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THREE NEW SPECIES OF *LONGIDORUS*  
(NEMATODA, DORYLAIMIDA) FROM ITALY

by

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Information on the occurrence of longidorid nematodes in Italy relates mostly to the genus *Xiphinema* Cobb (Martelli and Raski, 1963; Scognamiglio, 1963; Raski and Amici, 1964; Amici, 1965; Lamberti and Martelli, 1965; Scognamiglio and Tarjan, 1967; Martelli and Lamberti, 1967; Prota, 1970; Prota *et al.*, 1971; Roca and Lamberti, 1978; Roca, 1980) generally associated with grapevine.

However, species of *Longidorus* reported from Italy are: *Longidorus macrosoma* (Scognamiglio and Tarjan, 1965; Roca, 1980), *L. caespiticola* (Prota *et al.*, 1971), *L. juvenilis* (Lamberti *et al.*, 1980; Cotroneo *et al.*, 1980), *L. fasciatus* (Roca and Lamberti, 1981), and *L. euonymus* (Basile *et al.*, 1982).

*Longidorus attenuatus* was reported from Sardinia by Prota *et al.* (1971) and from Apulia by Roca, Martelli and Rana (1975), Roca *et al.* (1975) and by Taylor *et al.* (1976). But subsequent more accurate taxonomic studies indicated that these populations belonged to two undescribed species named by Lamberti and Bleve-Zacheo (1977) as *L. protae* for the population from Sardinia and *L. apulus* for that from Apulia.

An extensive survey of Longidoridae was carried out in all the Italian regions in the period 1971-1973. Three species of *Longidorus* were found, which are described as new.

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## Materials and Methods

Nematodes were extracted 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.

### *Longidorus iuglandis* sp. n. (Fig. 1 - Tab. I)

Holotype female: L = 7.3 mm; a = 88; b = 16.2; c = 179; c' = 0.7; V = 55; odontostyle = 124  $\mu\text{m}$ ; odontophore = 79  $\mu\text{m}$ ; oral aperture to guiding ring = 36  $\mu\text{m}$ ; tail = 41  $\mu\text{m}$ ; J = 18  $\mu\text{m}$ ; body diam at lip region = 15  $\mu\text{m}$ ; body diam at guiding ring = 31  $\mu\text{m}$ ; body diam at base of oesophagus = 65  $\mu\text{m}$ ; body diam at vulva = 83  $\mu\text{m}$ ; body diam at anus = 55  $\mu\text{m}$ ; body diam at beginning of J = 42  $\mu\text{m}$ .

Allotype male: L = 7.7 mm; a = 87; b = 14.4; c = 183; c' = 0.7; odontostyle = 119  $\mu\text{m}$ ; odontophore = 80  $\mu\text{m}$ ; oral aperture to guiding ring = 41  $\mu\text{m}$ ; tail = 42  $\mu\text{m}$ ; J = 13  $\mu\text{m}$ ; body diam at lip region = 16  $\mu\text{m}$ ; body diam at guiding ring = 32  $\mu\text{m}$ ; body diam at base of oesophagus = 68  $\mu\text{m}$ ; body diam at middle body = 88  $\mu\text{m}$ ; body diam at anus = 59  $\mu\text{m}$ ; body diam at beginning of J = 40  $\mu\text{m}$ ; spicules = 95  $\mu\text{m}$ .

*Description.* Female: habitus when dead coiled in a more or less open C; body robust, cylindrical, tapering gradually towards the anterior extremity; lateral pores numerous along the body; two ventral and two dorsal pores are within the range of the odontostyle; cuticle very finely transversely striated, 4-4.5  $\mu\text{m}$  thick along body, more thickened just behind lip region, 5-5.5  $\mu\text{m}$  and at the posterior extremity where it is 8.5-9  $\mu\text{m}$  in the post-anal region; labial region continuous with the rest of the body, rounded laterally and slightly flattened frontally; amphidial pouches extending almost half the distance from oral opening to guiding ring, with base more or less asymmetrically bilobed; odontostyle, odontophore and guiding sheath typical of the genus; oesophagus dorylaimoid with basal bulb occupying about one third of the oesophagus total length, measuring 120-125  $\mu\text{m}$  long and 27-28  $\mu\text{m}$  wide and containing three clearly visible nuclei: the two subventral gland nuclei located at the mid bulb and the dorsal anterior; oesophago-intestinal valve large, bluntly

