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FIRST RECORD OF SOME SPECIES OF LONGIDORID NEMATODES FROM SLOVAKIA

by

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Summary. *Longidorus juvenilis* Dalmasso, *L. piceus* Roca, Lamberti et Agostinelli, *Xiphinema italiae* Meyl, *X. pachtaicum* (Tulaganov) Kirjanova and *X. simile* Lamberti, Choleva et Agostinelli are reported for the first time from Slovakia. It is hypothesized that *L. juvenilis*, *L. piceus* and *X. italiae* were introduced into the country by the ancient roman occupation and that *X. simile* spread from Slovakia to south-eastern Europe. Biometrics and illustrations of the species are provided.

During a survey of longidorid nematodes carried out in Slovakia some species of *Longidorus* and *Xiphinema* were found for the first time in the country. They are not commonly present in continental climates, occurring more frequently in the rhizosphere of grapevines and stone fruit trees in the Mediterranean region (Brown and Taylor, 1987; Brown et al., 1990). They are reported here with short descriptions and illustrations.

Material and methods

Soil samples were collected, 20 to 40 cm deep, from the rhizosphere of vines (*Vitis* spp.) and from fruit trees and shrubs at the periphery of vineyards.

Nematodes were extracted from aliquots 0.5 l of thoroughly mixed composite samples by means of Cobb's decanting and sieving technique as modified by Brown and Boag (1988), killed by gentle heat, fixed in FAA and mounted in anhydrous glycerin. Measurements were taken with the aid of a camera lucida.

Results

Two species of *Longidorus*, *L. juvenilis* and *L. piceus* and three of *Xiphinema*, *X. italiae*, *X. pachtaicum* and *X. simile* are reported.

Longidorus juvenilis Dalmasso, 1969 (Fig. 1) was found in the rhizosphere of grapevine (*Vitis* sp.) in Southern of Slovakia in two localities, Moca and Zlatna na Ostrove on the bank of the river Danube.

The biometrics of females from Moca are given in Table I. Compared to the type population (Dalmasso,

1969) the Slovak populations seems to be shorter, more slender and with a longer tail. However, we have measured three paratypes of *L. juvenilis* deposited in the collection of the Rothamsted Experimental Station, kindly provided by D. J. Hooper, and found that they are as long as most Italian populations (Roca et al., 1987) and have a tail more or less as long as the Slovak populations (Table I). Compared to the Italian populations, *L. juvenilis* from Slovakia differs only in the shorter body (3.8-4 mm average for most Italian populations) and is almost identical to the Serbian population reported by Barsi (1989).

A single female, male and first stage juvenile of *L. piceus* Roca, Lamberti et Agostinelli, 1984 (Fig. 2) were recovered from a sample collected from the rhizosphere of a plum tree (*Prunus domestica* L.) at Piestany. Their biometrics, which fit with the type population (Roca et al., 1984), are given in Table II. The male differs from the type population in having 17 (15 in the Italian population) ventromedian supplements preceding the adanal pair and the first stage juvenile bears, as the type population, a long mucro at the tail terminus.

The sample from Moca, also contained a female of *X. italiae* Meyl, 1953 (Fig. 3). Its biometric characters are reported in Table III. They fit the range of mediterranean populations (Martelli et al., 1966).

A single female of *X. pachtaicum* (Tulaganov, 1938) Kirjanova, 1951 (Fig. 3) was found in a sample collected from the rhizosphere of grapevine at Ruban. The biometrics, reported in Table III, fit those of other European populations (Lamberti and Bleve-Zacheo, 1979).

Populations of *X. simile* Lamberti, Choleva et Agostinelli, 1983 (Fig. 3) were found at Selestany and Vinicky in the rhizosphere of grapevines and single females were extracted from soil collected at Borsa, rhizosphere of



Fig. 1 - Anterior (left) and posterior region of *Longidorus juvenilis* from Slovakia.

