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LONGIDORUS MAJOR, A NEW LONGIDORAE SPECIES FROM ITALY¹

by
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A species of *Longidorus* collected in central Italy during a survey of Longidoridae was reported in the Atlas of Plant Parasitic Nematodes of Italy (Roca *et* Lamberti, 1985) as *L. magnus* Lamberti, Bleve-Zacheo *et* Arias 1982. Re-examination of the Latium specimens has revealed some differences of the first juvenile stage and adult females from those of *L. magnus* collected from the type locality and in the neighbouring Apurium region. Closer examination confirmed the identity of the Apurium populations as *L. magnus* but indicated that the Latium populations belonged to a separate species. Therefore, the populations from Latium previously identified as *L. magnus* must be considered as new and are described here as *Longidorus major* sp. n.

Soil samples were collected at Colonna, near Rome, from the rhizosphere of grapevine in autumn 1986; measurements and observations were done on this fresh material.

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.

LONGIDORUS MAJOR sp. n. (Fig. 1 - Table I)

Holotype female: L = 10.3 mm.; a = 95; b = 15.5; c = 193; c' = 0.63; V = 53;

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

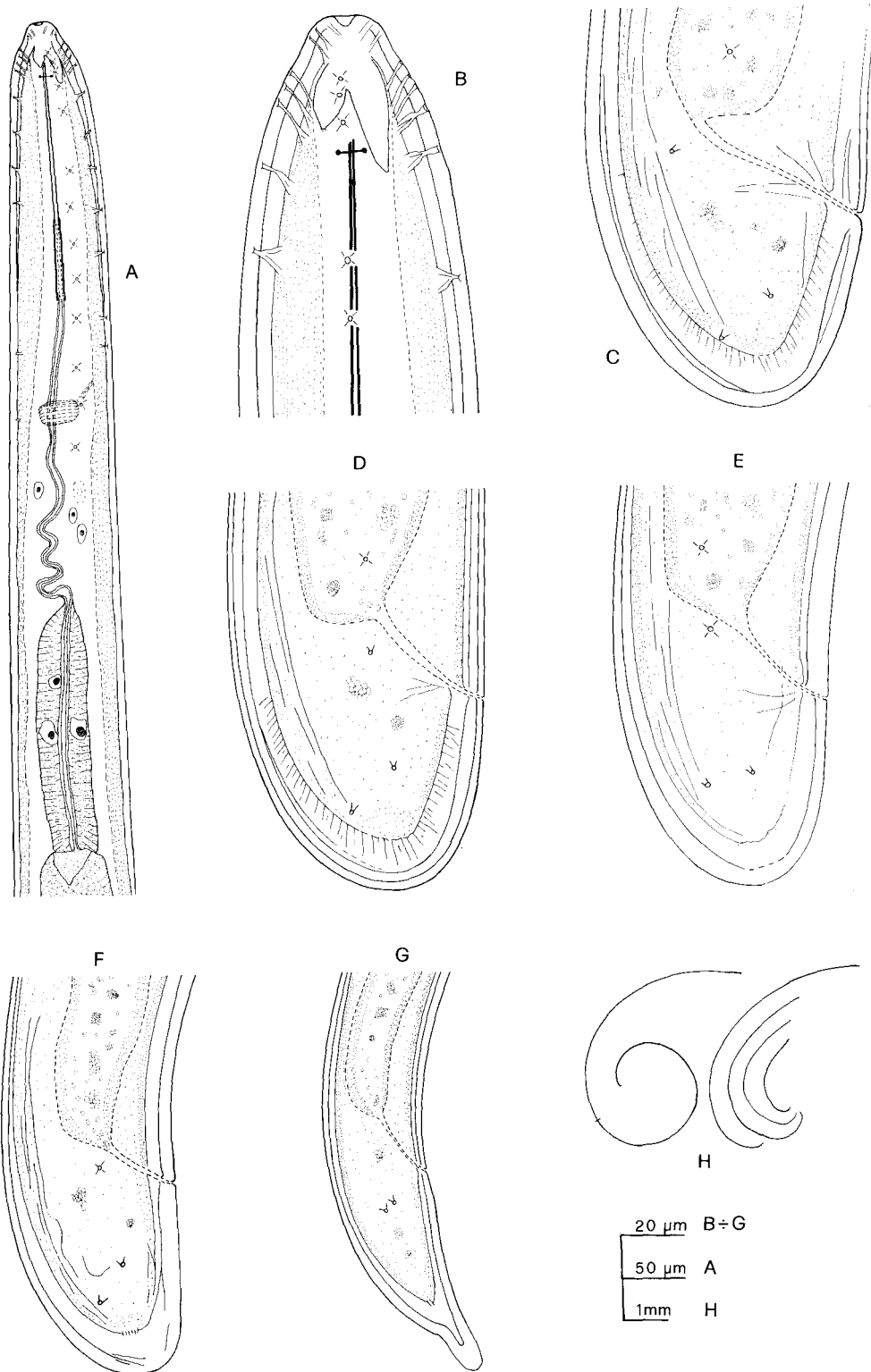


Fig. 1 - *Longidorus major* sp. n.: female anterior region (A and B), posterior region (C); tail of juvenile 4th stage (D), 3rd stage (E), 2nd stage (F), 1st stage (G); posture of females and juveniles (H).

