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Tricoma (*Tricoma*) *disparseta* sp. nov. (Nematoda: Desmoscolecidae), a New Free-Living Marine Nematode from a Seamount in the Northwest Pacific Ocean, with a New Record of *T.* (*T.*) *longirostris* (Southern, 1914) †

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Abstract: During a survey of marine biodiversity in the deep sea off northeastern Guam, two marine desmoscolecid nematodes belonging to the subgenus *Tricoma* were discovered. *Tricoma* (*Tricoma*) *disparseta* sp. nov. was described based on specimens collected from sponge and starfish habitats on a seamount at depths ranging from 1300 to 1500 m. *Tricoma* (*Tricoma*) *disparseta* sp. nov. is distinguished by having 59 to 62 main rings, 9 to 10 subdorsal setae, and 14 to 18 subventral setae on each side. Notable features include the differentiation in length and insertion between the subdorsal and subventral setae, as well as the amphid extending to the second or third main ring. Additionally, the spicules have a relatively small capitulum at the proximal end, while the gubernaculum is bent into a hooked shape. The specimen of *T.* (*T.*) *longirostris* observed in this study closely resembles previously reported specimens, characterized by 78 main rings, a long and narrow head shape, eight to nine subdorsal setae, 14 to 15 subventral setae, and a gubernaculum with a knobbed apophysis. Two *Tricoma* species from the Northwest Pacific Ocean are described in detail, and pictorial keys and comparative tables for species identification are provided for groups with 50 to 64 main rings.

Keywords: meiofauna; new species; morphology; taxonomy; deep sea

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1. Introduction

Deep-sea ecosystems, which span approximately 65% of the Earth's surface, are home to a substantial portion of global biodiversity [1,2]. Among the diverse organisms inhabiting these environments, nematodes stand out as the most prolific metazoans, representing over 90% of the benthic deep-sea population [1,2]. Recent research underscores the high species diversity within deep-sea nematode communities [3], highlighting that water depth plays a crucial role in influencing species abundance [4–6]. This depth-dependent variation is closely linked to nutrient availability and sediment characteristics [6]. However, investigating the diversity of deep-sea nematode communities poses significant taxonomic challenges, primarily due to the limited number of individuals available for each genus or species [3,7].

Within this diverse nematode community, the Desmoscolecida are particularly notable for their presence in deep-sea habitats. Despite their relatively low species richness, Desmoscolecida exhibit high diversity [8]. The genus *Tricoma*, established by Cobb in 1894, represents one of the major taxa within the Desmoscolecida. It encompasses two subgenera: *Tricoma* (*Tricoma*) and *Tricoma* (*Quadricoma*), which have been the subject of ongoing debate regarding their precise taxonomic classification. Decraemer (1985) recently reclassified *Quadricoma* as a subgenus of *Tricoma*, citing shared characteristics such as the head shape, end ring, and spinneret. However, the two subgenera can be distinguished by specific diagnostic features. *Tricoma* (*Quadricoma*) exhibits desmens with a triangular outline and an abrupt reversal of direction in the inversion ring. The subgenus *Tricoma* alone comprises 87 recorded species globally, with 23 of these species occurring at depths greater than 200 m, thus representing 26% of the total [9]. Species belonging to the subgenus *Tricoma* are characterized by several distinct morphological features: their desmen are typically rounded or triangular in shape, they lack a pronounced reversal ring, and their head, when viewed in optical section, appears more or less triangular. Additionally, the terminal ring is predominantly cylindrical, further distinguishing them from related taxa [10].

During a survey of free-living marine nematode biodiversity in international waters around Guam in the Northwest Pacific Ocean, two species, *Tricoma* (*T.*) *disparseta* sp. nov. and *T.* (*T.*) *longirostris* (Southern, 1914), were discovered on the surface of a sponge and in sediment in the deep-sea seamount region. Seamounts, which are underwater topographic elevations of the seafloor, play a crucial role in marine biogeography [11]. These structures are known to create unique hydrological conditions, such as enhanced semi-closed circulation patterns and increased vertical mixing, which result in the formation of circulation cells above their summits [12–15]. These circulation cells enhance the local production of primary and secondary organisms and help retain larvae and pelagic production in the water column, thereby improving food resources for benthic fauna [13]. Consequently, seamounts support high biodiversity and serve as important habitats for a variety of macro- and megabenthic taxa [12,15,16]. To date, six species of the subgenus *Tricoma* have been recorded from the Northwest Pacific [9]. This study presents a detailed description of the two *Tricoma* species discovered in the seamounts off northeastern Guam, Northwest Pacific. The descriptions are supported by illustrations and photographs obtained through scanning electron microscopy (SEM) and differential interference contrast (DIC) microscopy. Additionally, a comparative character table and a pictorial key are included for species with 50 to 64 main rings, offering a visual and tabulated guide for their identification and comparison.

2. Material and Methods

2.1. Field Sampling and Sample Processing

In September 2023, the oceanographic research vessel *ISABU*, operated by the Korea Institute of Ocean Science and Technology (KIOST), carried out a deep-sea exploration in the seamount region northeast of Guam (Figure 1; Table 1). Samples were collected from the seafloor at depths ranging from 1300 to 1500 m using a suction sampler attached to a remotely operated vehicle (ROV). The collected substrate, containing meiofauna and macrofauna, was processed in the field by applying osmotic shock with tap water for 10 min to separate the organisms from the silt. The samples were then filtered through sieves with mesh sizes of 1 mm and 63 μm to separate microfauna from macrofauna and were fixed in a 5% formaldehyde solution for long-term preservation.

Table 1. Sampling locations of the two *Tricoma* species collected from the Northwest Pacific Ocean.

Stations		Date	Latitude (DMS)	Longitude (DMS)	Depth(m)	Remarks	Specimens
St.1	BKC90103	1 September 2023	15°38′15.16″ S	151°59′50.35″ E	1425.52	Starfish habitat	HSV0114
St.2	BKC80403	6 September 2023	17°02′47.346″ S	149°52′50.484″ E	1366.6	Starfish habitat	HSV0113_#4, HSV0113_#5, HSV0113_#6, HSV0113_#7, HSV0113_#9, HSV0113_#10
St.3	BKC80502	7 September 2023	17°05′45.41″ S	149°55′07.67″ E	1510.1	Sponge	HSV0113_#1, HSV0113_#2, HSV0113_#3, HSV0113_#8

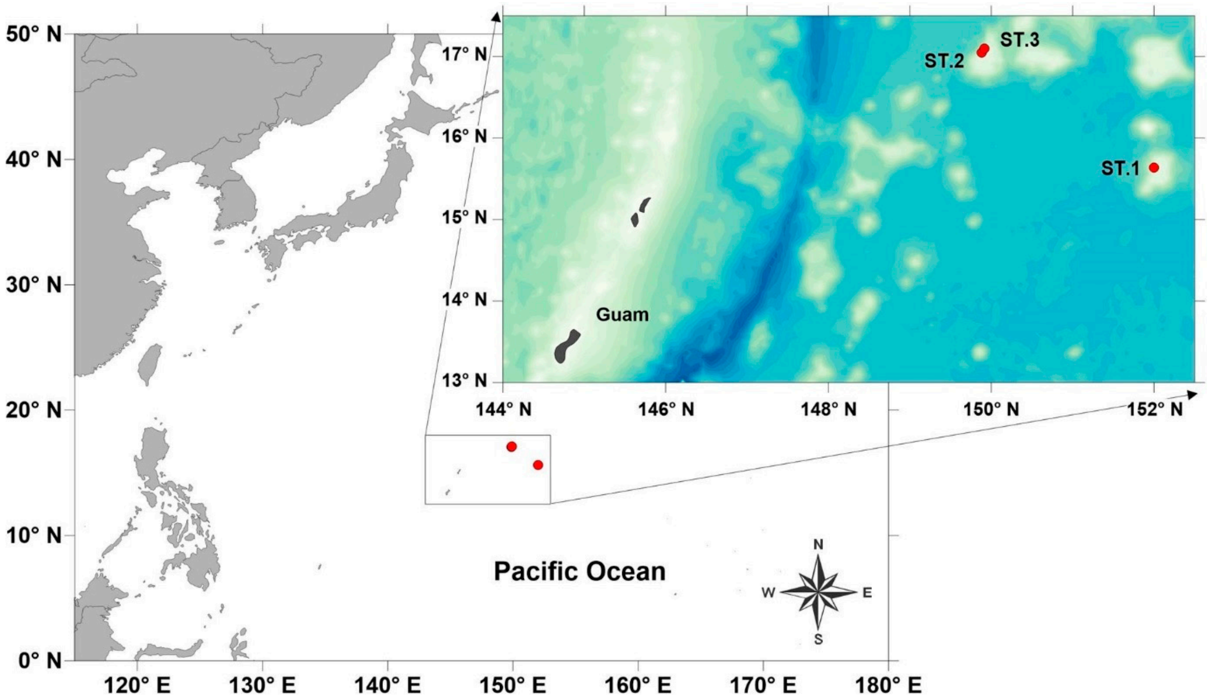

Figure 1. A map depicting the locations where samples were collected.

2.2. Laboratory Processing and Microscopic Analysis

In the laboratory, meiofauna were separated from detritus and sediments by flotation in Ludox HS40 and screened through a 63 µm mesh sieve. The target nematodes were manually selected using a Pasteur pipette under a dissecting microscope and transferred to a 3% glycerin solution. The solution was evaporated at room temperature over 10 days until only pure glycerol remained. Specimens were mounted in glycerin between two cover slips using the standard wax ring method. Observations and measurements were conducted using an Olympus BX53 microscope equipped with cellSens Standard v1.16 software. Photographs were taken with a LEICA DM2500 LED microscope equipped with a LEICA K5C color CMOS camera (Wetzlar, Germany), and the image quality was enhanced using Adobe Photoshop 2023. Drawings were produced using a 100x objective lens with immersion oil and a microscope with Nomarski differential interference contrast (DIC) from an Olympus BX53 microscope (Tokyo, Japan), equipped with a drawing tube. Line drawings were created using tracing techniques with a Wacom Cintiq 22 tablet and Adobe Illustrator.

