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XIPHINEMA POROSUM SP. N. (NEMATODA, DORYLAIMIDA)
FROM ITALY

by
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An extensive survey to investigate the geographical distribution of longidorid nematodes in Italy was carried out in various regions in the period 1971-1973. In a single sample collected from permanent pasture at Tolfa, near Lake Bracciano, in the province of Rome, a *Xiphinema* species resembling *X. turcicum* (Luc et Dalmasso, 1963) was found. This was not reported in the «Atlas of Plant Parasitic Nematodes of Italy» (Roca and Lamberti, 1985) because of the doubtful identification from a few individuals.

Additional material was collected recently and specimens were studied more carefully. The species appeared to be new and is described here as *Xiphinema porosum* sp. n.

Nematodes were extracted from soil samples by the Cobb wet sieve technique, killed and fixed in 5% hot formalin and mounted in glycerin on nematology slides by the slow method. Specimens were measured with the aid of a camera lucida.

XIPHINEMA POROSUM sp. n. (Fig. 1 - Tab. I)

Holotype female: L=5.1 mm; a=76; b=8; c=139; c'=0.7; V=53; odontostyle=179 μ m; odontophore=89 μ m; oral aperture to guiding ring=142 μ m; tail=37 μ m; J=16 μ m; body diam at lip region=16 μ m; body

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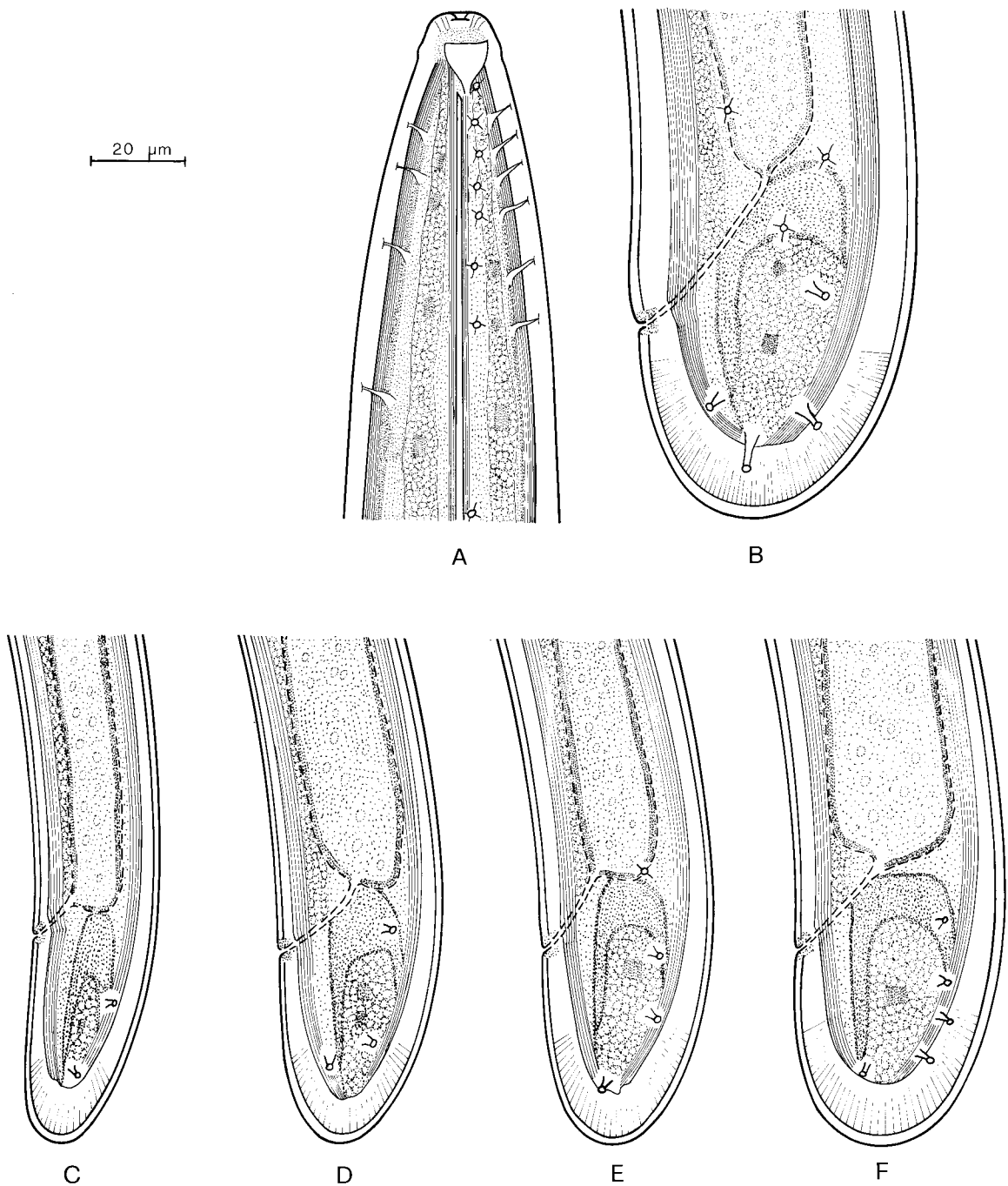


