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STYLOTHERISTUS PARAMUTILUS SP. NOV. (NEMATODA: XYALIDAE), A NEW NEMATODE SPECIES FROM THE BLACK SEA

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Stylotheristus paramutilus sp. nov. from bottom sediments sampled in shallow-water and deep-sea habitats in the Black Sea is described and illustrated. The new species is characterized by well-developed lip region; 12 setiform cephalic sensilla in female and 16 in male; cervical setae present; spicules 0.6–0.9 anal body diameters long and expanded proximally; gubernaculum plate-like slightly curved; conico-cylindrical tail of 4.5–5.8 anal body diameters (except for one male with it equal to 12.9 anal body diameters); and 3 terminal setae. The present study provides the first *Stylotheristus* species record in the Black Sea. *S. paramutilus* sp. nov. is characterized by a wide spatial and bathymetrical (2–250-m depths) distribution in the Crimea region and the Istanbul Strait's (Bosphorus) outlet area of the Black Sea. However, in future, molecular analysis is required to confirm the identity of these specimens from different Black Sea habitats.

Keywords: Monhysterida, free-living marine nematodes, taxonomy, distribution, deep-sea, shallow-water

Free-living nematodes are among the most numerous and widespread multicellular organisms in the World Ocean. The study of meiobenthos in various areas of the Black Sea provided extensive data on the taxonomic diversity of free-living nematodes. In total, the species richness of the nematode fauna of the entire Black Sea is about 350 species and morphotypes identified only down to a genus or family level. In the region of Turkey alone, the nematode fauna includes 255 species [personal communication of PhD Derya Ürkmez]; for the Crimea region, about 230 species of nematodes are known [Sergeeva, 2003; Revkova, unpublished data].

The family Xyalidae includes 50 genera [Nemys, 2023; Venekey et al., 2014]. Out of them, 7 genera are registered in the Black Sea: *Valvaelaimus* Lorenzen, 1977, *Theristus* Bastian, 1865, *Daptonema* Cobb, 1920, *Steineria* Micoletzky, 1922, *Paramonohystera* Steiner, 1916, *Cobbia* de Man, 1907, and *Amphimonhystera* Allgén, 1929 [Mureşan, 2012, 2014; Revkova, 2015; Sergeeva, 2003; Sergeeva et al., 2021; Shnyukov, Yanko-Hombach, 2020; Vorobyova, Kulakova, 2009; Yanko et al., 2017].

Representatives of the genus *Stylotheristus* (the family Xyalidae) are widely distributed in the World Ocean: in the North and Mediterranean seas, in the Pacific, Atlantic, and Indian oceans [Nemys, 2023; OBIS, 2023], and in the Sea of Japan [our unpublished data]. Most of them were identified only down to a genus level. According to Nemys database [2023], two valid *Stylotheristus* species are known: *S. mutilus* described from the depth of 27–28 m in the North Sea and *S. multipapillatus* described from the depth of 5 m on the coast of Portugal.

In the present study, we provide a taxonomic description, illustrations, and data on distribution of a new *Stylotheristus* species for the Black Sea.

MATERIAL AND METHODS

The material was sampled in different years in the coastal and deep-sea areas of the Black Sea (Fig. 1, Table 1).

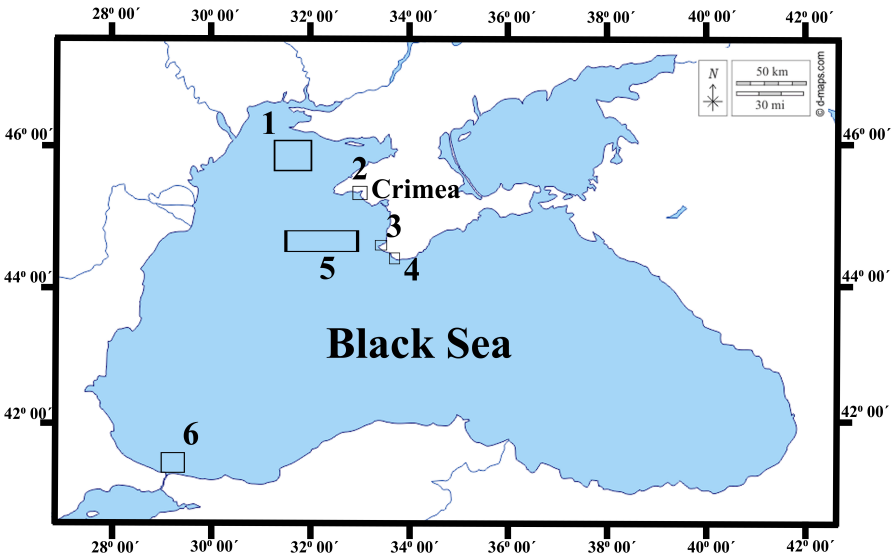

Fig. 1. The study areas where *Stylotheristus paramutilus* sp. nov. nematodes were found: 1, the Northwestern Crimea, the Zernov's *Phyllophora* Field (2010); 2, the Donuzlav Bay (2019); 3, the Kruglaya (Omega) Bay (2010); 4, the Laspi Bay (2017); 5, the Southwestern Crimea (2010); 6, the Istanbul Strait's (Bosphorus) outlet area (the Black Sea) (2009 and 2010)

