct by a sphincter and devoid of any Z or pseudo-Z differentiation; prerectum 350 μm long; rectum two thirds of the body diameter at anus; tail rounded, slightly concave ventrally and hemispherical dorsally, ending with a peg from 4 to 9 μm long ventrally located; four and sometimes five caudal pores are present on each side.

Male: found almost in the same number as the female, to which it is morphologically similar; *habitus* when dead, more coiled than female in the posterior region; testis long and well developed, filled with spindle-shaped sperms; spicules massive, heavily sclerotized, ventrally curved with bifid lateral guiding pieces; the adanal pair of supplements is preceded by a series of 3-4 single supplements in ventromedian position; tail dorsally convex and ventrally slightly concave, bearing 4-5 pairs of caudal pores; tail peg variable, 4-8 μm long.

Juveniles: morphologically similar to adult females but smaller; tail of first stage more elongate than that of other stages.

Type habitat and locality: rhizosphere of olive trees (*Olea europaea* L.) and blackberry bushes (*Rubus fruticosus* L.) at Modugno, Bari, Italy.

Table I - *Morphometrics of Xiphinema barens sp. n. (paratypes).*

S t a g e s		Range					♀♀	♂♂
		(Means ± Standard Deviation)						
		L ₁	L ₂	L ₃	L ₄			
n		3	8	2	4	14	9	
L mm		1.64 — 1.76 (1.7 ± 0.60)	1.97 — 2.11 (2 ± 0.049)	2.47 — 2.55 (2.5 ± 0.57)	2.88 — 3.05 (2.9 ± 0.07)	3.4 — 4.1 (3.7 ± 0.22)	3.4 — 4.5 (3.7 ± 0.36)	
a		49.7 — 54.4 (52 ± 2.36)	43.6 — 61 (49 ± 7.86)	51.6 — 72.4 (62 ± 14.7)	51.6 — 72.4 (59 ± 5.23)	54 — 89 (67 ± 8.56)	65 — 79 (72 ± 5.28)	
b		4.6 — 5.4 (5 ± 0.40)	5.5 — 6.6 (6 ± 0.40)	5.5 — 5.9 (5.7 ± 0.28)	6.6 — 8.6 (7.0 ± 0.87)	7.3 — 9.5 (8.5 ± 0.61)	7 — 9 (8 ± 0.68)	
c		38.2 — 40.5 (39 ± 1.27)	37.9 — 47.3 (43.5 ± 3.09)	59.4 — 60 (59.5 ± 0.42)	59.2 — 74 (66.5 ± 6.12)	86 — 112 (98 ± 9.75)	83 — 113 (96 ± 10.95)	
c'		1.38 — 1.90 (1.6 ± 0.26)	1.29 — 1.84 (1.5 ± 0.23)	1.20 — 1.25 (1.2 ± 0.03)	1.02 — 1.29 (1.1 ± 0.11)	0.8 — 1 (0.9 ± 0.07)	0.9 — 1.1 (1 ± 0.07)	
V		—	—	—	—	47 — 52 (49 ± 1.46)	—	
Odontostyle μm		80 — 83.5 (82 ± 2.02)	81.1 — 94.1 (86.5 ± 4.86)	111.1 — 112.3 (111.7 ± 0.84)	112.3 — 118.8 (114.5 ± 2.85)	129 — 138 (134 ± 3.12)	129 — 144 (135 ± 4.47)	
Odontophore μm		55.3 — 57 (56 ± 0.87)	48.2 — 60 (54.4 ± 3.80)	63.5 — 65.8 (64.5 ± 1.62)	61.7 — 63.5 (62.5 ± 0.75)	67 — 79 (75 ± 3.57)	67 — 76 (73 ± 3.80)	
Replacement odontostyle μm		110.5 — 112.9 (111 ± 1.38)	105.8 — 114.7 (110 ± 2.98)	134.7 — 135.3 (135 ± 0.42)	136.4 — 144.1 (139.5 ± 3.39)	—	—	
Oral aperture to guiding ring μm		65.8 — 72.3 (69 ± 3.25)	64.1 — 80 (72.5 ± 5.23)	91.1 — 91.7 (91.5 ± 0.42)	87.6 — 98.2 (95 ± 4.85)	111 — 124 (118 ± 3.84)	116 — 127 (120 ± 4.52)	

(continued, tab. I)

