

Description of *Longidorus holovachovi* sp. n. (Nematoda: Dorylaimida) and *Xiphinema* sp., a member of *Xiphinema americanum* group from Ukraine

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Summary. A description of *Longidorus holovachovi* n. sp., originating from a beech forest, Carpathian Mountains, Ukraine is provided. *Longidorus holovachovi* n. sp. is a parthenogenetic species with a medium body size (4.3-5.2 mm), long odontostyle (122-134 μ m), narrow, anteriorly rounded and slightly expanded head region (11.5-13 μ m), pocket shaped distinctly bilobed amphids, posteriorly situated guiding ring (37-41 μ m), normal arrangement of pharyngeal glands and short conoid tail with broadly rounded terminus. Four juvenile stages were identified. Data on the morphology of a *Xiphinema* sp., a member of *X. americanum* group are presented and relationships with the closest species, *X. brevicollum* Lordello & da Costa, 1961 and *X. taylori* Lamberti, Ciancio, Agostinelli, & Coiro, 1991, are discussed.

Key words: beech forest, *Longidorus holovachovi* sp. n., Longidoridae, Ukraine.

The genus *Longidorus* is represented by four species in Ukraine: *Longidorus elongatus* (de Man, 1876) Thorne & Swanger, 1936, *L. distinctus* Lamberti *et al.*, 1983, *L. rubi* Romanenko & Tomilin in Romanenko, 1993 and *L. sylphus* Thorne, 1939 (Romanenko, 1996, 1998; Romanenko *et al.*, 1996; Kozlovsky, 2002, 2009). The record of *L. sylphus* probably refers to *L. distinctus* because the first species is known to occur only in North America and Korea (Choi & Moon, 1998; Robbins & Brown, 1995). Data about the genus *Xiphinema* occurring in Ukraine are also insufficient; there are records for seven species e.g. *X. americanum* Cobb, 1913, *X. diversicaudatum* (Micoletzky, 1927), *X. index* Thorne et Allen, 1950, *X. italiae* Meyl, 1953, *X. pachtaicum* (Tulaganov, 1938), *X. turcicum* Luc & Dalmasso, 1963 and *X. vuittenezi* Luc, Lima, Weischer et Flegg, 1964 (Milkus *at al.*, 1975, Milkus & Kudinskaya, 1980; Brown *et al.*, 1990; Lamberti *et al.*, 2000; Kozlovsky, 2002, 2009).

During investigations carried out in the natural habitats in Ukraine, specimens of an unknown *Longidorus* species and a *Xiphinema* sp., belonging to the group *Xiphinema americanum* were collected. The descriptions of the new *Longidorus* species and the *Xiphinema* sp. are provided here.

MATERIAL AND METHODS

Nematodes were heat killed at 60°C for two minutes, fixed in a 4% formalin/glycerol mixture, processed to glycerol (Seinhorst, 1959), and mounted on glass microscope slides in anhydrous glycerol. Specimens were observed using an Olympus BX51 compound microscope powered with differential interference contrast (DIC). Photographs were taken with a ColorView IIIu camera and cell^P software (Olympus Soft Imaging Solutions GmbH). Measurements were made using an Olympus BX 41 light microscope, a digitising tablet (CalComp Drawing Board III, GTCO CalCom Peripherals, Scottsdale, AZ, USA), and Digitrak 1.0f programme, (Philip Smith, Scottish Crop Research Institute, Dundee, UK).

DESCRIPTION

Longidorus holovachovi n. sp. (Figs 1-4)

Measurements: See Table 1.

Female. Body when heat relaxed assuming C shape, more strongly curved in the posterior part, distinctly tapering to the anterior end. Head region

