

A review of the genus *Mononchoides* Rahm, 1928, with description of two new species from European Russia (Nematoda: Diplogasterida)

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Gagarin, V.G. 1998. A review of the genus *Mononchoides* Rahm, 1928, with description of two new species from European Russia (Nematoda: Diplogasterida). *Zoosystematica Rossica*, 7(2): 229-238.

A description of the genus *Mononchoides* Rahm, 1928, a list of species with their synonyms and a key to species are given. The following new synonymies are established: *Mononchoides* Rahm, 1928 = *Glauxinema* Allgen, 1947; *M. americanus* (Steiner, 1930) = *M. adjunctus* Massey, 1966; *M. andrassyi* (Timm, 1961) = *M. andersoni* Ebsary, 1986. *Diplogaster* (*Eudiplogaster*) *elegans* Weingärtner, 1955 and *D. (E.) leptospiculum* Weingärtner, 1955 are considered as *species incertae sedis*. *Mononchoides paramonovi* sp. n. and *M. microstomus* sp. n. found in saprobios in Yaroslavl' Prov. of Russia are described and illustrated.

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Introduction

The genus *Mononchoides* was established by Rahm (1928) for the species *Mononchoides longicauda*. Rahm considered as main morphological characteristics of this genus the following ones: (a) division of buccal cavity into two parts, of which the posterior part is prismatic; (b) dorsal tooth large, claw-like, mobile. Paramonov (1952) had erected the genus *Eudiplogaster* with similar morphological characteristics. Goodey (1963) extended and emended the diagnosis of the genus *Mononchoides* and listed 10 species in this genus. He synonymized *Eudiplogaster* Paramonov, 1952 with *Mononchoides* Rahm, 1928. Some nematologists (Calaway & Tarjan, 1973; Gagarin, 1983; Andrassy, 1984; Ebsary, 1986) emended the diagnosis of the genus and revised the list of included species. We examined morphological characteristics and systematics of the genus *Mononchoides* using published data (Körner, 1954; Weingärtner, 1955; Andrassy, 1958; Meyl, 1961; Paramonov, 1964) and extensive original material of the species *M. intermedius* Gagarin, 1993, *M. paramonovi* sp. n., and *M. microstomus* sp. n.

Genus *Mononchoides* Rahm, 1928

Syn.: *Diplogaster* subg. *Loxolaimus* Rahm, 1928; *Loxolaimus*: Sch.Stekhoven, 1951; *Glauxinema* Allgen, 1947, syn. n.; *Eudiplogaster* Paramonov, 1952; *Diplogaster* subg. *Eudiplogaster*: Weingärtner, 1955; *Tridontus* Khera, 1965.

Type species *Mononchoides longicauda* Rahm, 1928.

Diagnosis. Neodiplogasterinae. Body length 0.6-3.4 mm. Males smaller and slenderer than females. Cuticle thin, with fine transverse striae and longitudinal ridges. Transverse striae arising from pointed sclerotia; longitudinal ridges formed by larger sclerotia: lines, ribs, and staves. Ridges 14-40 in number, but usually 20-26 (Table 1). They stretch along the body from head to tail base. Head continuous with body. Front edge of head flattened. No lips; lip tubercles present. 6 setiform labial papillae arranged around oral opening. Papillae length 1-8 μ m. Males, in addition, have 4 setiform papillae placed behind the former ones. Amphids slit-like, at level of metastomal teeth. Buccal cavity (stoma) divided into two parts: broader anterior part, composed of cheilo-, promeso- and metarhabdions, and narrower posterior part, composed of telorhabdions only. Length of stoma usually greater than

Table 1. Measurements of species of the genus *Mononchoides*.