TABLE I - *Biometrics of populations of Longidorus juvenilis.*

	Paratypes after Dalmasso (1969)	Paratypes measured by us	Moča Slovakia	Italy (after Roca <i>et al.</i> 1987)
n	10 ♀♀	3 ♀♀	8 ♀♀	10 ♀♀
L mm	3.3 (2.8-3.6)	3.9 (3.7-4.1)	3.6 (3.2-4.3)	3.8 (3.2-4.4)
a	84.2 (76-90)	86 (83-88)	102 (94-113)	104 (82-116)
b	10.7 (9.8-11.9)	12 (11.5-12)	11 (10-14)	13 (11-16)
c	64.7 (51-78)	70 (60-80)	63 (52-76)	70 (63-79)
c'	2.2 (1.8-2.9)	2 (1.8-2.1)	2.5 (2.2-2.9)	2.4 (2.3-2.6)
V	48 (46-50)	47 (46-49)	47 (45.5-49)	47 (44-50)
Odontostyle µm	66 (64-68)	69 (68-70)	67 (63-69)	68 (66-71)
Odontophore µm	47 (40-54)	47 (46-47)	45 (42-46.5)	47 (42-52)
Oral aperture to guiding ring µm	22 (20-24)	23.5 (22-24)	25 (23.5-28)	25 (23.5-27)
Tail µm	51 (45-55)	56.5 (50-62)	58 (53-62)	53 (47-56)
J µm		14 (13-15)	12 (10-13)	15 (13-18)
Body diam. at lip region µm		11 (11-11)	11 (11-11)	11 (10-11)
Body diam. at guiding ring µm		17 (16-18)	19 (18-20)	17 (16.5-19)
Body diam. at base of oesophagus µm		40 (38-43)	30 (28-33.5)	32 (29-39)
Body diam. at vulva µm	39 (33-40)	46 (45-46.5)	36 (31-41)	36 (32-43)
Body diam. at anus µm	23 (19-25)	29 (27-30)	23.5 (21-25)	22 (20-24)
Body diam. at beginning of J µm		10 (9-11)	9 (7-10)	11 (10-11)