Рис. 1. Районы исследования, где были обнаружены нематоды *Stylotheristus paramutilus* sp. nov.: 1 — Северо-Западный Крым, филлофорное поле Зернова (2010 г.); 2 — бухта Донузлав (2019 г.); 3 — бухта Круглая (Омега) (2010 г.); 4 — бухта Ласпи (2017 г.); 5 — Юго-Западный Крым (2010 г.); 6 — район выхода из пролива Босфор (Чёрное море) (2009 и 2010 гг.)

To study the meiobenthos, in the coastal areas of the Crimea, the Kruglaya (Omega), Donuzlav, and Laspi bays, material was sampled at various depths using push cores (sample area of 18.1 cm^2; height of 5 cm) at each station by a scuba diver. In the Kruglaya Bay, material was sampled at 1 station in different seasons in 2009–2010 [Zaika et al., 2011]; in the Donuzlav Bay, at 10 stations in its southern area in 2019 [Revkov et al., 2021]; and in the Laspi Bay, at 19 benthic stations in 2017 [Sergeeva et al., 2023]. To analyze meiofauna on the Zernov's *Phyllophora* Field, 18 sediment cores were taken by subcoring the sediment sampled with an Okean-25 bottom grab during the cruise No. 68 of the RV "Professor Vodyanitsky" in 2010. A cylindrical corer with inner diameter of 4.8 cm was used [Sergeeva et al., 2013].

In the deep-sea areas, material was sampled at the oxic/anoxic interface (82–363-m depth) in the northern Black Sea off the Crimean Peninsula during the research cruise No. 15/1 of the RV "Maria S. Merian" (Germany) (April–May 2010). In the Istanbul Strait's (Bosphorus) outlet area of the Black Sea (93–300-m depth), sampling was carried out during two research cruises: the cruise of the RV "Arar" of the Istanbul Technical University (November 2009) and the cruise No. 15/1 of the RV "Maria S. Merian" (April 2010). In the deep-sea areas, bottom sediments were sampled with a multiple corer (diameter of 9.6 cm), push corer or geological corer (diameter of 7.3 cm), and devices that provide obtaining virtually undisturbed samples. The sediment cores were sliced into 1-cm-thick layers down to a depth of 5–10 cm in order to study the vertical distribution of the fauna [Sergeeva et al., 2017, 2021].

Table 1. Station coordinates and sampling depth and time (the Black Sea)

Таблица 1. Координаты станций, глубина и время отбора проб (Чёрное море)

Station No.	Latitude, N	Longitude, E	Depth, m	Date
Zernov's *Phyllophora* Field, the cruise No. 68 of the RV "Professor Vodyanitsky"				
21	45°45′24″	31°21′28″	41	13.11.2010
25	46°4′3″	31°35′5″	20	13.11.2010
The Donuzlav Bay				
1	45°18′59″	33°1′11″	2	11.07.2019
3	45°19′13″	33°0′50″	2	11.07.2019
4	45°19′27″	33°0′60″	2	11.07.2019
The Kruglaya (Omega) Bay				
5	44°36′11.0″	33°26′34.3″	8.8	28.01.2010
The Laspi Bay				
1	44°25′05″	33°41′43″	14.5	15.09.2017
15	44°25′10″	33°42′13″	9	16.09.2017
17	44°25′04″	33°42′22″	10	16.09.2017
18	44°25′04″	33°42′28″	9	16.09.2017
The Southwestern Crimea and the Bosphorus Strait outlet area, the cruise No. 15/1 of the RV "Maria S. Merian"				
235	41°29′37″	29°15′12″	159	15.04.2010
372	44°37′14″	32°53′49″	163	25.04.2010
405	44°37′21″	32°54′9″	155.5	28.04.2010
425	44°47′09″	31°58′05″	163.2	30.04.2010
The Bosphorus Strait outlet area, the cruise of the RV "Arar" (Istanbul Technical University)				
3	41°24′01.2″	29°03′12.6″	82	12.11.2009
4	41°24′01.2″	29°03′12.6″	88	15.11.2009
5	41°23′17.4″	29°12′14.4″	103	15.11.2009
7	41°26′51.6″	29°12′57″	160	15.11.2009
9	41°28′59.4″	29°15′08.4″	250	15.11.2009

All sediment sections were fixed with 75% alcohol to preserve morphological structures without distortion. In a laboratory, all sampled sediments were washed through two staked sieves with mesh size of 1 mm and 63 μm in series and stained with rose bengal for at least 24 h.