Fig. 1 - *Xiphinema porosum* sp. n.: A) anterior region of female; B) posterior region of female; C, D, E and F) posterior region of first, second, third and fourth juvenile stage respectively.

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

S t a g e s	Range (Means \pm Standard Deviation)				
	L ₁	L ₂	L ₃	L ₄	♀ ♀
n	5	11	4	14	10
L mm	1.68 — 2.17 (1.98 \pm 0.176)	2.63 — 3.15 (2.94 \pm 0.181)	3.05 — 3.35 (3.14 \pm 0.121)	3.52 — 4.16 (3.86 \pm 0.199)	4.80 — 5.33 (5.04 \pm 0.253)
a	46 — 58.5 (54 \pm 4.318)	50 — 67 (60.5 \pm 4.515)	48 — 62 (58 \pm 5.521)	57 — 70.5 (65 \pm 4.829)	61 — 81 (68.2 \pm 6.439)
b	5 — 7 (6 \pm 0.640)	5.5 — 9 (7 \pm 0.934)	6 — 7 (6.5 \pm 0.42)	6 — 11 (7 \pm 1.191)	7 — 12 (8.3 \pm 1.495)
c	42 — 49 (47 \pm 2.590)	53 — 77 (70.5 \pm 6.138)	76.5 — 81 (79 \pm 1.750)	92 — 114 (100 \pm 6.355)	118 — 166.5 (132.5 \pm 13.545)
c'	1.2 — 1.7 (1.5 \pm 0.173)	1 — 1.4 (1.1 \pm 0.107)	0.9 — 1.1 (1.04 \pm 0.074)	0.8 — 1.0 (0.8 \pm 0.058)	0.6 — 0.8 (0.7 \pm 0.086)
V	—	—	—	—	51 — 53 (52.3 \pm 0.618)
Odontostyle μ m	98 — 102 (100 \pm 1.280)	101 — 132.5 (123 \pm 7.727)	123.5 — 134 (131.5 \pm 4.796)	140.5 — 155 (150 \pm 4.206)	168 — 200 (179 \pm 8.242)
Odontophore μ m	56.5 — 57.5 (57 \pm 0.538)	60 — 69.5 (65 \pm 2.951)	66.5 — 71 (68 \pm 1.722)	73.5 — 83.5 (77.5 \pm 2.825)	86 — 98 (90.5 \pm 3.072)
Replacement odontostyle μ m	120.5 — 126.5 (123 \pm 2.429)	133.5 — 150.5 (144 \pm 5.716)	150 — 153.5 (151.5 \pm 1.396)	159 — 178 (172 \pm 5.470)	—
Oral aperture to guiding ring μ m	66.5 — 77 (72 \pm 3.574)	74 — 107.5 (97 \pm 9.974)	109 — 115 (113 \pm 2.078)	100.5 — 124 (116 \pm 7.183)	135 — 166 (145 \pm 9.522)
Tail μ m	40 — 44 (42 \pm 1.625)	39 — 49 (42 \pm 2.790)	39 — 41 (40 \pm 0.887)	33.5 — 43.5 (39 \pm 2.610)	32 — 41 (38 \pm 2.424)
J μ m	9 — 12.5 (10 \pm 1.235)	9.5 — 10.5 (11 \pm 1.248)	10 — 12 (11 \pm 0.779)	11 — 14 (13 \pm 0.837)	13.5 — 20 (15.5 \pm 1.623)
Body diam at lip region μ m	9.5 — 10.5 (10 \pm 0.448)	11 — 12.5 (11.5 \pm 0.46)	12 — 12.5 (12 \pm 0.259)	13 — 14 (13.5 \pm 0.510)	15 — 16 (15.5 \pm 0.487)
Body diam at guiding ring μ m	26.5 — 27.5 (27 \pm 0.492)	30 — 38 (34 \pm 2.613)	32 — 43 (37 \pm 4.226)	37 — 51 (43 \pm 3.954)	45 — 52 (49 \pm 2.252)
Body diam at base of oesophagus μ m	32 — 39 (35 \pm 2.810)	40 — 53 (46 \pm 4.224)	47 — 60 (52 \pm 5.456)	46.5 — 64 (57 \pm 4.908)	53 — 72 (63.5 \pm 6.228)
Body diam at mid body μ m	35 — 39 (37 \pm 1.315)	42 — 55 (49 \pm 4.370)	49 — 65 (55 \pm 6.346)	50 — 67 (60 \pm 4.914)	64 — 85 (74.5 \pm 7.065)
Body diam at anus μ m	24 — 32 (27 \pm 2.85)	31 — 43 (36 \pm 3.137)	35 — 42 (38 \pm 2.787)	40.5 — 52 (46 \pm 2.795)	47 — 66 (54 \pm 6.025)
Body diam at beginning of J μ m	16 — 19 (18 \pm 1.367)	21 — 29 (25 \pm 2.665)	25 — 27 (26 \pm 0.948)	30.5 — 40 (35 \pm 2.240)	41 — 51 (44 \pm 3.491)

