

## *Sacrimarinema* gen. n. from Lake Baikal with descriptions of three new species (Nematoda, Monhysterida: Xyalidae)

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*Sacrimarinema* gen. n. and three new species from Lake Baikal are described. The new genus is close to *Penzancia* de Man, 1889, from which it differs in the presence of 14 cephalic setae, complicated supplements, and very long spicules and vagina. Its type species, *S. tatushae* sp. n., is characterized by the presence of 6-7 supplements and length of spicules equal to 2.3-3.0 anal diameters. *S. ljajiae* sp. n. differs from *S. tatushae* sp. n. in the longer body, longer spicules (3.3-3.5 anal diameters) and vagina, higher number of supplements. *S. allae* sp. n. differs from *S. tatushae* sp. n. in the extremely long spicules (6.9-9.2 anal diameters) and vagina (2.2-2.5 body diameters), lower number of supplements.

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This article continues the series of publications with descriptions of nematode species sampled by the author in southern Baikal, 1986-1987. It was argued that the presence of monhysterid nematodes is not characteristic for Lake Baikal, as only one species of the order Monhysterida has been recorded from this lake so far: *Monhystera paludicola* de Man, 1881 (Tsallikhin, 1980). But it seems now that monhysterids of Lake Baikal are rather diverse; this is evidenced by the description of an amazing new genus.

### *Sacrimarinema* gen. n.

Type species: *Sacrimarinema tatushae* sp.n.

**Description.** Cuticle finely annulated; somatic setae thin, sparse. Number of cephalic setae 14 (6 + 4 + 4 lateral additional). Males have preanal supplemental organs; supplements complicated, consisting of central body, anterior and posterior processes. Spicules long or very long. Vagina long or very long. Tail elongate-conoid. Terminal setae absent.

**Comparison.** The new genus is close to *Penzancia* de Man, 1889, from which it differs in the presence of 14 cephalic setae, complicated supplements, and very long spicules and vagina.

**Etymology.** From Latin "sacrum" + "mare" + "nematoda" (nematode of sacred sea); "Sacred Sea" is one of epithets of Baikal.

### *Sacrimarinema tatushae* sp. n.

(Figs 1-10)