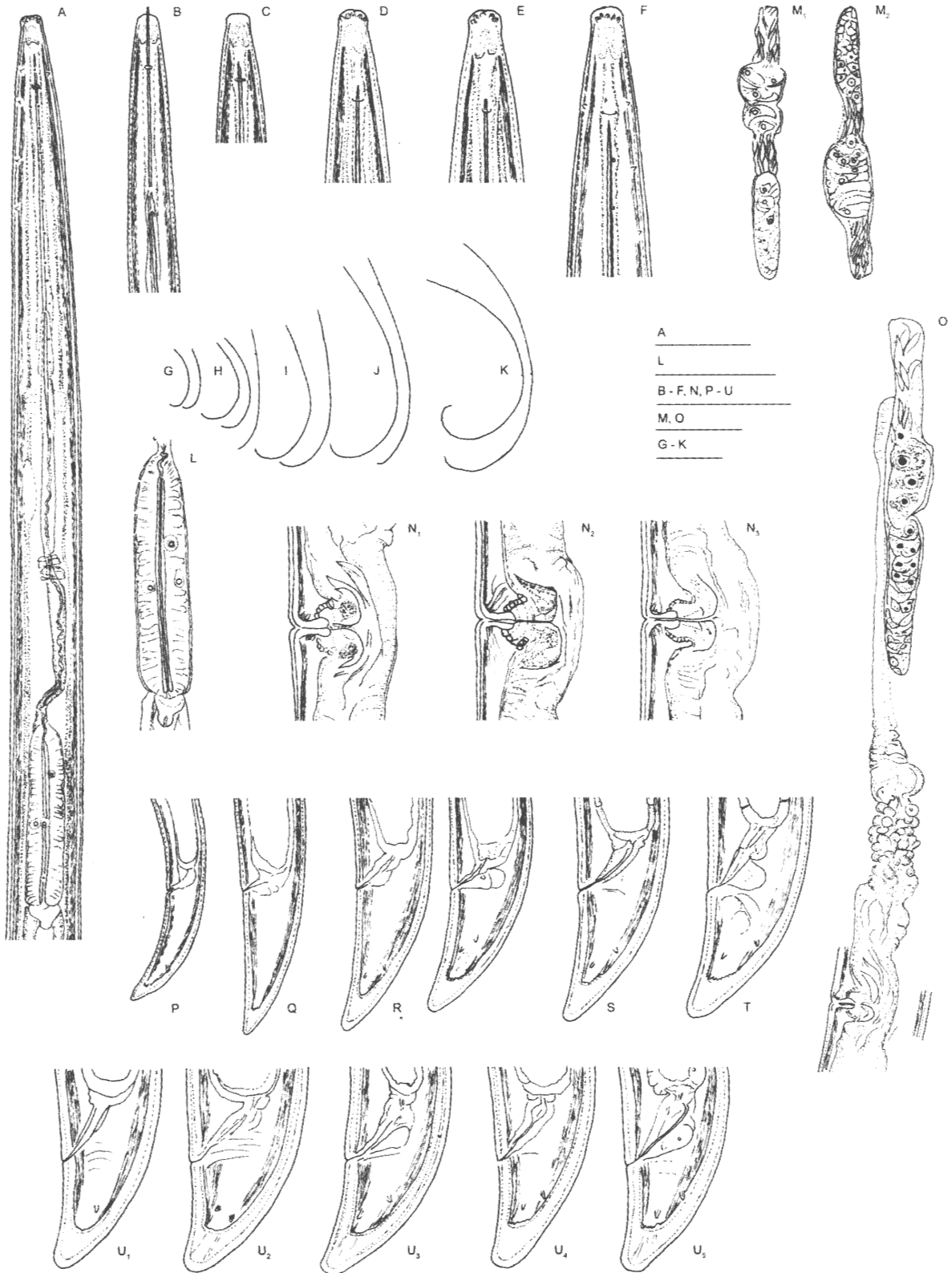


Fig. 1. *Longidorus holovachovi* sp. n. Female: A: Oesophageal region; F: Head end; K: body posture after fixation; L: Oesophageal bulb; M1: Anterior ovary; M2: Posterior ovary; N1-N3: Variations in the shape of vagina; O: Anterior genital branch; T, U1-U5: Variations in tail end; Juveniles: B-E: Anterior end of first-, second-, third- and fourth-stage (J1-J4); G-J: Body posture after fixation of J1-J4; P-S: Tail ends of J1-J4. Scale bars: A-F, L-T: 50 µm; G-K: 1 mm.

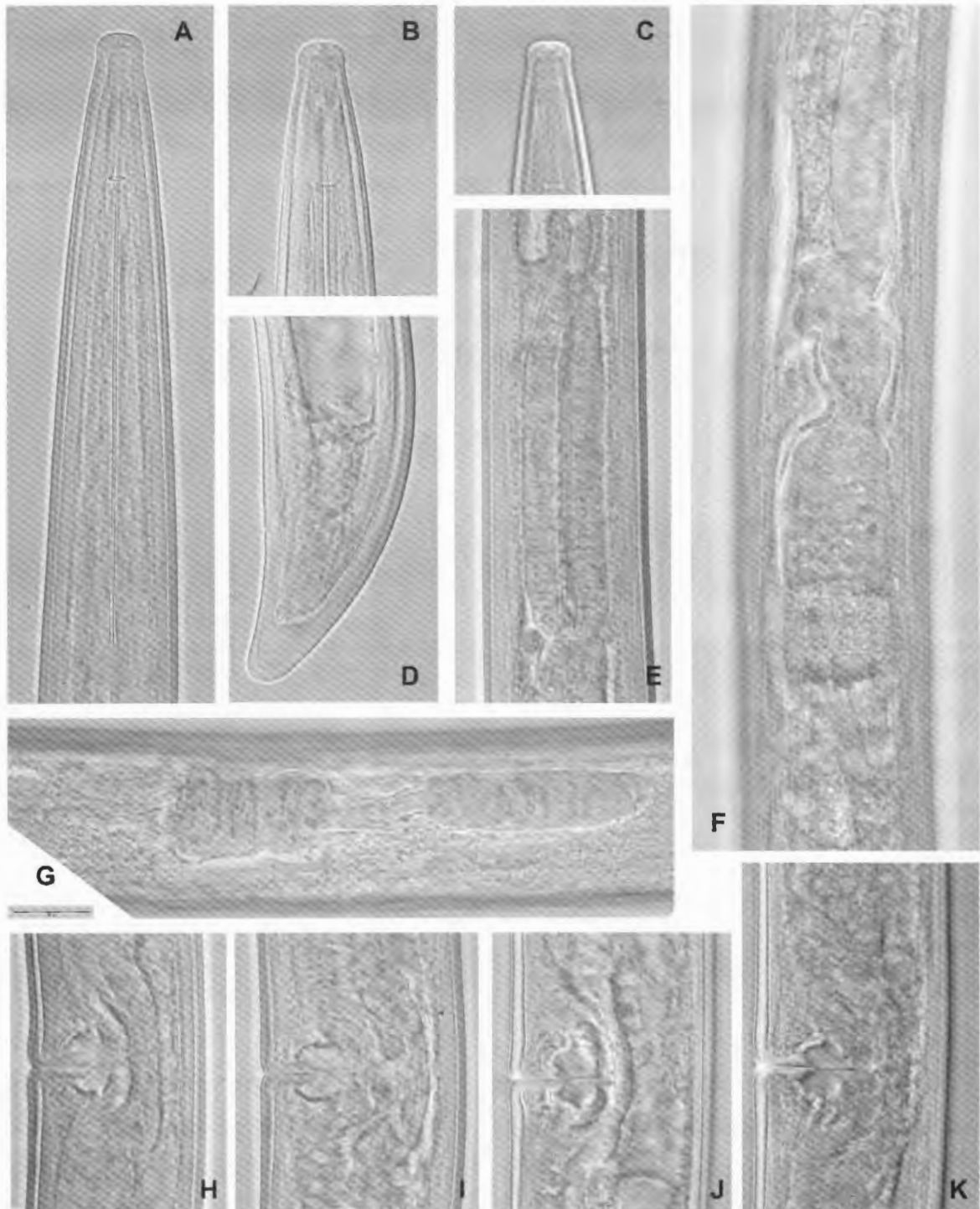


Fig. 2. *Longidorus holovachovi* sp. n. Female: A: Odontostyle region; B: Amphideal pouches; C: Head region; D: Tail end; E: Oesopahegal bulb; F: Posterior ovary with developing eggs; G: Anterior ovary of a young female. H-K: vaginal region, variations in vagina shape, J, K: different optical sections. Scale bar: A-K: 20 μ m.

