

A new trident tobrilid, *Setsalia mirabilis* gen. et sp. n., from Lake Baikal (Nematoda: Enoplida)

A.A. Shoshina

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Setsalia mirabilis gen. et sp. n. (family Tobrilidae) is described from Lake Baikal. The new species is characterized by the well-developed dorsal tooth and two subventral teeth in the stoma. Structure of the stoma in tobrilids and its possible evolutionary changes are discussed. The emended diagnosis and a key to the genera of the subfamily Tobrilinae are given.

A.A. Shoshina, Department of Anatomy and Physiology, Samara State Pedagogical University, ul. A. Ovseenko 26, Samara 446090, Russia.

Introduction

The classification of the family Tobrilidae (on the level of subfamilies and tribes) is based on the structure of the stoma, the presence and position of stomal pockets and teeth (Tsalolikhin, 1983, 2001). A previously unknown trident tobrilid from Lake Baikal is described below. Structure of the new species expands our knowledge of morphological diversity in tobrilids.

Material and methods

Samples were collected by Dr. T.Ya. Sitnikova (Limnological Institute, Siberian Branch of Russian Academy of Sciences, Irkutsk) in 1995 and fixed by standard methods. Nematodes were mounted in glycerin-jelly on permanent slides. Head diameter was measured at the level of cephalic setae. The measurements given in parentheses are mean values \pm standard error values.

Taxonomic account

Genus *Setsalia* gen. n.

Type species: *Setsalia mirabilis* sp. n.

Diagnosis. Enoplida. Stoma large, conical; three stomal pockets with well-developed teeth. Subventral pockets separated from buccal cavity by distinct crest-like protrusions. Muscular tissue of pharynx adjoins the body cuticle at stoma radii.

Comparison. *Setsalia* gen. n. belongs to the tribe Tobrilini (see Tsalolikhin, 2001) according to the presence of distinct stomal pockets separated from buccal cavity, but differs in the pres-

ence of three teeth (vs. two teeth in all other genera of the tribe Tobrilini) and muscular tissue of the pharynx adjoining the body cuticle (vs. free anterior part of the stoma in other Tobrilini). *Setsalia* gen. n. is also similar to *Paratrilobus* Micoletzky, 1922 (the tribe Paratrilobini) in stoma dimensions, but differs from the latter in proportions of the stoma, the presence of three teeth (vs. two teeth in *Paratrilobus*), subventral pockets of stoma clearly separated from the buccal cavity by sharp crest-like protrusions (vs. slight flexures of the cuticle in *Paratrilobus*), and muscular tissue of the pharynx adjoining the body cuticle (vs. free anterior part of stoma in *Paratrilobus*).

Etymology. The genus is named after Prof. Semyon J. Tsalolikhin.

