

RESEARCH NOTE/NOTA INVESTIGATIVA

MORPHOMETRICS OF A POPULATION OF *LONGIDORUS JUVENILIS* AND A FEMALE OF *L. LAEVICAPITATUS*, BOTH SPECIES FOUND FOR THE FIRST TIME IN ARGENTINA

Claudia Azpilicueta^{1*} and Eliseo Chaves²

¹Laboratorio de Servicios Agrarios y Forestales. Ministerio de Desarrollo Territorial. Santiago del Estero 426. 8400 Neuquén. Argentina. + 54 299 4483823; ²Laboratorio Nema-Agris, 1900 La Plata. Argentina. *Corresponding author: lasaf_suelos@neuquen.gov.ar.

ABSTRACT

Azpilicueta, C, and E. Chaves. 2013. Morphometrics of a population of *Longidorus juvenilis* and a female of *L. laevicapitatus*, species found for the first time in Argentina. *Nematropica* 43:271-275.

Longidorus juvenilis and *L. laevicapitatus* are described for the first time in Argentina. *Longidorus juvenilis* was found in the soil around the roots of *Prunus persica* at the Rio Negro province and *L. laevicapitatus* at the bottom of Canal del Este River at Buenos Aires province. Measurements and some photomicrographic images of these species are given.

Key words: Nematoda, *Longidorus*, Argentina.

RESUMEN

Azpilicueta, C, and E. Chaves. 2013. Morfología de una población de *Longidorus juvenilis* y una hembra de *L. laevicapitatus*, ambas especies encontradas por primera vez en Argentina. *Nematropica* 43:271-275.

Longidorus juvenilis y *L. laevicapitatus* son descritas por primera vez en Argentina. *Longidorus juvenilis* se encontró en el suelo alrededor de las raíces de *Prunus persica* en la provincia de Rio Negro y *L. laevicapitatus* en el lecho del río Canal del Este en la provincia de Buenos Aires. Se reportan las medidas y algunas fotografías de las especies.

Palabras clave: Nematoda, *Longidorus*, Argentina.

INTRODUCTION

Chaves (2009) cited the genus *Longidorus* for the first time in Argentina based on a female found in Luis Beltrán locality at the Río Negro province. Later, a population of *Longidorus juvenilis* Dalmasso, 1969 was collected around the roots of *Prunus persica* by the first author in other locality of the same province. *Longidorus laevicapitatus* Williams, 1959 was found in a bottom sample of Canal del Este River, at the lower delta of the Paraná river region (Sardiña *et al.*, 2011). The genus *Longidorus* is an important group of plant-parasitic nematodes including some virus vectors species. The Raspberry bushy dwarf virus from grapevine was detected in a population of *L. juvenilis* by Plesko *et al.*, (2009), although the virus transmission was not confirmed. *Longidorus laevicapitatus* is

widespread in tropical and subtropical regions, especially associated with sugar cane, potato, sweet potato, banana, citrus, cacao, coffee (Hooper, 1985). It is recorded in association with tomato black ring virus (TBRV) infecting potato, but the transmission cannot be demonstrated (Kaiser *et al.*, 1978).

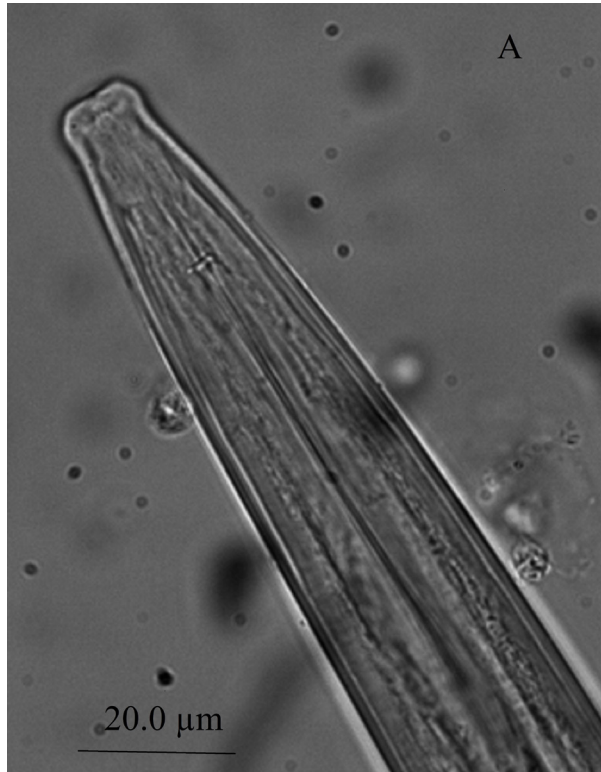
MATERIAL AND METHODS

Longidorus juvenilis individuals were obtained from soil around the roots of *Prunus persica* at 20 cm deep using an auger, extracted from soil by Caveness & Jensen's technique (1955) and killed by gently heat. *Longidorus laevicapitatus* female was separated in a quiescent stage from a sample obtained from a mussel bed and underlying sediments using a dredge; the sediments were sieved through a 300 µm mesh. The

nematodes were measured with a drawing tube.