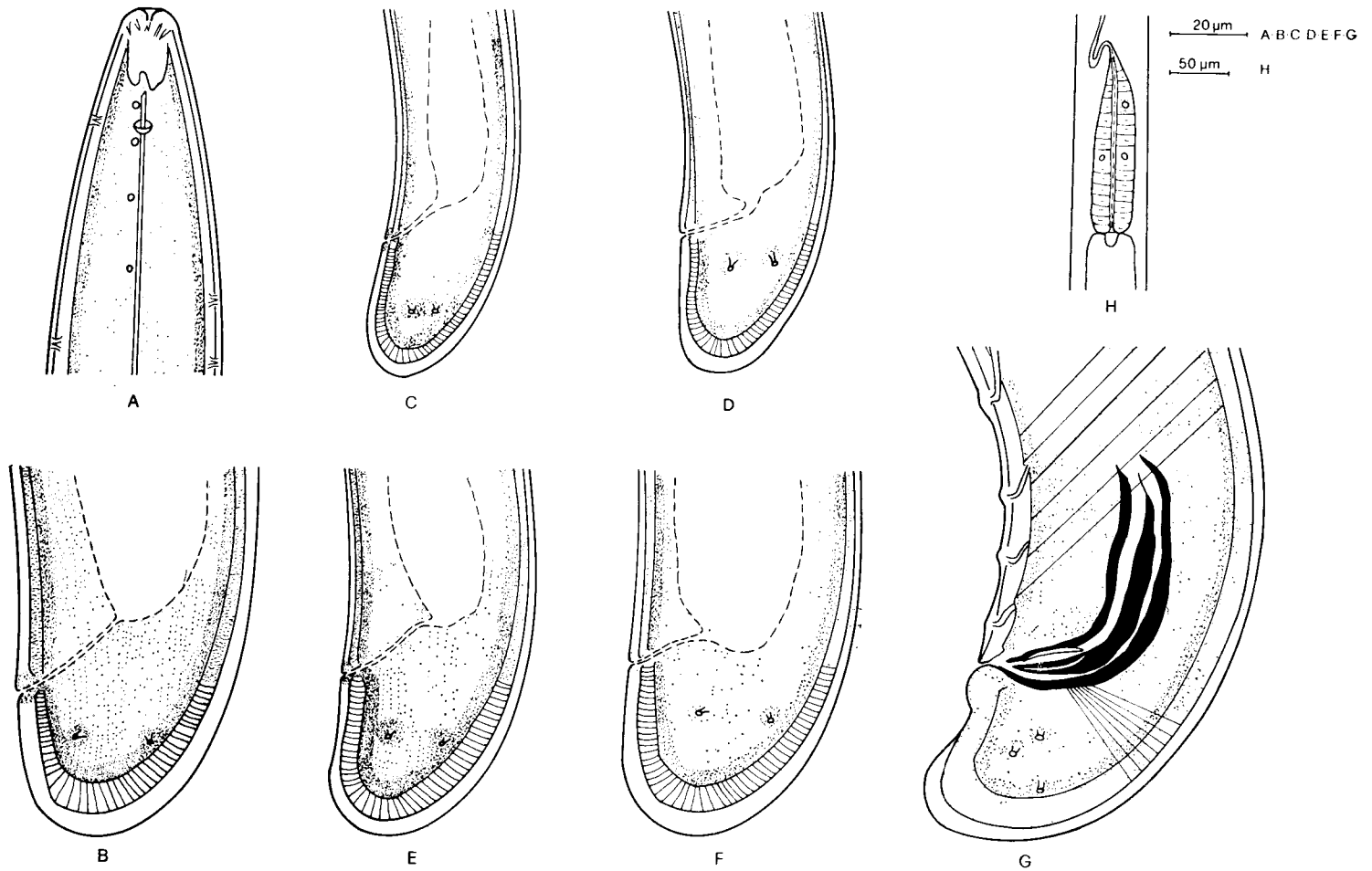


Fig. 1 - *Longidorus iuglandis* sp. n. A and B) anterior and posterior regions of female; C, D, E and F) tails of I, II, III and IV larval stages respectively; G) posterior region of male; H) posterior part of oesophagus.

Table I - Morphometrical characters of *Longidorus iuglandis* sp. n. (paratypes).