Table I - *Morphometrics of Longidorus major sp. n. (paratypes)*

S t a g e s	Range (Means \pm Standard Deviation)				
	L ₁	L ₂	L ₃	L ₄	♀ ♀
n	7	7	8	5	10
L mm	2.03 — 2.40 (2.15 \pm 0.12)	3.20 — 3.66 (3.45 \pm 0.19)	4.03 — 6.53 (5.53 \pm 0.80)	6.93 — 8.1 (7.6 \pm 0.47)	8.5 — 12 (10.5 \pm 1.31)
a	52.8 — 66 (56.2 \pm 4.56)	46.6 — 62.4 (55.6 \pm 5.29)	45.7 — 85.9 (67.1 \pm 12.60)	74 — 85.4 (81.2 \pm 4.71)	80.2 — 94.6 (89.12 \pm 5.14)
b	5.46 — 6.32 (5.87 \pm 0.30)	6.95 — 9.6 (8.16 \pm 0.78)	7.8 — 14 (10.4 \pm 1.83)	11.4 — 16 (12.7 \pm 1.92)	12.8 — 18.5 (15.7 \pm 2.32)
c	30.9 — 39.1 (34.6 \pm 2.52)	55.1 — 70.8 (62 \pm 4.70)	71.2 — 122.5 (99.3 \pm 15.10)	130.3 — 148.7 (138.4 \pm 7.57)	166.7 — 280.7 (205.65 \pm 38.23)
c'	1.84 — 2.25 (2.05 \pm 0.15)	1.03 — 1.18 (1.13 \pm 0.06)	0.78 — 0.92 (0.85 \pm 0.05)	0.67 — 0.80 (0.72 \pm 0.05)	0.5 — 0.7 (0.63 \pm 0.06)
V	—	—	—	—	49.4 — 54 (52 \pm 1.88)
Odontostyle μ m	62 — 69.3 (65.3 \pm 2.33)	82 — 91.3 (88.7 \pm 3.19)	96.6 — 112.6 (101.4 \pm 5.32)	112 — 122 (116.5 \pm 3.70)	125.3 — 137.3 (133 \pm 4.46)
Odontophore μ m	32 — 40 (35.5 \pm 2.84)	40 — 49.3 (44 \pm 3.39)	48.6 — 63.3 (54.6 \pm 4.91)	58.6 — 78 (66.7 \pm 7.37)	54 — 66.6 (63.4 \pm 4.07)
Replacement odontostyle μ m	80.6 — 84.6 (82.4 \pm 1.58)	101.3 — 106.6 (103 \pm 2.19)	114 — 126 (119.5 \pm 3.70)	131 — 137.3 (133.2 \pm 2.68)	—
Oral aperture to guiding ring μ m	23.3 — 26 (25 \pm 0.95)	29.3 — 33.3 (31 \pm 1.31)	33.3 — 38.6 (35.9 \pm 1.79)	37.3 — 39.3 (38.4 \pm 0.73)	40 — 47.3 (43 \pm 2.10)
Tail μ m	60 — 66 (62 \pm 2.30)	48 — 60.6 (55.6 \pm 4.41)	51.3 — 60.6 (55.8 \pm 3.62)	46.6 — 59.3 (55 \pm 4.88)	42.6 — 60 (51.5 \pm 4.85)
J μ m	20.6 — 24.6 (23.2 \pm 1.31)	7.3 — 14 (12.2 \pm 2.24)	8.6 — 14 (12.05 \pm 1.62)	12 — 15.3 (13.7 \pm 1.37)	13.3 — 21.3 (16.2 \pm 2.40)
Body diam at lip region μ m	12.6 — 14.6 (13.6 \pm 0.66)	17.3 — 18.6 (17.6 \pm 0.52)	18.6 — 22 (20.3 \pm 1.19)	22 — 23.3 (22.6 \pm 0.46)	22 — 27.3 (25 \pm 1.55)
Body diam. at guiding ring μ m	22.6 — 27.3 (24.7 \pm 1.62)	31.3 — 38 (35.5 \pm 2.37)	40.6 — 44.6 (43.2 \pm 1.49)	43.3 — 46 (44.2 \pm 1.31)	48 — 64 (54.3 \pm 4.85)
Body diam. at base of oesophagus μ m	35.3 — 38.6 (37.3 \pm 1.09)	48.6 — 60.6 (56.4 \pm 3.92)	69.3 — 82 (74.5 \pm 4.20)	74 — 83.3 (80.3 \pm 3.66)	82.6 — 98.6 (93.3 \pm 4.85)
Body diam. at mid body or vulva μ m	36 — 39.3 (38 \pm 1.17)	52.6 — 68.6 (62.4 \pm 5.78)	76 — 98.6 (83.2 \pm 7.37)	82 — 98.6 (93.7 \pm 7.08)	98 — 133.3 (117.2 \pm 11.28)
Body diam. at anus μ m	28.6 — 32.6 (30.2 \pm 1.59)	43.3 — 53.3 (49.2 \pm 3.37)	62.6 — 70 (65.7 \pm 2.57)	69.3 — 82 (76.1 \pm 4.79)	72.6 — 87.3 (81 \pm 5.40)
Body diam. at beginning of J μ m	14.6 — 18 (16.6 \pm 1.23)	28 — 36.6 (32.1 \pm 3.37)	29.3 — 45.3 (40.3 \pm 4.86)	45.3 — 54.6 (49 \pm 3.40)	40.6 — 62.6 (53 \pm 6.67)
Peg μ m	12 — 14.6 (13 \pm 0.93)	—	—	—	—