Species	L, mm	a	b	c	c'	V	Num- ber of longi- tudi- nal ridges	Telo- stoma length: telo- stoma width	Oeso- phagus anterior section: oeso- phagus pos- terior section	Tail : vulva- anus	Spi- cula length, µm
<i>americanus</i> (Steiner, 1930)	0.9	18	5.9	4.0	10	46	24	2.0	2.0	0.9	45
<i>andrassyi</i> (Timm, 1961)	1.1-1.4	25-36	6.8-7.9	2.4-3.0	18-28	36-39	20	2.0	1.5	1.5	36-42
<i>armatus</i> (Hofmänner, 1913)	0.9-1.3	20-31	3.7-4.5	4.8-8.0	7-8	45-55		3.0	1.6	0.5	48-56
<i>bollingeri</i> Goodrich et al., 1968	1.6-3.4	23-30	6.9-9.2	1.5-3.0	30	26-40	39	2.0	1.4	2.0	26-42
<i>changi</i> Goodrich et al., 1968	1.2-1.7	13-29	6.1-8.8	1.8-3.4	21	31-41	40	1.7	1.6	1.5	48-49
<i>filicaudatus</i> (Allgen, 1947)	1.0	30	6.8	2.9	15	40		2.0	2.0	1.4	
<i>flavellicaudatus</i> (Andrássy, 1962)	0.9	34	7.2	2.7	20	38	28-30	2.0	1.5-2.1	1.5	32-35
<i>fortidens</i> (Sch. Stekhoven, 1951)	1.5	36	7.3	2.2	24	34	22-24	1.5	1.6	2.2	
<i>gracilis</i> Dasonville & Heyns, 1984	1.1-1.4	25-35	6.5-9.0	2.9-3.3	19-24	38-43	30		1.6	1.2	50-55
<i>intermedius</i> Gagarin, 1993	1.1-1.2	23-25	6.6-7.0	3.2-3.3	13-15	40-41	32-36	2.0-2.1	1.5	1.1	35
<i>longicauda</i> Rahm, 1928	1.4-2.5	18-32	7-9	2.8-3.7	30	52-65		2.1	1.5	2.9	45
<i>longicaudatus</i> (Khera, 1965)	1.1-1.4	21-28	6.2-7.2	2.3-2.5	20	34-38	16		1.6	1.9	25
<i>microstomus</i> sp. n.	1.0-1.5	17-31	6.8-9.3	2.0-3.2	15-24	28-39	24-26	1.0-1.4	2.0-2.3	1.2-1.5	36-42
<i>paramonovi</i> sp. n.	1.0-1.5	22-40	6.7-9.3	1.8-2.3	21-32	26-33	24-26	1.8-2.3	2.0-3.0	2.0-3.1	36-42
<i>parastriatus</i> (Paesler, 1936)	0.8-1.4	20-29	8-10	2-3	15-19	30-41	20	1.1	2.0	1.8	
<i>pulcher</i> Zullini, 1980	1.5-1.6	25-31	7.7-8.1	2.0-2.3	21-27	30-34	30-32	2.5	2.0-2.2	2.2	36-38
<i>pylophilus</i> (Weingärtner, 1955)	0.9-1.0	24-31	4.6-7.1	3.5-5.1	14-15	56-64		1.5	1.3	1.4	24
<i>rhabdoderma</i> (Völk, 1950)	1.2-1.3	20-25	7.1-8.8	2.3-2.9	12-15	35-39		1.8	1.2-1.3	1.6	43-46
<i>ruffoi</i> Zullini, 1980	1.2-1.5	32-37	6.3-8.1	2.4-2.8	21-23	34-39	28-30	1.3	1.5-1.9	1.5	30-35
<i>schwemmlei</i> (Sachs, 1950)	0.7-1.0	13-16	5.1-6.8	8.4-9.8	4	55-57		2.5	1.0	0.3	28-36
<i>splendidus</i> (Körner, 1954)	1.1-1.3	27-36	6.3-6.7	3.1-3.4	20	41-42		2.5	1.0	1.1	37-43
<i>striatus</i> (Bütschli, 1876)	1.0-1.6	26-32	5.2-8.0	2.4-4.0	8-12	35-45	20-22	1.1-1.2	1.3-1.4	1.1	40-44
<i>subdentatus</i> (Gunhold, 1952)	0.6-1.0	18-29	5.1-6.3	4.3-6.6	6-7	41-48	14	1.0	1.4-1.5	0.5	40
<i>trichuris</i> (Cobb, 1893)	1.5	32	8.3	1.9	30	28	40	1.5	1.5	3.2	44

width of head. Cheilostoma spacious, barrel-shaped; its walls strengthened with 12-18 strongly cuticularized, curved ribs. Apical ends of ribs bifurcated. Metastoma bearing teeth and a transverse plate. Dorsal metarhabdion with large, claw-like, mobile, strongly cuticularized tooth bifurcated at apex. Right subventral metarhabdion with pyramidal or thorn-like, immovable, weakly cuticularized, badly seen tooth. Left subventral metarhabdion with weakly cuticularized, single plate, upper edge of which is serrate, rarely smooth. Telostoma always in the form of three-side prism, with 1-2 small onchia at base, sometimes of equal length and width, but usually 1.5-2.0 times as long as wide. Oesophagus slender, 11-25% of total body length, sharply divided into two sections: anterior muscular section (procorpus and median bulb) and posterior glandular section (isthmus and basal swelling). Anterior section of oesophagus longer than posterior section, except for *M. schwemmleri* and *M. splendidus*, in which anterior and posterior sections are of equal length (Table 1). Females didelphic, amphidelphic, with amphidromous ovaries. Vulva in most species before middle of body ($V = 26-49\%$). Postequatorial vulva ($V = 51-65\%$) rarely occur. Testis simple, bent. Spicules separate, slender, slightly curved, with handle-like capituli. Gubernaculum curved, thin; its proximal end smoothly rounded, claw-like, often with dent; apical end often with "muff", which comprises ends of spicules. Bursa small, rudimentary. Sexual setiform papillae in number of 9-10 pairs: 3 pairs precloacal and 6-7 pairs postcloacal (caudal). Tail long, with filiform terminus in both sexes. Female tail usually longer than distance between vulva and anus and at least 10 times as long as anal body diameter (Table 1). Tail usually shorter in male than in female. Free-living, predatory nematodes usually inhabiting saprobios.