DESCRIPTIONS

Longidorus juvenilis Dalmasso, 1969



Female

Body cylindrical, slender, gradually tapering toward the extremities. Body posture of relaxed specimens ventrally curved to an open spiral. Lip region slightly expanded, laterally rounded and offset from the rest of the body by a slight depression. Amphid pouch like, symmetrically bilobed. Lateral epidermal chords 10 μm (8-12) wide located immediately posterior to the vulva. Oesophagus 298.5 μm (218-359) long, with the basal bulb measuring 80.7 μm (75-86) long and 14.7 μm (13-17) wide, occupying between 23-28 % of the total oesophagus length. Vulva transverse slit, vagina occupying about 58 % of the corresponding body diameter. Reproductive system, without special features. Prerectum (n = 6) 283 μm (170-380) long; rectum 22 μm (20-25). Tail elongate-conoid, ventrally curved, with rounded terminus; caudal pores not visible.

Distribution

Choele Choel, province of Río Negro.

Remarks

The specimens of *Longidorus juvenilis* from Argentina correspond with the morphological and morphometrical descriptions of this species given by various authors (Table 1).

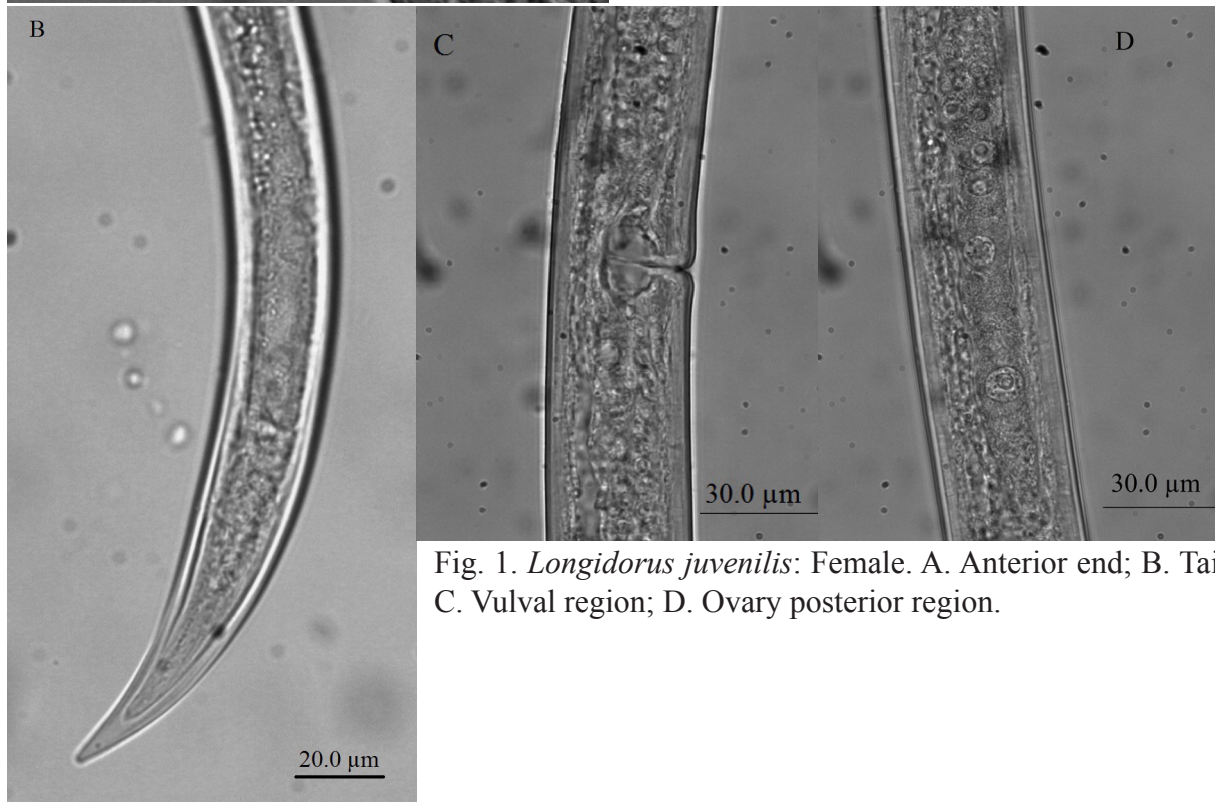


Fig. 1. *Longidorus juvenilis*: Female. A. Anterior end; B. Tail; C. Vulval region; D. Ovary posterior region.