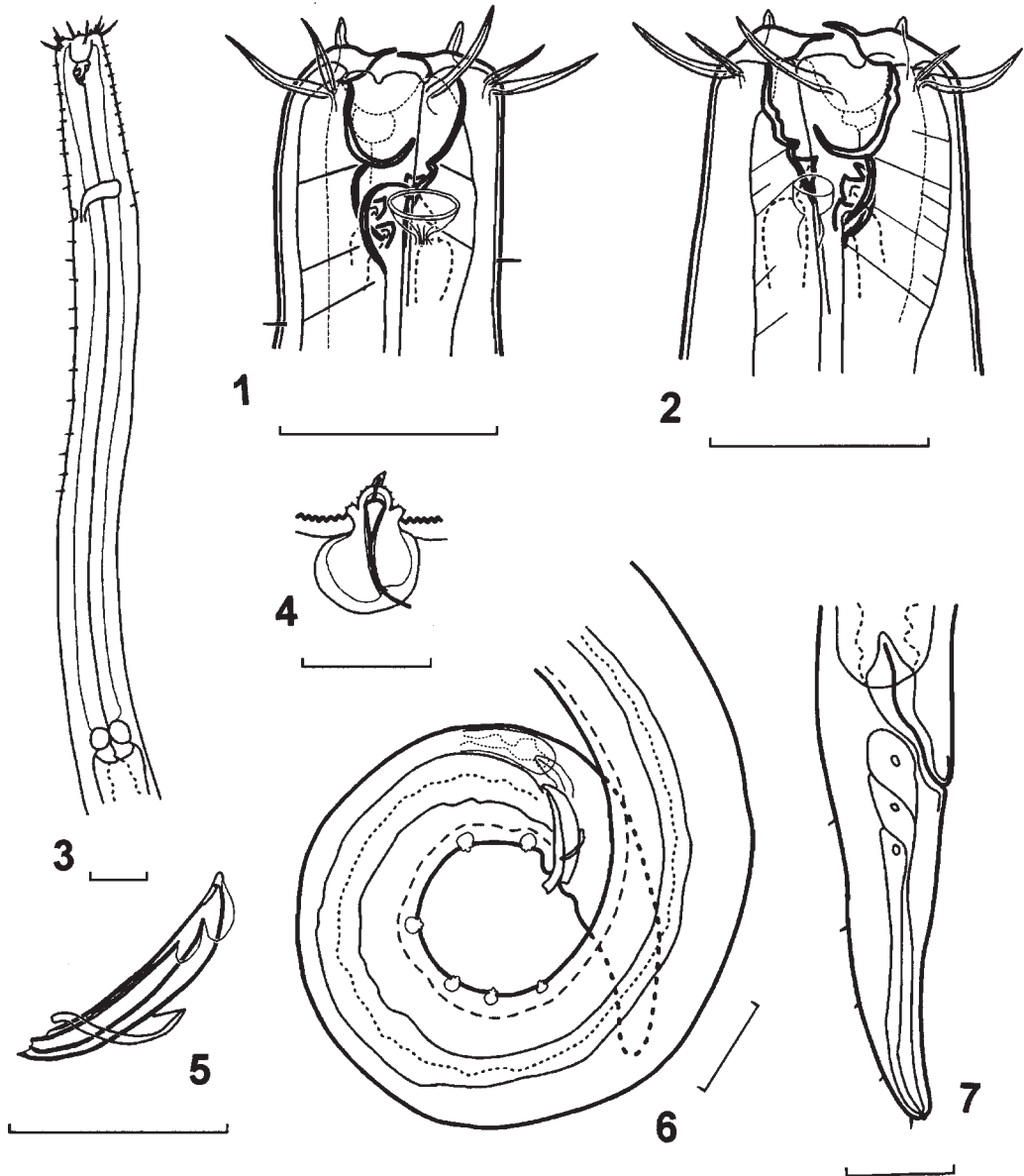
Setsalia mirabilis sp. n.
(Figs 1-7)

Holotype. ♂, **Russia**, Lake Baikal, Bank Murinskaya, depth 16-18 m, sand, 31.VI.1995 (leg. Sitnikova); slide A-0675, deposited at the Zoological Institute, St.Petersburg.

Paratypes. 1 ♂, 10 ♀, with same data as in holotype.

Measurements. Holotype (♂): L = 3970 μ m, a = 44.1, b = 4.8, c = 27.6, c' = 2.3, *suppl.* 6, *spic.* = 77 μ m, *gub.* = 32 μ m. Paratypes. ♂: L = 3600 μ m, a = 44.1, b = 4.4, c = 28.6, c' = 2.0, *suppl.* 6, *spic.* = 70 μ m, *gub.* = 29 μ m; ♀ (n = 10): L = 3490-4660 (4000 \pm 120) μ m, a = 32.0-44.7 (38.4 \pm 1.3), b = 4.1-5.1 (4.6 \pm 0.1), c = 16.7-21.8 (18.1 \pm 0.5), c' = 3.3-4.5 (3.8 \pm 0.1), V = 53.4-60.5 (56.8 \pm 0.8).

Description. *Male.* Body cylindrical. Cuticle finely annulated. Somatic setae 7-8 μ m long, es-



Figs 1-7. *Setsalia mirabilis* sp. n. 1, head of male (holotype); 2, head of female; 3, pharynx (holotype); 4, supplement; 5, spicula and gubernaculum; 6, male tail (holotype); 7, female tail. Scales: 50 μ m (2-4, 6-8), 15 μ m (5).

pecially numerous in anterior part of body. Head 54 μ m wide. Labial papilla setiform, 5-6 μ m long; cephalic setae 29-30 μ m (54-55% of head width). Stoma large; buccal cavity cup-shaped, 29 μ m wide. Vestibulum 6-8 μ m high, buccal cavity 26 μ m deep, pockets of stoma 22-26 μ m deep, total depth of buccal cavity 48-54 μ m. Anterior margin of pockets in form of acute crests protruding into stomal cavity. Three stomal pockets

present: two rounded subventral and a flat dorsal; depth of dorsal pocket from two-thirds to three-fourths of depth of subventral pockets. All pockets with approximately equal teeth. Anterior margin of dorsal pocket and that of one of subventral pockets (usually dextral) situated at the same level; second subventral pocket (usually the left one) slightly shifted posteriorly. Amphid aperture 16 μ m wide. Pharynx tissue adjoining body

