

Istituto di Nematologia Agraria, C.N.R. - 70126 Bari, Italy
and
Centro Nacional de Protecção da Produção Agrícola, I.N.I.A. - 2780 Oeiras, Portugal

LONGIDORUS ALVEGUS sp. n. (NEMATODA, DORYLAIMIDA) FROM PORTUGAL

by
F. ROCA, M.J. PEREIRA and F. LAMBERTI¹

Summary. *Longidorus alvegus* sp. n. is described. It was found in the rhizosphere of sweet pepper at Alvega, Abrantes, province of Ribatejo, Portugal. The new species is similar to *L. euonymus* Mali et Hooper, 1974, *L. lusitanicus* Macara, 1985, *L. protae* Lamberti et Blevé-Zacheo, 1977 and *L. unedoi* Arias, Andres et Navas 1986.

Specimens of *Longidorus* collected by Mr. M.M. de Matos at Alvega, Abrantes, province of Ribatejo, Portugal, were sent to the Instituto di Nematologia Agraria by Dr. Pereira as a suspected new species. Examination of this material confirmed Dr. Pereira's opinion and the species is described here as *Longidorus alvegus* 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.

LONGIDORUS ALVEGUS sp. n. (Fig. 1; Table I)

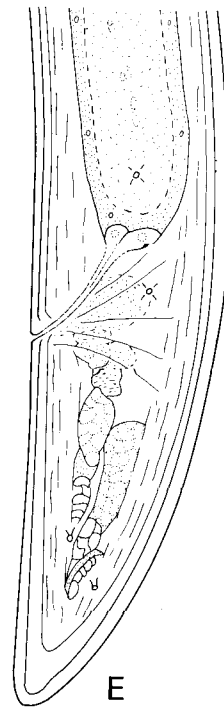
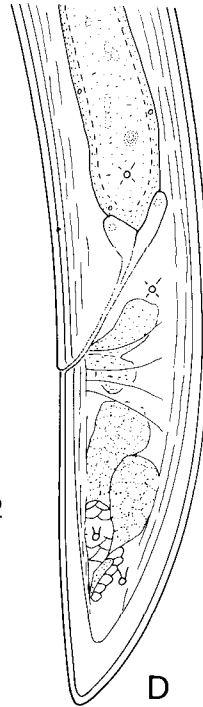
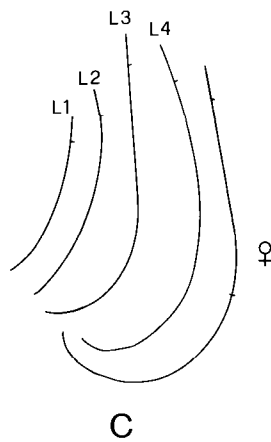
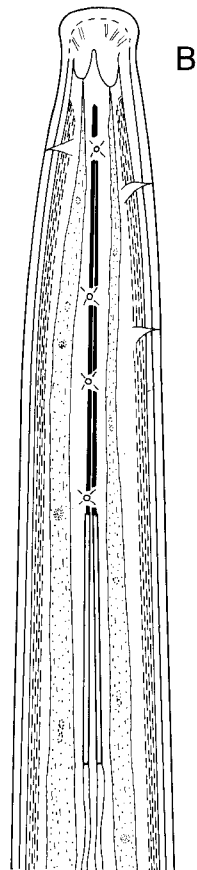
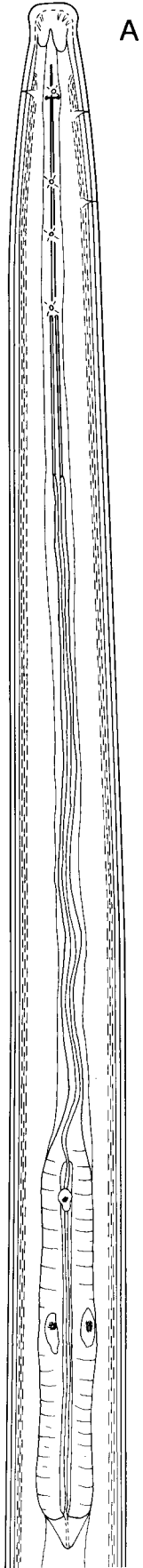
Holotype female: L = 7.2 mm; a = 184.5; b = 16.6; c = 107.4; c' = 2.5; V = 50; odontostyle = 87.5 μ m; odontophore = 42.5 μ m; oral aperture to guiding ring = 29 μ m; tail length = 67.5 μ m; J = 14.5 μ m; body diameter at lip region = 15.5 μ m; body diameter at guiding ring = 20.5 μ m; body diameter at base of oesophagus = 34.5 μ m; body diameter at vulva = 39.5 μ m; body diameter at anus = 27 μ m; body diameter at beginning of J = 17.5 μ m.