Table 1. Morphometrics^x characters of adults females of *Longidorus juvenilis* Dalmasso, 1969 from Argentina and comparison with other described populations.

Locality:	Argentina	France	South Africa	Serbia	Slovenia
Character		Acc. to Dalmasso (1969)	Acc. to Jacobs & Heyns (1987)	Acc. to Barsi & Lamberti (2004)	Acc. to Sirca <i>et al.</i> (2007)
N	17	10	28	18	16
L (mm)	3.67 ± 0.3 (3.03 - 4.34)	3,32 (2,80 - 3,61)	3,62 (2,92 - 4,63)	3,74 (3,37 - 4,47)	3,96 (3,52 - 4,72)
A	108.9 ± 8.4 (89.0 - 121.5)	84,2 (76-90)	116 (94 - 132)	113,8 (103,8 - 130,6)	113,6 (89,6 - 128,8)
B	12.7 ± 2.5 (9.9 - 19.0)	10,7 (9,8 - 11,9)	12,5 (9,6 - 16,5)	10,8 (9,3 - 12,4)	12,3 (11,1 - 14,4)
C	65 ± 7.1 (52.3 - 78.6)	65	66 (53,2 - 86,0)	65,6 (54,9 - 78,1)	74,5 (63,2 - 90,1)
c'	2.52 ± 0.1y (2.0 - 2.8)	1,8	2,5 (2,0 - 3,8)	2,4 (2,2 - 2,9)	2,2 (1,88 - 2,40)
V (%)	46.9 ± 2.8 (38 - 51)	47,8 (46 - 50)	48 (45,5 - 50,0)	47,1 (45,8 - 48,1)	48,1 (46,9 - 51,0)
Odontostyle (µm)	62 ± 2.7 (55.4 - 65.5)	67	64 (58 - 68)	65,1 (61,2 - 70,0)	64,3 (61,1 - 67,7)
Odontophore (µm)	49 ± 2.8 (45 - 55)	45	47 (40 - 57)	42,3 (35,0 - 46,3)	35,1 (29,8 - 42,7)
Total stylet (µm)	110	-----	-----	-----	-----
Oral aperture to guiding ring (µm)	23.7 ± 0.7 (22 - 25)	22 (20 - 24)	23 (19 - 25)	24,8 (23,4 - 26,9)	24,8 (23,4 - 26,9)
Body diam. at lip region (µm)	11 (9.6 - 12.3)	-----	11 (9 - 12)	11,2 (10,9 - 11,6)	11,6 (11,2 - 12,5)
Body diam. at guiding ring (µm)	16 ± 0.7y (15.4 - 17.3)	-----	-----	16,2 (15,4 - 17,2)	17 (16,0 - 18,7)
Body diam. at mid-body or vulva (µm)	33.7 ± 2.4 (30.8 - 39.5)	-----	-----	-----	-----
Body diam. at anus (µm)	22.4 ± 1.3 (20.0-25.4)	-----	-----	-----	-----
Tail length (µm)	56.2 ± 3.7 (47.7 - 64.0)	51 (45 - 55)	55 (46 - 64)	57,2 (50,7 - 68,5)	53,3 (47,6 - 56,8)

^xMean ± SD., range in parentheses.

^yn = 7.