diam at guiding ring = 48 μm ; body diam at base of oesophagus = 61 μm ; body diam at vulva = 68 μm ; body diam at anus = 49 μm ; body diam at beginning of J = 41 μm .

Description: female *habitus* when killed coiled in a more or less open C; body robust, cylindrical, tapering very gradually toward the anterior extremity; cuticle very finely transversely striated 4-5 μm thick along body, more thickened in the caudal region where it is 9.5 μm in the post anal portion; lateral pores numerous along the body, 8-9 in a single line in the range of the odontostyle, 4 dorsal and 6 ventral pores are also evident in the fore region; labial region 7 μm high, laterally rounded and flattened frontally, offset from the rest of the body by a slight depression; amphidial pouches stirrup shaped with wide opening; odontostyle, odontophore and guiding sheath typical of the genus; oesophagus dorylaimoid with the basal bulb occupying one third of total length, measuring 150 μm long and 28-30 μm wide; oesophago-intestinal valve conspicuous heart shaped; 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 480 μm long; rectum two thirds of the body diameter at anus; tail rounded, hemispherical, bearing four caudal pores on each side.

Male: not found.

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

Type habitat and locality: rhizosphere of permanent pasture at Tolfa, near Lake Bracciano, Rome, Italy.

Type material: holotype female and 6 paratype females in the collection of the Istituto di Nematologia Agraria del Consiglio Nazionale delle Ricerche, Bari, Italy; 2 paratype females, Nematology Department, Rothamsted Experimental Station, Harpenden, Herts, U.K.; 2 paratype females, Plant Nematology Laboratory Collection, United States Department of Agriculture, Beltsville, Maryland, U.S.A.

Differential diagnosis: *Xiphinema porosum* sp. n. is similar to *X. turcicum* Luc et Dalmasso, 1963, *X. ingens* Luc et Dalmasso, 1963 and *X. melitense* Lamberti, Blevé-Zacheo et Arias, 1982. It differs from *X. turcicum* in having

a longer odontostyle (180 vs 157 μm), more rounded and shorter tail («c» value 132 vs 117) and posteriorly situated vulva ($V=53$ vs 48.4 in *X. turcicum*), from *X. ingens* in its shorter body (5 vs 5.75 mm), its longer odontostyle (179 vs 164 μm), its shorter and more rounded tail and absence of a pseudo-Z organ differentiation; and from *X. melitense* in its longer body (5 vs 4.3 mm), longer odontostyle (179 vs 150 μm), differently shaped tail of the first juvenile stage (conoid with subdigitate terminus in *X. melitense*) and absence of a pseudo-Z organ (very little differentiated and rudimentary in *X. melitense*).

S U M M A R Y

Xiphinema porosum sp. n. is described from Italy. It is an amphidelphic, rounded-tail species found at Tolfa, province of Rome, in permanent pasture. *X. porosum* differs from *X. turcicum* Luc et Dalmasso, 1963 and *X. ingens* Luc et Dalmasso, 1963 in the length of odontostyle and tail; from the former in the position of the vulva and from the latter in not having a pseudo-Z organ differentiation. Furthermore, it differs from *X. melitense* Lamberti, Blevé-Zacheo et Arias, 1982 in the length of the body and odontostyle, in the shape of tail of the first juvenile stage and in not having a pseudo-Z organ differentiation.

LITERATURE CITED

- ROCA F. and LAMBERTI F., 1985. Atlas of Plant-parasitic Nematodes of Italy. Distribution of Longidoridae, Xiphinemidae and Trichodoridae. E.S.F., European Plant-parasitic Nematode Survey (T.J.W. Alphey, ed.). pp. 1-44.