In two species, *M. elegans* (Weingärtner, 1955) and *M. leptospiculum* (Weingärtner, 1955), the values of "V" equal 51-61(56)% and 54-62(58)% respectively. The distance between vulva and anus is 0.108 times the distance between posterior end of oesophagus and vulva and 1.7 times the body width in *M. elegans*, and 0.214 and 2.1 times in *M. leptospiculum*. These species have only one, anterior ovary, that contradicts to the diagnosis of the genus *Mononchoides* (females didelphic, amphidelphic). Consequently, the species *Diplogaster (Eudiplogaster) elegans*

Weingärtner, 1955 and *Diplogaster (Eudiplogaster) leptospiculum* Weingärtner, 1955, placed by Goodey (1951) and Andrassy (1984) in the genus *Mononchoides*, are regarded as *species incertae sedis*.

List of species

M. americanus (Steiner, 1930) Chitwood & Chitwood, 1937. Syn.: *Diplogaster americana* Steiner, 1930; *Diplogaster (Eudiplogaster) americana* (Steiner, 1930) Weingärtner, 1955; *Eudiplogaster americana* (Steiner, 1930) Paramonov, 1952; *Glauxinema americanum* (Steiner, 1930) Andrassy, 1984; *Mononchoides adjunctus* Massey, 1966, **syn. n.**

M. andrassyi (Timm, 1961), **comb. n.** Syn.: *Diplogaster (Eudiplogaster) andrassyi* Timm, 1961; *Eudiplogaster andrassyi* (Timm, 1961) Timm, 1961; *Glauxinema andrassyi* (Timm, 1961) Andrassy, 1984; *Mononchoides andersoni* Ebsary, 1986, **syn. n.**

M. armatus (Hofmänner, 1913), **comb. n.** Syn.: *Diplogaster armata* Hofmänner, 1913; *Eudiplogaster armata* (Hofmänner, 1913) Paramonov, 1952; *Fictor armatus* (Hofmänner, 1913) Goodey, 1963; *Glauxinema armatum* (Hofmänner, 1913) Andrassy, 1984; *Diplogaster aphodii* Bovien, 1937; *Diplogaster (Eudiplogaster) aphodii* (Bovien, 1937) Weingärtner, 1955; *Eudiplogaster aphodii* (Bovien, 1937) Meyl, 1961; *Prosodontus aphodii* (Bovien, 1937) Paramonov et al., 1954; *Glauxinema aphodii* (Bovien, 1937) Andrassy, 1984.

M. bollingeri Goodrich et al., 1968.

M. changi Goodrich et al., 1968.

M. filicaudatus (Allgen, 1947) Andrassy, 1984. Syn.: *Glauxinema filicaudatum* Allgen, 1947.

M. flavellicaudatus (Andrassy, 1962), **comb. n.** Syn.: *Eudiplogaster flagellicaudata* Andrassy, 1962; *Glauxinema flagellicaudatum* (Andrassy, 1962) Andrassy, 1984.

M. fortidens (Sch. Stekhoven, 1951) Taylor & Hechler, 1966. Syn.: *Diplogaster fortidens* Sch. Stekhoven, 1951.

M. gracilis Dassonville & Heyns, 1984.

M. intermedius Gagarin, 1993.

M. longicauda Rahm, 1928.

M. longicaudatus (Khera, 1965) Andrassy, 1984. Syn.: *Tridentus longicaudatus* Khera, 1965.

M. microstomus sp. n.

M. paramonovi sp. n.

M. parastriatus (Paesler, 1936) Andrassy, 1984. Syn.: *Diplogaster parastriata* Paesler, 1936; *Diplogaster isolae* Meyl, 1953; *Diplogaster (Eudiplogaster) isolae* (Meyl, 1953) Meyl, 1954; *Eudiplogaster isolae* (Meyl,

1953) Meyl, 1961; *Mononchoides isolae* (Meyl, 1953) Goodey, 1963.

M. pulcher Zullini, 1980.

M. pylophilus (Weingärtner, 1955) Goodey, 1963. Syn.: *Diplogaster (Eudiplogaster) pylophila* Weingärtner, 1955; *Eudiplogaster pylophila* (Weingärtner, 1955) Andrassy, 1958.

M. rhabdoderma (Völk, 1950) Calawey & Tarjan, 1973. Syn.: *Diplogaster rhabdoderma* Völk, 1950.

M. ruffoi Zullini, 1950.

M. schwemmlei (Sachs, 1950), comb. n. Syn.: *Diplogaster schwemmlei* Sachs, 1950; *Diplogaster (Eudiplogaster) schwemmlei* (Sachs, 1950) Weingärtner, 1955; *Eudiplogaster schwemmlei* (Sachs, 1950) Paramonov, 1952; *Prosodontus schwemmlei* (Sachs, 1950) Goodey, 1963; *Glauxinema schwemmlei* (Sachs, 1950) Andrassy, 1984.

M. splendidus (Körner, 1954) Goodey, 1963. Syn.: *Diplogaster (Eudiplogaster) splendida* Körner, 1954; *Eudiplogaster splendida* (Körner, 1954) Andrassy, 1958; *Glauxinema splendidus* (Körner, 1954) Andrassy, 1984.