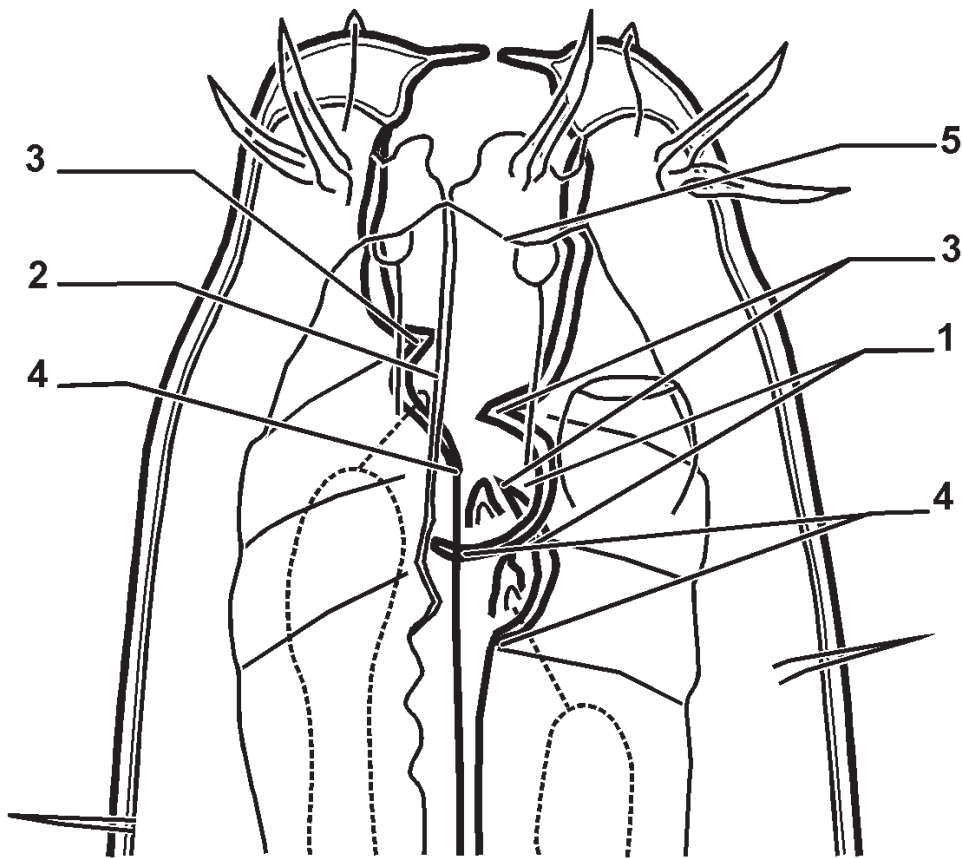


Fig. 8. Tobrilid stoma, general scheme: 1, subventral stomal pockets; 2, dorsal stomal pocket; 3, anterior lines of stomal pockets; 4, posterior lines of stomal pockets; 5, anterior margin line of pharynx.

cuticle at stoma radii. Pharynx cylindrical, 830 μm long, NR = 20-21%. Cardia glands rounded, large. Supplements $13 \times 16 \mu\text{m}$, last supplement $10 \times 12 \mu\text{m}$. Distances between supplements (in μm , n = 2): cloaca-I, 29 and 38; I-II, 45; II-III, 67 and 83; III-IV, 48 and 80; IV-V, 29 and 64; V-VI, 35 and 58. Tail thick, conoid, 128-144 μm long. Caudal glands very large. Subterminal seta present.

Female. Somatic setae not numerous, 7-8 μm long. Head bluntly truncate, 61-67 (65 ± 0.7) μm wide. Cephalic setae 22-36 μm (54-56 % of head width). Total depth of stoma 54-56 (55 ± 0.5) μm , buccal cavity 32-35 (33 ± 0.5) μm wide. Pharynx 700-960 (870 ± 26) μm , NR = 20-25 (22 ± 0.5)%. Ovaries paired antidromic, $Q_1 = 582-1056$ (839 ± 53) μm , $Q_2 = 550-1472$ (851 ± 82) μm . Vagina short, about one-third of corresponding body width. Uteri contain 2-4 eggs, 44-48 μm 85-

102 μm . Tail thick, conoid, 192-234 (220 ± 4) μm long. Caudal glands very large. Subterminal seta present.