DESCRIPTIONS

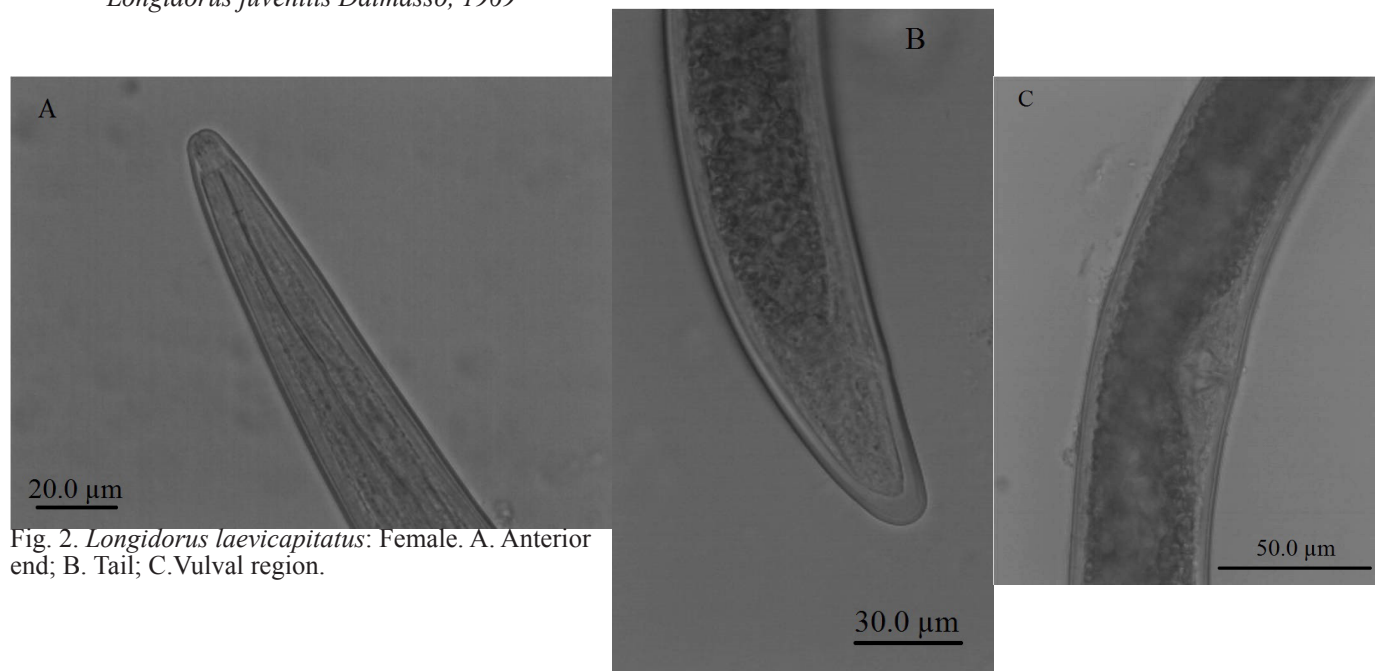
Longidorus juvenilis Dalmasso, 1969

Fig. 2. *Longidorus laevicapitatus*: Female. A. Anterior end; B. Tail; C. Vulval region.

Table 2. Morphometrics characters of adult female of *Longidorus laevicapitatus* population from Argentina and comparison with other populations cited by Hooper (1985).

Locality	Canal del Este	Mauritis	Natal	Nigeria
Character				
N	1	10	78	13
L (mm)	2,8	2,5 (2,0-3,2)	2,0 3,3	2,5 (2,1-2,9)
a	56	57 (53-56)	55-83	61 (58-70)
b	9,8	9,4 (7-11)	7,3-11,6	9,6 (7,6-13,4)
C	74	68 (61-76)	68-88	65 (58-73)
c'	1,3	-----	1,0-1,6	1,4 (1,2-1,6)
V	47,5	47 (46-49)	45-50	47 (46-50)
Odontostyle (µm)	60	63 ^x (60-67)	47-66	60 (55-64)
Odontophore (µm)	34,5	-----	-----	-----
Total stylet (µm)	94,5	-----	-----	-----
Oral aperture to guiding ring (µm)	24	22,3 (21,5-22,5)	22-27	22,5 (21-25)
Body diam. at lip region (µm)	9,5	-----	-----	-----
Body diam. at guiding ring (µm)	19	17,3 (16-19)	-----	-----
Body diam. at mid-body or vulva (µm)	50	-----	-----	-----
Body diam. at anus (µm)	29	-----	-----	-----
Tail length (µm)	38	-----	-----	42-44 ^y

^x n = 3.

^y measured from fig. 1, L-M, after Hooper (1985).

Female: Body cylindrical, gradually tapering toward the extremities. Body posture ventrally curved in the shape of a closed spiral. Cuticle in two layers, the inner layer becomes thicker in the neck region and on the tail. Lip region rounded, continuous with the body contour. Amphid pouch like, 11 µm long (not bilobed). Guiding ring distinct, 24 µm from the oral opening. Lateral epidermal chord 7.5 µm. Oesophagus dorylaimoid, 285 µm long, with basal bulb measuring 82 µm long and 18 µm wide, occupying about 29 % of the total oesophageal length. Vulva transverse slit, vagina occupying 44 % of the corresponding body diameter (a female with two interconnected vulvae from Sao Tomé population was described by Lamberti *et al.*, 1987). Reproductive system amphidelphic; genital branches and uterus not visible. Prerectum not visible, rectum 21 µm long. Tail elongate-conoid, ventrally curved, with rounded terminus; caudal pores not visible.

Distribution.

Canal del Este river, Paraná Delta region, province of Buenos Aires.

Remarks

The single specimen of *Longidorus laeovicapitatus* corresponds with the morphological and morphometrical characteristics of this species given in the literature.

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