2.3. Scanning Electron Microscopy (SEM) Analysis

For the SEM analysis, specimens were initially fixed in 5% formaldehyde solution, rinsed three times with distilled water for 10 min each, freeze-dried, and mounted on aluminum stubs using pins. A thin layer of gold/palladium was applied using a high-vacuum sputter coater. SEM imaging was performed with a field emission SEM (JSM-7200F) at KOPRI, providing detailed visualization of the specimen morphology.

The abbreviations used in the text are as follows:

a: body length divided by maximum body diameter,

b: body length divided by pharynx length,

c: body length divided by tail length,

V (%): vulva distance from the anterior end as a percentage of total body length.

3. Results and Discussion

Taxonomic Account

Order Desmoscolecida Filipjev, 1929

Family Desmoscolecidae Shipley, 1896
Genus *Tricoma* Cobb, 1894
Subgenus *Tricoma* Cobb, 1894
Tricoma (*Tricoma*) *disparseta* sp. nov. (Figures 2–7, Table 2)

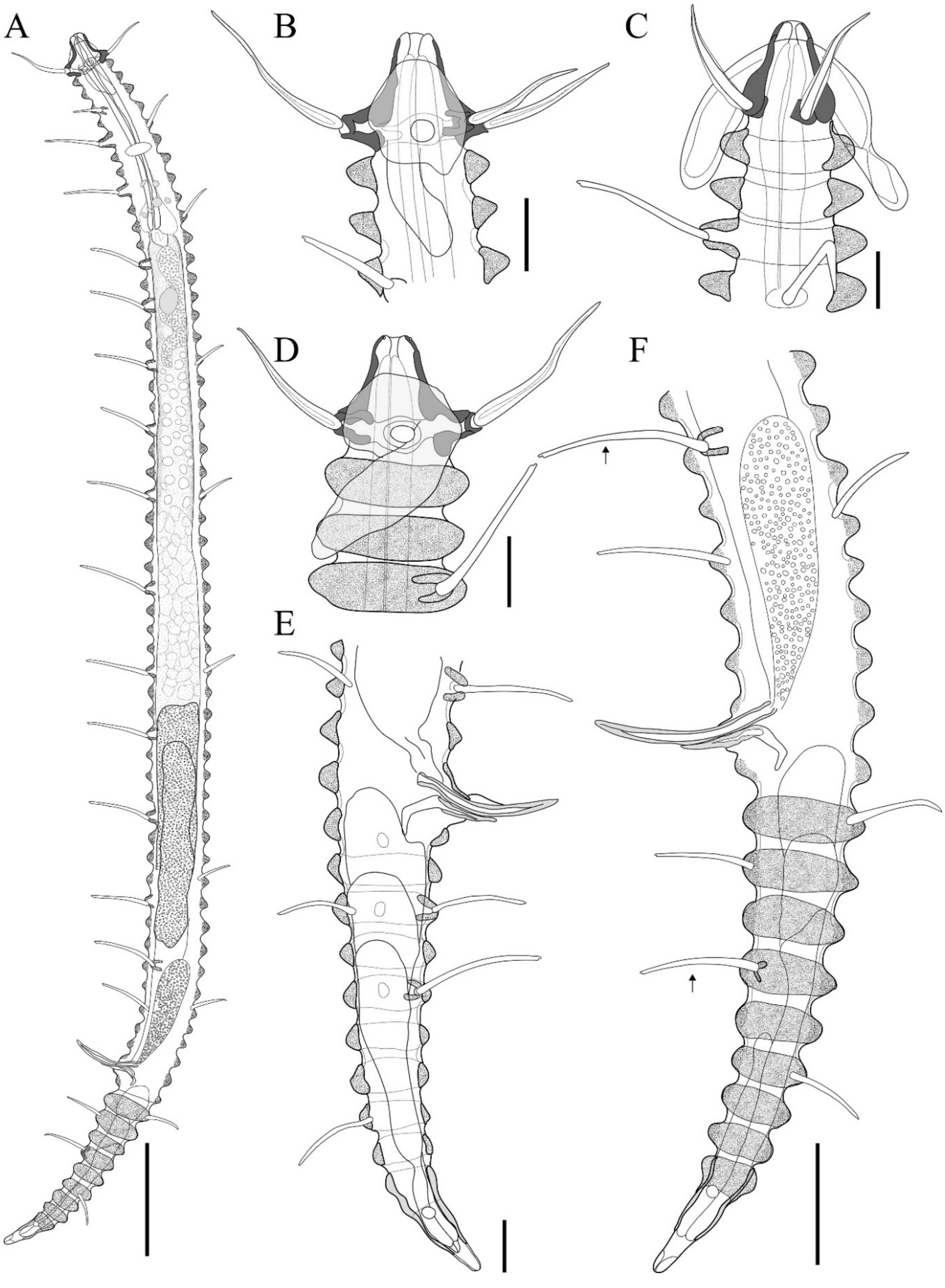

Figure 2. *Tricoma* (*Tricoma*) *disparseta* sp. nov. Holotype male (MNB001). (**A**) Entire view of the male body, lateral view; (**B**) head region, left side; (**C**) head region, ventral view (Paratype MNB006); (**D**) head region, right side (Paratype MNB005); (**E**) spicules and tail region, right side (Paratype MNB005); (**F**) a posterior region showing sightly laterally inserted subventral setae (arrow). Scale bars: 50 µm in (**A**); 10 µm in (**B**–**E**); 20 µm in (**F**).

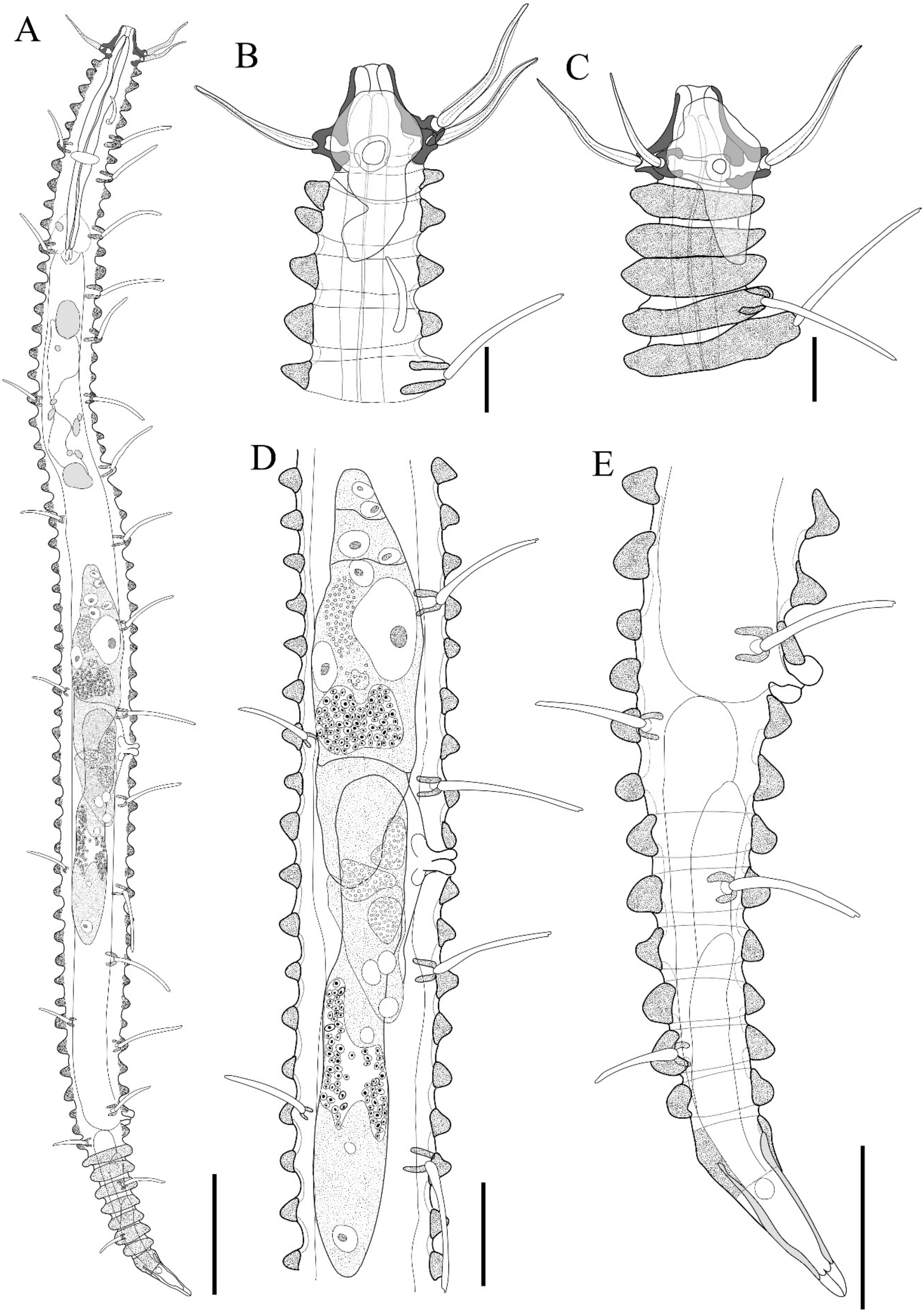

Figure 3. *Tricoma* (*Tricoma*) *disparseta* sp. nov. Allotype female (MNB007). (**A**) Entire view of the male body, lateral view; (**B**) head region, right side; (**C**) head region, right side (Paratype MNB008); (**D**) reproductive systems; (**E**) tail region, right side. Scale bars: 50 μm in (**A**); 10 μm in (**B**,**C**); 20 μm in (**D**,**E**).