Stages	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	♀	♂
n	3	4	2	4	16	6
L mm	2.9 (2.6 - 3.5)	3.5 (3.2 - 3.9)	3.9 (3.8 - 4.0)	5.5 (4.5 - 6.6)	7.1 (5.9 - 8.3)	7.4 (6.6 - 8.2)
a	68 (65 - 72)	75 (63 - 81)	77 (75 - 78.5)	89 (84 - 94)	88 (73 - 96)	88 (84 - 97)
b	8.1 (7.5 - 8.4)	9.2 (8.9 - 9.4)	9.4 (9.3 - 9.5)	13.3 (11.0 - 15.3)	13.4 (11.5 - 16.5)	14.0 (12.5 - 15.4)
c	84 (78 - 91)	93 (85 - 108)	103 (99 - 108)	141 (129 - 156)	188 (154 - 222)	188 (164 - 229)
c'	1.1 (1.0 - 1.1)	1.0 (0.9 - 1.1)	0.9 (0.9 - 0.9)	0.8 (0.8 - 0.8)	0.7 (0.6 - 0.7)	0.75 (0.7 - 0.8)
V	—	—	—	—	55 (51 - 57)	—
Odontostyle µm	76 (72 - 80)	86 (81 - 94)	85 (83 - 88)	102 (99 - 106)	120 (112 - 128)	119 (116 - 126)
Odontophore µm	54 (52 - 58)	58 (55 - 62)	59 (56 - 62)	62 (61 - 64)	76 (71 - 80)	82 (78 - 85)
Replacement odontostyle µm	87 (82 - 91)	99 (95 - 104)	10 - 106	114 (111 - 118)	—	—
Oral aperture to guiding ring µm	24 (23 - 25)	26 (25 - 27)	27 (26 - 28)	31 (29 - 32)	36 (31 - 41)	38 (35 - 40)
Tail µm	35 (32 - 38)	38 (36 - 43)	38 (37 - 39)	39 (32 - 45)	38 (33 - 41)	40 (36 - 42)
J µm	8 (7 - 9)	10 (9 - 11)	9.5 (9 - 10)	11 (9 - 12)	16 (13 - 18)	15 (13 - 16)
Body diam at lip region µm	10 (9 - 11)	10 (10 - 11)	11 11 - 11)	12 (12 - 12)	15 (14 - 16)	16 (15 - 17)
Body diam at guiding ring µm	19 (17 - 22)	21 (21 - 23)	23 (22 - 24)	25 (25 - 26)	32 (28 - 35)	34 (32 - 35)
Body diam at base of oesophagus µm	38 (34 - 44)	42 (38 - 44)	46 (46 - 46)	52 (44 - 59)	65 (58 - 73)	67 (65 - 69)
Body diam at mid body µm	43 (40 - 48)	47 (42 - 50)	51 (51 - 51)	66 (51 - 74)	82 (66 - 98)	84 (78 - 88)
Body diam at anus µm	32 (28 - 37)	37 (34 - 40)	41.5 (41 - 42)	49 (40 - 57)	55 (51 - 62)	53 (49 - 56)
Body diam at beginning J µm	22 (19 - 27)	26 (22 - 28)	30 (28 - 31)	34 (27 - 40)	43 (39 - 46)	35 (31 - 38)
Spicules µm						95 (93 - 99)

rounded; vulva slit-like, approximately equatorial; vagina occupying almost three-fifths of the corresponding body diameter; gonads amphidelphic, reflexed, with uteri 140-160  $\mu\text{m}$  long, full of sperms; pre-rectum 300-350  $\mu\text{m}$  long, rectum extending almost two thirds body width at anus; tail bluntly rounded, almost hemispherical, bearing two pair of caudal pores.

Male: morphologically similar to female and found almost in equal numbers; posterior region more coiled than in female; testis very long and well developed with many sperms inside; spicules large, heavily sclerotized with lateral guiding pieces bifid at distal end; an adanal pair of supplements and a row of 11-14 ventromedian supplements are present; tail dorsally convex, ventrally concave with a bluntly rounded terminus, bearing three pairs of caudal pores.

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 walnut (*Juglans regia* L.) at Ruvo di Puglia (Bari), Italy.

Type material: holotype, allotype, 12 female paratypes, 4 male paratypes and juveniles in the collection of the Istituto di Nematologia Agraria del Consiglio Nazionale delle Ricerche, Bari, Italy; 2 female paratypes and one male paratype, Nematology Department, Rothamsted Experimental Station, Harpenden, Herts, U. K., 2 female paratypes and one male paratype, Plant Nematology Laboratory Collection, United States Department of Agriculture, Beltsville, Maryland, U.S.A.

Differential diagnosis: *Longidorus iuglandis* sp. n. is similar to *L. caespiticola* Hooper, 1961, *L. profundorum* Hooper, 1965 and *L. moesicus* Lamberti, Choleva and Agostinelli, 1983. It differs from *L. caespiticola* in having a longer body (7.1  $\mu\text{m}$  v 6.7  $\mu\text{m}$ ), a bilobed amphidial pouch (not lobed in *L. caespiticola*), a more rounded lip region (cone-shaped in *L. caespiticola*), and a longer odontostyle (120  $\mu\text{m}$  v 110  $\mu\text{m}$ ). It differs from *L. profundorum* by its longer odontostyle (120  $\mu\text{m}$  v 97  $\mu\text{m}$ ) and lower value of the ratios a and c' (88 v 105 and 0.7 v 0.9 respectively). Finally, it differs from *L. moesicus* in having a more flattened anterior extremity, lower ratios a and c' (88 v 120 and 0.7 v 1 respectively) and the presence of males, which are very rare in populations of *L. moesicus*.