odontostyle=132 μm ; odontophore=62 μm ; oral aperture to guiding ring=44 μm ; tail=53 μm ; J=16 μm ; body diam. at lip region=25 μm ; body diam. at guiding ring=56 μm ; body diam. at base of oesophagus=93 μm ; body diam. at vulva=108 μm ; body diam. at anus=85 μm ; body diam. at beginning of J=51 μm .

Descriptions: female *habitus* coiled in a single spiral when killed by gentle heat; body cylindrical, long and robust, tapering very gradually toward the anterior extremity; cuticle marked by very fine striations forming a crossed texture, generally 8 μm thick along body, more thickened just behind lip region, 11-11.5 μm ventrally and 12 μm dorsally immediately posterior to anus; a range of body pores is present along the body, four ventral, four dorsal and three lateral body pores are well evident immediately behind lip region, anteriorly to guiding ring; labial region 9-10 μm high, subacute, rounded laterally and slightly flattened frontally, narrow and separated from the rest of the body by a very slightly constriction at the base; amphidial pouches deeply bilobed with the ventral lobe much longer than the dorsal one, beyond the guiding ring in many cases, with aperture not evident; odontostyle robust 2.5 μm thick, odontophore weak, guiding sheath typical of the genus with strong guiding ring, large in diameter; oesophagus dorylaimoid, with oesophageal bulb occupying 1/3 of the oesophagus total length; muscular bulb 190 μm long and 40 μm wide; oesophagus-intestinal valve large, heart shaped; vulva almost equatorial, slit-like; vagina occupying more or less 1/2 of the corresponding body diameter; gonads amphidelphic, reflexed, with uteri 450 μm long separated from the oviduct by a robust sphincter; prerectum 0.6 mm long, rectum extending 2/3 the body width at anus; tail rounded, almost hemispherical, bearing three pairs of caudal pores.

Male: not found.

Juveniles: morphologically similar to adult females but smaller; tail of the first stage bearing a very long peg, measuring 13 μm .

Type habitat and locality: rhizosphere of grapevine (*Vitis* sp.) at Colonna (Roma), Italy.

Type material: holotype and six paratype females in the collection of the Istituto di Nematologia Agraria del Consiglio Nazionale delle Ricerche, Bari, Italy; two paratype females, Nematology Department Rothamsted

Experimental Station, Harpenden, Herts, England; and two paratype females, Plant Nematology Laboratory Collection, United States Department of Agriculture, Beltsville, Maryland, U.S.A.

Differential diagnosis: *Longidorus major* sp. n. is similar to *L. magnus* Lamberti, Bleve-Zacheo *et* Arias, 1982 and *L. nevesi* Macara, 1985. It differs from *L. magnus* in having a longer odontostyle (133 vs 114 μm), relatively longer body (10.5 vs 9.5 mm), anteriorly located guiding ring (43 vs 46 μm), higher value of «c» (206 vs 189), lip region separated from the rest of the body by a slight constriction, continuous in *L. magnus* and, finally, pegged tail of the first juvenile stage, without a peg in *L. magnus*. It differs from *L. nevesi* in having a longer body (10.5 vs 8 mm), higher «c» value (206 vs 180), shorter odontostyle (133 vs 142 μm), different shape of lip region, continuous with the rest of the body in *L. nevesi*, absence of male, and, finally, pegged tail of first juvenile stage, without a peg in *L. nevesi*.

S U M M A R Y

Longidorus major sp. n. was found in the rhizosphere of *Vitis* sp. in Italy and is described. It is similar to *L. magnus* Lamberti, Bleve-Zacheo *et* Arias, 1982 and *L. nevesi* Macara, 1986. It differs from *L. magnus* in having a longer body and odontostyle, higher «c» value, different shape of lip region and pegged tail of first juvenile stage; from *L. nevesi* in having a longer body, higher «c» value, shorter odontostyle, different shape of lip region, absence of male and pegged tail of first juvenile stage.

LITERATURE CITED

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