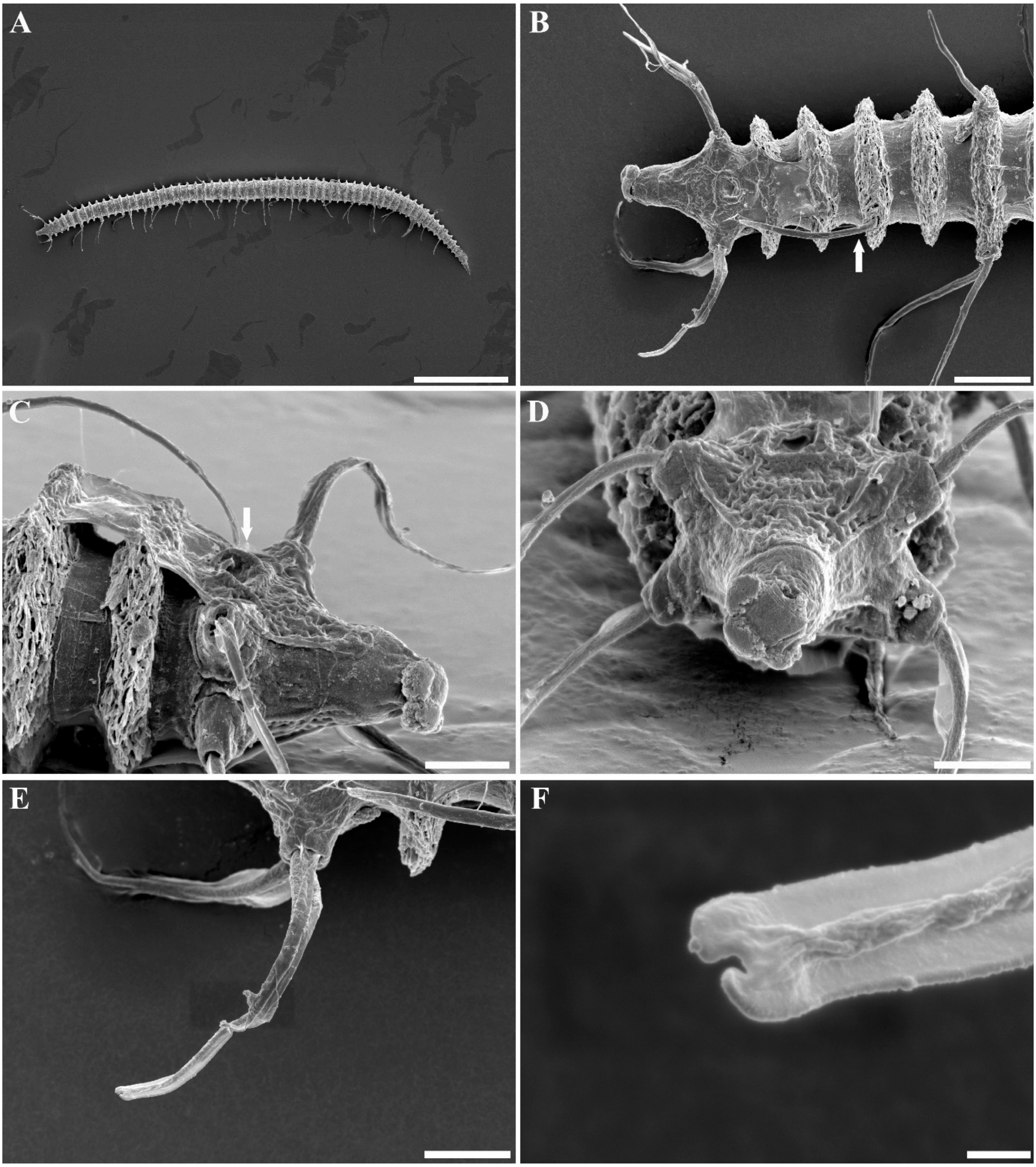

Figure 4. *Tricoma* (*Tricoma*) *disparseta* sp. nov. SEM photomicrographs, male. (**A**) Entire view of the body, lateral view; (**B**) anterior region showing laterally inserted subventral setae (white arrow); (**C**) head showing the amphideal fovea, with a white arrow indicating the amphideal pore, dorsal view; (**D**) head region, anterior view; (**E**) cephalic setae enclosed by a thin membrane; (**F**) the distal end of cephalic setae, split and enclosed by a thin membrane. Scale bars: 100 µm in (**A**); 10 µm in (**B**); 5 µm in (**C**–**E**); 500 nm in (**F**).

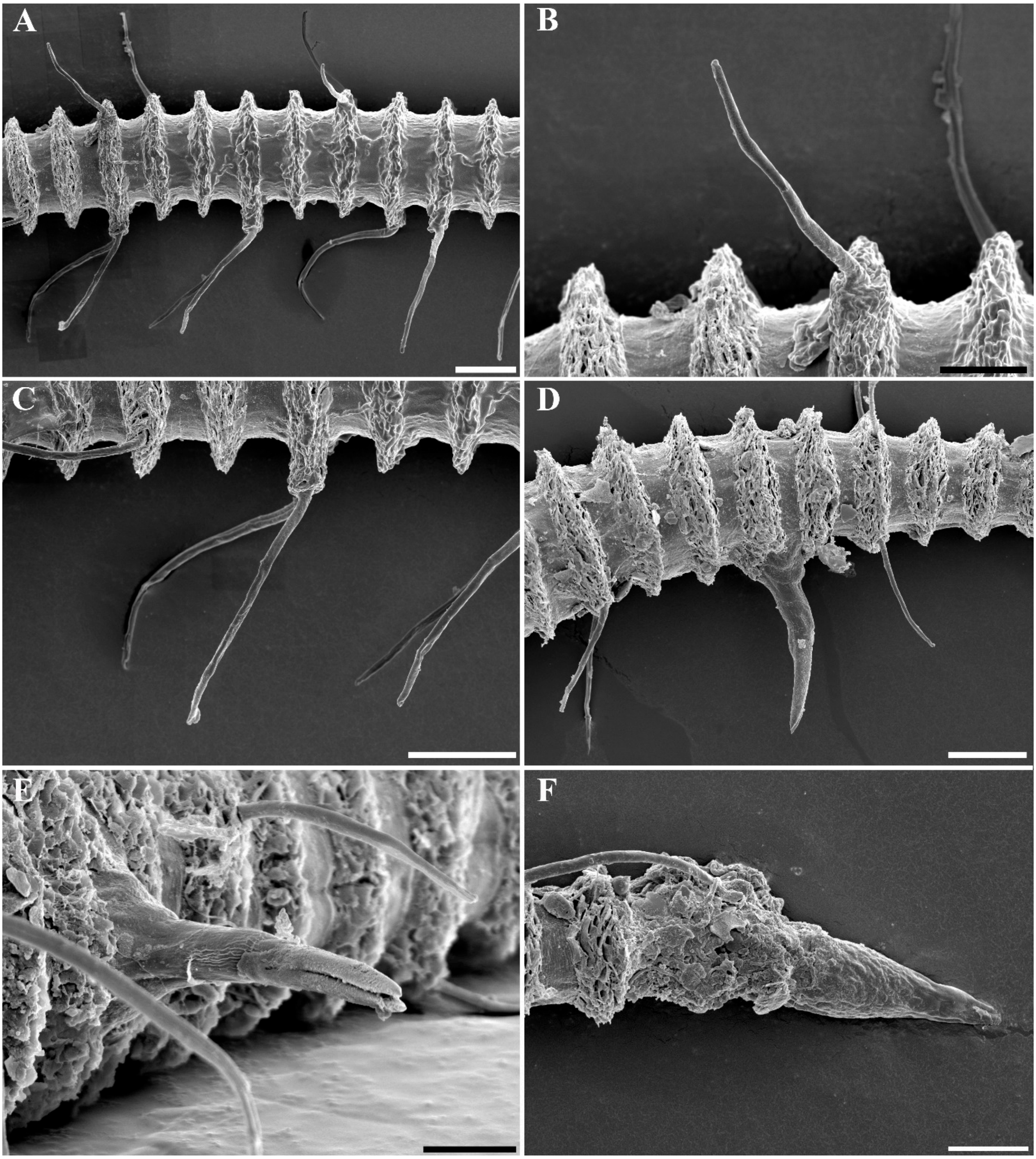

Figure 5. *Tricoma* (*Tricoma*) *disparseta* sp. nov. SEM photomicrographs, male. (**A**) Cuticular layer showing the height difference between the dorsal and ventral peduncles; (**B**) subdorsal setae; (**C**) subventral setae appearing with curved tip; (**D**) spicules region, lateral view; (**E**) spicules region, anterior view; (**F**) terminal ring. Scale bars: 10 µm in (**A**,**C**,**D**); 5 µm in (**B**,**E**,**F**).