*Longidorus picenus* sp. n. (Fig. 2 - Tab. II)

Holotype female: L = 6.8 mm; a = 77; b = 12.1; c = 188; c' = 0.7; V = 52; odontostyle = 144  $\mu$ m; odontophore = 70  $\mu$ m; oral aperture to guiding ring = 37  $\mu$ m; tail = 36  $\mu$ m; J = 12  $\mu$ m; body diam at lip region = 20  $\mu$ m; body diam at guiding ring = 37  $\mu$ m; body diam at base of oesophagus = 70  $\mu$ m; body diam at vulva = 88  $\mu$ m; body diam at anus = 54  $\mu$ m; body diam at beginning of J = 39  $\mu$ m.

Allotype male: L = 6.3 mm; a = 91; b = 10.8; c = 150; c' = 0.8; odontostyle = 131  $\mu$ m; odontophore = 76  $\mu$ m; oral aperture to guiding ring = 37  $\mu$ m; tail = 42  $\mu$ m; J = 13  $\mu$ m; body diam at lip region = 20  $\mu$ m; body diam at guiding ring = 35  $\mu$ m; body diam at base of oesophagus = 62  $\mu$ m; body diam at middle body = 69  $\mu$ m; body diam at anus = 55  $\mu$ m; body diam at beginning of J = 35  $\mu$ m; spicules = 112  $\mu$ m.

*Description.* Female: habitus when dead coiled in a more or less open C; body robust, cylindrical, tapering towards the anterior extremity; cuticle very finely transversely striated, 4.4.5  $\mu$ m thick along body except immediately behind the labial and vulval regions where it is 6-6.5  $\mu$ m and just behind anus where it is 9.9.5  $\mu$ m thick; several lateral body pores almost equidistantly spaced in the region of the odontostyle: the most anterior is just behind guiding ring; dorsal and ventral pores at about two and a half times the distance of guiding ring from the anterior end; labial region continuous with the rest of the body; amphidial pouch deeply and more or less asymmetrically bilobed; odontostyle, odontophore and guiding ring typical of the genus; oesophagus dorylaimoid with basal bulb occupying between one third and one fourth of the oesophagus total length; it measures 150-160  $\mu$ m long and 28-30  $\mu$ m wide and contains three easily visible gland nuclei: the two subventral located almost at the mid bulb, the dorsal anterior to them, in the first third of basal bulb; oesophago-intestinal valve large, conoid; vulva slit-like, almost equatorial; vagina occupying one half of the corresponding body diameter; gonads amphidelphic, reflexed with uteri 110-120  $\mu$ m long, separated from the oviduct by a small sphincter; prerectum 600-650  $\mu$ m long; rectum extending almost two thirds body width at anus; tail rounded almost hemispherical bearing two pairs of caudal pores.

Male: morphologically similar to females and found in equal numbers; more coiled than female in the posterior region; testis