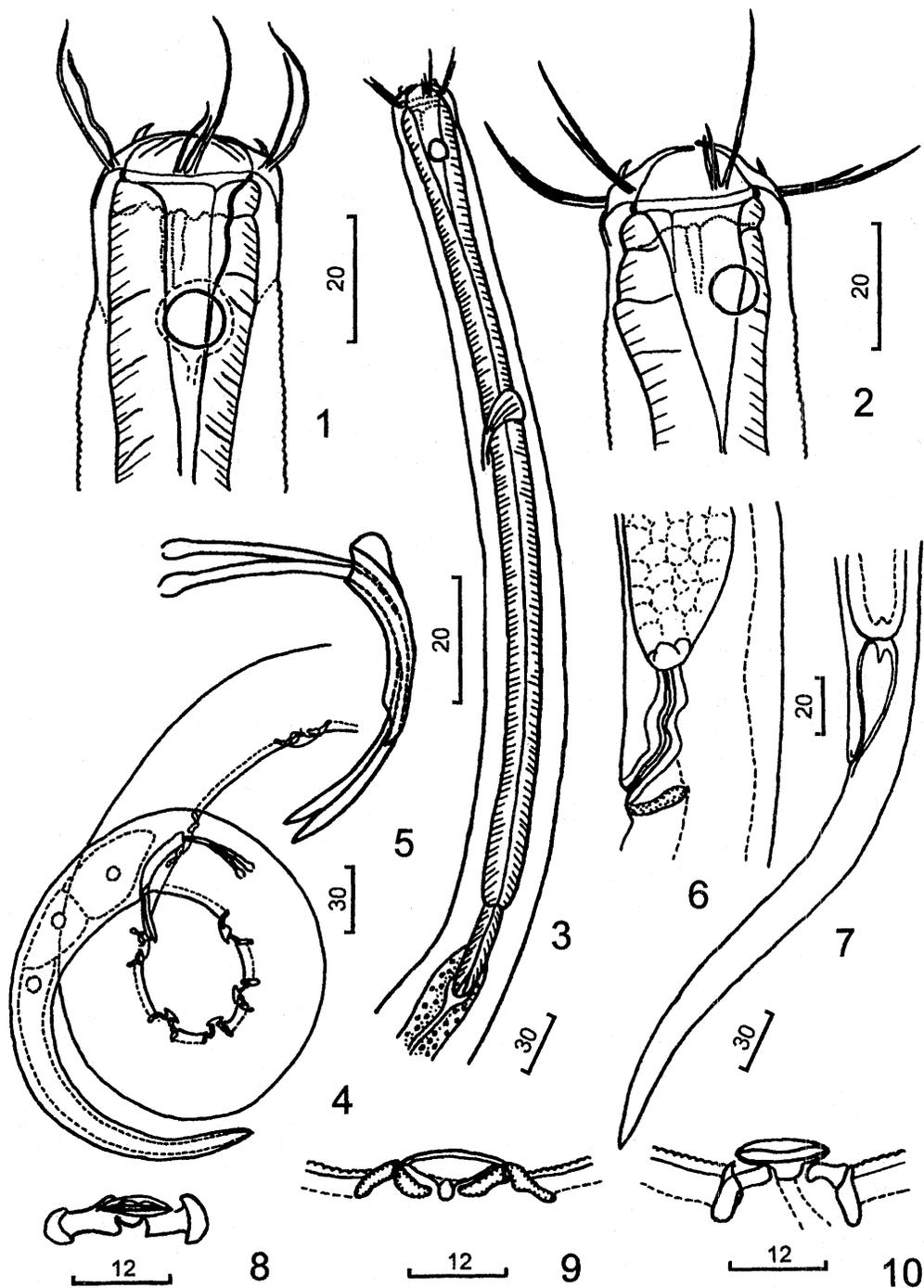
**Holotype.** ♂, Russia, Lake Baikal, region of the Murino River mouth, depth 1.5-2 m, coarse sand, 14.VII.1987 (Shoshin), microscope slide No. A-6585, Zoological Institute, St.Petersburg.

**Paratypes.** 5 ♂, 2 ♀ from the same locality.

**Measurements.** Holotype: L = 1876 μm, a = 48.1, b = 5.3, c = 8.5, c' = 6.7.

Paratypes: ♂ (n = 5): L = 1350-1820 (1605) μm, a = 33.8-46.7 (39.3), b = 4.2-5.6 (4.8), c = 7.5-10.7 (8.7), c' = 5.0-7.5 (6.1); ♀ (n = 2): L = 1506-1635 μm, a = 31.4-34.8, b = 4.6, c = 6.7-8.3, c' = 7.6-8.7, V = 63.5-64.0%.

**Description. Male.** Body slender, cylindrical, of about equal width from neck to anus. Cuticle thin, annulated; annules about 1.5 μm. Somatic setae about 5 μm long, sparse. Labial and cephalic sensilla setiform. Labial setae about 4 μm long. Fourteen cephalic setae: 6 setae of anterior circle (24-26 μm long), 4 subdorsal and subventral setae of posterior circle (18-20 μm long) and 4 additional lateral setae (8-11 μm long). Head 32-36 (33) μm wide. Stoma 20-23 μm wide. Wall of the broadest part of stoma heavily cuticularized. Amphideal fovea circular, about 9-10 μm, its anterior rim 25-29 μm (or 0.75 head diameter) from anterior end. Oesophagus 290-364 (330) μm long, cylindrical without basal bulb, NR = 39.3-43.4



Figs 1-10. *Sacrimarinema tatushae* sp. n.: 1, head of male (holotype); 2, head of female; 3, oesophagus (holotype); 4, tail of male (holotype); 5, spicules and gubernaculum (holotype); 6, vagina; 7, tail of female; 8, supplement (ventral view); 9, expanded supplement; 10, contracted supplement. Scales: Figs 1, 2, 5, 6 – 20  $\mu$ m; Figs 3, 4, 7 – 30  $\mu$ m; Figs 8, 9, 10 – 12  $\mu$ m.