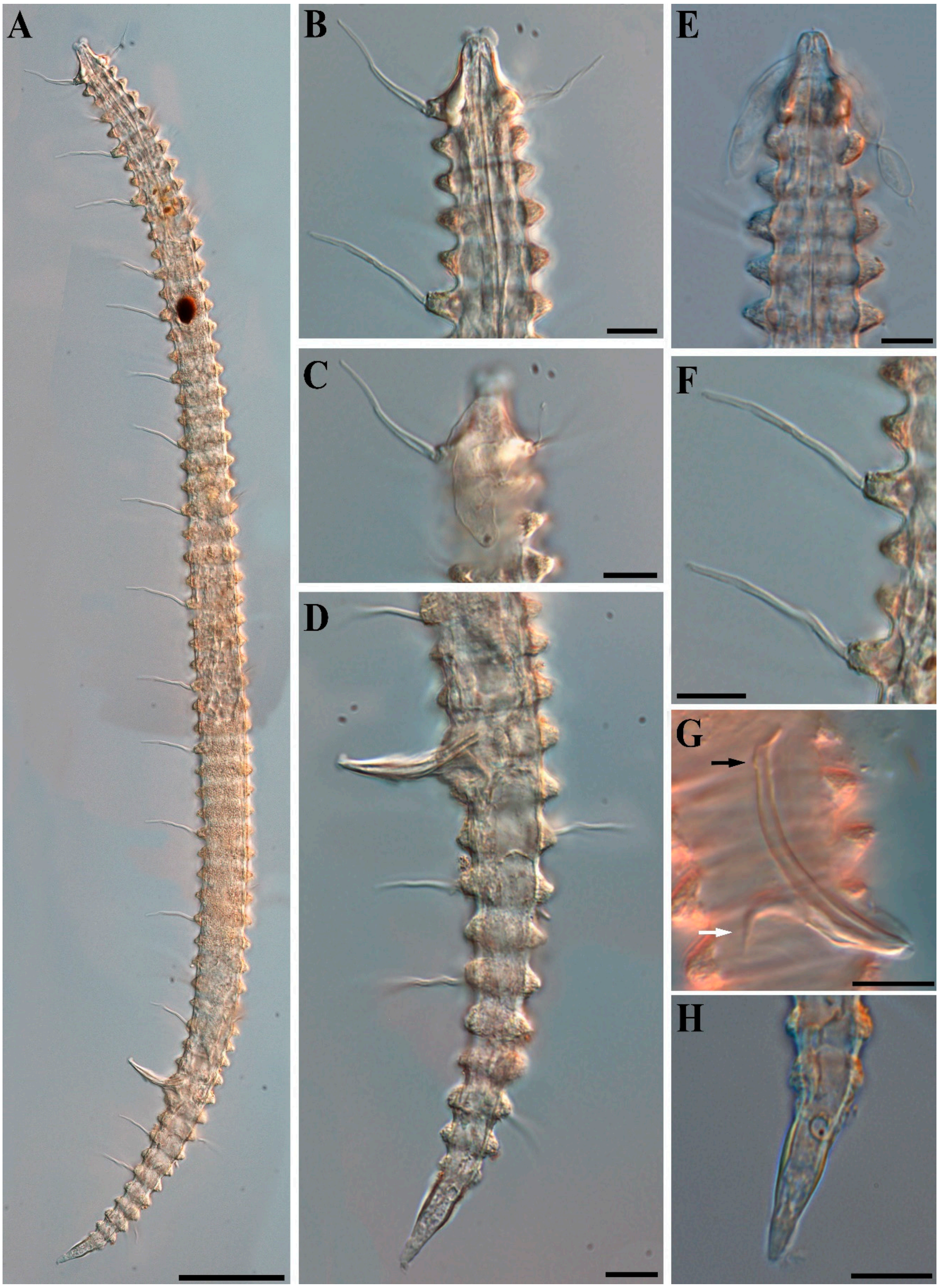

Figure 6. *Tricoma* (*Tricoma*) *disparseta* sp. nov., DIC photomicrographs, holotype male (MNB001). (**A**) Entire view of the body; (**B**) anterior region; (**C**) amphideal fovea; (**D**) posterior region; (**E**) head region, ventral view (paratype MNB006); (**F**) somatic setae; (**G**) spicules and gubernaculum of the specimen treated with lactic acid, which was additionally used to increase transparency for the observation of internal reproductive organs, and showing spicules capitulum (arrow) and hooked gubernaculum (white arrow) (paratype MNB003); (**H**) terminal ring showing phasmata (paratype MNB004). Scale bars: 50 μm in (**A**); 10 μm in (**B**–**H**).

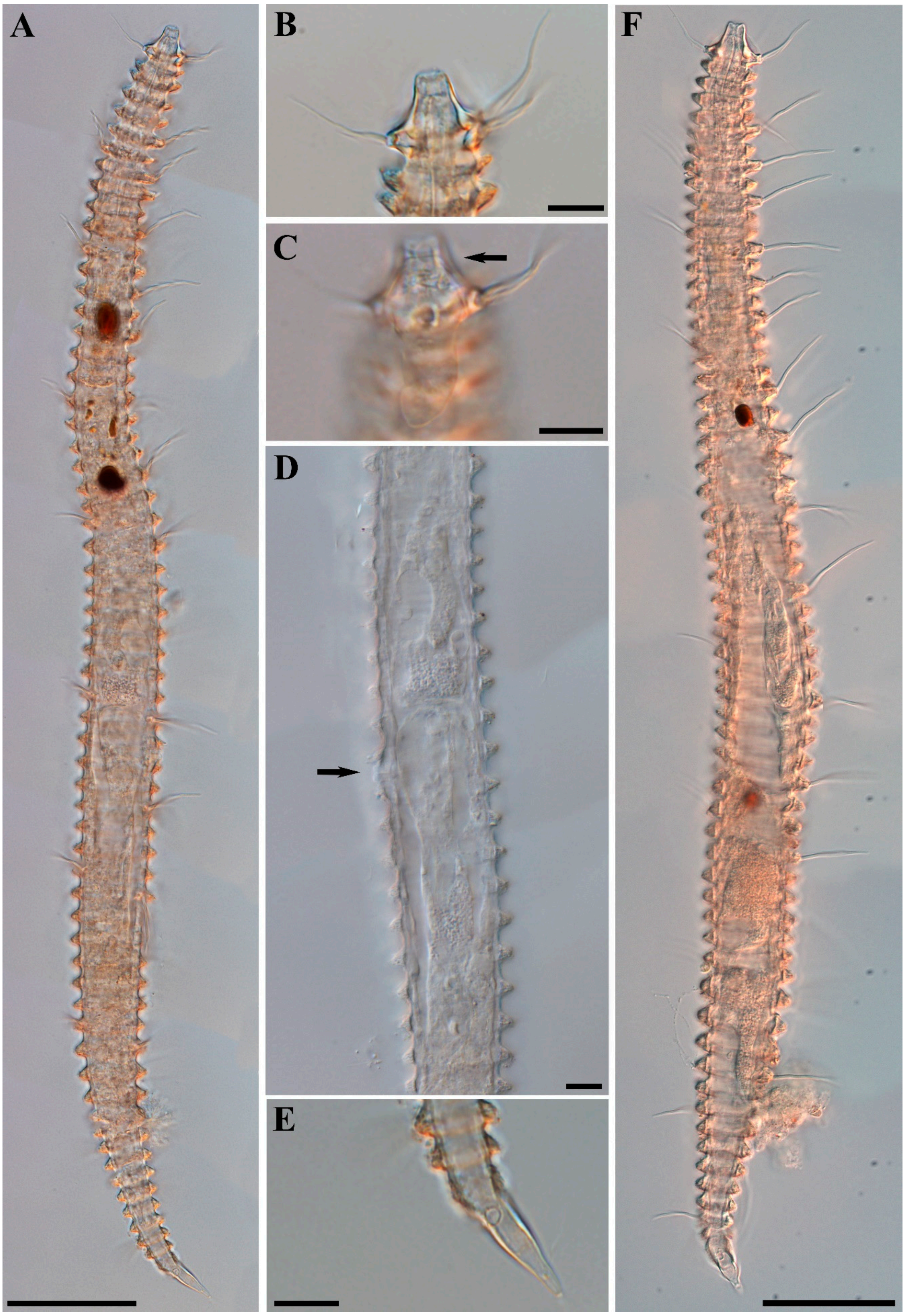

Figure 7. *Tricoma* (*Tricoma*) *disparseta* sp. nov., DIC photomicrographs, allotype female (MNB007). (**A**) Entire view of the body; (**B**) head region; (**C**) amphideal fovea showing anterior margin (arrow); (**D**) reproductive system showing naked vulva (arrow), left side; (**E**) posterior region; (**F**) entire view of the body showing somatic setae (paratype MNB008). Scale bars: 50 μm in (**A**,**F**); 10 μm in (**B**–**E**).

Table 2. Morphometric measurements of *Tricoma* (*Tricoma*) *disparseta* sp. nov. (in micrometers, μm).

	Males		**Females**	
	Holotype	**Paratypes (*n* = 4) Mean ± sd (Range)**	**Allotype**	**Paratypes (*n* = 3) Mean ± sd (Range)**
Total body length	571	562 ± 31.5 (527–613)	543	536 ± 35 (490–575)
Number of body rings	v:60 d:61	60 ± 0.6 (59–61)	v:60 d:61	61 ± 0.8 (60–62)
a	19	16.8 ± 1.0 (15.4–17.8)	16	14.6 ± 2.5 (11.7–17.8)
b	6	5.9 ± 0.2 (5.7–6.3)	6	6.5 ± 2.5 (6.3–6.7)
c	6	6.1 ± 0.2 (6.0–6.5)	7	6.9 ± 0.3 (6.5–7.3)
Head length	16	16.5 ± 1.1 (14.7–17.8)	16	15.5 ± 0.8 (14.6–16.6)
Head diameter at the level of cephalic setae	21	20.1 ± 0.8 (19.1–21.2)	19	20.4 ± 1.1 (18.9–21.4)
Body diameter at the level of cardia	24	26.6 ± 1.4 (25.3–28.9)	28	26.6 ± 1.2 (24.9–27.8)
Maximum body diameter	30	33.5 ± 1.4 (31.1–34.7)	35	37.6 ± 5.0 (30.5–41.8)
Cephalic setae length	25	24.1 ± 2.2 (22.4–27.8)	22	23.4 ± 1.1 (22.3–24.8)
Amphideal fovea length	25	25.5 ± 1.6 (22.9–27)	27	25.2 ± 2.5 (21.7–27)
Ocelli diameter	8	6.1 ± 1.2 (4.5–7.6)	10	5.7 ± 1.4 (3.7–6.8)
Ocelli length	11	7.8 ± 3.2 (4.7–13.1)	14	6.1 ± 2.2 (4.4–9.2)
Anterior end to ocelli	123	127.8 ± 25.3 (107.6–171.2)	119	141.6 ± 26.2 (106.9–170.3)
Esophagus length	95	94.9 ± 1.6 (92.7–97)	92	82.6 ± 6.7 (73.3–88.3)
Number of subventral setae (left)	17	17 ± 0.8 (16–18)	17	17 ± 0.5 (16–17)
Number of subventral setae (right)	18	16 ± 1.2(14–17)	17	17 ± 0.8 (16–18)
Length of the longest subventral setae	32	33.9 ± 2.6 (29.7–36.4)	35	34.1 ± 2.8 (30.7–37.6)
Length of the shortest subventral setae	17	16.8 ± 1.0 (15.3–18.1)	16	20.1 ± 3.5 (15.2–23.1)
Number of subdorsal setae (left)	9	9 ± 0 (9–9)	9	9 ± 0 (9–9)
Number of subdorsal setae (right)	10	9 ± 0 (9–9)	9	9 ± 0 (9–9)
Length of the longest subdorsal setae	20	19.4 ± 1.2 (17.6–20.9)	19	19.6 ± 2.0 (17.5–22.3)
Length of the shortest subdorsal setae	17	14.1 ± 1.1(12.7–15.5)	12	14.2 ± 1.7 (12.7–16.6)
Spicule length	31	29.9 ± 1.4 (28.5–32.2)	-	-
Gubernaculum length	18	17 ± 1.2(15.6–18.5)	-	-
Anterior end to vulva	-	-	305	309.2 ± 10.8 (300.9–324.5)
Body diameter at the level of the vulva	-	-	32	31.6 ± 4.3 (26.9–37.3)
V(%)	-	-	56	57.9 ± 2.6 (55.7–61.4)
Anal body diameter	25	26.5 ± 1.6 (24.4–28.8)	23	25.8 ± 0.6 (24.9–26.4)
Tail length	96	91.8 ± 2.3 (88.6–95)	82	78.1 ± 5.2 (71.3–83.9)
Number of tail′s body ring	10	9.8 ± 0.4 (9–10)	9	8.7 ± 0.5 (8–9)
Terminal ring length	23	24.9 ± 1.6 (22.9–26.6)	26	25 ± 0.8 (23.9–25.7)
Desmos covering the terminal ring	7	7.3 ± 0.6 (6.5–7.9)	9	8.8 ± 0.7 (8–9.5)
Phasmata	2.5	2.6 ± 0.2 (2.5–2.9)	2.7	2.6 ± 0.1 (2.5–2.8)

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Material examined: The holotype male (HSV0113_#1), paratype males (HSV0113_#2, HSV0113_#3), and paratype female (HSV0113_#8) have been archived at the Marin Biodiversity Institute of Korea (MABIK) in Seocheon, Korea. Additionally, three paratype males (HSV0113_#4, HSV0113_#5, HSV0113_#6), an allotype female (HSV0113_#7), and paratype females (HSV0113_#9, HSV0113_#10), preserved in glycerin on HS slides, are deposited in the nematode collection at the specimen conservation room of the East Sea Research Institute, Korea Institute of Ocean Science and Technology (KIOST), Korea.