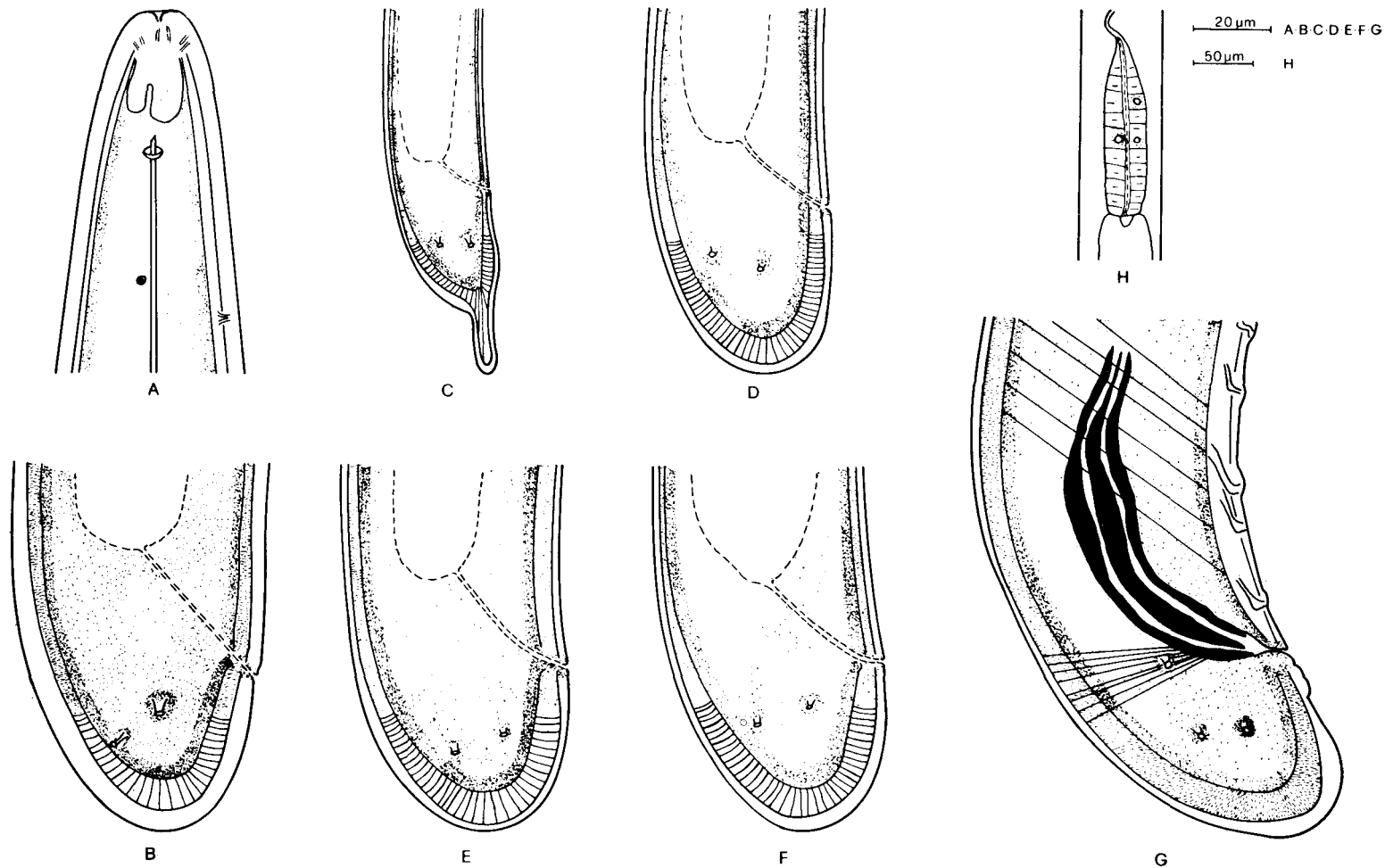


Fig. 2 - *Longidorus picenus* sp. n. A and B) anterior and posterior regions of female; C, D, E and F) tails of I, II III and IV larval stages respectively; G) posterior region of male; H) posterior part of oesophagus.

Table II - Morphometrical characters of *Longidorus picenus* sp. n. (paratypes).

Stages	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	♀	♂
n	3	3	3	3	10	7
L mm	1.7 (1.7 - 1.8)	2.7 (2.4 - 2.9)	3.3 (3.3 - 3.4)	4.9 (4.6 - 5.0)	6.8 (6.4 - 7.8)	6.7 (5.5 - 7.7)
a	55 (54 - 57)	64 (59 - 67)	68 (67 - 71)	79 (76 - 81)	85 (80 - 90)	91 (82 - 98)
b	5.1 (4.9 - 5.4)	5.9 (5.6 - 6.3)	6.8 (6.7 - 6.9)	9.0 (8.9 - 9.0)	11.6 (10.3 - 13.0)	11.2 (9.5 - 12.8)
c	39 (37 - 41)	8.1 (7.0 - 9.1)	88 (86 - 92)	131 (126 - 136)	179 (155 - 201)	164 (130 - 211)
c'	1.8 (1.7 - 2.0)	0.9 (0.9 - 1.0)	0.9 (0.9 - 0.9)	0.7 (0.6 - 0.7)	0.6 (0.5 - 0.7)	0.75 (0.7 - 0.8)
V	—	—	—	—	53 (51 - 55)	—
Odontostyle µm	79 (77 - 82)	91 (89 - 96)	102 (99 - 107)	112 (106 - 116)	137 (131 - 146)	131 (124 - 138)
Odontophore µm	53 (51 - 56)	66 (65 - 66)	71 (68 - 72)	81 (79 - 82)	78 (71 - 85)	82 (72 - 88)
Replacement odontostyle µm	87 (83 - 90)	108 (101 - 116)	115 (114 - 116)	138 (133 - 144)	—	—
Oral aperture to guiding ring µm	22 (21 - 23)	27 (25 - 28)	28 (28 - 28)	35 (34 - 35)	39 (37 - 42)	39 (37 - 42)
Tail µm	45 (44 - 46)	34 (32 - 35)	38 (36 - 39)	37 (34 - 40)	38 (35 - 42)	41 (36 - 44)
J µm	20 (19 - 20)	8 (7 - 8)	9 (8 - 9)	10 (9 - 11)	12.5 (12 - 14)	12 (11.5 - 14)
Body diam at lip region µm	8 (8 - 8)	11 (10 - 12)	12 (12 - 12)	15 (14 - 16)	20 (19 - 22)	20 (18 - 22)
Body diam at guiding ring µm	17 (16 - 19)	23 (22 - 23)	26 (25 - 28)	32 (30 - 33)	38 (35 - 42)	37 (35 - 42)
Body diam at base of oesophagus µm	30 (29 - 31)	41 (39 - 43)	46 (44 - 48)	58 (56 - 59)	72 (67 - 78)	66 (62 - 71)
Body diam at mid body µm	32 (31 - 32)	42 (40 - 44)	50 (47 - 51)	62 (61 - 62)	81 (71 - 91)	73 (65 - 87)
Body diam at anus µm	24 (23 - 26)	37 (35 - 38)	43 (40 - 45)	53 (51 - 54)	59 (56 - 64)	54 (52 - 57)
Body diam at beginning J µm	17 (16 - 18)	24 (21 - 26)	28 (25 - 31)	34 (34 - 35)	40 (36 - 43)	35 (32 - 38)
Spicules µm						110 (103 - 112)