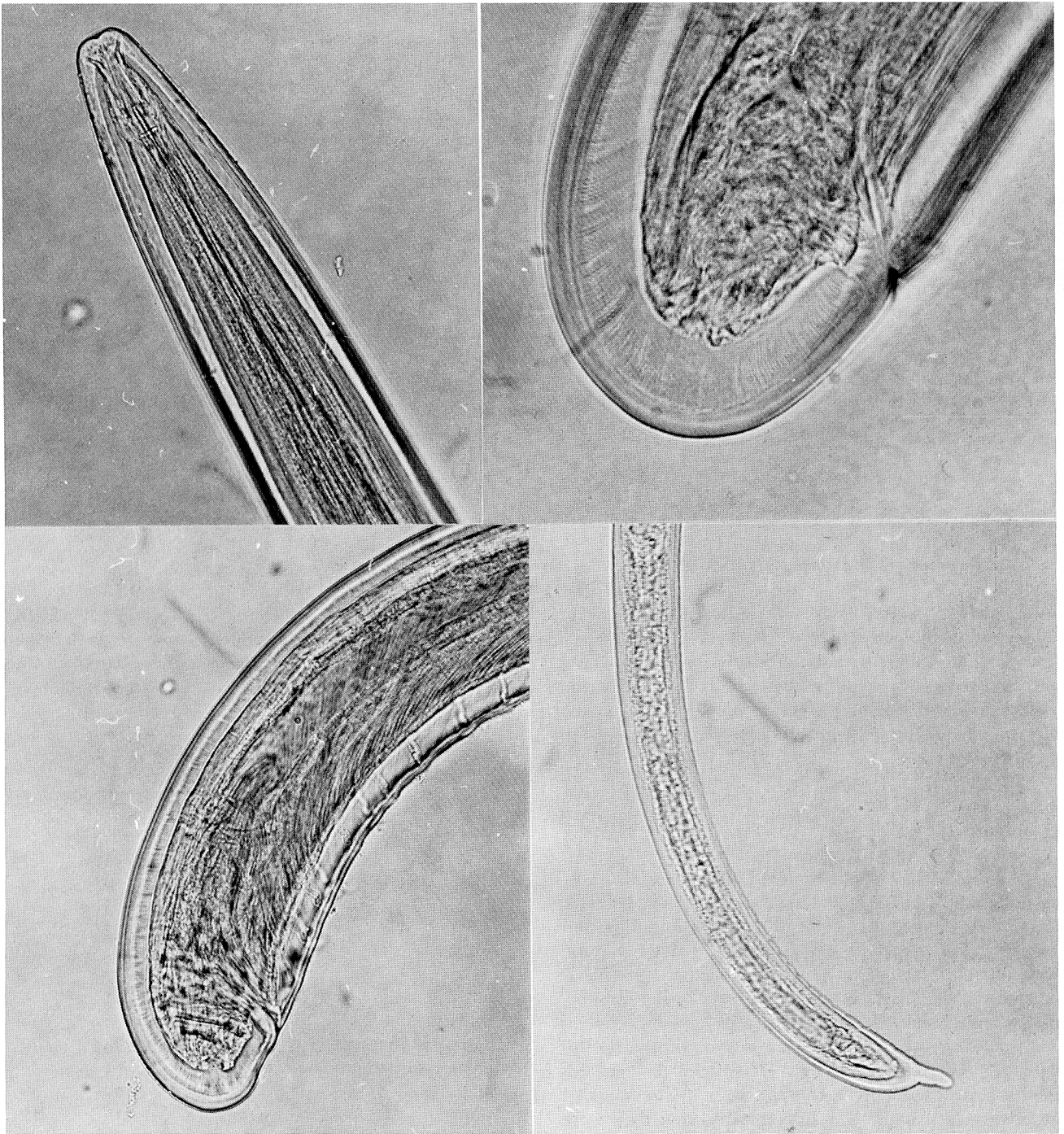


Fig. 2 - *Longidorus picenus* from Slovakia: female anterior (top left) and posterior (top right) region and male (bottom left) and first stage juvenile posterior region.

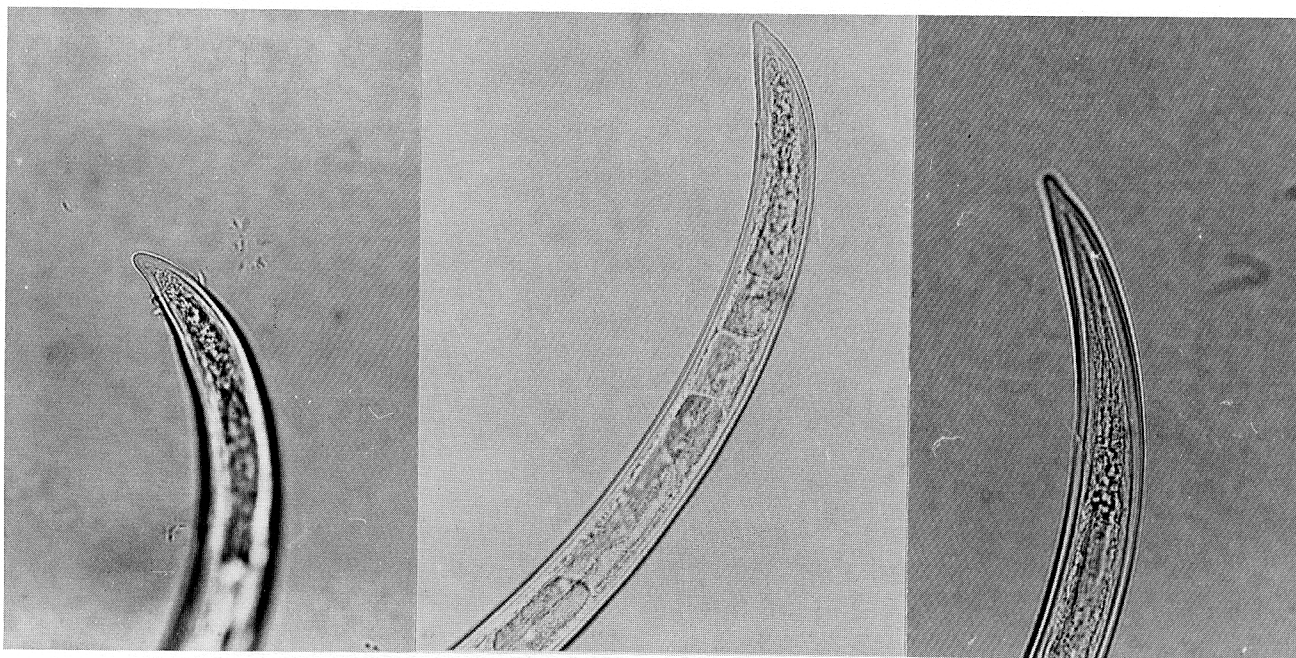


Fig. 3 - Posterior regions of *Xipbinema italiae* (right), *X. pachtaicum* (middle) and *X. simile* from Slovakia.