S t a g e s	Range (Means \pm Standard Deviation)					
	L ₁	L ₂	L ₃	L ₄	♀♀	♂♂
Tail μm	42.9 — 45.8 (44 \pm 1.53)	42.3 — 54.1 (47 \pm 3.52)	41.1 — 42.9 (42 \pm 1.27)	41.1 — 49.4 (44 \pm 3.77)	34 — 42 (38 \pm 2.47)	34 — 44 (39 \pm 3.00)
J μm	9.4 — 11.7 (10 \pm 1.19)	8.2 — 17 (12.5 \pm 3.30)	12.9 — 20 (18 \pm 2.97)	12.9 — 15.8 (14.5 \pm 1.26)	11 — 18 (15 \pm 2.29)	14 — 18 (16 \pm 1.16)
Body diam at lip region μm	8.8 — 10 (9.4 \pm 0.6)	9.4 — 11.1 (10 \pm 0.67)	12.3 — 12.3 (12.3 \pm 0.00)	11.7 — 12.9 (12 \pm 0.57)	14 — 15 (15 \pm 0.51)	14 — 15 (14.4 \pm 0.52)
Body diam at guiding ring μm	24.1 — 25.8 (25 \pm 0.86)	25.8 — 29.4 (27.5 \pm 1.27)	31.1 — 31.1 (31.1 \pm 0.00)	31.1 — 34.1 (32 \pm 1.41)	36 — 42 (37 \pm 1.46)	35 — 38 (36 — 0.97)
Body diam at base of oesophagus μm	27.6 — 31.1 (30 \pm 2.02)	29.4 — 49.4 (38 \pm 6.29)	44.1 — 46.4 (45.2 \pm 1.62)	41.7 — 51.1 (45 \pm 4.43)	45 — 59 (49 \pm 4.20)	44 — 52 (48 \pm 3.00)
Body diam at mid body μm	32.3 — 43.5 (36 \pm 6.27)	33.5 — 56.4 (42.3 \pm 7.38)	46.5 — 49.4 (48 \pm 2.05)	45.3 — 57 (50.5 \pm 5.13)	50 — 63 (57 \pm 3.90)	49 — 55 (52 \pm 2.81)
Body diam at anus μm	24.1 — 31.1 (26.8 \pm 3.74)	25.3 — 36.4 (30 \pm 3.71)	34.1 — 34.1 (34.1 \pm 0.00)	35.8 — 40 (38.5 \pm 1.99)	38 — 45 (40 \pm 2.19)	36 — 41 (38 \pm 1.48)
Body diam at beginning of J μm	11.7 — 12.9 (12.5 \pm 0.69)	10 — 17 (15 \pm 2.55)	17 — 21.1 (19 \pm 2.89)	15.3 — 18.2 (17 \pm 1.42)	21 — 31 (25 \pm 2.72)	25 — 29 (26 \pm 1.33)
Spicules μm	—	—	—	—	—	65 — 71 (67 \pm 2.26)
Tail peg μm	—	—	—	—	4 — 9 (7 \pm 1.72)	5 — 9 (7 \pm 1.32)

Type material: holotype female, allotype male, 11 paratype females and 8 paratype males, in the collection of the Istituto di Nematologia Agraria del Consiglio Nazionale delle Ricerche, Bari, Italy; 2 female and 1 male paratypes, Nematology Department, Rothamsted Experimental Station, Harpenden, Herts, U. K.; 2 female and 1 male paratypes, Plant Nematology Laboratory Collection, United States Department of Agriculture, Beltsville, Maryland, U.S.A.

Differential diagnosis: *Xiphinema barensense* sp. n. is similar to *X. diversicaudatum* (Micoletzky, 1923) Thorne, 1939, *X. vuittenezi* Luc, Lima, Weischer *et* Flegg, 1964, and *X. israeliae* Luc, Brown *et* Cohn, 1982. However, it differs from *X. israeliae* in its more robust body («a» over 80 in *X. israeliae*), its lower *c'* (1.2-1.4 in *X. israeliae*), its rounded tail (more elongated in *X. israeliae*) and its longer odontostyle (116-125 μ m in *X. israeliae*) and from *X. diversicaudatum* in its shorter body (over 4 mm in *X. diversicaudatum*), its shorter tail (48-52 μ m in *X. diversicaudatum*) and by not having a pseudo-Z organ differentiation. *X. barensense* differs from *X. vuittenezi* in its longer body (3.1-3.4 mm in *X. vuittenezi*), more pronounced and pointed tail peg, ventrally located, and a high ratio of males which are rare in *X. vuittenezi*.

S U M M A R Y

Xiphinema barensense sp. n. is described from Italy. It is a bisexual, amphidelphic, peg-tailed species found in the rhizosphere of olive trees and blackberry bushes. *X. barensense* differs from *X. diversicaudatum* (Micoletzky, 1923) Thorne, 1939 and from *X. vuittenezi* Luc, Lima, Weischer *et* Flegg, 1964 in the length of the body which is intermediate between the two; from the former species by its shorter tail and in not having a pseudo-Z organ differentiation and from the latter species by its more pronounced and pointed tail peg and its high ratio of males. It differs from *X. israeliae* Luc, Brown *et* Cohn, 1982 by its more robust body, lower *c'* value and rounded tail.

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