very long and well developed with numerous sperms inside; spicules large and heavily sclerotized; the pair of adanal supplements is preceded by a series of 15 ventromedian ones; tail dorsally convex, ventrally concave with a bluntly rounded terminus, bearing three pairs of caudal pores.

Juveniles: morphologically similar to adult females but smaller; tail of the first stage bearing a very long mucro, measuring 13-17  $\mu\text{m}$ .

Type habitat and locality: rhizosphere of apple (*Malus communis* L.) at Pedaso (Ascoli Piceno), Italy.

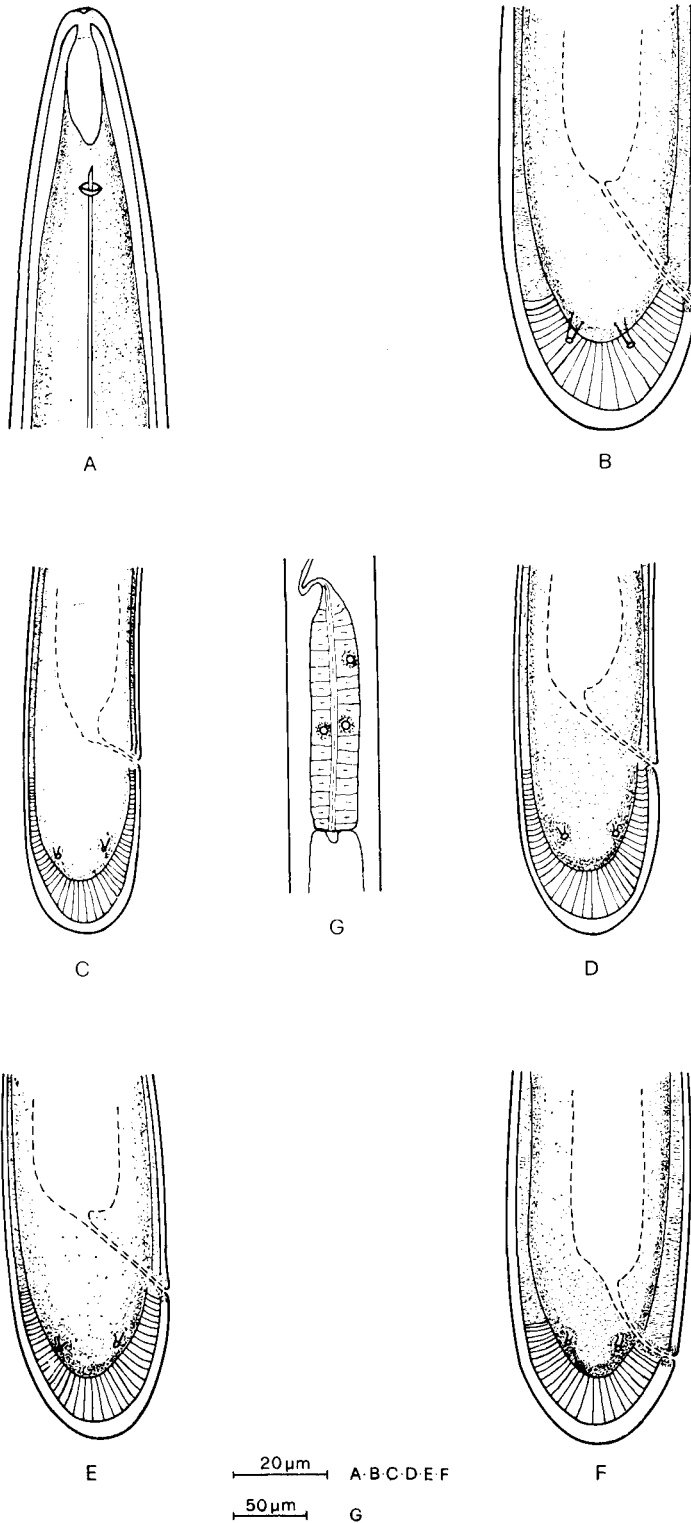
Type material: holotype, allotype, 6 female paratypes, 5 male paratypes and juveniles in the collection of the Istituto di Nematologia Agraria del Consiglio Nazionale delle Ricerche, Bari, Italy; 2 female paratypes and one male paratype, Nematology Department Rothamsted Experimental Station, Harpenden, Herts, U. K.; 2 female paratypes and one male paratype, Plant Nematology Laboratory Collection, United States Department of Agriculture, Beltsville, Maryland, U.S.A.