Description: female *habitus* slightly curved ventrally, more coiled in the posterior half when heat relaxed; body long and narrow, cylindrical, tapering very gradually towards the extremities, more abruptly in the posterior part; cuticle

very fine transversely striated in the inner layer, with fasciation in the external one, 2.3-2.5 μ m thick along the body, more thickened in the neck region where it measures 3-3.5 μ m at the base of the lip region, and in the caudal region where it is 3-3.5 μ m dorsally and 3.5-4 μ m ventrally in the post-anal portion; lateral hypodermal cords very large 13-14 μ m wide at mid body or 40-41% of the corresponding body diameter; lateral body pores 4 in the range of the odontostyle, not readily visible in the rest of the body; one ventral and two dorsal lateral body pores well evident in the neck region, less so in the rest of the body; labial region 7-7.5 μ m high, almost hemispherical, slightly flattened frontally and widely rounded laterally, offset from the rest of the body by a very wide depression; amphidial pouches bilobed with more or less symmetrical lobes, slightly pointed at the base and extending to half way the distance from oral opening to guiding ring, with aperture not evident; odontostyle slender 1-1.3 μ m thick, odontophore weak, guiding sheath typical of the genus with slender guiding ring 3.5-4 μ m in diameter; oesophagus dorylaimoid, with oesophageal bulb occupying 1/3 of the total oesophagus length; muscular bulb 112-118 μ m long and 17.5-19 μ m wide; oesophageal-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 separated from the oviduct by a robust sphincter; prerectum very short, 58-61 μ m long, rectum extending less than the body width at anus; tail conoid elongate, with rounded terminus, slightly curved dorsally and straight ventrally, bearing two caudal pores on each side.

Male: not found.

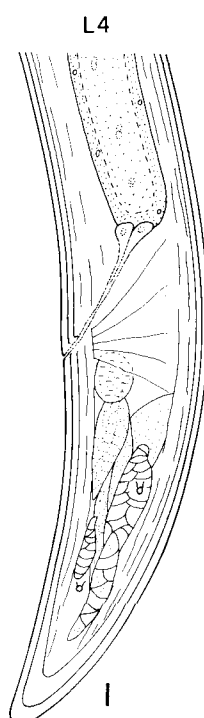
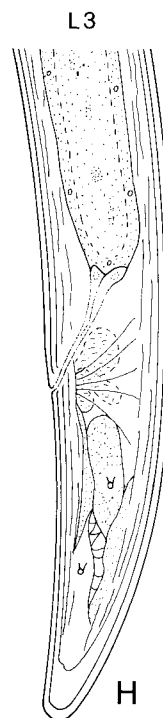
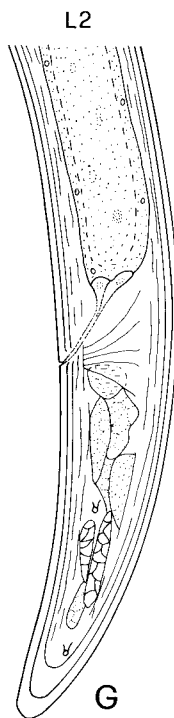
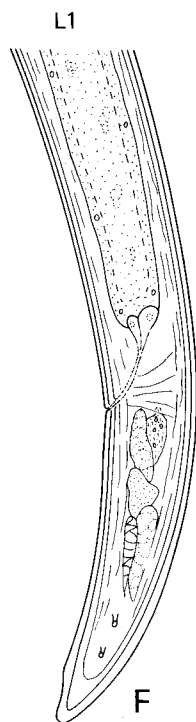
¹ Mr. V. Radicci is thanked for his assistance in preparing the illustrations.