(41.0)%. Cardia elongate, large, 30-46  $\mu\text{m}$  long. Anterior testes lying on the left side and posterior testes of the right side of intestine; vas deferens ventral to the intestine; 6-7 supplemental organs. Spicules similar, 70-90 (81)  $\mu\text{m}$  long (or 2.3-3.0 anal diameters), ventrally bent, with slightly offset capitulum. Gubernaculum 30-33  $\mu\text{m}$  long, with a small caudal extension. Tail elongate-conoid, 150-240 (185)  $\mu\text{m}$  long. Terminal setae absent.

*Female.* Fourteen cephalic setae: setae of anterior circle 26  $\mu\text{m}$  long, of posterior circle 18-20  $\mu\text{m}$  long, additional setae 8-10  $\mu\text{m}$  long. Head 34  $\mu\text{m}$  wide. Stoma 21-22  $\mu\text{m}$  wide. Amphid about 9  $\mu\text{m}$ ; its anterior rim 26  $\mu\text{m}$  (or 0.75 head diameter) from anterior end. Oesophagus 325-358  $\mu\text{m}$  long; NR = 39.9-42.2%. Cardia elongate, large, 26-33  $\mu\text{m}$  long. Female monodelphic, prodelphic; uterus with one egg; vagina 46  $\mu\text{m}$  long (or 1 body diameter). Tail elongate-conoid, with sharply rounded terminus, 198-225  $\mu\text{m}$  long. Terminal setae absent.

*Etymology.* All new species in this paper are named after my assistants.

#### **Sacrimarinema ljajiae** sp. n.

(Figs 11-19)

*Holotype.*  $\sigma$ , Russia, Lake Baikal, region of the Murino River mouth, depth 6 m, coarse sand, 14.VII.1987 (Shoshin), microscope slide No. A-6594, Zoological Institute, St.Petersburg.

*Paratypes.* 4  $\sigma$ , 5  $\sigma$  from the same locality, depths 6 and 10-11 m.

*Measurements.* Holotype: L = 2317  $\mu\text{m}$ , a = 49.3, b = 5.4, c = 8.4, c' = 6.6.

*Paratypes:*  $\sigma$  (n = 4): L = 2010-2607 (2335)  $\mu\text{m}$ , a = 41.3-57.0 (49.3), b = 4.8-5.5 (5.1), c = 7.1-10.8 (8.7), c' = 4.7-7.3 (5.7);  $\varphi$  (n = 5): L = 1946-2210 (2117)  $\mu\text{m}$ , a = 31.4-36.8 (34.2), b = 4.5-5.1 (4.8), c = 6.8-8.9 (7.6), c' = 6.0-8.1 (7.4), V = 65.6-69.3 (67.9)%.

*Description.* *Male.* Body slender, cylindroid, of about equal width from neck to anus. Cuticle thin, annulated; annules about 0.9  $\mu\text{m}$ . Somatic setae about 5  $\mu\text{m}$  long, sparse. Labial and cephalic sensilla setiform. Labial setae 7  $\mu\text{m}$  long. Fourteen cephalic setae: 6 setae of anterior circle (27-30  $\mu\text{m}$  long), 4 subdorsal and subventral setae of posterior circle (18-20  $\mu\text{m}$  long) and 4 additional lateral setae (8-11  $\mu\text{m}$  long). Head 34-39  $\mu\text{m}$  wide. Stoma 22-25  $\mu\text{m}$  wide. Wall of broadest part of stoma heavily cuticularized. Amphideal fovea circular, about 10  $\mu\text{m}$ ; its anterior rim 39-46  $\mu\text{m}$  (or 0.7-0.9 head diameter) from anterior end. Oe-

sophagus 420-481 (454)  $\mu\text{m}$  long, cylindroid without basal bulb; NR = 39.3-42.9 (41.5)%. Cardia elongate, large, 38-59  $\mu\text{m}$  long. Anterior testes lying on left side of intestine; posterior testes lying of the right side; vas deferens is ventral of the intestine; 9-10 supplemental organs. Spicules similar, 150-169 (161)  $\mu\text{m}$  long (or 3.3-3.5 anal diameters), ventrally bent, with slightly offset capitulum. Gubernaculum about 44-52 (48)  $\mu\text{m}$  long, without a caudal extension. Tail elongate-conoid, 241-343 (275)  $\mu\text{m}$  long. Terminal setae absent.