Table 1. Measurements of females and juvenile stages of *Longidorus holovachovi* sp. n., Ukraine (mean \pm standard deviation, with range). Measurements are in μm .

Character	Holotype	Females	J1	J2	J3	J4
n		11	2	4	4	7
L	4475.0	4662.8 \pm 264.7 4349 - 5168	1076, 1058	1625.5 \pm 244.5 1287 - 1870	2627 \pm 109.7 2527 - 2778	3331 \pm 283.1 2979 - 3824
a	87.5	86.6 \pm 8.4 76.2 - 103.3	52.0, 53.0	55.1 \pm 7.5 43.9 - 59.8	74.2 \pm 3.4 69.5 - 77.4	78.5 \pm 4.3 72.6 - 84.1
b	9.4	9.6 \pm 0.5 9.0 - 10.9	4.1, 3.9	5.3 \pm 1.1 3.8 - 6.5	6.7 \pm 0.3 6.3 - 7.0	7.9 \pm 0.9 6.9 - 9.4
c	112.0	114.2 \pm 11.9 104.9 - 140.5	23.7, 22.0	31.8 \pm 2.8 27.8 - 34.2	53.3 \pm 2.8 50.8 - 57.2	71.0 \pm 6.7 64.0 - 84.7
c'	1.4	1.3 \pm 0.1 1.1 - 1.4	3.1, 3.5	2.6 \pm 0.2 2.3 - 2.8	2.0 \pm 0.1 1.9 - 2.1	1.6 \pm 0.1 1.4 - 1.8
V (%)	49.4	49.0 \pm 1.7 46.0 - 51.6				
G ₁ (%)	7.3	8.1 \pm 0.9 7.1 - 9.3				
G ₂ (%)	7.5	7.6 \pm 1.1 5.8 - 9.2				
*d	3.2	3.2 \pm 0.2 2.8 - 3.6				
**d'	1.7	1.8 \pm 0.1 1.6 - 1.9				
Odontostyle	133	129.7 \pm 3.2 122 - 133	68, 65	78.4 \pm 2.0 76 - 80	99.3 \pm 5.5 92 - 103	112.6 \pm 2.9 109.5 - 118
Replacement odontostyle			79, 79	93.5 \pm 9.7 83 - 103	116.8 \pm 4.8 112 - 122	132.1 \pm 8.6 122 - 148
Developing gonads			13,	19.3 \pm 0.96 18 - 20	26.5 \pm 2.6 24 - 30	47.3 \pm 6.1 43 - 57
Odontophore	72	71.4 \pm 3.8 64 - 77	38, 38	48.2 \pm 1.6 47 - 50	61.5 \pm 1.2 60 - 63	65.0 \pm 3.5 58 - 68
Oesophagus	477	484.7 \pm 22.5 455 - 518	259.5, 270	308.3 \pm 23.1 287.5 - 341	395.7 \pm 24.2 366 - 423	422.7 \pm 47.1 325 - 461
Bulbus length	96		51, 51	61,	75.0 \pm 4.1 72 - 81	85.6 \pm 6.6 78 - 98
Bulbus width	20		11.5, 11	15,	16.9 \pm 0.9 16 - 18	19.3 \pm 1.1 18 - 21
Anterior to guiding ring	40	38.9 \pm 1.4 37 - 41	18.5, 19	25.0 \pm 0.9 24 - 26	30.1 \pm 1.3 - 32)	33.8 \pm 1.6 32 - 37
Tail	40	40.8 \pm 2.3 37 - 44	45, 48	50.8 \pm 3.4 46 - 55	49.3 \pm 0.5 49 - 50	47.0 \pm 2.5 43 - 51
Length of hyaline part	17	17.7 \pm 1.4 16 - 20	8, 7	8.5 \pm 1.0 8 - 9	13.7 \pm 0.2 13 - 14.0	15.0 \pm 1.7 13 - 18
Body diameter at: - lip region	13	12.3 \pm 0.5 12 - 13	8, 8.5	9.3 \pm 0.5 9 - 10	10.2 \pm 0.3 10 - 10.5	11.4 \pm 0.5 11 - 12
- guiding ring	22	21.7 \pm 0.9 20 - 23	13, 13	15.3 \pm 1.2 14 - 17	17.3 \pm 1.0 16 - 19	20.0 \pm 1.2 18 - 22
- base of oesophagus	43	43.1 \pm 2.6 39 - 47	19.5, 20	27.3 \pm 1.5 26 - 29	33.1 \pm 1.5 31 - 34	38.4 \pm 4.5 34 - 48
- mid-body/at vulva	51	54.1 \pm 4.4 47 - 59	21, 20	29.5 \pm 2.1 28 - 32.5	35.4 \pm 1.8 33 - 37	42.5 \pm 3.9 37 - 48
- anus	29	32.6 \pm 2.3 29 - 36.5	14, 14	20.0 \pm 1.9 18.5 - 23	24.8 \pm 1.1 23.5 - 26	29.0 \pm 2.3 26 - 32.5
- hyaline part	18	19.1 \pm 1.1 17 - 20	6, 6	7.6 \pm 1.4 6 - 10	11.1 \pm 0.4 11 - 12	13.6 \pm 1.0 12 - 15

*d - dist. ant. end to guide ring length/body diam. at lip region; **d' - body diam. at guide ring/diam.at lip region (Brown *et al.*, 1994)