Type locality and habitat: The specimens were collected from the seamount area at Deep-Sea Station 2 (17°02′47.346″ S, 149°52′50.484″ E) and Station 3 (17°05′45.41″ S, 149°55′07.67″ E), situated in the northeastern part of Guam. The collection took place on 6–7 September 2023, conducted by J.M. Lee. The nematodes were retrieved from a sponge and starfish habitat in the deep sea using a suction sampler mounted on a remotely operated vehicle (ROV) at depths of 1366.6 and 1510.1 m.

Etymology: The specific name *disparseta* is derived from the Latin words *dispar* (meaning "unequal") and *seta* (meaning "bristle"), highlighting the marked disparity in length between the subdorsal and subventral setae.

Measurements: All the measurement data are provided in Table 2.

Description: Males. The body is relatively small and slender, tapering toward both ends (Figures 2A, 4A and 6A). The holotype male cuticle consists of 60 tricomoid rings ventrally and 61 dorsally, while the paratypes exhibit between 59 to 61 tricomoid rings. The cuticular layer shows secondary annulation, and the desmen are covered with secretions and fine foreign material (Figure 5A).

The head is triangular at the sides and 1.1 to 1.4 times wider than long. It tapers anteriorly from the peduncles of the cephalic setae, ending in a truncated shape that is 4–5 μm wide (Figures 2B, 4D and 6B). The anterior margin of the head cuticle is significantly thickened and sclerotized, forming a distinct rim-shaped border, except in the labial region (Figure 2D).

The labial region does not protrude, and each of the six lips bears small labial papillae. The cephalic setae measure 22–28 μm in length, making them longer than the width of the head. They are inserted on relatively high peduncles that project in front of the posterior head border. These setae taper from a broad cylindrical base toward the tip, with grooves running along their entire length, and are surrounded by a thin membrane that is difficult to observe from a lateral view (Figure 4E). The distal ends of the cephalic setae, enclosed within this delicate membrane, appear to be bifurcated (Figure 4F).

The amphids are large and vesicular, exhibiting an unusual shape that covers the lateral sides of the head. They curve slightly at their base, forming a cylindrical structure. The amphid pore is prominent and positioned at the posterior end of the head (Figure 4C). The amphids extend anteriorly toward the labial region and posteriorly to the main ring 2 or 3 (Figures 2C and 6C,E).

The stoma is small and cylindrical, approximately 3 μm deep. The esophagus is also cylindrical, which constitutes about 16–18% of the total body length. It is slightly wider near the head region and narrows somewhat toward the posterior, especially behind the nerve ring. The esophageal gland is faintly visible in the posterior section and appears swollen. It is surrounded by a nerve ring at the level of main rings 5 and 6. The esophagus–intestinal junction is located between main rings 10 and 11. The ocelli are large and dark yellowish, measuring 4–8 μm in width and 5–13 μm in length. They are positioned opposite main ring 14 in the holotype and rings 12–14 or 20–24 in the paratypes. Smaller pigment spots are present along the esophagus.

The somatic setae are arranged in two distinct groups on the subdorsal and subventral sides of the body (Figure 5A). The subdorsal setae are slender and approximately half the length of the subventral setae, being mounted on relatively low peduncles (Figure 5B). Specifically, the subventral setae are longer and exhibit a stepped appearance at the tip in the optical sections (Figure 6F), while in the SEM images, they display a curved tip and are inserted into relatively high peduncles (Figure 5C). The subventral setae of the most anterior main ring 3 and those around the cloacal region are shorter than the other setae, gradually increasing in length toward the middle of the body. While the difference in length between the subdorsal and subventral setae in the anterior and caudal regions of the body is not substantial, it becomes approximately twofold in the central region. The somatic setae are arranged in 9 to 10 subdorsal setae and 14 to 18 subventral setae on each side, measuring 15–36 μm and 15–21 μm in length, respectively. The anterior-most pair of setae on main ring 3 is positioned laterally (Figure 2B,C). Additionally, the subventral setae located second in front of the cloacal opening and the terminal subventral setae are inserted slightly laterally (Figures 2F and 4B). In most specimens—excluding paratype male 2—the subventral setae situated on rings 44–46 (the second setae anterior to the cloacal opening) are the longest, measuring 32–36 μm. Observing the length of the setae can be challenging depending on the specimen's position or angle, which may lead to measurement errors. The somatic setae are inserted almost directly into the peduncle cuticular rings, and some setae may be severed or damaged. The arrangement of the somatic setae in the holotype male is as follows:

Subdorsal	Left side:	5,10,17,23,31,41,47,53,58	= 9
	Right side:	6,10,15,19,23,33,39,46,53,59	= 10
Subventral	Left side:	3,5,8,12,14,17,20,23,27,31,34,38,42,45,47,53,55	= 17
	Right side:	3,5,8,11,14,16,20,23,26,29,32,36,39,42,45,47,52,55	= 18

The arrangement of the somatic setae in the paratype males is as follows (numbers in brackets indicate different positions in the paratype):

Subdorsal	Left side:	5(4),9(10),17,24(22,23),32(31),41(39),48(45,46,47),52(51,53),58(57)	= 9
	Right side:	5,9(10),18(17),23(25),31(30),39(38),48(46),53(51,52),58(57)	= 9
Subventral	Left side:	3,5,8(7),11(9),13(12),16(14),18(17,19),21(20,22),24(23,25,26),28(27),32(30,31),36(33,34,35), 40(38,39),43(41,42),46(45),48,53(52),55(54)	= 18(16,17)
	Right side:	3,5,8(7),11,14(13),17(16),20(19),24(22,23),27(26,28),32(29,30),35(34), 39(37,38),42(41),45(44),48,53(52),55	= 17(14,16)

The reproductive system typically contains two testes. The spicules measure 29–32 µm in length, are slightly curved, taper distally to a pointed tip, and feature a relatively small capitulum at the proximal end. In some specimens, the area behind the capitulum appears slightly constricted (Figures 5D,E and 6D,G). The gubernaculum is hook-shaped, measuring 16–18 µm in length. Its distal side runs parallel to the spicules and exhibits a noticeable curvature, forming a hook shape in the proximal third and at the distal end. The distal portion of the gubernaculum is sclerotized and tapered, culminating in a pointed apex (Figures 2E and 6G).

The tail consists of 9–10 main rings, measuring 89–96 µm in length. The terminal ring is conical and features a slightly thicker cuticle, with the exception of the terminal spinneret. The anterior 26–33% of the terminal ring is covered with debris, while the distal end remains bare and clean (Figures 2F, 5F and 6H). Circular phasmata, measuring 2.5–2.9 µm in diameter, are located beneath the desmos of the terminal ring.

Females. They closely resemble males in most respects, apart from their sexual characteristics (Figure 3B,C and Figure 7B,C). The cuticle of the allotype female consists of 60 tricomoid rings ventrally and 61 dorsally, while the paratypes possess 60 to 62 tricomoid rings. These rings are adorned with secretions and fine foreign material (Figures 3A and 7A). The somatic setae are arranged in nine pairs of subdorsal setae and 16 to 18 subventral setae on each side (Figure 7F).

The arrangement of the somatic setae in the allotype female is as follows:

Subdorsal	Left side:	6,11,18,23,32,42,47,53,59	= 9
	Right side:	6,11,18,24,32,40,47,53,59	= 9
Subventral	Left side:	4,5,8,10,12,15,19,22,25,29,33,37,41,45,49,52,55	= 17
	Right side:	4,5,7,10,13,15,18,22,25,29,33,37,41,44,48,51,55	= 17

The arrangement of the somatic setae in the paratype females is as follows (numbers in brackets indicate different positions in the paratype):

Subdorsal	Left side:	7(6),11,17(18),24(23),32,40(42),47(48),53,59(58)	= 9
	Right side:	6,11,18(19),23(24,26),32(33),40,48(47),54(53),59(58)	= 9
Subventral	Left side:	4(3),5,8,11(12),14(15),16,19(20),22(23),25(26,27),29(30,31),33(34,35), 37(38,39),41(42),44(45),49(48),55(51,53),57(56)	= 17(16)
	Right side:	4(3),5,7(8),9(10,11),12(13),14(15),16(18),20(21),22,25(24),29(28),34(33), 38(37),42(41),45,49(48),52(51),57(56)	= 18(16,17)

The reproductive system exhibits a characteristic morphology specific to the genus, with both ovaries being outstretched. Each branch extends in opposite directions beyond the vagina and overlaps with the other. There are two spermathecae, each containing globular spermatozoides. The uteri may contain large and small amorphous inclusions or may be devoid of them. The vulva is situated in the bare medioventral part of the body wall, positioned between main rings 39 and 40 in the allotype (between rings 38 and 40 in the paratypes) (Figures 3D and 7D).