M. striatus (Bütschli, 1876) Goodey, 1963. Syn.: *Diplogaster striata* Bütschli, 1876; *Diplogaster (Eudiplogaster) striata* (Bütschli, 1876) Weingärtner, 1955; *Eudiplogaster striata* (Bütschli, 1876) Paramonov, 1952; *Diplogaster paesleri* Gunhold, 1952; *Koerneria paesleri* (Gunhold, 1952) Meyl, 1961.

M. subdentatus (Gunhold, 1952) Andrassy, 1984. Syn.: *Diplogaster subdentata* Gunhold, 1952; *Koerneria subdentata* (Gunhold, 1952) Meyl, 1961; *Diplogaster (Eudiplogaster) histophora* Weingärtner, 1955; *Eudiplogaster histophora* (Weingärtner, 1955) Andrassy, 1958; *Mononchoides histophorus* (Weingärtner, 1955) Goodey, 1963.

M. trichuris (Cobb, 1893) Goodey, 1963. Syn.: *Diplogaster trichuris* Cobb, 1893; *Glauxinema trichuris* (Cobb, 1893) Andrassy, 1984.

The species *Mononchoides elegans* (Weingärtner, 1955) Goodey, 1963 and *Mononchoides leptospiculum* (Weingärtner, 1955) Goodey, 1963 are regarded as *species inquirendae*.

Key to species of *Mononchoides*

- 1(10). Body length 1.0 mm or less.
- 2(7). Tail shorter than distance between vulva and anus; $c' = 10$ or less.
- 3(4). Anterior section of oesophagus twice as long as its posterior section; $c' = 10$. . . *M. americanus*
- 4(3). Anterior section of oesophagus not more than 1.5 times as long as its posterior section; $c' = 4-7$.

- 5(6). Telostoma 2.5 times as long as wide; $V = 55-57\%$, $c' = 4$ *M. schwemmlei*
- 6(5). Telostoma as long as wide; $V = 41-48\%$, $c' = 6-7$ *M. subdentatus*
- 7(2). Tail longer than distance between vulva and anus; $c' = 15$ or more.
- 8(9). $L = 1.0$ mm; $c' = 15$ *M. filicaudatus*
- 9(8). $L = 0.9$ mm; $c' = 20$ *M. flagellicaudatus*
- 10(1). Body length 1.0 mm or more.
- 11(22). Tail twice as long as distance between vulva and anus.
- 12(15). Anterior section of oesophagus at least twice as long as its posterior section.
- 13(14). $L = 1.0-1.5$ mm; 24-26 longitudinal ridges at cuticle *M. paramonovi* sp. n.
- 14(13). $L = 1.5-1.6$ mm; 30-34 longitudinal ridges at cuticle *M. pulcher*
- 15(12). Anterior section of oesophagus not more than 1.8 times as long as its posterior section.
- 16(17). $V = 52-65\%$ *M. longicauda*
- 17(16). $V = 50\%$ or less.
- 18(19). $c' = 24$; 22-24 longitudinal ridges at cuticle *M. fortidens*
- 19(18). $c' = 30$; 39-40 longitudinal ridges at cuticle.
- 20(21). Tail 3.2 times as long as distance between vulva and anus; telostoma 1.5 times as long as wide *M. trichuris*
- 21(20). Tail twice as long as distance between vulva and anus; telostoma twice as long as wide *M. bollingeri*
- 22(11). Tail not more than 1.8 times as long as distance between vulva and anus.
- 23(24). Tail shorter than distance between vulva and anus *M. armatus*
- 24(23). Tail longer than distance between vulva and anus.
- 25(28). Anterior section of oesophagus twice as long as its posterior section.
- 26(27). $c' = 20-26$; 24-26 longitudinal ridges at cuticle *M. microstomus* sp. n.
- 27(26). $c' = 15-19$; 20 longitudinal ridges at cuticle *M. parastriatus*
- 28(25). Anterior section of oesophagus not more than 1.8 times as long as its posterior section.
- 29(36). $c = 7-15$.
- 30(33). Length of spicules 40 μ m or more.
- 31(32). Tail 1.6 times as long as distance between vulva and anus; telostoma 1.8 times as long as wide *M. rhabdoderma*
- 32(31). Tail 1.1 times as long as distance between vulva and anus; telostoma 1.1-1.2 times as long as wide *M. striatus*
- 33(30). Length of spicules 35 μ m or less.
- 34(35). $V = 56-64\%$; spicules 24 μ m long *M. pylophilus*
- 35(34). $V = 40-41\%$; spicules 35 μ m long *M. intermedius*
- 36(29). $c' = 16-30$.
- 37(38). Spicules 50-55 μ m long *M. gracilis*
- 38(37). Length of spicules 49 μ m or less.
- 39(40). Anterior section of oesophagus as long as its posterior section *M. splendidus*
- 40(39). Anterior section of oesophagus longer than its posterior section.

Table 2. Measurements of *Mononchoides paramonovi* sp. n.