20 μ m A

1mm C

20 μ m B, D + I



F

G

H

I

Juveniles: morphologically similar to adult females from which they differ by their size; tail of first stage elongated and conoid.

Type habitat and locality: rhizosphere of sweet pepper (*Capsicum annuum* L.) at Alvega, Abrantes, province of Ribatejo, Portugal.

Type material: holotype and 14 paratype females and juveniles 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; two paratype females, Plant Nematology Laboratory Collection, United States Department of Agriculture, Beltsville, Maryland, U.S.A.

Differential diagnosis: *Longidorus alvegus* sp. n. closely resembles *L. euonymus* Mali et Hooper, 1973 from which it differs in having a longer tail (70 vs 45 μ m), higher «c'» ratio (2.3 vs 1.3), more slender body («a» value 188 vs

TABLE I - *Morphometrics of Longidorus alvegus* sp. n. (paratypes).

STAGES	Range (Means \pm Standard Deviation)				
	L1	L2	L3	L4	♀♀
n	3	5	4	13	18
L mm	2.2 - 2.4 (2.3 \pm 0.09)	3.5 - 3.8 (3.6 \pm 0.11)	4.2 - 4.7 (4.5 \pm 0.19)	5.0 - 5.8 (5.3 \pm 0.22)	6.3 - 7.8 (7.1 \pm 0.43)
a	92.7 - 102.5 (97.4 \pm 4.91)	111.1 - 126.5 (117.9 \pm 7.13)	138.2 - 160.0 (147.1 \pm 9.30)	147.0 - 173.2 (156.5 \pm 7.58)	172.4 - 210.8 (188.4 \pm 10.7)
b	7 - 8 (7.43 \pm 0.51)	9.8 - 10.7 (10.2 \pm 0.37)	11.2 - 13.3 (11.8 \pm 1.00)	12.4 - 15.4 (13.6 \pm 1.04)	14.2 - 21.1 (16.8 \pm 1.74)
c	38.7 - 43.3 (40.3 \pm 2.63)	49.6 - 52.1 (51.1 \pm 0.95)	64.4 - 72.4 (67.8 \pm 3.32)	68.8 - 82.1 (75.6 \pm 3.85)	81.5 - 115.9 (102.4 \pm 7.99)
c'	2.8 - 3.6 (3.3 \pm 0.46)	3.0 - 3.2 (3.1 \pm 0.06)	2.4 - 2.7 (2.6 \pm 0.15)	2.5 - 2.9 (2.7 \pm 0.13)	2.0 - 2.9 (2.3 \pm 0.23)
V	-	-	-	-	47.5 - 53.0 (50.0 \pm 1.75)
Odontostyle μ m	58.8 - 60 (59.2 \pm 0.69)	65.3 - 72.9 (68.1 \pm 3.26)	68.2 - 79.4 (75.0 \pm 5.23)	70.6 - 80.6 (76.7 \pm 2.73)	82.5 - 92.5 (87.2 \pm 2.68)
Odonthophore μ m	39.4 - 42.3 (40.7 \pm 0.93)	37.7 - 44.7 (41.2 \pm 2.53)	38.2 - 47.1 (41.9 \pm 4.17)	34.7 - 53.5 (43.4 \pm 5.25)	37.5 - 56.8 (46.5 \pm 5.41)
Replacement odontostyle μ m	70.5 - 71 (70.7 \pm 0.29)	74.1 - 82.3 (76.7 \pm 3.45)	85.3 - 88.8 (86.9 \pm 1.47)	78.8 - 92.4 (86.4 \pm 3.41)	-
Oral aperture to guiding ring μ m	23 - 23.5 (23.2 \pm 0.29)	24.7 - 27.1 (26.0 \pm 0.87)	25.8 - 28.2 (26.9 \pm 1.00)	25.3 - 29.4 (27.5 \pm 1.16)	25.6 - 33.1 (29.2 \pm 1.88)