The tail consists of eight to nine main rings, measuring 71–84 µm in length. The terminal ring measures 24–26 µm in length and 10–12 µm in maximum width (Figure 3E). The terminal ring is conical, with the anterior 31–40% covered by desmos, while the remaining region is bare (Figure 7E). Circular phasmata, with a diameter of 2.5–2.8 µm, are located beneath the desmos of the terminal ring.

Diagnosis: *Tricoma* (*Tricoma*) *disparseta* sp. nov. is characterized by a distinctive set of features that set it apart from other species. The species possesses 59 to 62 tricomoid main rings, contributing to its unique morphology. The head is triangular, with a width 1.1 to 1.4 times greater than its length, providing a notable outline. It has slender cephalic setae, which are flanked by a narrow membrane and inserted on raised peduncles, enhancing its sensory capabilities. The somatic setae are composed of 9 to 10 subdorsal setae and 14 to 18 subventral setae on each side. The subventral setae are significantly longer than the subdorsal setae and are inserted at a relatively higher point. These setae exhibit a groove distally, with a step-shaped tip, distinguishing them from other setae. The spicules have a smaller capitulum proximally, while the gubernaculum is notably bent into a hooked shape, adding to the unique sexual morphology. The tail comprises 8 to 10 main rings and terminates in a conical ring. The anterior 26 to 40% of the tail is covered by desmen, and it is marked by rounded phasmata.

Remarks. The subgenus *Tricoma* was first described by Cobb in 1894, and to date, 87 species have been documented worldwide [9]. However, only a limited number of researchers have extensively reported on these species. Decraemer (1978, 1979, 1983, 1987, 1996), Decraemer and Tchesunov (1996), and Soetaert and Decraemer (1989) collectively described 35 species, while Timm (1970, 1978) contributed the documentation of an additional 15 species [17–26]. Together, these contributions account for approximately 57% of the known species within the subgenus. In 1978, Decraemer made a significant contribution by describing 12 new species, one subspecies, and five previously recorded species from the Great Barrier Reef in Australia. This finding highlights the high level of species diversity within *Tricoma* in a single region. Despite the distinctive ringed body shape that sets *Tricoma* apart from other taxa, there has been relatively little research focused on comparative traits within the subgenus. Consequently, taxonomic studies on *Tricoma* have been limited over the past two decades, with few updates since Decraemer and Tchesunov reported two new species in 1996 [23]. Recently, however, four new species and two previously unrecorded species have been discovered in the East Sea of Korea, leading to the compilation of a literature-based species list for the subgenus *Tricoma* [9].

In 1975, Freudenhammer proposed a key for comparing characters within the subgenus *Tricoma*, categorizing it into three groups: Group A, species with prominent features in the setae; Group B, species with characteristics in the desmen, such as spines, hook-like appendages, or a tiled structure without foreign material; and Group C, species lacking distinctive features in either the setae or the desmen [27]. Group C was further subdivided into three subgroups based on the number of main rings: 36 to 40 desmens, 50 to 64 desmens, and 67 to 140 desmens. However, Decraemer (1978) later revised this classification, organizing species into six groups based on the number of main rings: 30 or fewer, 30 to 49, 50 to 60, 61 to 75, 76 to 100, and more than 100 [17]. This classification provides a more nuanced framework for grouping *Tricoma* species according to their main ring count, serving as a valuable taxonomic tool for preliminary species identification, despite the considerable variability in the main ring numbers observed within the subgenus.

The newly described *Tricoma* (*Tricoma*) *disparseta* sp. nov. features 59 to 62 main rings, placing it between the two groups in Decraemer's classification system. Therefore, Freudenhammer's classification of 50–64 main rings is considered more suitable for identifying this species. This range of main rings is considered a key diagnostic feature within the subgenus *Tricoma*. Currently, twenty species are classified under this category, which serves as an essential criterion for distinguishing between closely related taxa. The species included in this group are *Tricoma* (*Tricoma*) *absidata* Timm, 1970; *T.* (*T.*) *absidata lizardiensis* Decraemer, 1979; *T.* (*T.*) *atlantica* Freudenhammer, 1975; *T.* (*T.*) *bipapillata* Decraemer, 1987; *T.* (*T.*) *capitata* Decraemer, 1987; *T.* (*T.*) *coralicolla* Decraemer, 1987; *T.* (*T.*) *denticulata* Timm, 1970; *T.* (*T.*) *dimorpha* Decraemer, 1978; *T.* (*T.*) *dimorpha papuensis* Decraemer, 1987; *T.* (*T.*) *fisher* Timm, 1970; *T.* (*T.*) *goldeni* Decraemer, 1978; *T.* (*T.*) *longirostris* (Southern, 1914); *T.* (*T.*) *oblita* Blome, 1982; *T.* (*T.*) *paratimmi* Decraemer, 1987; *T.* (*T.*) *perpavula* Timm, 1970; *T.* (*T.*) *secunda* Blome, 1982; *T.* (*T.*) *spinosoides* Chitwood, 1951; *T.* (*T.*) *spuria* Inglis, 1968; *T.* (*T.*) *steineri* de Man, 1922, and *T.* (*T.*) *ulleungensis* Lee, Lee and Rho, 2023.

In this study, we provide a pictorial identification key and a comparative table of diagnostic morphological characters for species groups possessing 50 to 64 main rings (Figure 8, Table 3). The diagnostic features highlighted in these tools primarily focus on the morphology of the anterior head and posterior tail regions, with particular emphasis on the spicules and gubernaculum, which are crucial taxonomic traits for differentiating closely related nematode species. The morphological comparison table now draws on data from all the current literature, providing a comprehensive summary of the key morphological features that distinguish members of this species group. This approach facilitates a clear presentation and comparison of each species' unique features. For *T.* (*T.*) *spuria*, the information is derived from detailed observations of the type specimen, as documented by Decraemer (1981).

The newly discovered species, *Tricoma* (*Tricoma*) *disparseta* sp. nov., was found in sediment washings from habitats associated with sponges and starfish on a seamount located in the northeastern region of Guam. This species is distinguished by the presence of 59 to 62 main rings, a triangular head bearing elongated cephalic setae, and amphids that extend posteriorly to main rings 2 or 3. The somatic setae are arranged in 9 to 10 subdorsal setae and 14 to 18 subventral setae on each side, with the subventral setae being notably longer and inserted at a higher point than the subdorsal setae. Moreover, the species is characterized by a gubernaculum that curves into a distinctive hooked shape, further differentiating it from other congeners.

Within the subgenus *Tricoma*, only one species, *T.* (*T.*) *coralicolla* Decraemer, 1987, among the 20 species with 50 to 64 main rings exhibits a significant difference in the length of subdorsal and subventral setae. *T.* (*T.*) *disparseta* sp. nov. closely resembles *T.* (*T.*) *coralicolla* in this regard, particularly due to its subventral setae being approximately twice as long as the subdorsal setae, and the peduncles of the subventral setae being more prominently developed. *T.* (*T.*) *coralicolla* was originally discovered in overgrown dead coral habitats in Papua New Guinea. Despite the limited sample size, only two specimens (one male and one female), preventing a thorough assessment of variability in the main ring count or setae pattern, *T.* (*T.*) *disparseta* sp. nov. can be clearly distinguished from *T.* (*T.*) *coralicolla* by the following characteristics: (1) total body length (490–613 µm vs. 185–220 µm in *T.* (*T.*) *coralicolla*); (2) number of main rings (59 to 62 vs. 56 to 58 in *T.* (*T.*) *coralicolla*); (3) arrangement and number of somatic setae (9 to 10 subdorsal setae and 14 to 18 subventral setae compared to nine subdorsal setae and 11 to 12 subventral setae in *T.* (*T.*) *coralicolla*); (4) the extension of amphids to the second or third main rings (in contrast to *T.* (*T.*) *coralicolla*, where the amphids reach only the margin of the head); (5) relatively long and slender spicules (29–32 µm) compared to the short and stout spicules (14 µm) found in *T.* (*T*) *coralicolla*) and (6) a gubernaculum with a distally curved, hooked shape, as opposed to the gubernaculum of *T.* (*T.*) *coralicolla*, which features two dorso-caudally oriented apophyses. These distinguishing features highlight the unique morphological traits of *T.* (*T.*) *disparseta* sp. nov., despite its superficial resemblance to *T.* (*T.*) *coralicolla* in terms of the seta morphology.

Tricoma (*Tricoma*) *longirostris* (Southern, 1914) (Figures 9 and 10, Table 4).

