

Redescription of *Longidorus rubi* Tomilin & Romanenko in Romanenko, 1993 (Nematoda: Longidoridae) associated with raspberry in the Poltava region, Ukraine

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Summary. *Longidorus rubi* Tomilin & Romanenko in Romanenko, 1993, is redescribed and illustrated from paratypes. *Longidorus rubi* is most similar to *L. pini* Andres & Arias, 1987, *L. longicaudatus* Siddiqi, 1962, *L. distinctus* Lamberti *et al.*, 1983 and *L. nirulai* Siddiqi, 1965.

Key words: Longidoridae, *Longidorus rubi*, nematode, raspberry, Ukraine.

Tomilin & Romanenko (1991) briefly described a new *Longidorus* species recovered from soil samples collected in the Ukraine in the proceedings of a scientific conference "*The Evolution Theory and Problems of Plant Nematology*", held in Moscow in 1991. Tomilin also described the species in his Candidate Thesis (1991). However, the species was first named, and additional taxonomic data were provided, in a monograph by Romanenko (1993). The present paper gives a more detailed description of the morphology, morphometrics and type localities of *L. rubi*, and presents a differential diagnosis.

Longidorus rubi was found in 1990, in association with other longidorid nematodes, *Xiphinema brevicolle* Lordello & Da Costa, 1961, (or *X. taylori* Lamberti *et al.*, 1992) and *L. distinctus* Lamberti, Choleva & Agostinelli, 1983, in the rhizosphere of raspberry, *Rubus idaeus* L., (18-66 specimens per 100 ml of soil) and apple, *Malus domestica* Borkh., (2-16 specimens per 100 ml of soil) in the Poltava region, Ukraine. The raspberry plants were infected with a complex of nepoviruses (raspberry ringspot and arabis mosaic) and showed typical symptoms of virus infection i.e. mosaic and ringspots. In 1995, individual specimens of *L. rubi* were identified in a collection of material obtained from the Kalmykia Experimental Station of the Institute of Forestry of the Russian Academy of Sciences. The nematodes were recovered from samples collected from the rhizosphere of raspberry and black currant (*Ribes nigrum* L.).

MATERIAL AND METHODS

Longidorid nematodes were extracted from soil samples by the decanting and sieving method of Flegg (1967), killed by heat (60 °C), fixed in 4% formalin and processed and mounted in anhydrous glycerin according to Seinhorst (1959).

DESCRIPTION

Longidorus rubi Tomilin & Romanenko in Romanenko, 1993 (Fig. 1)

Holotype female: L=4.53 mm; a=111; b=10.7; c=79; c'=2.0; V%=48; odontostyle=78 µm; odontophore=53 µm; stylet=131 µm; distance from anterior end to guiding ring=30 µm; pharyngeal bulb=93 x 18 µm; lip region width=12 µm; body diameter at guiding ring=18 µm, at base of pharynx=34 µm, at vulva=41 µm, at anus=29 µm; length of hyaline part of tail=12.5 µm.

Paratype females (n=15): L=4.3 (4.0-4.7) mm; a=106 (92-118); b=11.2 (9.9-13.8); c=77 (70-87); c'=1.9 (1.8-2.1); V%=48 (45-53); odontostyle=78 (78-82) µm; odontophore=55 (49-57) µm; stylet=133 (127-139) µm; distance from anterior end to guiding ring 31 (29-33) µm; pharyngeal bulb 99 (90-103) x 20 (16-21) µm; body diameter at guiding ring=19 (16-21) µm, at base of pharynx=36 (33-37)