Characteristics	Cow manure				Silo				Humus			
	Females (n = 6)		Males (n = 8)		Females (n = 4)		Males (n = 6)		Females (n = 13)		Males (n = 7)	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean
L, μm	1240-1470	1330	970-1100	1020	980-1000	990	680-880	790	1120-1330	1220	920-990	960
a	25-34	29	27-30	28	23-32	28	26-45	31	22-28	25	24-33	28
b	7.5-8.8	8.1	7.3-8.5	7.7	6.7-8.0	7.4	6.6-8.5	7.4	7.2-9.3	8.2	7.7-8.6	8.0
c	1.8-2.0	1.9	1.9-2.2	2.0	2.0-2.1	2.0	1.9-2.7	2.2	1.8-2.3	2.0	1.9-2.2	2.0
c'	24.5-31.8	27.5	19.8-27.9	23.3	21.0-25.0	21.5	18.0-21.5	19.2	22.1-27.6	22.8	19.3-26.9	23.3
V	25.8-29.0	27.1	—	—	31.0-32.6	31.7	—	—	27.1-32.9	30.0	—	—
Oesophagus length, μm	158-172	164	116-146	132	122-150	135	99-120	107	136-169	149	113-125	120
Posterior end of oesophagus-vulva, μm	154-252	198	—	—	161-189	179	—	—	175-259	209	—	—
Vulva-anus, μm	230-284	251	—	—	182-206	197	—	—	210-294	246	—	—
Posterior end of oesophagus-anus, μm	—	—	329-448	370	—	—	288-332	317	—	—	322-395	354
Tail length, μm	654-812	720	490-546	517	462-490	481	252-448	366	525-658	612	434-532	484
Head width, μm	18-21	20	15-18	17	16-20	16	14-15	14	17-21	18	14-15	15
Stoma length, μm	22-24	23	18-21	20	22-26	23	16-20	18	24-26	25	19-20	20
Stoma length: head width	1.2-1.3	1.2	1.1-1.4	1.3	1.3-1.6	1.4	1.1-1.4	1.3	1.2-1.6	1.3	1.3-1.4	1.4
Stoma length: telostoma length	1.6-1.9	1.7	1.6-1.9	1.7	1.8-1.9	1.8	2.1-2.3	2.2	1.8-2.3	1.9	1.8-2.1	1.9
Telostoma length: telostoma width	1.9-2.3	2.0	1.8-2.1	2.0	1.8-1.9	1.9	1.7-2.0	1.8	1.8-2.1	1.9	1.6-2.0	1.8
Anterior section of oesophagus: posterior section of oesophagus	2.1-2.3	2.2	1.8-2.1	2.0	2.1-2.6	2.3	1.9-2.1	2.0	2.5-3.0	2.6	2.3-2.7	2.5
Tail: vulva-anus	2.8-3.1	3.0	—	—	2.2-2.7	2.4	—	—	2.0-2.9	2.5	—	—
Spicula length, μm	—	—	36-39	38	—	—	33-36	35	—	—	38-42	40
Gubernaculum length, μm	—	—	17-18	18	—	—	17-20	18	—	—	17-20	18

Table 3. Measurements of *Mononchoides microstomus* sp. n.

Characteristics	Cow manure				Rotten potatoes			
	Females (n = 11)		Males (n = 6)		Females (n = 10)		Males (n = 10)	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean
L, μm	1110-1400	1260	880-1180	990	1040-1530	1300	820-1070	930
a	19-31	24	21-28	25	17-25	20	18-27	21
b	6.8-8.3	7.5	6.9-8.5	7.4	7.0-9.3	8.4	5.7-8.7	7.5
c	2.0-2.5	2.2	2.1-2.5	2.4	2.4-3.2	2.8	2.7-3.3	3.0
c'	18.0-24.1	20.5	13.0-19.5	16.5	15.0-22.3	18.4	8.5-13.4	10.9
V	27.7-36.6	33.7	—	—	34.1-39.3	37.0	—	—
Oesophagus length, μm	150-196	168	127-147	133	141-178	154	99-143	126
Posterior end of oesophagus-vulva, μm	192-322	256	—	—	260-381	325	—	—
Vulva-anus, μm	205-315	261	—	—	273-441	347	—	—
Posterior end of oesophagus-anus, μm	—	—	329-556	434	—	—	381-582	491
Tail length, μm	490-700	575	371-476	419	322-556	472	265-357	314
Head width, μm	20-23	21	15-18	17	19-22	21	14-17	15
Stoma length, μm	18-21	20	15-16	15	18-21	20	15-18	16
Stoma length : head width	0.9-1.0	1.0	0.9-1.0	1.0	0.9-1.1	1.0	1.0-1.1	1.1
Stoma length : telostoma length	2.0-2.3	2.1	1.8-2.0	1.8	1.8-2.3	2.1	1.7-1.9	1.8
Telostoma length : telostoma width	1.1-1.4	1.3	1.4-1.8	1.6	1.0-1.3	1.1	1.6-2.0	1.8
Anterior section of oesophagus : posterior section of oesophagus	2.0-2.2	2.1	1.8-2.0	1.9	2.1-2.3	2.2	2.1-2.5	2.3
Tail : vulva-anus	1.1-1.5	1.4	—	—	1.2-1.5	1.4	—	—
Spicula length, μm	—	—	36-42	39	—	—	38-42	40
Gubernaculum length, μm	—	—	20-23	22	—	—	20-22	21

41(42). Tail 1.9 times as long as distance between vulva and anus; spicules 25 μm long

. **M. longicaudatus**

42(41). Tail 1.5 times as long as distance between vulva and anus; length of spicules 30 μm or more.