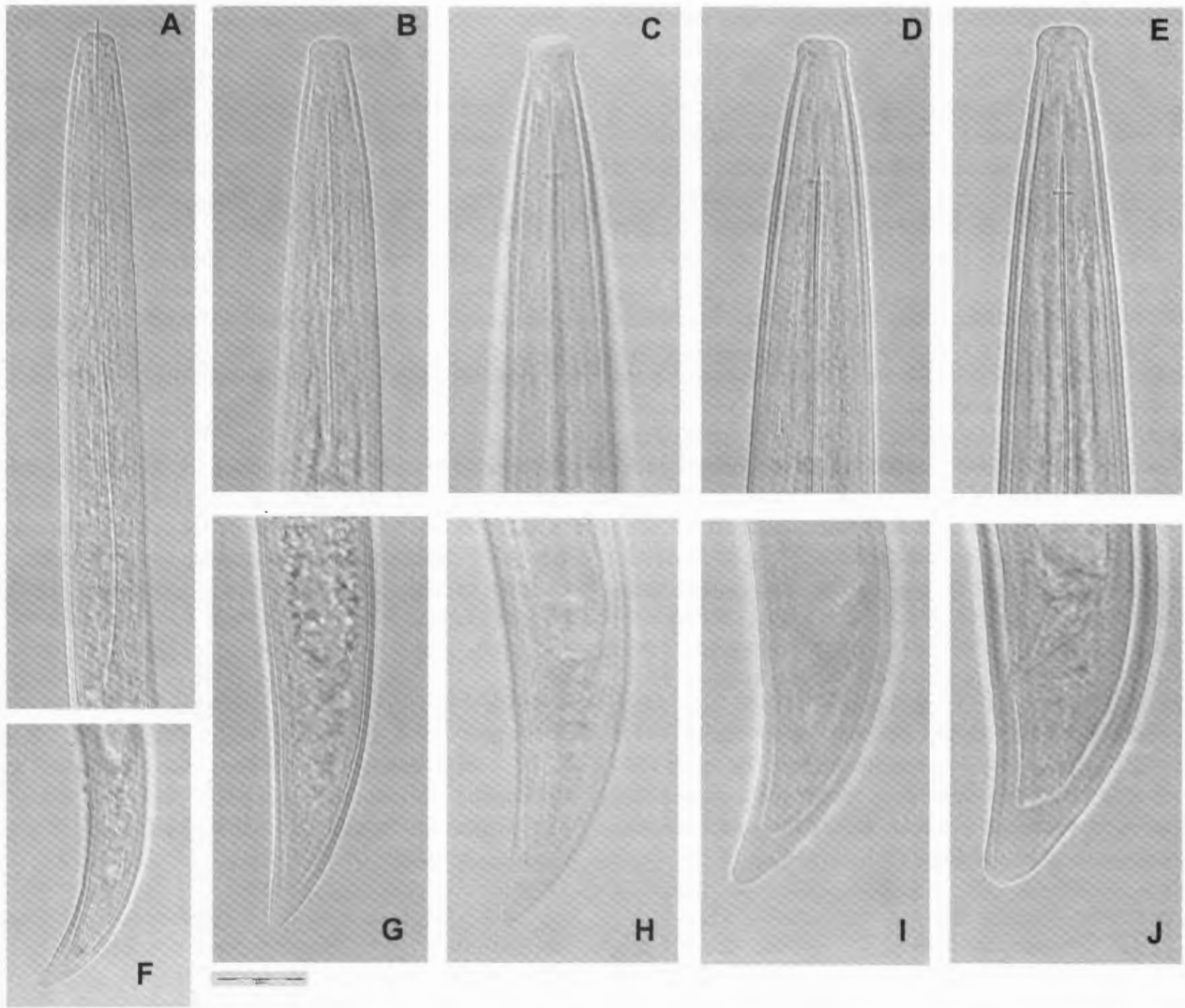


Fig. 3. *Longidorus holovachovi* sp. n. Juvenile: A-D: Head end of first-, second-, third- and fourth-stages; F-I: tail of first-, second-, third- and fourth-stages; Female: E: Anterior end; J: Tail end. Scale bar: 20 μ m.

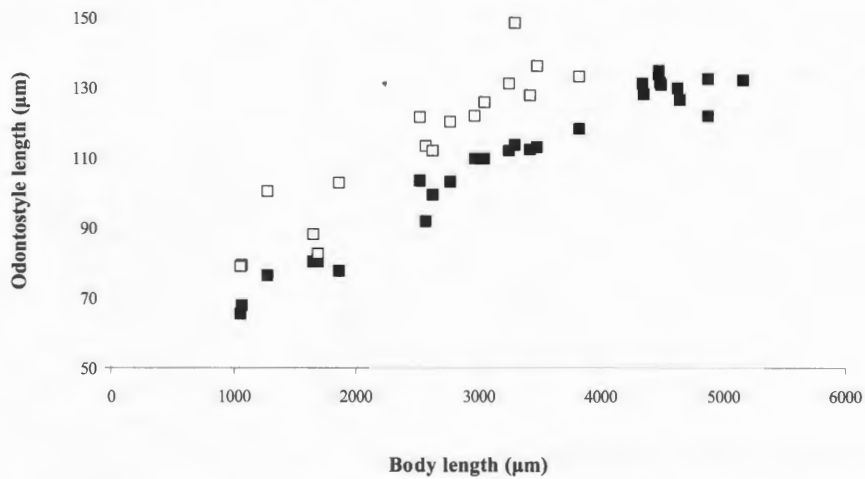


Fig. 4. Scatter plot of the functional and replacement odontostyles in relation to body length of the juvenile development stages of *Longidorus holovachovi* sp. n.