The stained samples were placed in a Bogorov chamber; meiofaunal organisms were identified to major taxa and counted out under a binocular microscope. Nematode specimens were transferred to pure glycerin and mounted on wax–paraffin ring permanent slides [Ryss, 2002]. All measurements, photographs, and drawings were taken under Carl Zeiss Axiostar Plus and Olympus BX53 light microscopes. Holotype and paratypes were deposited in IBSS collection (Sevastopol).

Abbreviations are as follows: a, ratio of body length / maximum body diameter; b, ratio of body length / pharynx length; c, ratio of body length / tail length; c', ratio of tail length / anal body diameter; cbd, corresponding body diameter; and abd, anal body diameter.

RESULTS

Taxonomy. Order Monhysterida Filipjev, 1929. Family Xyalidae Chitwood, 1951. Genus *Stylotheristus* Lorenzen, 1977.

Diagnosis (emended from [Fonseca, Bezerra, 2014]). Cuticle transversely striated. Somatic setae usually present. Anterior sensilla arranged in two crowns with the number of setae in the second crown depending on the sex and life stage: (6 + 4) setae in juveniles; (6 + 4) or (6 + 6) in females; and (6 + 10) in males. Amphidial fovea circular or oval. Buccal cavity conical. Pharyngeal muscles

well-developed around the buccal cavity. Females with one outstretched ovary, located to the left side of intestine. Males with single anterior outstretched testis to the right or left of intestine. Spermatheca can be present. Spicules short (< 1 abd). Gubernaculum narrow, without apophysis. Precloacal supplements present or absent. Three caudal glands opening through separate pores. Tail conico-cylindrical, with three terminal setae.

Type species. *Stylotheristus mutilus* (Lorenzen, 1973) Lorenzen, 1977.

List of valid *Stylotheristus* species:

- *Stylotheristus mutilus* (Lorenzen, 1973) Lorenzen, 1977;
- *Stylotheristus multipapillatus* Pinto & Neres, 2020;
- *Stylotheristus paramutilus* sp. nov. (Figs 2, 3, 4, 5, Tables 2, 3).

Table 2. Measurements of *Stylotheristus paramutilus* sp. nov. from different areas of the Black Sea. All values are in μm unless otherwise stated, except for the ratios a, b, c, and c'. All curved structures were measured along the arc

Таблица 2. Измерения *Stylotheristus paramutilus* sp. nov. из различных районов Чёрного моря. Все значения приведены в мкм, если не указано иное, за исключением индексов a, b, c, и c'. Все изогнутые структуры были измерены вдоль дуги

Character	The Donuzlav Bay			The Bosphorus Strait area		The Laspi Bay
	Male holotype	Male paratype, *n* = 5	Female paratype, *n* = 4	Male paratype, *n* = 2	Female paratype	Male paratype
Body length	1,767	1,545–1,752	1,613–1,799	1,854–1,875	1,820	1,565
a	49.1	40.6–48.7	38.2–46.1	51.5–52.1	45.5	36.4
b	9.7	8.2–9.8	8.7–9.8	10.4–11.2	10.5	8.5
c	5.1	4.6–5.5 (12.9*)	4.8–5.7	4.5	4.5	5.8
c'	12.6	12.2–13.3 (3.3*)	12.2–14.3	12.9	16.2	9
V (%)			51.9–56.6		49.1	
Vulval body diameter			32–43		35	
Maximum body diameter	36	36–40	35–47	36	40	43
Pharynx length	181	165–188	172–196	165–180	173	184
Buccal cavity length	20	18–21	20–24	20–21	17	20
Buccal cavity diameter	15	15–20	12–14	17–20	12	19
Amphid width / cbd (%)	32	29.6–36	31.1–33.3	33.3–34.8	38.1	26.7
Amphid from anterior end	17	17–20	20–21	12–15	11	18
Nerve ring from anterior end	86	81–98	81–105	82–95	–	–
Nerve ring cbd	35	32–35	31–38	30–32	–	–
Tail length	353	317–345 (120*)	316–345	412	405	270
abd	28	26–31	22–27	29–30	25	30
Spicule length	22	17–22 (27×)		22		21
Gubernaculum length	14	10–12		12		9

Note: * denotes a male (Meib.44. N.p.) with a very short tail; × denoted a male (Meib.43. N.p.) with longer spicules.