43(44). 20 longitudinal ridges at cuticle; telostoma twice as long as wide **M. andrassyi**

44(43). 28 or more longitudinal ridges at cuticle; telostoma not more than 1.7 times as long as wide.

45(46). 40 longitudinal ridges at cuticle; spicules 48-49 μm long **M. changi**

46(45). 28-30 longitudinal ridges at cuticle; spicules 30-35 μm long **M. ruffoi**

***Mononchoides paramonovi* sp. n.**

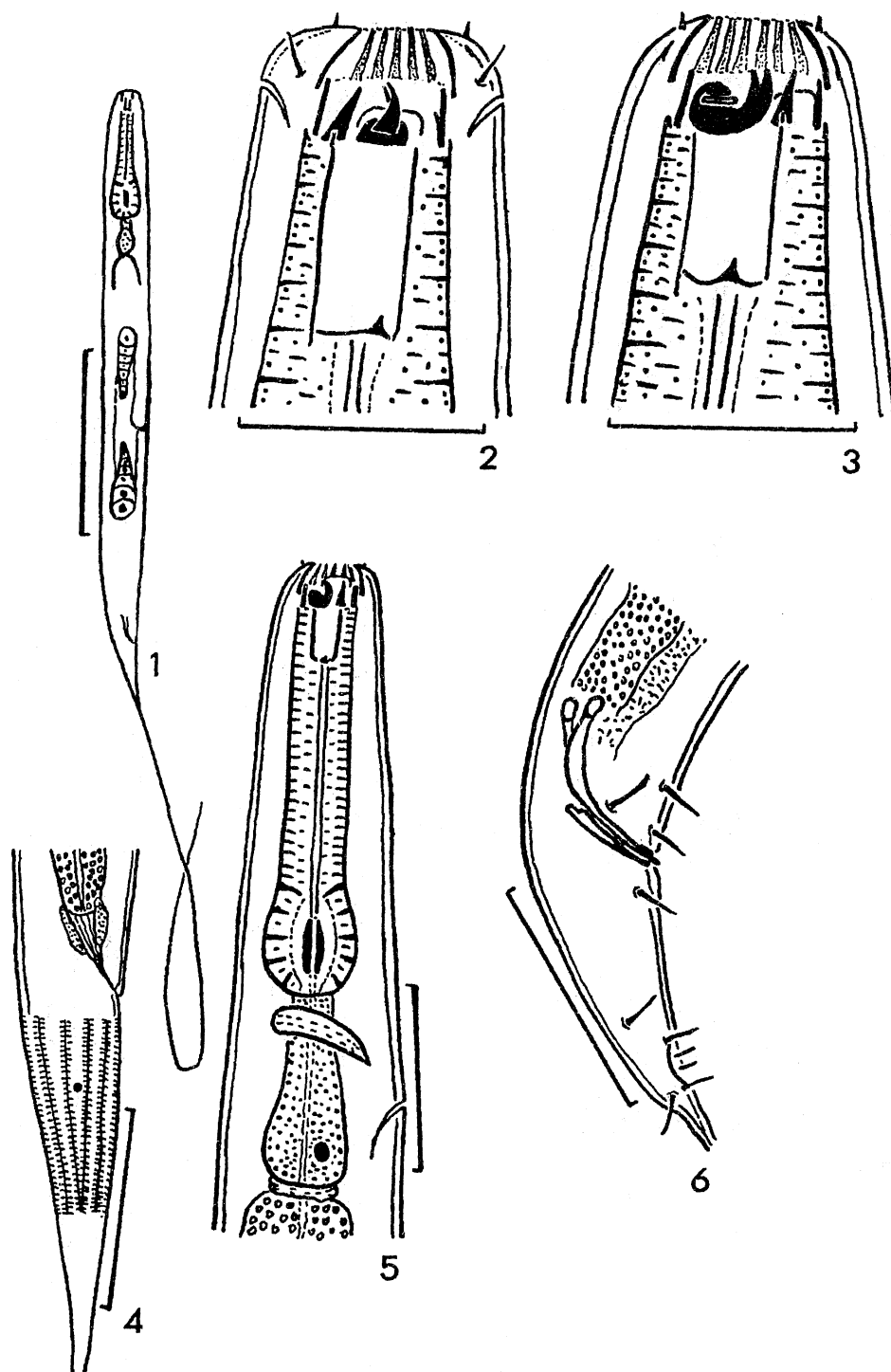
(Figs 1-6)

Holotype. ♀, **Russia**, Yaroslavl' Prov., settlement Borok, cow manure, 30.VII.1997, slide No. 71/73, Institute of Parasitology, Russian Academy of Sciences, Moscow.