Differential diagnosis: *Longidorus picenus* sp. n. is similar to *L. caespiticola* Hooper, 1961, *L. macrosoma* Hooper, 1961, *L. goodeyi* Hooper, 1961, and *L. profundorum* Hooper, 1965. However, it differs from *L. caespiticola* in having a bilobed amphidial pouch and longer odontostyle (110  $\mu\text{m}$  in *L. caespiticola*), from *L. macrosoma* in having a bilobed amphidial pouch and shorter body (9 mm in *L. macrosoma*), from *L. goodeyi* in having a longer odontostyle (100  $\mu\text{m}$  in *L. goodeyi*), and a shorter tail ( $c = 133$  in *L. goodeyi*), and from *L. profundorum* because of the longer odontostyle (97  $\mu\text{m}$  in *L. profundorum*) and more robust body ( $a = 105$  in *L. profundorum*).

*Longidorus eridanicus* sp. n. (Fig. 3 - Tab. III)

Holotype female:  $L = 5$  mm;  $a = 82$ ;  $b = 7.8$ ;  $c = 192$ ;  $c' = 0.7$ ;  $V = 43$ ; odontostyle = 164  $\mu\text{m}$ ; odontophore = 72  $\mu\text{m}$ ; oral aperture to guiding ring = 41  $\mu\text{m}$ ; tail = 26  $\mu\text{m}$ ;  $J = 19$   $\mu\text{m}$ ; body diam at lip region = 12  $\mu\text{m}$ ; body diam at guiding ring = 24  $\mu\text{m}$ ; body diam at base of oesophagus = 56  $\mu\text{m}$ ; body diam at vulva = 61  $\mu\text{m}$ ; body diam at anus = 39  $\mu\text{m}$ ; body diam at beginning of  $J = 38$   $\mu\text{m}$ .

*Description.* Female: habitus almost straight when dead; body cylindrical, slender, tapering very gradually towards the anterior



Fi. 3 - *Longidorus eridanicus* sp. n. A and B) anterior and posterior regions of female; C, D, E and F) tails of I, II, III and IV larval stages respectively; G) posterior part of oesophagus.

Table III - Morphometrical characters of *Longidorus eridanicus* sp. n. (paratypes).