Примечание: * — самец (Meib.44. N.p.) с очень коротким хвостом; × — самец (Meib.43. N.p.) с более длинными спикулами.

The latter species was previously recorded in the Bosphorus Strait outlet area (the Black Sea) as *Daptonema* sp. [Sergeeva et al., 2021].

Type material. Nine males and six females. Male holotype mounted on slide Meib.39. N.h. Male paratypes mounted on slides: Meib.40. N.p. – Meib.45. N.p., Meib.50. N.p. Female paratypes in pure glycerin: Meib.41. N.p., Meib.46. N.p. – Meib.49. N.p.

Type locality. The Black Sea, the Donuzlav Bay, 45°19′13″N, 33°0′50″E, sta. 3, silt with the smell of hydrogen sulfide, sediment depth of 2 m.

Etymology. The species name means "close to *mutilus*," "similar to *mutilus*."

Description. Male. Body cylindrical and gradually tapering towards posterior end. Cuticle striated. Somatic setae scattered along the body, 4–11 μm long. Cervical setae thin, 9–14 μm long. Lips well developed, high. Six short inner labial conical papillae (3 μm long) and a circle with 16 cephalic setae: 12 long setae (11–18 μm long) and 4 short setae (6–9 μm long). Stoma funnel-shaped. Cheilostoma with thin, smooth walls.

Pharyngostoma funnel, with weakly cuticularized walls. Pharynx muscular, almost cylindrical. Cardia 15–21 μm long, surrounded by intestine. Amphids circular, 8–9 μm in diameter. Pharynx cylindrical, about 8.9–12.2% of total body length. Nerve ring situated near middle of pharynx (45–52.8%). Secretory-excretory pore not observed. Reproductive system monorchic. Testis outstretched, situated to the right of intestine.

Spicules short (0.6–0.9 abd), slightly curved and expanded proximally. In proximally part of spicules, visible ejacular canal. Gubernaculum plate-like, slightly curved, about 42.9–63.6% of spicule length. Sperm cells globular, 11–15 μm wide. Tail conico-cylindrical, with elongated filiform portion; three terminal setae, 8–11 μm long, on the tail tip.

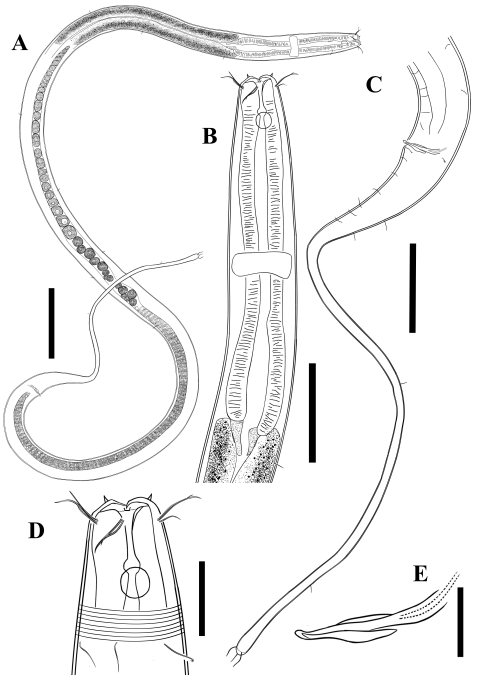

Fig. 2. *Stylotheristus paramutilus* sp. nov. Male holotype. A, general view; B, pharyngeal region; C, tail region; D, head; E, spicule. Scale bar: A, 100 μm; B, C, 50 μm; D, 20 μm; E, 10 μm

Рис. 2. *Stylotheristus paramutilus* sp. nov. Голотип (самец). A — общий вид; B — глотка; C — хвост; D — голова; E — спикула. Масштабная линейка: A — 100 мкм; B, C — 50 мкм; D — 20 мкм; E — 10 мкм

Female. Similar to male in general morphology. Cephalic sensilla arranged in a circle with 12 cephalic setae (10–18 μm long). Nerve ring at 50–57.4% of pharynx length from anterior. Reproductive system monodelphic. Ovary outstretched and on the left side of intestine. Vulva directed anteriorly, situated slightly posterior to mid-body (861–1,015 μm). Small copulatory plug visible to seal the vulva. Vagina long, with muscular walls. Spermatheca absent. Mature egg (127 × 43 μm) and spermatozoa present in uterus. Caudal glands not visible. Tail long, with three terminal setae (8–9 μm long).