slightly expanded, anteriorly and laterally rounded, set-off by a shallow depression. Labial papillae not prominent. Cuticle 2.5 μm thick behind lip region, 2.5-3 μm along the body and 5 μm on tail posterior to anus. Hypodermal chord 15-19 μm wide; 9-11 lateral pores in odontostyle and odontophore regions as one dorsal and 3-4 ventral pores; lateral body pores difficult to observe. Amphidial pouches distinctly bilobed, extending to half the distance between anterior end and guide ring or slightly less. Nerve ring surrounding the odontophore just before its base, sometimes surrounding the odontophore base, at 203.1 ± 4.2 (197.5-210) μm , $n=10$, from anterior end, second well developed nerve ring observed at 89-110 μm from the first nerve ring. Muscular bulb 4-5 times longer than wide, oesophago-intestinal valve small, broadly rounded. Nuclei of the dorsal and subventral glands situated at 34% (31-37), $n=4$ and 54% (52-56), $n=8$ of the distance from anterior end of the pharyngeal bulb. Dorsal gland nuclei 1-1.5 μm diam., subventral gland nuclei 2-2.5 diam. Vagina extending to *ca* half corresponding body width. *Pars distalis vaginae* 14-16 μm and *pars proximalis vaginae* 10-14 μm long, respectively. Uteri short, anterior uterus 105.8 ± 11.4 (83-122.5) μm , $n=11$, posterior uterus 99.2 ± 8.9 (77-111) μm , $n=10$, not filled with sperm cells, moderately developed sphincter between uterus and *pars dilatata oviductus*. Uterus differentiated, consisting of two parts equal in length, the proximal one with glandular appearance; ovary with peculiar structure (Fig. 1, M; 2, F,G). Pre-rectum 293.5 ± 71.3 (182.5-462.5) μm , $n=11$; rectum 31.7 ± 3.1 (28-35) μm , $n=9$ or about one body diameter at anus level. Tail short, bluntly conoid, terminus broadly rounded. Two pairs of lateral pores.

Juveniles. Similar to female in general appearance, but in all specimens a replacement odontostyle is present in the pharyngeal wall. In the first-stage juveniles the tip of the replacement odontostyle is situated near the base of the functional odontostyle, whereas in the subsequent stages it is situated near the base of odontophore. Examination of the morphometrics obtained from juvenile specimens, and of the relationship between the lengths of their functional and replacement odontostyles and body lengths (Figure 4), revealed the presence of four juvenile stages. The tail of the first-stage juveniles has a similar appearance to the tail shape of subsequent juvenile stages, only the anal body width increases, as is the case for the *L. elongatus* group (Hooper, 1961; Peneva *et al.*, 2001).

Differential diagnosis and relationships.

Longidorus holovachovi n. sp. is a parthenogenetic species with a medium body size, long odontostyle, narrow, anteriorly rounded and slightly expanded

head region, pocket shaped bilobed amphids, posteriorly situated guide ring, conoid tail and normal arrangement of pharyngeal glands. Development is through four juvenile stages.

The alpha-numeric codes for *L. holovachovi* n. sp. to be applied to the polytomic identification key for *Longidorus* species by Chen *et al.* (1997) are: A5, B12, C34, D4?, E2, F2(3), G12, H4, I1.

Longidorus holovachovi n. sp. belongs to a group of species that have a slightly expanded head region and a conoid tail. This group includes *L. aetnaeus* Roca *et al.*, 1986, *L. attenuatus* Hooper, 1961, *L. alvegus* Roca *et al.*, 1989, *L. artemisiae* Rubtsova *et al.*, 1999, *L. danuvii* Barsi *et al.*, 2007, *L. distinctus*, *L. dunensis* Brinkman *et al.*, 1987, *L. leptocephalus* Hooper, 1991, *L. rubi*, *L. sturhani* Rubtsova *et al.*, 2001 and *L. sylphus*. From all these species it can be differentiated by its longer odontostyle, and more posterior position of the guide ring. Further, it differs: from *L. attenuatus* and *L. alvegus* by having shorter ($L=4.3-5.2$ mm vs $L=5.2-7.5$ mm and $L=6.3-7.8$ mm, respectively) and more plump ($a=76.2-103.3$ vs $a=199-210$ and $a=172.4-210.8$, respectively) body, lower c' value (1.1-1.4 vs 1.5-1.75 and 2.0-2.9, respectively) (Brown & Boag, 1977), additionally, *L. alvegus* has a longer and differently shaped tail (62.5-81 μm vs 37-44 μm) and wider lip region (13-16 μm vs 11.5-13 μm); from *L. aetnaeus* by its longer body ($L=4.3-5.2$ mm vs $L=2.7-3.7$ mm), shorter tail (37-44 μm vs 53-62 μm , $c'=1.1-1.4$ vs $c'=1.8-2.1$) and wider lip region (11.5-13 μm vs 9-10 μm); from *L. danuvii* by its more plump body ($a=86.0$ (76.2-103.3) vs $a=123.5$ (108-137.6) and 119.5 (99.8-134.6)), lower values for c' ($c'=1.1-1.4$ vs $c'=1.15-2.02$ and $c'=1.7-2.34$), higher values for d ($d=2.8-3.6$ vs $d=1.8-2.4$) and d' ($d'=1.6-1.9$ vs $d'=1.3-1.6$) (Barsi *et al.*, 2007); from *L. distinctus*, *L. rubi* and *L. sylphus* by having a shorter and differently shaped tail (37-44 μm vs 53-65 μm , 53-62 μm and 42-50 μm ; $c=104.9-140.5$ vs $c=54-88$, $c=70-87$ and $c=84-98$; $c'=1.1-1.4$ vs 1.7-2.4, $c'=1.8-2.1$ and $c'=1.4-1.6$) (Lamberti *et al.*, 1983; Robbins & Brown, 1995; Romanenko, 1998); from *L. dunensis* by its shorter ($L=4.3-5.2$ mm vs $L=5.4-7.4$ mm) and more plump body ($a=79.2-103.3$ vs $a=120-160$) and narrower lip region (11.5-13 μm vs 14-16 μm); from *L. artemisiae* by having a shorter and more plump body ($L=4.3-5.2$ mm vs $L=5.1-6.5$ mm; $a=79.2-103.3$ vs $a=109-155$), differently shaped amphidial pouches (distinctly bilobed vs without distinct lobes) and absence of males; from *L. sturhani* by having higher d values ($d=2.8-3.6$ vs $d=1.7-2.2$) and narrower lip region (11.5-13 μm vs 14-17 μm).