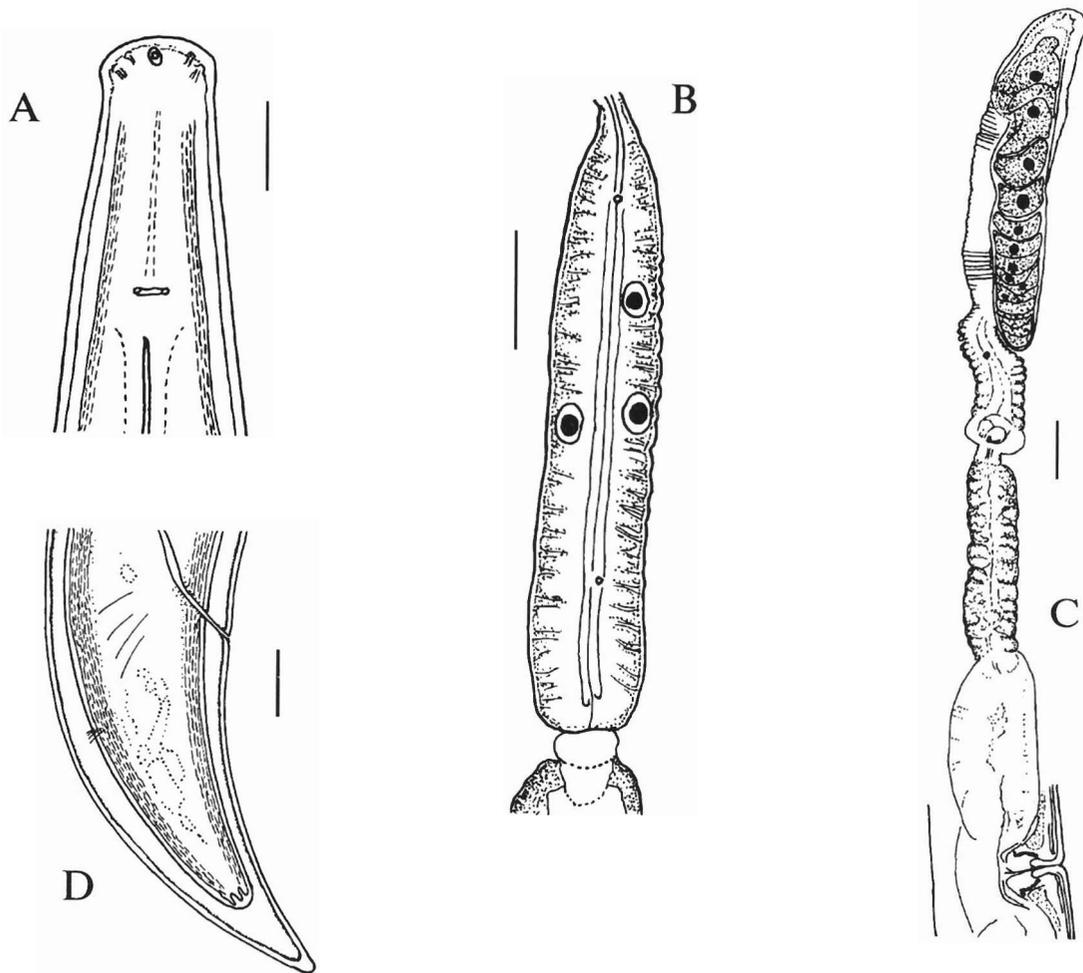


Fig. 1. *Longidorus rubi* Tomilin & Romanenko, 1993 in Romanenko, 1993. A: Head, B: Oesophagus; C: Genital branch; D: Tail. Scale bars: A, D - 10 μm , B, C - 20 μm .

μm , at vulva=41 (37-41) μm , at anus=29 (29-33) μm , at hyalin part of tail=10.7 (8.2-12.3) μm ; tail length=58.2 (53-62) μm ; length of hyaline part of tail=12.6 (8.2-16.4) μm .

Females. Body long and narrow, of moderate size, curved ventrad in an open "C" shape when killed by heat. Inner layer of cuticle thickened in the anterior part of neck and on the tail. Usually three lateral pores in the odontostyle region, the anterior one about the level of the guide ring; one or two dorsal and ventral pores. Lip region rounded, offset by a depression. Amphid large, pouch-like, symmetrically bilobed. Distance of guide ring from anterior end 2.3-2.7 times the width of the lip region. Anterior part of pharynx slender, often convoluted posteriorly. The opening of the dorsal gland lies near the anterior end of the bulb, the nucleus lies 1.5-2.0 bulb widths posterior to it. Nuclei and orifices of the ventrosub-

lateral glands about halfway along the bulb. Vulva a transverse slit, vagina about one-third of body diameter. Gonads paired, symmetrical, thorn-like structures in the oviducts, ovaries reflexed. Tail elongate, slightly curved ventrad, with distal part offset (plesiomorph). Usually two pairs of adanal and four pairs of caudal pores.

Males. Not found.

Juveniles. Not found.

Diagnosis. *Longidorus rubi* is characterized by having a body length of 3-5 mm, $a=83-113$, rounded lip region, offset by depression, symmetrically bilobed amphids and elongate-conoid tail with offset distal part. The identification code for use in the polytomous identification key for *Longidorus* species by Chen *et al.* (1997) is: A23, B2, C23, D2, E2, F2, G2, H56, I1.

Relationships. By the relatively long tail with

offset distal part *L. rubi* is similar to *L. pini* Andres & Arias, 1988, *L. longicaudatus* Siddiqi, 1962 and *L. nirulai* Siddiqi, 1965. It differs from these species as follows:

- From *L. pini* by having a longer odontostyle (78-82 vs 65-70 μm) and odontophore (49-57 vs 38-49 μm); greater distance from GR to head end (29-33 vs 26-27 μm) and wider lip region (12.3 vs 8.5-9.5 μm , code B2 vs B1 in Chen *et al.*, 1997).

- From *L. longicaudatus* by greater body length (3.9-4.7 vs 2.2-3.0 mm, code F2 vs F1 in Chen *et al.*, 1997), more slender body ($a=92-118$ vs 73-88), higher indices "b" (9.9-13.8 vs 7.0-8.2) and "c" (70-87 vs 40-50) and shorter odontostyle (78-82 vs 92-100 μm). The amphid shape of *L. longicaudatus* is unknown.

- From *L. nirulai* by the lip region being rounded vs flattened (code D2 vs D3 in Chen *et al.*, 1997), higher index "c" (70-87 vs 54-66), shorter odontostyle (78-82 vs 100-106 μm), by the amphids being shallowly bilobed vs deeply bilobed, and possibly by the absence of males.

Furthermore, *L. rubi* is similar to *L. distinctus* Lamberti, Choleva & Agostinelli, 1983; the morphometrics are practically identical. It differs from this species by having an apparently more rounded lip region, an offset distal tail part, the amphidial pouch being longer and symmetrically bilobed (vs asymmetrically) and possibly by the absence of males.

Type material. Holotype and paratypes (71/1) deposited in the Phytonematology Laboratory, Institute of Parasitology, Moscow.

Type habitat and locality. Soil collected from around the roots of *Rubus idaeus* L. and *Malus*

domestica Borkh. growing in the village of Kopili, near the city of Poltava, Ukraine.

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Романенко Н.Д. Переописание *Longidorus rubi* Tomilin & Romanenko in Romanenko, 1993 из ризосферы малины в Полтавской области, Украина.

Резюме. По результатам изучения паратипов приводится переписание и новые рисунки вида *Longidorus rubi* Tomilin & Romanenko in Romanenko, 1993, наиболее близкого к *L. pini* Andres & Arias, 1987, *L. longicaudatus* Siddiqi, 1962, *L. distinctus* Lamberti *et al.*, 1983 и *L. nirulai* Siddiqi, 1965.