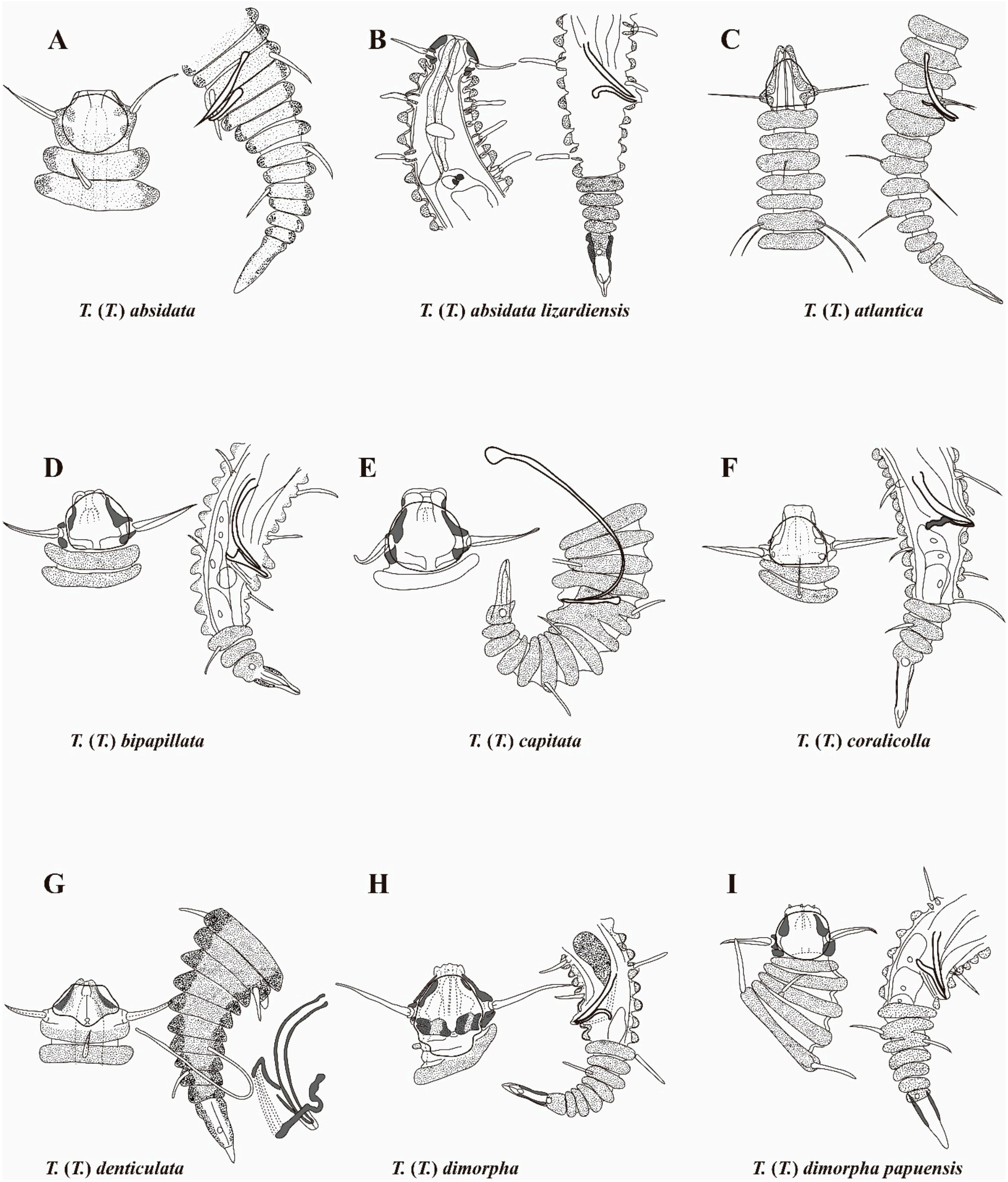

Figure 8. *Cont.*

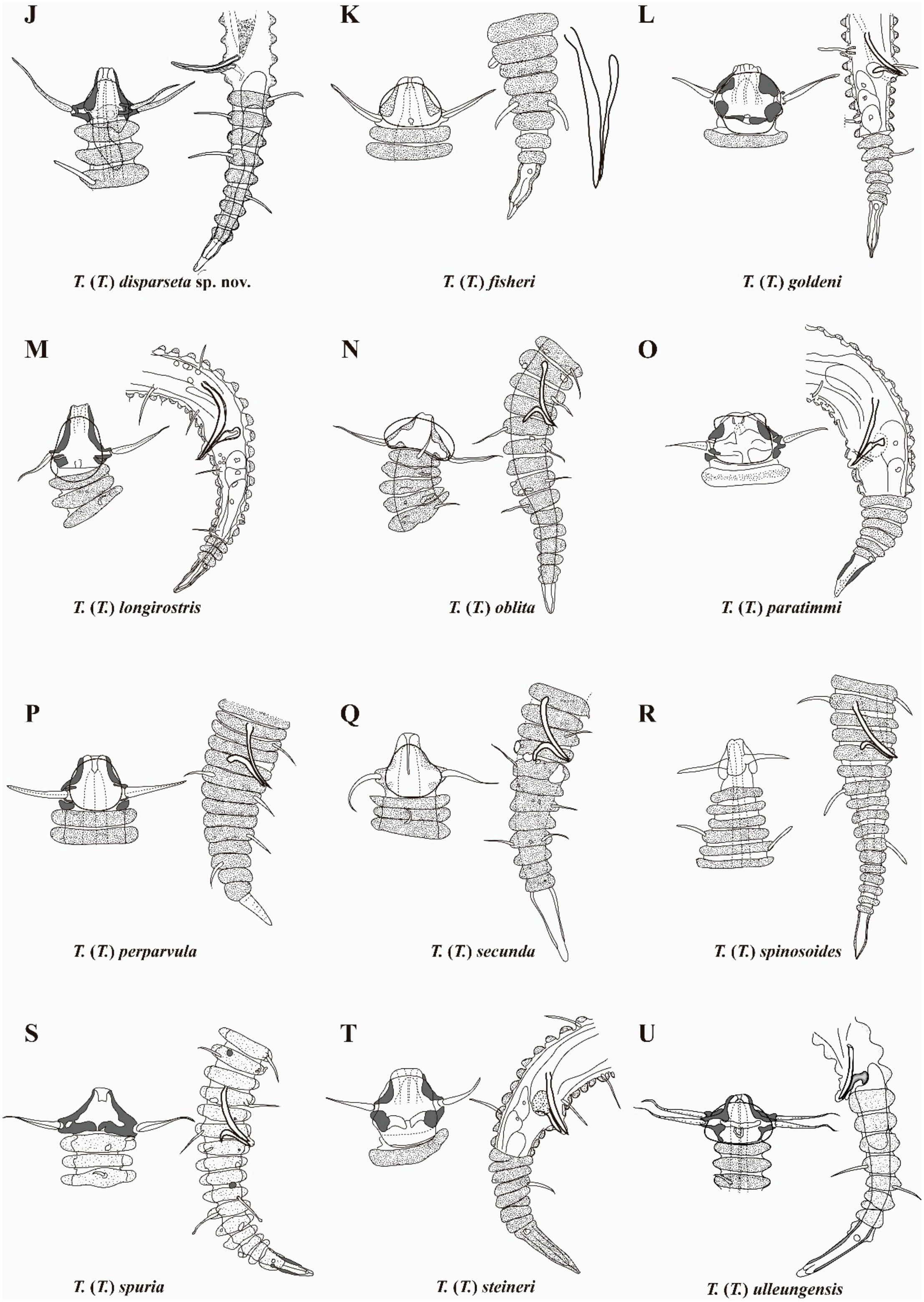

Figure 8. Pictorial key to the species group with 50 to 64 main rings in the subgenus *Tricoma*. Sources of the figures: (**A**) Timm (1970); (**B**) Decraemer (1979); (**C**) Freudenhammer (1975); (**D**) Decraemer (1987); (**E**) Decraemer (1987); (**F**) Decraemer (1987); (**G**) Timm (1970); (**H**) Decraemer (1978); (**I**) Decraemer (1987); (**J**) *T*. (*T*.) *disparseta* sp. nov.; (**K**) Timm (1970); (**L**) Decraemer (1978); (**M**) Decraemer (1983); (**N**) Blome (1982); (**O**) Decraemer (1987); (**P**) Timm (1970); (**Q**) Blome (1982); (**R**) Chitwood (1951); (**S**) Decraemer (1986); (**T**) Decraemer (1979); (**U**) Lee, Lee and Rho (2023).

Table 3. Comparison of diagnostic morphological characters among species groups with 50–64 main rings in the subgenus *Tricoma*. Morphometric values are rounded. Values marked with a dash (-) indicate unknown measurements.

Species	Characters													
	Males			Females			Head Diameter	Head Length	Cephalic Setae Length	Spicules Length	Gubernaculum Length	Vulva (Ring)	Number of Tail Ring (Males)	Number of Tail Ring (Females)
	Body Length	Body Rings	Setae Pattern (sd/sv)	Body Length	Body Rings	Setae Pattern (sd/sv)								
T. (*T.*) *absidata* Timm, 1970	485–520	57–60	11,12/19,19	510–550	59–60	11,12/17,19	22	16	18–19	42–45	-	27	9–10	9–10
T. (*T.*) *absidata lizardiensis* Decraemer, 1979	525–710	55–57	13,13/17,19	540–710	56–60	13,13/21,23	25–29	16–21	21–27	42–48	24–28	24–27	9	8
T. (*T.*) *atlantica* Freudenhammer, 1975	450	58	7,7/11,11	490	50	-	18–20	20–22	20–22	26	-	28–29	9	9
T. (*T.*) *bipapillata* Decraemer, 1987	185–205	48–55	9/14–15	-	-	-	11–12	8–9	10–11	25–32	12–13	-	7–9	-
T. (*T.*) *capitata* Decraemer, 1987	225	55–56	9/12–13	215–260	53–57	9/11–14	11–14	9.5–11	11–14	52	12	34–35	9	6–8
T. (*T.*) *coralicolla* Decraemer, 1987	185	56–57	9/12	220	58	9/11	11–13	11	12–14	14	10	33	8	8
T. (*T.*) *denticulata* Timm, 1970	645–800	63–64	10/15–17	760	65–66	-	32–39	19–26	20–22	96–104	50–56	43	11–12	9
T. (*T.*) *dimorpha* Decraemer, 1978	305–600	52–65	12–13/16–17	400	62–67	13/17	15–20	11–16	15–21	16–27	16–19	27–29	10–12	12–13
T. (*T.*) *dimorpha papuensis* Decraemer, 1987	175–210	48–55	9/10–11	180–265	48–56	8–13/11–15	9.5–12	8–11	9–12	14–17	8.5–10.5	26–33	8–11	5–10
T. (*T.*) *disparseta* sp. nov.	527–613	59–61	9–10/14–18	490–575	60–62	9/16–18	19–22	15–18	22–28	29–32	16–19	38–40	9–10	8–9
T. (*T.*) *fisheri* Timm, 1970	300–390	56–61	8–9/10–17	275–425	56–61	8–11/13–16	16–20	10–14	13–17	25–38	13–29	31–33	8–9	7–8
T. (*T.*) *goldeni* Decraemer, 1978	310–320	55–59	12/15–16	-	-	-	14	11	12–13	21–22	13	-	11–12	-
T. (*T.*) *longirostris* (Southern, 1914)	250–900	63–78	8–9/12–15	700–1000	-	-	15–36	12–31	21–32	19–35	14–16	-	10–12	-
T. (*T.*) *oblita* Blome, 1982	477–506	60–63	8–9/15–16	513	63	10/18	25–27	-	21–22	27	11–13	37–38	9–10	-
T. (*T.*) *paratimmi* Decraemer, 1987	385–420	61	11–12/16–17	390–450	53–56	8–13/15–17	13–14	20–22	11–16	28–30	17–20	27–29	9	5–6
T. (*T.*) *perparvula* Timm, 1970	275	61–62	7,9/13,13	-	-	-	14	11	11	24	9	-	9	-
T. (*T.*) *secunda* Blome, 1982	328	56–57	9,9/10, 13	-	-	-	18	-	16	22	8	-	9	-
T. (*T.*) *spinosoides* Chitwood, 1951	400	61	10/17	380	-	10/14	-	-	-	26	13	26	-	12
T. (*T.*) *spuria* Inglis, 1967	710	62	11/21	735	62	10–11/18–19	27–28	18–21	29	46	31	33	10	9
T. (*T.*) *steineri* de Man, 1922	310–408	63–55	11–13/13–16	310–460	63–64	12/15–16	13–15	12–13	12–17	24–27	17	28–30	12	11
T. (*T.*) *ulleungensis* Lee, Lee & Rho, 2023	409–415	54–55	6–7/10–12	462–567	55–57	6–7/9–10	24–26	14–16	19–22	22–24	11–13	31	8–9	8–9