The new species is also close to *L. americanum* Handoo *et al.*, 2005, *L. cylindricaudatus* Kozłowska

& Seinhorst, 1979 and *L. seinhorsti* Peneva *et al.*, 1998. From *L. americanum* it can be distinguished by having a shorter body ($L=4.3-5.2$ mm vs $L=5.4-9$ mm), odontostyle (129.7 μ m ($122-134$) vs 141.9 μ m ($124-164$) and tail ($37-44$ μ m vs $51-67$ μ m), narrower and less expanded lip region ($11.5-13$ μ m vs $26-28$ μ m), differently shaped amphidial pouches and absence of males; from *L. cylindricaudatus* by differently shaped lip region (slightly expanded vs almost cylindrical), and tail (conoid vs almost rounded, code H4 vs H2), more posterior position of the guiding ring ($37-41$ μ m vs $33-38$ μ m) and longer functional/replacement odontostyle in the first two stages ($65-68$ μ m vs $47-55$ μ m for functional odontostyle, and 79 μ m vs $53-58$ μ m for replacement odontostyle in first-stage juveniles; $76-80$ μ m vs 63 μ m and $83-103$ μ m vs 65 μ m, respectively, in second-stage juveniles; from *L. seinhorsti* - by having more plump body ($a=76.2-103.3$ vs $a=107-133$), narrower lip region ($11.5-13$ μ m vs $21-22$ μ m), more posteriorly situated guide ring ($37-41$ μ m vs $30-33$ μ m), differently shaped tail, shorter uteri, different ovarium structure (appearance) and absence of males.

Type locality and habitat. Collected on July 25th, 2002 by Dr O. Holovachov, the L'viv National University, Ukraine, from soil around a beech tree (*Fagus sylvatica* L.) in a beech forest on the southwestern slope, 1215 m asl, Mentchul Mountain, Chornohora Mountainous Ridge, The Carpathians, Kvasy Village, Rakhiv District, Zakarpatska Province, Ukraine ($48^{\circ}9'25''N$; $24^{\circ}20'15''E$).

Type material. Holotype, three paratypes females and eight juveniles deposited in the nematode collection of Riverside Nematode Collection, University of California, Riverside, USA, other paratypes deposited: in the nematode collection of the CABI Bioscience, UK Centre Surrey, UK (2 paratype females and 4 paratype juveniles); in the USDA Nematode Collection, Beltsville, Maryland, USA (2 paratype females); State Museum of Natural History, L'viv, Ukraine (2 paratype females and 5 paratype juveniles); at the Central Laboratory of General Ecology, Sofia, Bulgaria (2 paratype females).

Etymology. The new species is named after Dr O. Holovachov in recognition of his contribution to the nematode taxonomy and because he has collected the samples containing that unknown longidorid species.

Xiphinema sp. (Figs 4-5)

Measurements: Females ($n=6$): $L = 2.06 \pm 0.1$ ($1.9-2.2$); $a = 50.8 \pm 1.9$ ($48.2-52.7$); $b = 6.0 \pm 0.24$ ($5.7-6.3$); $c = 68.6 \pm 4.6$ ($62.5-74.8$); $c' = 1.1 \pm 0.05$

($1.0-1.1$); $V = 51.5 \pm 0.8$ ($50.2-52.6$); Odontostyle = 96.0 ± 2.8 ($91-98$); Odontophore = 56.1 ± 2.4 ($53-59.5$); Anterior to guiding ring = 75.5 ± 2.5 ($71-78$); Tail = 30.1 ± 2.1 ($27.5-33$); Length of hyaline part = 9.5 ± 1.2 ($8-11$); Body diameter at: lip region = 13.9 ± 0.4 ($13-14$); guiding ring = 30.9 ± 1.8 ($29-34$); oesophagus base = 37.5 ± 1.25 ($35-38.5$); vulva = 40.5 ± 2.03 ($38-44$); anus = 27.5 ± 1.3 ($26-29$); hyaline part = 14.3 ± 1.6 ($13-17$); Oesophagus length = 340.5 ± 9.7 ($322-348$) μ m; Bulb length 83.1 ± 3.1 ($77-85$) μ m; Bulb width = 20.7 ± 1.0 ($19-22$) μ m.

Juvenile ($n=1$) $L = 1.58$ mm; $a = 49.2$; $b = 5.6$; $c = 44.0$; $c' = 1.56$; Odontostyle = 79 ; Odontophore = 43.5 ; Anterior to guiding ring = 63 ; Tail = 36 ; Length of hyaline part = 9 ; Body diameter at: lip region = 13 ; guiding ring = 26.5 ; oesophagus base = 32.5 ; mid-body = 32 ; anus = 23 ; hyaline part = 11 ; Oesophagus length = 281 μ m; Bulb length = 73 μ m; Bulb width = 18 μ m.

Female. Body open C shaped after fixation. Cuticle 2 μ m thick behind lip region, $2-2.5$ μ m along the body and $4-5$ μ m on tail posterior to anus. Labial region flatly rounded, $4-5$ μ m high, set-off from the rest of the body. Amphids hardly visible, its opening $5-6$ μ m ($36-43\%$ of the corresponding body width). Odontostyle with poorly developed basal collar $3-8$ μ m; odontophore base $9-11$ μ m wide. Dorsal nucleus 2 μ m diameter, situated at $18.6-22.6\%$ ($n=6$) of the distance from anterior end of the pharyngeal bulb, subventral gland nuclei could not be observed. A small vestigium $2-3$ μ m long observed in the slender part of oesophagus at $183-210$ μ m from the anterior end. Cardia small, flatly rounded. Lateral chord $12-13$ μ m wide at mid-body, with glandular structure. Nerve ring at a short distance behind the odontophore base, at 176.3 ± 2.8 ($173-179$) μ m from the anterior end. Reproductive system amphidelphic, symbiont bacteria present in the ovaries. Uteri comparatively long, anterior uterus 63.9 ± 3.85 ($58-67$), $n=5$, posterior uterus 57.1 ± 2.7 ($55-61$), $n=4$; ovejector weakly developed and not clearly demarcated; vagina $50-54\%$ of the corresponding body width; *pars distalis vaginae* 12.5 ± 0.55 ($12-13$), *pars proximalis vaginae* 7.8 ± 0.4 ($7-8$). Sperm cells not observed in any of the females. Tail conical, dorsally convex, ventrally almost straight with narrowly rounded terminus. Two caudal pores present on each side.