*Female.* Fourteen cephalic setae: setae of anterior circle 28-30  $\mu\text{m}$ , of posterior circle 18-20  $\mu\text{m}$  long, additional setae short, 9-11  $\mu\text{m}$  long. Head 36-40  $\mu\text{m}$  wide. Stoma 22-26  $\mu\text{m}$  wide. Amphid about 10  $\mu\text{m}$ , its anterior rim 28-34  $\mu\text{m}$  (or 0.7-0.9 head diameter) from anterior end. Oesophagus 422-468 (442)  $\mu\text{m}$  long, NR = 39.3-45.0 (42.0)%. Cardia elongate, large, 40-54  $\mu\text{m}$  long. Female reproductive system monodelphic, prodelphic; uterus with one egg: 160-170  $\times$  40-44; vagina 80-84  $\mu\text{m}$  long (or 1.3 body diameters). Tail elongate-conoid, with sharply rounded terminus, 240-314 (277)  $\mu\text{m}$  long. Terminal setae absent.

*Comparison.* The new species is close to *S. tatushae* sp. n. from which it differs in the larger size of body, longer spicules and vagina, and higher number of supplements.

#### **Sacrimarinema allae** sp. n.

(Figs 20-24)

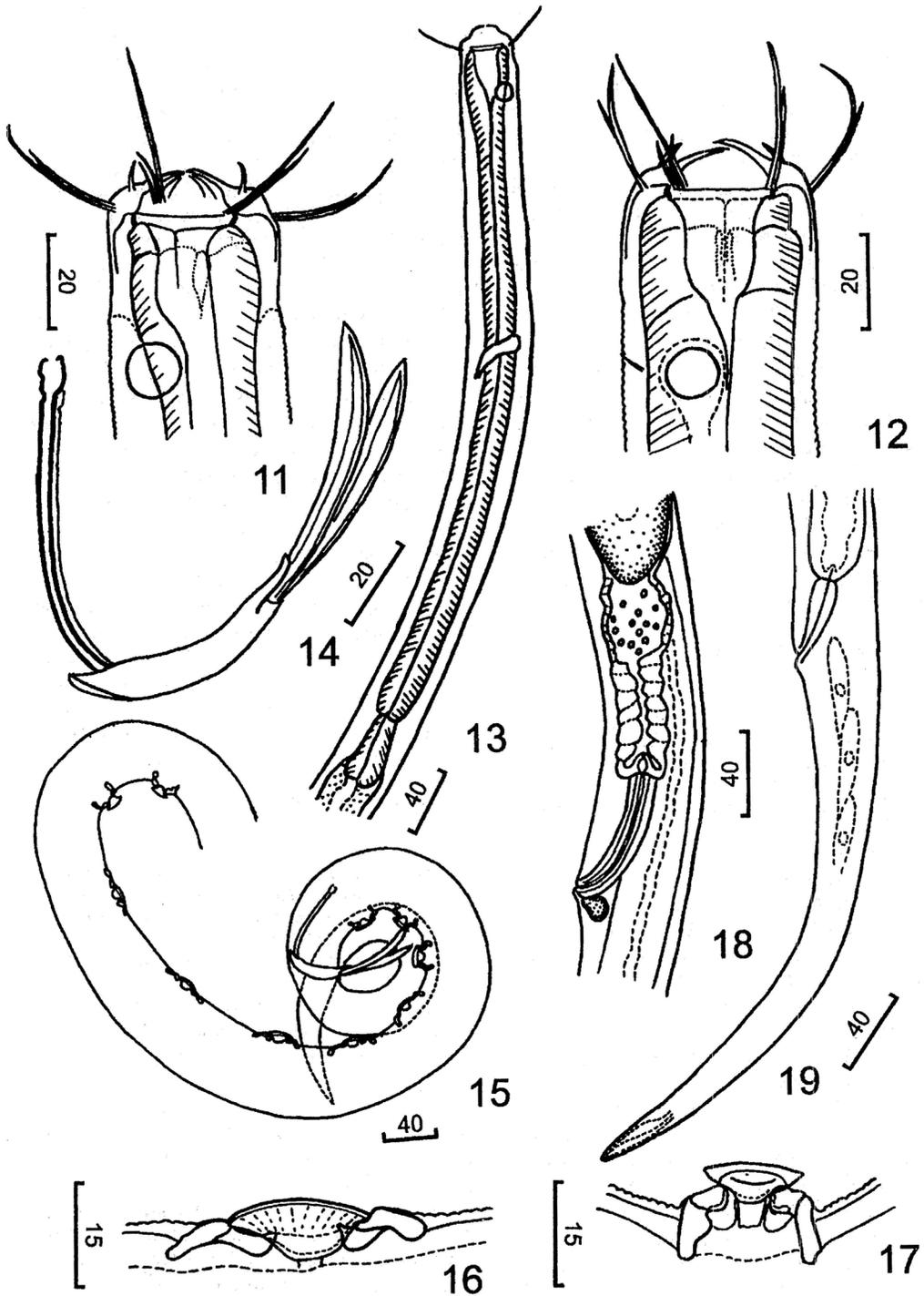
*Holotype.*  $\sigma$ , Russia, Lake Baikal, opposite to the Utulik River mouth, depth 550 m, black silt with clay particles, 15.VII.1986 (Shoshin), microscope slide No. A-6610, Zoological Institute, St.Petersburg.