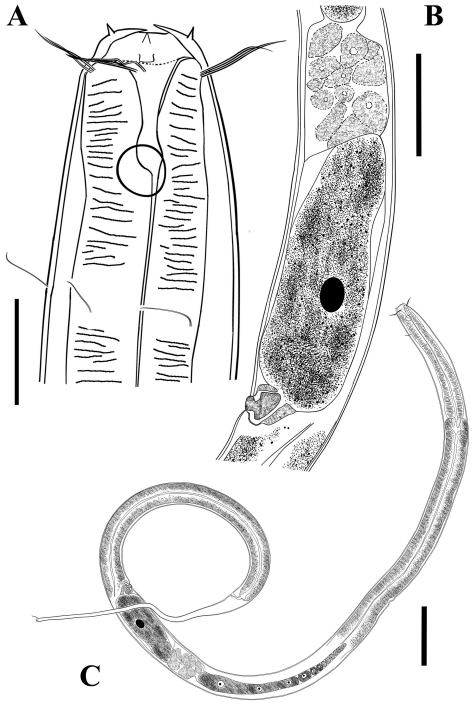

Fig. 3. *Stylotheristus paramutilus* sp. nov. Female paratype. A, head; B, vulval region; C, general view. Scale bar: A, 20 μm; B, 50 μm; C, 100 μm

Рис. 3. *Stylotheristus paramutilus* sp. nov. Паратип (самка). A — голова; B — район вульвы; C — общий вид. Масштабная линейка: A — 20 мкм; B — 50 мкм; C — 100 мкм

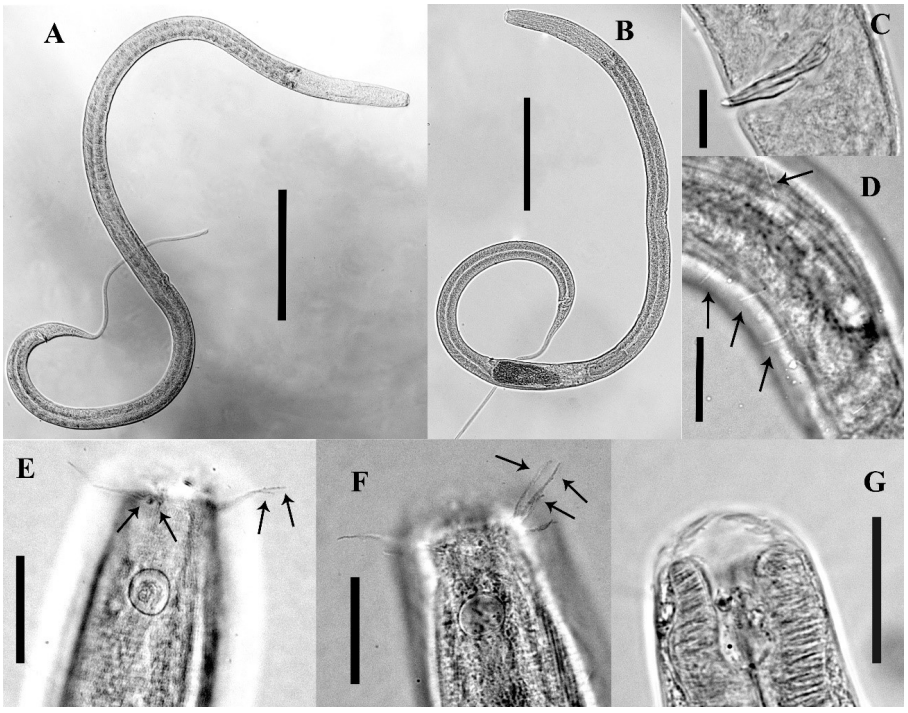

Fig. 4. *Stylotheristus paramutilus* sp. nov. A, male holotype, general view; B, female paratype, general view; C, male holotype, spicule; D, male paratype, preanal somatic setae; E, female paratype, head; F, male paratype, head; G, female paratype, buccal cavity. Scale bar: A, B, 200 μm; C, 10 μm; D–G, 20 μm

Рис. 4. *Stylotheristus paramutilus* sp. nov. A — голотип (самец), общий вид; B — паратип (самка), общий вид; C — голотип (самец), спикула; D — паратип (самец), преанальные соматические щетинки; E — паратип (самка), голова; F — паратип (самец), голова; G, паратип (самка), ротовая полость. Масштабная линейка: A, B — 200 мкм; C — 10 мкм; D–G — 20 мкм

Diagnosis. *S. paramutilus* sp. nov. is characterized by body length of 1,545–1,875 μm; 12 setiform cephalic sensilla in female; cervical setae present; spicules short and widening proximally; gubernaculum plate-like slightly curved; and tail 270–412 μm long (expect for one male paratype, 120 μm long).