Etymology. From the Latin “mirabilis” (“amazing”), for the presence of three teeth.

Notes. In tobrilids, the third dorsal pocket of the stoma is always present but reduced (Shoshin & Shoshina, 1999). The new species has three well-developed stomal pockets each with a tooth; the teeth are equal in size. Three sectors of the stoma have an identical set of structures indicating initial three-radial symmetry. Distinct lines separate the pockets from the buccal cavity anteriorly and from pharyngeal cuticle posteriorly (Fig. 8). These lines remain clearly visible in taxa with the stomal pockets reduced and in the genus *Paratrilobus*, which has hypertrophically-developed pockets. Lines help one to establish homologies of the stoma parts among tobrilid

taxa. In most of tobrilids, two distinct stomal pockets are present in subventral sectors of the posterior part of the stoma, and only the following characters of a third pocket, in the dorsal sector: depressions of inner lining of the stoma with distinct anterior and posterior bordering lines, the duct of dorsal pharyngeal gland opening in a cavity of the stoma at the pocket base, and sometimes, a well-developed tooth. All the three pockets of stoma are situated approximately at the same level (subfamily Tobrilinae), with the left subventral pocket usually slightly shifted more posteriorly than other pockets.

A similar diversity in the stoma structure is known within the genus *Tripyla*, in which a trident species has been described, whereas the majority of species have only one tooth (Brzeski & Winiszewska-Ślipińska, 1993).

Diagnosis of the subfamily Tobrilinae (after Tsalolikhin, 1983, 2001, emended)

Enoplida. Body length 1-7 mm, most frequently 1.5-2.5 mm. Cuticle smooth, very finely annulate or with longitudinal ridges. Somatic setae short, not numerous (except for *Asperotobrilus*). Head not offset; mouth opening surrounded by six lips. Six long and four short cephalic setae. Stoma well developed, usually as a buccal cavity and three overlapping pockets adjacent to each other. Subventral pockets usually with well-developed teeth; dorsal pocket usually weakly expressed, occasionally well developed and bearing well-developed tooth. Buccal cavity cup-, funnel-, or barrel-shaped. Stoma surrounded by pharyngeal tissue (stoma submerged), except for *Kurikania*. Ducts of pharyngeal glands open into stomal cavity. Amphids pocket-like, opening at the level of border between buccal cavity and anterior pocket, very rarely slightly anterior or posterior to this border. Pharynx without bulbs, with three pericardial glands. Female genital system paired; gonads opposed, reflexed. Male genital system with paired testes, sperm ducts, two spicules and gubernaculum, and usually with six precloacal midventral papilloid supplements. Caudal glands and terminal duct present.

Key to genera and subgenera of the subfamily Tobrilinae (after Tsalolikhin, 2001, emended)

1. Subventral pockets separated from buccal cavity . . . 2
- Both subventral pockets or only one joined with buccal cavity 6

2. Dorsal pocket reduced, without tooth 3
- Dorsal pocket well developed, with tooth *Setsalia* gen. n.
3. Supplements spinulose 4
- Supplements submerged or absent 5
4. Distances between second and third supplements markedly exceed the distances between other supplements *Eutobrilus* Tsalolikhin, 1981
- Distances between supplements almost equal *Peritobrilus* Gagarin, 1993
5. Supplements submerged . . . *Tobrilus* Andrössy, 1959
- Supplements absent *Asperotobrilus* Shoshin, 1991
6. Both subventral pockets joined with buccal cavity 7
- Only one subventral pocket joined with buccal cavity *Epitobrilus* Tsalolikhin, 1981
7. Teeth well developed 8
- Teeth reduced or absent 9
8. Stoma large, barrel-shaped *Paratrilobus* Micoletzky, 1922
- Stoma small, funnel-shaped *Mesotobrilus* Tsalolikhin, 1981
9. Stoma surrounded by pharyngeal tissue 10
- Stoma free *Kurikania* Tsalolikhin, 1981
10. Vestibulum very high *Quasibrillus* Tsalolikhin, 1976
- Vestibulum low *Lamuania* Tsalolikhin, 1976

Acknowledgements

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