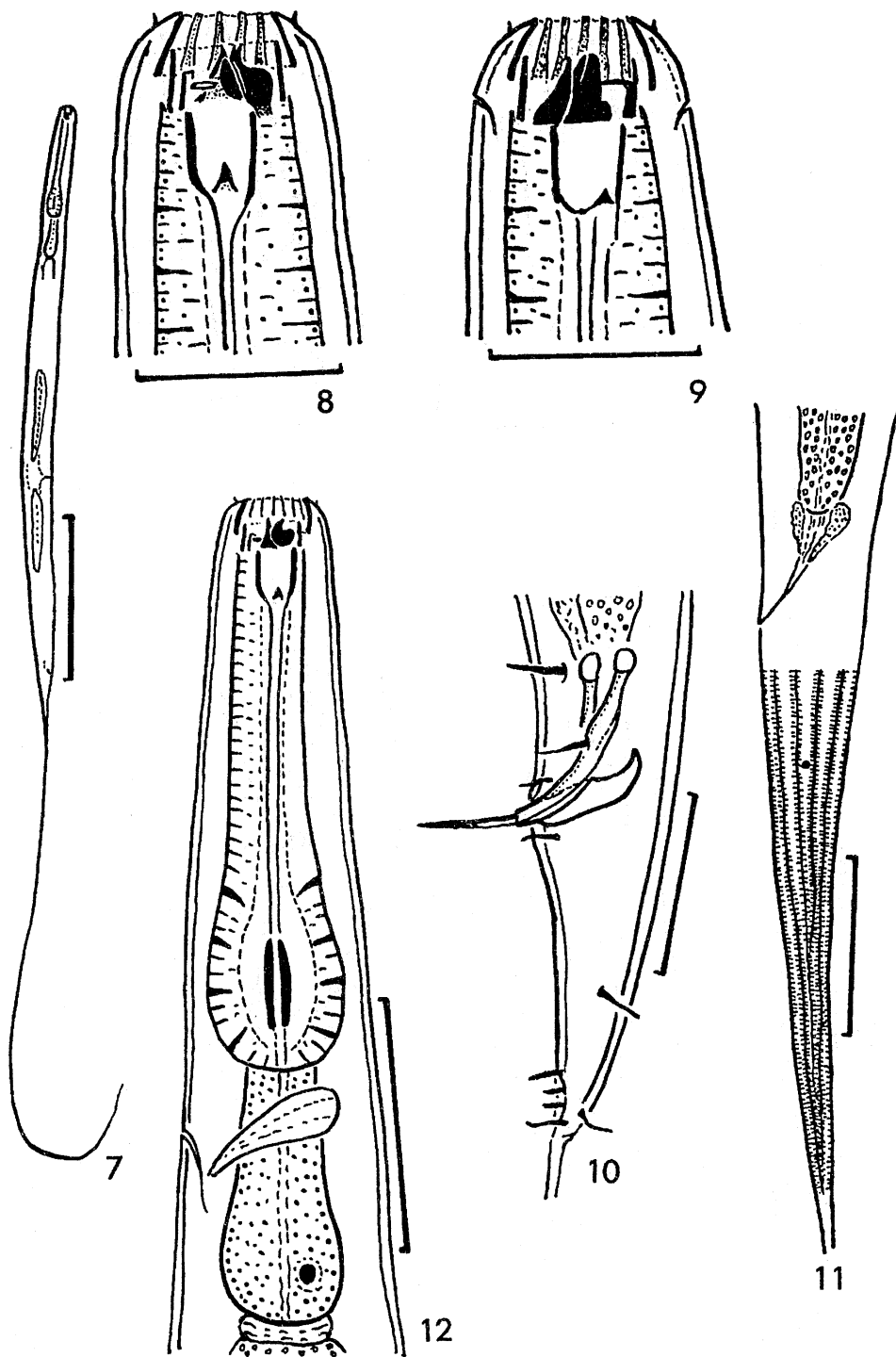
Paratypes. 6 ♀, 8 ♂, collected with holotype; 3 ♀, 6 ♂ from silo; 13 ♀, 7 ♂ from humus.

Measurements. Holotype ♀: L = 1280 μm , a = 29, b = 8.0, c = 1.8, c' = 25.5, V = 26.3%. Paratypes: see Table 2.

Description. Cuticle thin, its thickness in vulva region about 1.0 μm . Cuticle with transverse striation, with 24-26 longitudinal ridges. Ridges formed by pairs of short lines. Front end of head flattened. Head width in females 16-21, in males 14-18 μm . Lips absent. Labial papillae setiform. 6 labial papillae, 2.5-3.0 μm long, arranged around oral opening. In males, 4 additional papillae, about 5 μm long, situated behind the former. Total stoma length in females 22-26, in males 16-21 μm . Telostoma distinctly longer than upper cavity of stoma, prismatic, approximately twice as long as wide. One small onchium in telostoma base. Cheilostoma barrel-shaped, its walls with 12 strongly cuticularized curved ribs. Dorsal tooth large, mobile, claw-like, its apical end bifurcated.



Figs 1-6. *Mononchoides paramonovi* sp. n. 1, general view of female; 2, male head in lateral view; 3, female head in ventral view; 4, tail of female; 5, oesophagus of female; 6, tail of male. Scales: 200 μ m (1), 50 μ m (4-6), 20 μ m (2, 3).