Differential diagnosis. *S. paramutilus* sp. nov. differs from all valid species (see Table 3) by number of cephalic setae in female (12 *vs.* 10); relatively shorter body in males (1,545–1,875 μm *vs.* 1,830–2,330 μm in *S. mutilus* and 1,968–2,052 μm in *S. multipapillatus*) and in females (1,657–1,820 μm *vs.* 1,970 μm in *S. mutilus* and 2,100–2,240 μm in *S. multipapillatus*); structure of the spicular apparatus (expand proximally *vs.* thin all over in *S. multipapillatus* and *S. mutilus*); and longer tail (c value of 4.5–5.8 [except for one male with 12.9] *vs.* 5.8–6.6 in *S. mutilus* and 6.8–8.6 in *S. multipapillatus*). *S. paramutilus* sp. nov. is similar in the body structure to *S. mutilus*, but differs from it by wider body in males (a value of 36.4–52.1 *vs.* 55–61). The new species differs from *S. multipapillatus* by precloacal supplements (absent *vs.* present).

Variability of body size and copulatory organs. Specimens from different areas of the Black Sea have significant variability in body and tail lengths; there are also slight differences in the shape and length of spicules (see Fig. 5, Table 2). Specimens from the Bosphorus Strait area are much longer and slightly slenderer than those from the Donuzlav and Laspi bays. One male (Meib.42. N.p.), from the Bosphorus Strait area, has straight spicules, and another male (Meib.41. N.p.) has proximally curved spicules (Fig. 5D, E). The third male paratype (Meib.43. N.p.), from the Donuzlav Bay, has longer spicules [27 μm (0.9 abd) *vs.* 17–22 μm (0.6–0.8 abd)] and ratio of spicule length to gubernaculum length (2.25 *vs.* 1.6–1.9) compared to other specimens (Fig. 5B). The fourth male paratype (Meib.44. N.p.), from the Donuzlav Bay, has shortened tail (3.3 abd *vs.* 9–13.3 abd) (Fig. 5A).

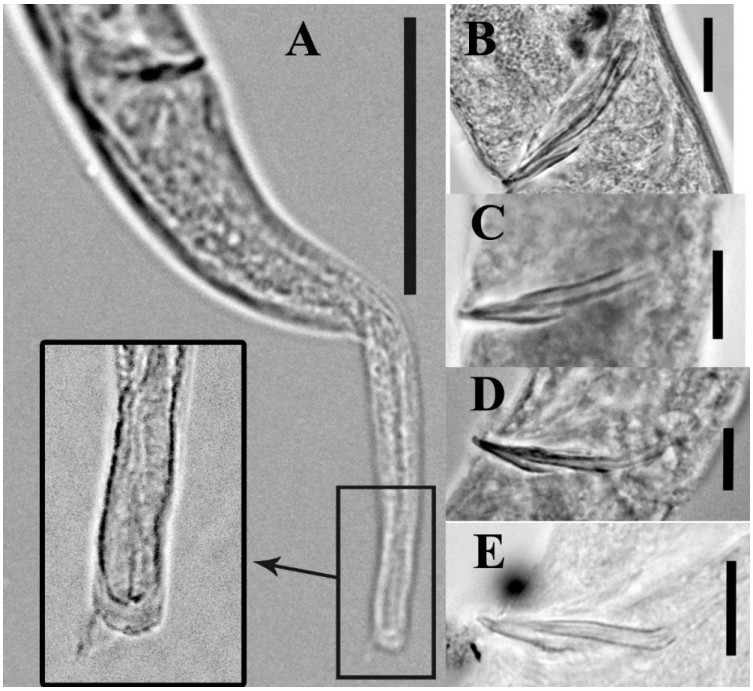

Fig. 5. *Stylotheristus paramutilus* sp. nov. A, male paratype, tail (the Donuzlav Bay); B–E, variation of shape of spicules in male paratypes: B, the Donuzlav Bay; C, the Laspi Bay; D–E, the Bosphorus Strait area. Scale bar: A, 50 μm; B–E, 10 μm

Рис. 5. *Stylotheristus paramutilus* sp. nov. A — паратип (самец), хвост (залив Донузлав); B–E — изменчивость формы спикул у паратипов самцов: B — залив Донузлав; C — бухта Ласпи; D–E — район пролива Босфор. Масштабная линейка: A — 50 мкм; B–E — 10 мкм

Table 3. Morphological characters of *Stylotheristus* species. All values are in μm unless otherwise stated, except for the ratios a, b, c, and c'

Таблица 3. Морфологические характеристики видов *Stylotheristus*. Все значения приведены в мкм, если не указано иное, за исключением индексов a, b, c и c'