*Paratypes.* 9  $\sigma$ , 6  $\varphi$  from the same locality, depths 550 and 430 m.

*Measurements.* Holotype: L = 1730  $\mu\text{m}$ , a = 54.1, b = 5.3, c = 7.9, c' = 6.9.

*Paratypes:*  $\sigma$  (n = 9): L = 1650-2100 (1901)  $\mu\text{m}$ , a = 42.8-70.0 (55.4), b = 5.3-6.6 (5.8), c = 7.7-9.3 (8.3), c' = 6.2-7.3 (6.8);  $\sigma$  (n = 6): L = 1748-2160 (1996)  $\mu\text{m}$ , a = 39.7-54.0 (48.2), b = 5.5-6.1 (5.8), c = 6.3-7.2 (6.8), c' = 9.9-11.9 (10.9), V = 58.5-61.8 (60.4)%.

*Description.* *Male.* Body slender, cylindroid, of about equal width from neck to anus. Cuticle thin, annulated; annules about 1.0  $\mu\text{m}$ . Somatic setae about 5  $\mu\text{m}$  long, sparse. Labial and cephalic sensilla setiform. Labial setae 4  $\mu\text{m}$  long. Fourteen cephalic setae: 6 setae of anterior circle (20-22  $\mu\text{m}$  long), 4 subdorsal and subventral setae of posterior circle (12  $\mu\text{m}$