Juvenile. Only one juvenile was recovered. It was identified as a fourth-stage juvenile on the basis of the length of the functional and replacement odontostyle.

Locality and habitat. Khotsun' village, Lubeshiv District, Volynska Province, meadow,

collected on 6.06.2002 by Dr. O. Holovachov, the L'viv National University, Ukraine.

Remarks. The alpha-numeric codes for *Xiphinema* sp. to be applied to the polytomic identification key for species belonging to the *Xiphinema americanum* group by Lamberti *et al.* (2004) are, A4, B2, C1/2, D3, E2/3, F1, G2, H2, I2. According to them the closest species are *X. brevicollum* Lordello & Da Costa, 1961 and *X. taylori* Lamberti, Ciancio, Agostinelli & Coiro, 1991. These two species are considered as synonyms by Luc *et al.* (1998); however, the synonymy is not widely accepted, especially as there is evidence supporting the validity of the two species (Lazarova *et al.*, 2006). *Xiphinema* sp. from

Ukraine differs from *X. brevicollum* topotypes (Laberti *et al.*, 1991; Luc *et al.*, 1998) by its shorter odontostyle (av. 96 μm vs av. 101.9 μm and 101 μm , respectively), longer tail (av. 30.1 μm vs 26.8 μm and 26 μm , respectively), more anterior situated guide ring (av. 75.5 μm vs 86.3 μm and 86 μm , respectively), wider lip region (av. 13.9 μm vs 11.5 μm and longer uteri (av. 63.9 μm for anterior uterus vs 42 μm (calculated from the drawing by Lamberti *et al.*, 1991). From the paratypes of *X. taylori* the population from Ukraine differs by the lower *c* values (av. *c* = 68.6 vs av. *c* = 83.0), body width at hyaline part of tail (13-17 μm vs 18-23.5 μm) and different tail shape – conical with narrowly rounded terminus vs conical with broadly rounded terminus.

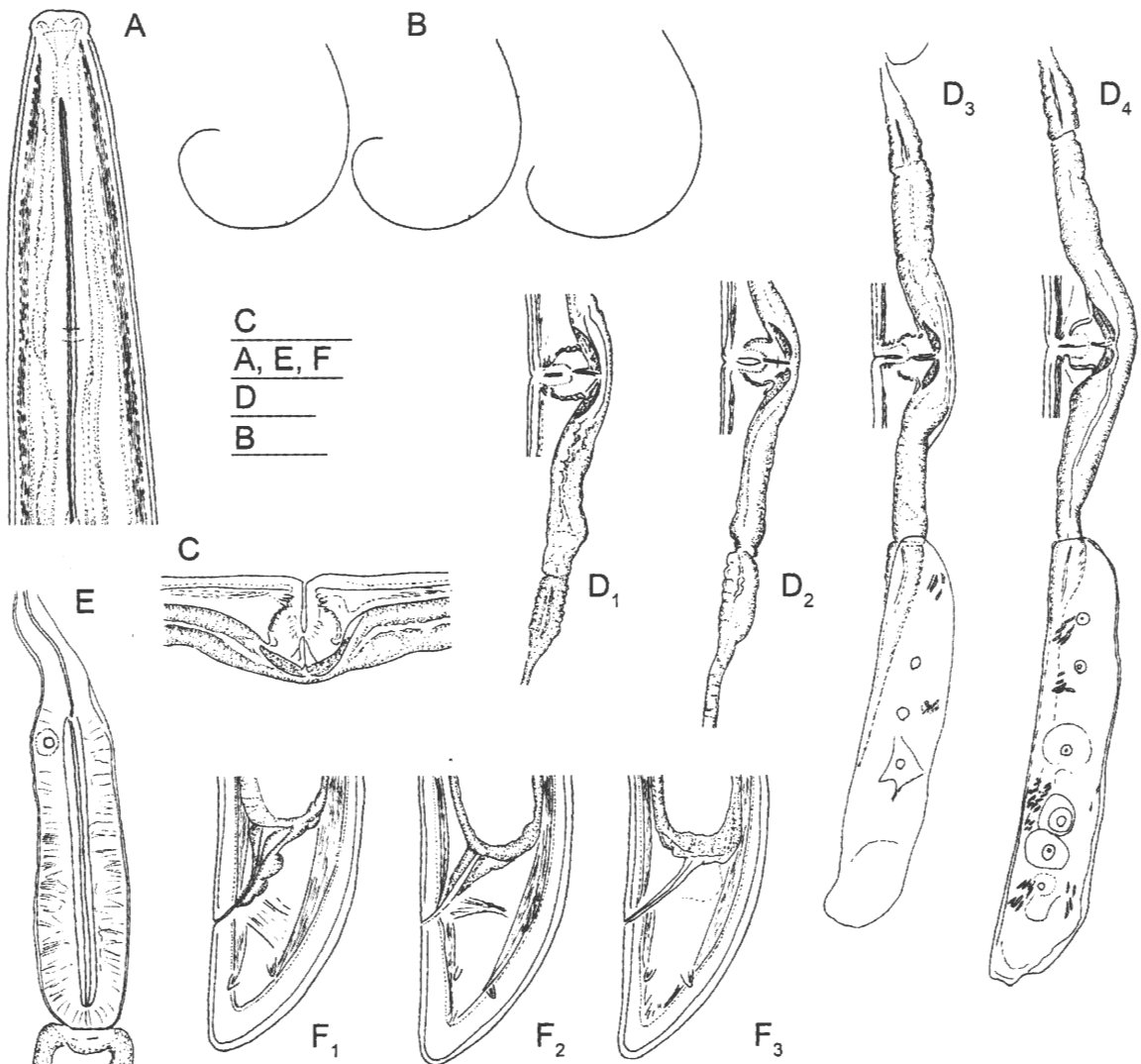


Fig. 5. *Xiphinema* sp. Females. A: Anterior end; B: Body posture after fixation; C: Vaginal region; D1-D4: Reproductive system, D1, D2: Vagina, posterior uterus and *pars dilatata oviductus*; D3, D4: Vagina, posterior and anterior uterus and *pars dilatata oviductus*, posterior ovary; E: Oesophageal bulb; F1-F3: Variation in tail shape. Scale bars: A, C-F: 25 μm ; B: 500 μm .