Tail length μ m	53 - 62.3 (58.6 \pm 4.93)	68.2 - 72.9 (70.7 \pm 1.74)	61.7 - 70.0 (66.0 \pm 4.28)	65.8 - 76.5 (70.2 \pm 3.25)	62.5 - 81.3 (70.0 \pm 5.22)
J μ m	8.8 - 13 (10.6 \pm 2.16)	10.0 \pm 12.4 (11.7 \pm 1.05)	9.4 - 11.8 (10.8 \pm 1.02)	8.8 - 12.9 (11.1 \pm 1.28)	6.3 - 16.3 (11.9 \pm 2.06)
Body diam. at lip region μ m	11 - 18 (11.3 \pm 0.40)	12.4 - 14.7 (13.5 \pm 0.93)	14.1 - 15.3 (14.7 \pm 0.48)	13.5 - 15.3 (14.5 \pm 0.66)	13.1 - 16.3 (15.3 \pm 0.79)
Body diam. at guiding ring μ m	15.8 - 16.4 (16 \pm 0.35)	17.7 - 19.4 (18.4 \pm 0.64)	18.8 - 20.0 (19.4 \pm 0.48)	18.8 - 21.2 (19.7 \pm 0.70)	19.3 - 22.5 (20.5 \pm 0.91)
Body diam. at base of oesophagus μ m	22.3 - 23 (22.7 \pm 0.38)	27.1 - 30.6 (28.6 \pm 1.29)	27.7 - 30.0 (28.5 \pm 1.13)	25.8 - 33.5 (30.2 \pm 2.10)	26.8 - 36.8 (32.3 \pm 2.21)
Body diam. at mid body or vulva μ m	23 - 24.7 (23.7 \pm 0.87)	28.8 - 32.4 (30.7 \pm 1.52)	28.8 - 32.4 (30.4 \pm 1.62)	31.2 - 39.4 (33.9 \pm 2.45)	33.8 - 43.1 (37.9 \pm 2.47)
Body diam. at anus μ m	17 - 18.8 (17.6 \pm 1.04)	22.4 - 23.5 (22.8 \pm 0.64)	23.5 - 28.2 (25.6 \pm 1.95)	24.7 - 28.8 (26.3 \pm 1.30)	27.5 - 35.0 (30.0 \pm 1.84)
Body diam. at beginning of J μ m	8.8 - 10.6 (9.6 \pm 0.92)	9.4 - 11.2 (10.4 \pm 0.67)	10.6 - 13.5 (12.2 \pm 1.30)	10.6 - 12.4 (11.7 \pm 0.70)	12.5 - 16.8 (14.5 \pm 1.22)

Fig. 1 (Front page) - *Longidorus alvegus* sp. n.: A and B, female anterior regions; C, posture of juvenile and adult stages; D and E, female posterior regions; F - I, posterior regions of juveniles.

153), lower «c» ratio (102 vs 155) and amphidial pouches with base clearly bilobed (slightly bilobed and not very distinct in *L. euonymus*).

Longidorul alvegus sp. n. also resembles *L. lusitanicus* Macara, 1985 and *L. unedoi* Arias, Andres *et* Navas, 1986. It differs from *L. lusitanicus* in having a more slender body

(«a» value 188 vs 105), a longer tail (70 vs 33 μ m), higher «c'» ratio (2.3 vs 0.8), lower «c» ratio (102 vs 185) and absence of the male; it differs from *L. unedoi* in having a longer body (7.1 vs 5.4 mm), longer odontostyle (87 vs 59 μ m), longer tail (70 vs 38 μ m), higher «c'» ratio (2.3 vs 1.6) and absence of the male.