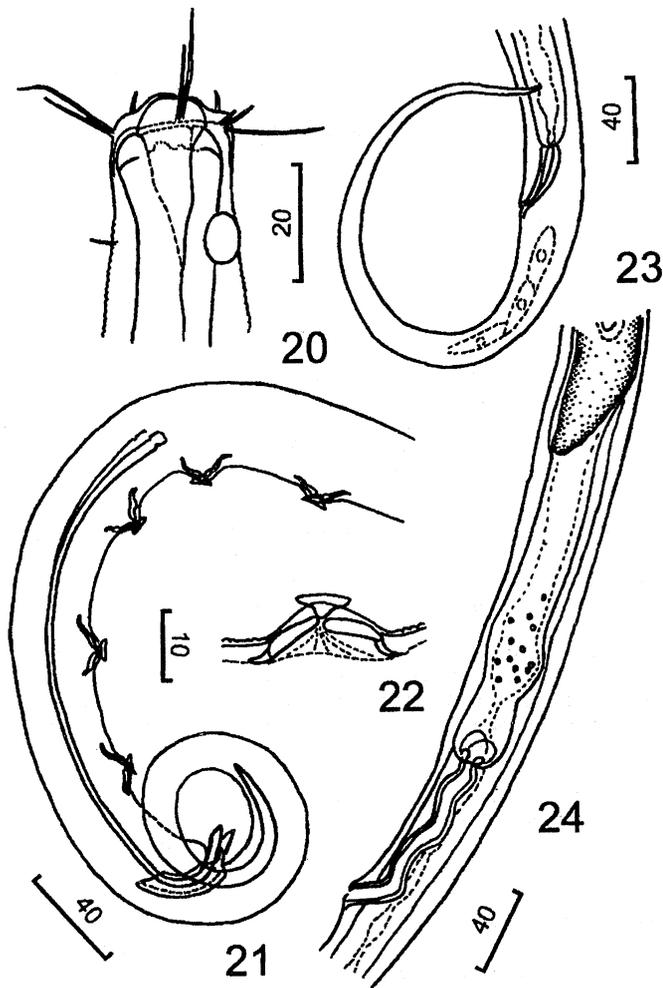


Figs 11-19. *Sacrimarinema ljajiae* sp. n.: 11, head of male (holotype); 12, head of female; 13, oesophagus (holotype); 14, spicules and gubernaculum (holotype); 15, tail of male (holotype); 16, expanded supplement; 17, contracted supplement; 18, vagina; 19, tail of female. Scales: Figs 11, 12, 14 - 20 µm; Figs 13, 15, 18, 19 - 40 µm; Figs 16, 17 - 15 µm.

long) and 4 additional lateral setae (4 and 6-7  $\mu\text{m}$  long). Head 22-24  $\mu\text{m}$  wide. Stoma 12-14  $\mu\text{m}$  wide. Wall of the broadest part of stoma heavily cuticularized. Amphideal fovea circular, about 8-10  $\mu\text{m}$ ; its anterior rim 24-28  $\mu\text{m}$  (or 1.3-1.4 head diameters) from anterior end. Oesophagus 314-344 (327)  $\mu\text{m}$  long, cylindroid without basal bulb; NR = 40.7-46.5 (44.1)%. Cardia elongate, large, 32-40  $\mu\text{m}$  long. Anterior testes lying on left side of intestine, posterior testes on its right side, vas deferens is ventral to the intestine; 5 supplemental organs. Spicules similar, 236-296 (263)  $\mu\text{m}$  long (or 6.9-9.2 anal diameters), ventrally bent, with slightly offset capitulum. Gubernaculum 32-40  $\mu\text{m}$  long, without caudal extension. Tail elongate-conoid, 210-261 (230)  $\mu\text{m}$ . Terminal setae absent.

*Female.* Fourteen cephalic setae: setae of anterior circle 20  $\mu\text{m}$ , of posterior circle 12  $\mu\text{m}$  long, additional setae short, 4 and 6  $\mu\text{m}$  long. Head 24  $\mu\text{m}$  wide. Stoma 12-14  $\mu\text{m}$  wide. Amphid about 8  $\mu\text{m}$ ; its anterior rim 28-34  $\mu\text{m}$  (or 1.3-1.4 head diameters) from anterior end. Oesophagus 320-356 (340)  $\mu\text{m}$  long; NR = 40.4-46.9 (43.9)%. Cardia elongate, large, about 30  $\mu\text{m}$  long. Female reproductive system monodelphic, prodelphic; uterus with one egg: 120-200  $\times$  26-36  $\mu\text{m}$ ; vagina 96-106 (100)  $\mu\text{m}$  long (or 2.2-2.5 body diameters). Tail elongate-conoid, with sharp rounded terminus, 268-310 (289)  $\mu\text{m}$  long. Terminal setae absent.

*Comparison.* The new species is close to the type species, *S. tatushae* sp. n., from which it



Figs 20-24. *Sacrimarinema allae* sp. n.: 20, head of male (holotype); 21, tail of male (holotype); 22, supplement; 23, tail of female; 24, vagina. Scales: Fig. 20 – 20  $\mu\text{m}$ ; Figs 21, 23, 24 – 40  $\mu\text{m}$ ; Fig. 22 – 10  $\mu\text{m}$ .

differs in the extremely long spicules and vagina, and lower number of supplements.

#### References

- Tsalolikhin, S.J. 1980. *Svobodnozhivushchie nematody Baikala* [Freeliving nematodes of Baikal]. 119 p. Novosibirsk: Nauka. (In Russian).

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