Stages	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	♀
n	3	3	3	3	15
L mm	2.4 (2.2 - 2.6)	3.1 (3.0 - 3.4)	3.7 (3.6 - 3.8)	4.1 (3.9 - 4.4)	4.8 (4.1 - 5.4)
a	69 (63 - 78)	82 (71 - 92)	91 (84 - 95)	85 (80 - 90)	93 (80 - 104)
b	6.3 (4.9 - 7.4)	7.5 (7.1 - 8.2)	7.7 (6.2 - 9.7)	8.1 (7.6 - 8.6)	8.6 (6.6 - 12.1)
c	68 (63 - 73)	90 (85 - 99)	113 (106 - 119)	154 (129 - 177)	187 (159 - 242)
c'	1.4 (1.4 - 1.5)	1.1 (1.1 - 1.2)	1.0 (0.9 - 1.0)	0.8 (0.7 - 0.9)	0.6 (0.5 - 0.7)
V	—	—	—	—	43 (41 - 45)
Odontostyle µm	108 (105 - 109)	124 (121 - 125)	135 (131 - 141)	148 (142 - 151)	163 (152 - 167)
Odontophore µm	63 (61 - 66)	70 (69 - 71)	72 (71 - 72)	76 (74 - 78)	74 (65 - 82)
Replacement odontostyle µm	125 (124 - 126)	142 (141 - 144)	156 (154 - 159)	159 (157 - 163)	—
Oral aperture to guiding ring µm	27 (24 - 30)	33 (31 - 35)	34.5 (34 - 35)	36 (36 - 36)	38 (37 - 41)
Tail µm	35 (35 - 36)	35 (34 - 35)	33 (32 - 35)	27 (23 - 34)	26 (21 - 29)
J µm	11 (11 - 11)	12 (12 - 13)	14 (12 - 15)	16 (15 - 16)	18 (15 - 19)
Body diam at lip region µm	8 (8 - 8)	9 (9 - 9)	10 (10 - 10)	11 (11 - 11)	12 (10 - 14)
Body diam at guiding ring µm	16 (16 - 17)	20 (19 - 21)	21 (21 - 22)	22 (21 - 23)	25 (24 - 28)
Body diam at base of oesophagus µm	35 (29 - 39)	40 (36 - 43)	42 (38 - 46)	46 (44 - 50)	49 (44 - 58)
Body diam at mid body µm	35 (29 - 39)	39 (33 - 42)	40 (36 - 44)	49 (46 - 55)	52 (44 - 62)
Body diam at anus µm	25 (24 - 26)	31 (29 - 32)	34 (34 - 34)	36 (34 - 40)	39 (36 - 45)
Body diam at beginning J µm	21 (19 - 24)	26 (25 - 26)	28 (26 - 29)	31 (31 - 32)	35 (31 - 40)

extremity; cuticle very finely transversely striated, 3.5-4.5  $\mu\text{m}$  thick along body except in the anal region where it is 7  $\mu\text{m}$  thick before the anus and 8-9  $\mu\text{m}$  just posteriorly to it; labial region subacute, 5-5.5  $\mu\text{m}$  high, continuous with the rest of the body; amphids large and deep, almost elliptically shaped; odontostyle long and slender; odontophore and guiding ring typical of the genus; oesophagus dorylaimoid with basal bulb occupying about one third to one fourth of the oesophagus total length; the basal bulb measures 135-140  $\mu\text{m}$  long and 20-21  $\mu\text{m}$  wide, containing three easily visible nuclei: the two subventral located almost at the mid bulb, the dorsal, anterior to them, at a quarter of the total bulb length; oesophago-intestinal valve large, and bluntly rounded conoid; vulva almost equatorial, slit-like; vagina with very thick walls, occupying more or less one half of the corresponding body diameter; gonads amphidelphic, reflexed, with uteri 108-110  $\mu\text{m}$  long, separated from the oviduct sac by a robust sphincter; prerectum 550-600  $\mu\text{m}$  long; rectum almost equal to the body diameter at anus; tail rounded, hemispherical, bearing two pairs of caudal pores.

Male: not found.

Juveniles: similar to adult females but smaller. The tail is longer than in adult females especially in the first stage.

Type habitat and locality: rhizosphere of grass and woodland at Villastellone (Torino), Italy. Also found in the rhizosphere of grapevine at Castelnuovo and Correggio (Reggio Emilia) and in the rhizosphere of woodland at Bettola (Piacenza) and near Cortina d'Ampezzo (Belluno).

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

Differential diagnosis: *Longidorus eridanicus* sp. n. most closely resembles *L. taniwha* Clark, 1963, but differs in having a longer odontostyle (163  $\mu\text{m}$  v 115  $\mu\text{m}$  in *L. taniwha*), amphidial pouches not lobed and absence of males. *L. eridanicus* is also similar to *L. caespiticola*

Hooper, 1961 and *L. iranicus* Sturhan and Barooti, 1983 but differs from both in having a longer odontostyle, a more rounded tail and a shorter body length.

#### S U M M A R Y

*Longidorus iuglandis*, *L. picensis* and *L. eridanicus* are three new species described from Italy. The first differs from *L. caespiticola* Hooper, 1961 in its longer odontostyle and bilobed amphidial pouch, from *L. profundorum* Hooper, 1966 in its longer odontostyle and lower value of the ratios *a* and *c'*, from *L. moesicus* Lamberti, Choleva and Agostinelli, 1983 in having a more flattened anterior extremity and lower ratios *a* and *c'*. *L. picensis* differs from *L. caespiticola* Hooper, 1961 and *L. macrosoma* Hooper, 1961 in its bilobed amphidial pouches and from *L. goodeyi* Hooper, 1961 in its longer odontostyle and shorter tail and from *L. profundorum* in its longer odontostyle and more robust body. *L. eridanicus* differs from *L. taniwha* Clark, 1963 and *L. iranicus* Sturhan and Barooti, 1983 in its longer odontostyle, more rounded tail and shorter body length.

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