Character	*Stylotheristus paramutilus* sp. nov.		*Stylotheristus mutilus*		*Stylotheristus multipapillatus*	
	males	females	males	female	males	females
Body length	1,545–1,875	1,613–1,820	1,830–2,330	1,970	1,920–2,052	2,100–2,240
a	36.4–52.1	38.2–46.1	55–61	45	56.9–68.9	43.7–56.45
b	8.2–11.2	8.7–10.5	9.2–9.6	8.7	8–9	8.2–8.9
c	4.5–5.8	4.5–5.7	5.9–6.6	5.8	7.5–8.6	6.8–7.6
c'	9–13.3	12.2–16.2	11.2	14.3	7.4–9.8	9.7–11
Number of cephalic setae	16	12	16	10	16	10
V (%)		49.1–56.6		55		57–63
Spicule length	17–22		18–20		15.5–25	
Number of supplements	absent		absent		11–15	

It can be assumed that such morphological variability is determined by the adaptation of the species to different conditions of the waterbody. On the other hand, it is possible that in future, genetic methods applied to study individuals from various habitats will show the existence of different species of *Stylotheristus* genus in the Black Sea.

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REFERENCES

1. Fonseca G., Bezerra T. N. Order Monhysterida Filipjev, 1929. In: *Handbook of Zoology. Gastrotricha, Cycloneuralia, Gnathifera*. Vol. 2. *Nematoda* / A. Schmidt-Rhaesa (Ed.). Berlin ; Boston : De Gruyter, 2014, pp. 435–465. https://doi.org/10.1515/9783110274257
2. Lorenzen S. Freilebende Meersenematoden aus dem Sublitoral der Nordsee und der Kieler Bucht. *Veröffentlichungen des Instituts für Meeresforschung in Bremerhaven*, 1973, Bd. 14, pp. 103–130.
3. Lorenzen S. Revision der Xyalidae (freilebende Nematoden) auf der Grundlage einer kritischen Analyse von 56 Arten aus Nord- und Ostsee. *Veröffentlichungen des Instituts für Meeresforschung in Bremerhaven*, 1977, Bd. 16, pp. 197–261.
4. Mureşan M. Assessment of free-living marine nematodes community from the NW Romanian Black Sea shelf. *Geo-Eco-Marina*, 2012, vol. 18, pp. 133–145. https://doi.org/10.5281/zenodo.56876
5. Mureşan M. Diversity and distribution of free-living nematodes within periazoic level on the Romanian shelf of the Black Sea. *Geo-Eco-Marina*, 2014, vol. 20, pp. 19–28.
6. *Nemys: World Database of Nematodes* : [site], 2023. URL: https://nemys.ugent.be [accessed: 23.06.2023]. https://doi.org/10.14284/366
7. *OBIS: Ocean Biogeographic Information System* : [site]. URL: https://obis.org/taxon/153200 [accessed: 08.07.2023].
8. Pinto T. K., Neres P. F. Four new species of free-living nematodes from shallow continental

shelf of Portugal. *Zootaxa*, 2020, vol. 4722, no. 1, pp. 1–33. https://doi.org/10.11646/zootaxa.4722.1.1