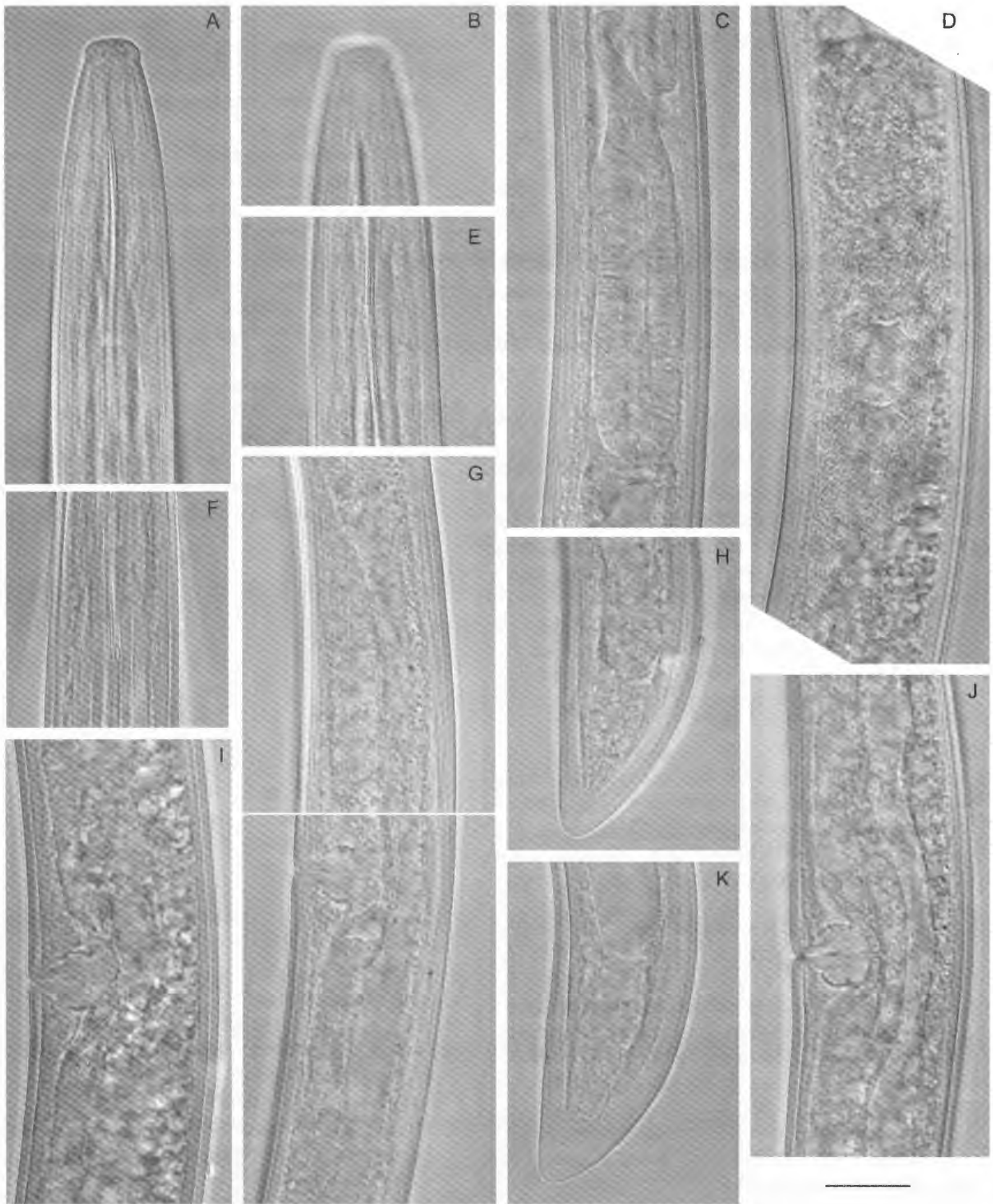


Fig. 6. *Xiphinema* sp. Females. A: Anterior end; B: Lip region with amphid; C: Oesophageal bulb; D: Anterior ovary with symbiotic bacteria; E: Basal collar; F: Junction of odontostyle with odontophore; I, J: vaginal region; G: Uteri and anterior and posterior *pars dilatata oviductus*; H, K: Tail ends. Scale bar: 20 μ m.

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V. K. Peneva, A. Sususlovsky, S. Lazarova. Описание *Longidorus holovachovi* sp. n. (Nematoda: Dorylaimida) и *Xiphinema* sp., относящейся к группе *Xiphinema americanum* из Украины.

Резюме. Дано описание вида *Longidorus holovachovi* sp. n., обнаруженного на Украине в буковом лесу в Карпатах. *Longidorus holovachovi* sp. n. представляет собой партеногенетический вид со средними размерами тела (4.3-5.2 мм), длинным одонтостилем (122-134 μm), узким, закругленным спереди и слегка расширенным головным концом (11.5-13 μm), кармановидными, отчетливо двулопастными амфидами, смещенным назад направляющим кольцом (37-41 μm), нормальным расположением пищеводных желез и коротким коническим хвостовым концом с широко округленной оконечностью. Выделены четыре личиночные стадии. Приведены данные по морфологии также обнаруженного вида *Xiphinema* sp. из группы *X. americanum* и обсуждаются его взаимоотношения с ближайшими видами: *X. brevicollum* Lordello & da Costa, 1961 и *X. taylori* Lamberti, Ciancio, Agostinelli, & Coiro, 1991.