Figs 7-12. *Mononchoides microstomus* sp. n. 7, general view of female; 8, female head in lateral view; 9, female head in ventral view; 10, oesophagus of female; 11, tail of male; 12, tail of female. Scales: 200 μ m (7), 50 μ m (10), 25 μ m (8, 9, 11, 12).

Right subventral tooth pyramidal, immovable, badly visible. Left subventral plate weakly cuticularized, serrate or, rarely, smooth. Amphids slit-like, situated at level of metastomal teeth. Body at proximal end of oesophagus 2.0-2.5 times as wide as head. Anterior section of oesophagus 2.0-3.0 times as long as its posterior section. Excretory pore situated at level of nervous ring. Vulva slit-like, preequatorial. Vulva lips weakly cuticularized, not protruded. Vagina oblique, shorter than corresponding body diameter. Usually 1-2 eggs in uterus, size $65-77 \times 45-53 \mu\text{m}$. Testis simple. Spicules slender, ventrally curved, with large, rounded heads. Spicules 1.5-1.8 times as long as anal body diameter. Gubernaculum about half as long as spicules, thin, its proximal end with small dent, apical end with "muff". Bursa strongly rudimentary. Sexual papillae of males setiform, $5.5-7.0 \mu\text{m}$ long, 10 pairs in number: 3 pairs precloacal and 7 pairs postcloacal. Tail long, with filiform terminus in both sexes.

Comparison. The new species is close to *M. pulcher* Zullini, 1980 and *M. microstomus* sp. n. From the first species, it differs in the number of longitudinal ridges at cuticle (in *M. pulcher* 30-34 longitudinal ridges) and the longer body (in *M. pulcher* $L = 1.5-1.6 \text{ mm}$). From the second species it differs in the longer telostome (in *M. microstomus* sp. n. telostoma 1.0-1.4 times as long as wide) and in the ratio of tail length to distance between vulva and anus (in *M. microstomus* sp. n. tail 1.2-1.5 times as long as distance from vulva to anus).

Etymology. This species is named in honour of the famous Russian nematologist A.A. Paramonov (1891-1970).

***Mononchoides microstomus* sp.n.** (Figs 7-12)

Holotype. ♀, Russia, Yaroslavl' Prov., settlement Borok, cow manure, 30.VII.1997, slide No. 71/74, Institute of Parasitology, Russian Academy of Sciences, Moscow.

Paratypes. 11 ♀, 6 ♂, collected with the holotype; 10 ♀, 10 ♂ from rotten potatoes.

Measurements. Holotype ♀: $L = 1250 \mu\text{m}$, $a = 24$, $b = 7.1$, $c = 2.1$, $c' = 23.2$, $V = 34\%$. Paratypes: see Table 3.

Description. Cuticle about $1.0 \mu\text{m}$ thick in vulva region, annulated, with 24-26 longitudinal ridges formed by pairs of short lines. Front edge of head flattened. Head width in females 19-23, in males 14-18 μm . 6 setiform papillae $2.5-3.0 \mu\text{m}$ long, arranged around

oral opening. Males with 4 additional setiform papillae about $5.0 \mu\text{m}$ long, situated behind the former. Amphids slit-like, located at level of metastomal teeth. Cheilostoma barrel-shaped, with 12 strongly cuticularized, curved ribs. Dorsal tooth large, mobile, claw-like, with bifurcated apical end. Right subventral tooth pyramidal, immovable, hardly seen. Left subventral plate weakly cuticularized, its frontal edge serrate or smooth. Telostoma in the form of three-sided prism, its length, as a rule, equal to its width. One small onchium in telostoma base. Body at proximal end of oesophagus 1.7-2.1 times as wide as head. Anterior section of oesophagus 2.0-2.3 times as long as its posterior section. Excretory pore situated at level of nervous ring. Vulva in the form of narrow slit, preequatorial. Vulva lips weakly cuticularized, not protruded. Vagina oblique, shorter than corresponding body diameter. 1-2 eggs in uterus, size $57-63 \times 36-42 \mu\text{m}$. Testis simple, bent. Spicules narrow, ventrally curved, with large heads, about 1.5 times as long as anal body diameter. Gubernaculum about twice as long as spicules, thin, its proximal end claw-like, bent, apical end with "muff" comprising ends of spicules. Bursa small, rudimentary. Sexual papillae of males setiform, $5-6 \mu\text{m}$ long, 10 pairs in number, of which 3 pairs precloacal and 7 pairs postcloacal. Tail long, with filiform terminus in both sexes.

Comparison. The new species is distinguished from the close species *M. parastriatus* (Paesler, 1936) by the fewer longitudinal ridges at cuticle (20 longitudinal ridges in *M. parastriatus*) and shorter tail ($c' = 15-19$ in females of *M. parastriatus*). From *M. paramonovi* sp. n., it is distinguished by the shorter telostoma (in *M. paramonovi* telostoma 1.8-2.3 times as long as wide) and tail 1.2-1.5 times as long as the distance from vulva to anus (in females of *M. paramonovi*, tail 2.0-3.1 times as long as the distance between vulva and anus).

Etymology. The species name means "having small stoma".

Acknowledgements

The author thanks the Russian Foundation of Basic Research for financial support (grant No. 98-04-48029).

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Received 15 April 1998