9. Revkova T. N. Struktura taksotsena svobodnozhivushchikh nematod v bukhte Kruglaya (Omega) (Chernoe more). In: *"Pontus Euxinus – 2015"* : tezisy IX Vserossiiskoi nauchno-prakticheskoi konferentsii molodykh uchenykh (s mezhdunarodnym uchastiem) po problemam vodnykh ekosistem, posvyashchennoi 100-letiyu so dnya rozhdeniya d. b. n., prof., chl.-kor. AN USSR V. N. Greze, 17–20 Nov., 2015. Sevastopol : DigitPrint, 2015, pp. 144–145. (in Russ.). https://repository.marine-research.ru/handle/299011/1855
10. Revkov N. K., Boltacheva N. A., Revkova T. N., Bondarenko L. V., Schurov S. V., Lukjanova L. F. Bottom fauna of lake Donuzlav under conditions of industrial sand mining. *Ekosistemy*, 2021, iss. 27, pp. 5–22. (in Russ.). https://doi.org/10.37279/2414-4738-2021-27-5-22
11. Ryss A. Y. Express technique to prepare permanent collection slides of nematodes. *Zoosystematica Rossica*, 2002, vol. 11, no. 2, pp. 257–260. http://doi.org/10.31610/zsr/2002.11.2.257
12. Sergeeva N. G. Meiobenthos in the region with the methane gas seeps. In: *Modern Conditions of Biological Diversity in Nearshore Zone of Crimea (the Black Sea Sector)* / V. N. Eremeev, A. V. Gaevskaya (Eds). Sevastopol : Ekosi-Gidrofizika, 2003, pp. 258–267. (in Russ.). https://repository.marine-research.ru/handle/299011/1467
13. Sergeeva N. G., Kharkevych Kh. O., Revkova T. N. Modern structure of meiobenthos of the northwestern shelf of the Black Sea. In: *From the Caspian to Mediterranean: Environmental Change and Human Response During the Quaternary (2013–2017)* : proceedings of the IGCP 610 First Plenary Conference and Field Trip, Illia State University, Tbilisi, Georgia, 12–19 October, 2013. Tbilisi : LTD "Sachino", 2013, pp. 126–129.
14. Sergeeva N. G., Revkova T. N., Ürkmez D. Meiobenthic assemblages of the Laspi Bay (Crimea, Black Sea): Taxonomic diversity and quantitative development. *Acta Aquatica Turcica*, 2023, vol. 19, iss. 1, pp. 58–70. https://doi.org/10.22392/actaquatr.1169181
15. Sergeeva N. G., Ürkmez D., Dovgal I. V., Sezgin M. Protists (Ciliophora, Gromiida, Foraminifera) in the Black Sea meiobenthic communities. *Journal of the Black Sea/Mediterranean Environment*, 2017, vol. 23, no. 2, pp. 121–155.
16. Sergeeva N. G., Ürkmez D., Revkova T. N. Meiobenthic nematodes at the deep oxic/anoxic boundary of the Black Sea (Istanbul Strait Outlet Area) with new records for Turkey. *Regional Studies in Marine Science*, 2021, vol. 46, art. no. 101904 (12 p.). https://doi.org/10.1016/j.rsma.2021.101904
17. Shnyukov E., Yanko-Hombach V. Black Sea methane and marine biota (case study). In: *Mud Volcanoes of the Black Sea Region and Their Environmental Significance*. Cham, Switzerland : Springer, 2020, pp. 449–485. https://doi.org/10.1007/978-3-030-40316-4_11
18. Venekey V., Gheller P. F., Maria T. F., Brustolin M. C., Kandratavicius N., Vieira D. C., Brito S., Souza G. S., Fonseca G. The state of the art of Xyalidae (Nematoda, Monhysterida) with reference to the Brazilian records. *Marine Biodiversity*, 2014, vol. 44, iss. 3, pp. 367–390. https://doi.org/10.1007/s12526-014-0226-3
19. Vorobyova L. V., Kulakova I. I. *Contemporary State of the Meiobenthos in the Western Black Sea.* Odesa : Astroprint, 2009, 126 p.
20. Zaika V. E., Ivanova E. A., Sergeeva N. G. Seasonal changes of meiobenthos of the Sevastopol Bays with the analysis of influence of bottom hypoxia. *Morskoj ekologicheskij zhurnal*, 2011, vol. 2, sep. iss. 2, pp. 29–36. (in Russ.). https://repository.marine-research.ru/handle/299011/1115
21. Yanko V. V., Kravchuk A. O., Kulakova I. I. *Meiobenthos of Methane Outlets of the Black Sea.* Odesa : Feniks, 2017, 240 p. (in Russ.)

STYLOTHERISTUS PARAMUTILUS SP. NOV. (NEMATODA: XYALIDAE), НОВЫЙ ВИД НЕМАТОД ИЗ ЧЁРНОГО МОРЯ

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Приведены иллюстрации и описание *Stylotheristus paramutilus* sp. nov. из сборов донных осадков мелководных и глубоководных зон Чёрного моря. Новый вид характеризуется хорошо развитой губной областью, 12 щетинковидными головными сенсиллами у самки и 16 у самца; наличием шейных щетинок; спикулами (0,6–0,9 анального диаметра), расширяющимися проксимально; пластинчатым рульком, слегка изогнутым; конико-цилиндрическим хвостом, равным 4,5–5,8 анального диаметра (кроме одного самца, значение у которого составило 12,9 анального диаметра) и 3 щетинками на кончике хвоста. В настоящем исследовании описана первая находка рода *Stylotheristus* в Чёрном море. *S. paramutilus* sp. nov. характеризуется широким пространственным и батиметрическим (глуби́ны от 2 до 250 м) распространением в Чёрном море — как в различных районах Крыма, так и на выходе из пролива Босфор. Сделано заключение о необходимости проведения в будущем молекулярного анализа для подтверждения принадлежности черноморских представителей из разных местообитаний к одному виду.

Ключевые слова: Monhysterida, свободноживущие морские нематоды, систематика, распределение, глубоководный, мелководный