rose (*Rosa* sp.), Plave Vozokany, Surice and Tesmak in samples from the rhizosphere of grapevines. The biometrics, given in Table III, differ from the type population (Lamberti et al., 1983) in the longer body (1.9 mm in the type population), slightly posterior vulva ($V = 53$ in the type population) and longer odontostyle ($66 \mu\text{m}$ in the type population).

Remarks

X. simile seems to be a common and widespread species in Slovakia. In Bulgaria it occurred in various habitats, from the Black sea coast to the western board and also in the north, on the southern bank of the river Danube (Lamberti et al. 1983). In Slovakia it occurred in similar habitats and often near the northern bank of the Danube, from where probably spread to the south-east of Europe.

L. juvenilis and *X. italiae* are endemic in the Mediterranean. In Slovakia they were found in localities on the bank of the river Danube near the remains of ancient roman camps. It is hypothesized that they were introduced into the country during the Roman occupation.

X. pachtaicum is a widespread species occurring throughout Europe to central Asia. Therefore its presence, although sporadic, is not surprising.

L. picensus was described from central Italy (Roca et al., 1984), and then reported from various localities in the Po valley (Roca et al., 1988) in association with grapevines

and cherry trees but also once in a natural habitat. This might indicate that its introduction was from Italy into Slovakia and not viceversa. However, more information on the Slovakian nematofauna is needed to ascertain this hypothesis.

TABLE II - *Biometrics of Longidorus picensus from Slovakia.*

	♀	♂
n	19	13
L mm	6.9	6.7
a	83	81
b	9.5	11
c	172	167
c'	0.6	0.6
V	51	-
Odontostyle μm	135	140
Odontophore μm	78	75
Oral aperture to guiding ring μm	41	43
Tail μm	40	40
J μm	15	15
Body diam. at lip region μm	23	22
Body diam. at guiding ring μm	38	40
Body diam. at base of oesophagus μm	76	73
Body diam. at mid body or vulva μm	83	82
Body diam. at anus μm	62	68
Body diam. at beginning of J μm	47	48
Spicules μm	-	113

TABLE III - *Biometrics of populations of Xiphinema species from Slovakia.*

	<i>X. italiae</i>	<i>X. pacibaicum</i>	<i>X. simile</i>	
			Selestany	Vinicky
n	1♀	1♀	4♀♀	9♀♀
L mm	3.1	2.2	2.1 (2.0-2.3)	2.1 (2.0-2.3)
a	92.5	81	76 (71-79)	80 (74-87)
b	9.1	7.2	7.4 (6.8-8.5)	7.4 (6.2-8.5)
c	36	66	65 (62-78)	72 (65-78)
c'	3.9	2.0	1.8 (1.7-2.0)	1.7 (1.5-1.9)
V	42	55	57 (55-60)	56 (52-62)
Odontostyle µm	91	87	68 (65-70)	72 (67-76)
Odontophore µm	53	44	42 (39-46)	37 (35-39)
Oral aperture to guiding ring µm	80	73	60 (58-65)	59 (55-62)
Tail µm	86	33.5	34 (32-38)	30 (26-32)
J µm	12	9	7.5 (6.5-8.0)	6.4 (5.9-7.6)
Body diam. at lip region µm	10	8	9 (9-10)	9 (9-9)
Body diam. at guiding ring µm	23.5	20	19 (19-20)	18 (17-19)
Body diam. at base of oesophagus µm	30	25	25 (24-26.5)	23 (20-24)
Body diam. at vulva µm	33.5	27	28 (25-33)	27 (24-29)
Body diam. at anus µm	22	17	18 (16.5-19)	17 (16-19)
Body diam. at beginning of J µm	8	7	8 (7-9)	8 (8-9)

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