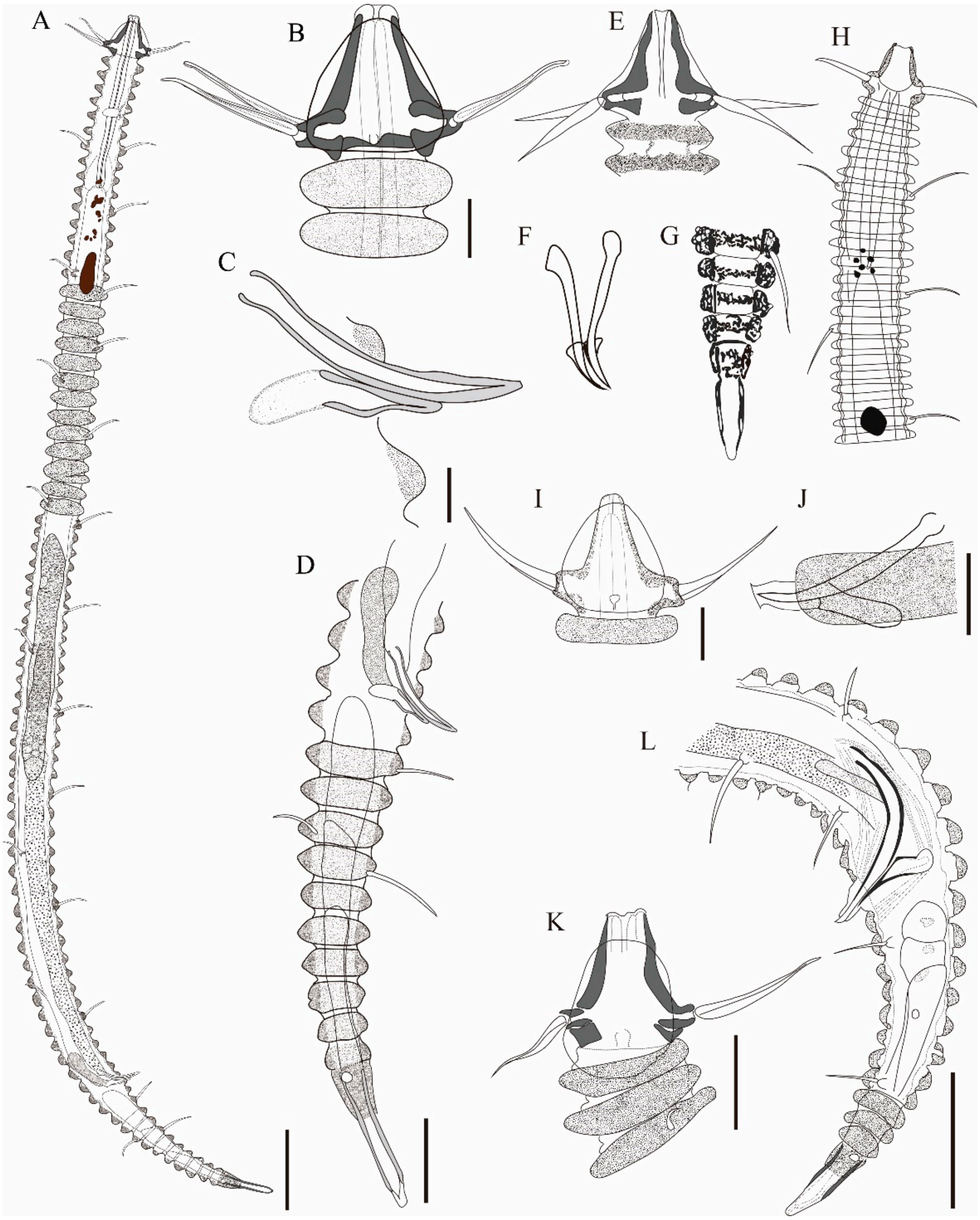

Figure 9. *Tricoma* (*Tricoma*) *longirostris* (Southern, 1914), newly discovered in this study, male (**A**–**D**). (**A**) Entire view of the male body, lateral view; (**B**) head region, lateral view; (**C**) spicules and gubernaculum; (**D**) spicule and tail region. *T.* (*T.*) *longirostris* (Southern, 1914) from the original description, male (**E**–**G**). (**E**) head, dorsal view; (**F**) spicules and gubernaculum; (**G**) tail region (after Southern, 1914). *T.* (*T.*) *glutinosa* Steiner, 1916, male (**H**). (**H**) Anterior end (after Steiner, 1916). *T.* (*T.*) *septentrionalis* Timm, 1978, male (**I**,**J**). (**I**) Head region; (**J**) specular apparatus (after Timm, 1978). *T.* (*T.*) *longirostris* (Southern, 1914), male (**K**,**L**). (**K**) Head, surface view; (**L**) copulatory apparatus and tail (after Decraemer, 1983). Scale bars: 50 µm in (**A**); 30 µm in (**L**); 15 µm in (**K**); 12 µm in (**I**,**J**); 10 µm in (**B**–**D**).

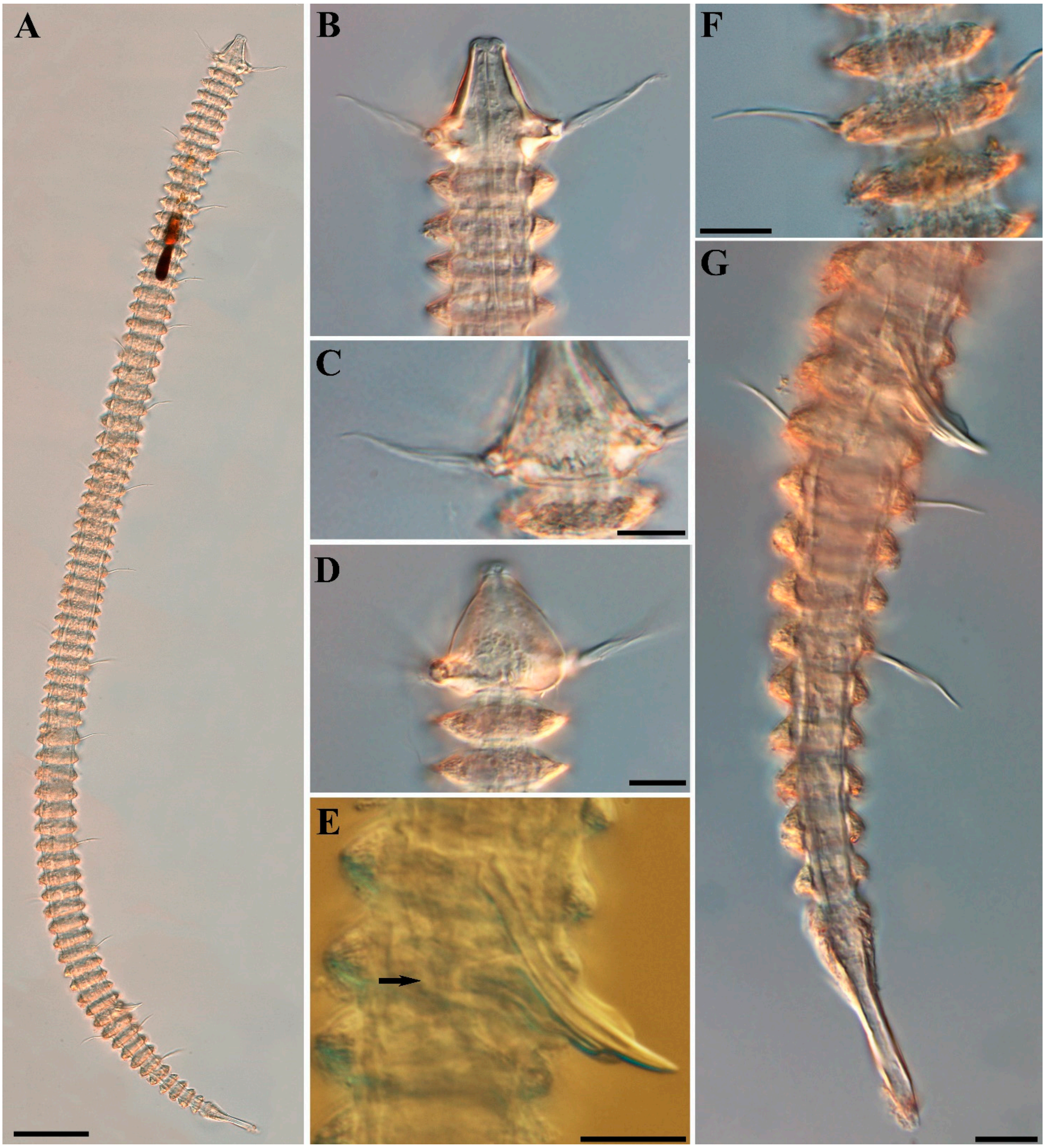

Figure 10. *Tricoma* (*Tricoma*) *longirostris* (Southern, 1914), DIC photomicrographs, male. (**A**) Entire body view; (**B**) head region; (**C**) cephalic setae; (**D**) amphideal fovea; (**E**) spicules and gubernaculum showing a knobbed apophysis (arrow); (**F**) common forms of somatic setae; (**G**) tail region. Scale bars: 50 µm in (**A**); 10 µm in (**B**–**G**).

Table 4. Comparison of diagnostic features among different populations identified as *Tricoma* (*Tricoma*) *longirostris*. Values marked with a dash (-) indicate unknown measurements.

Characters	Southern (1914)	Steiner (1916)	Timm (1978)	Decraemer (1983)	Ansari et al. (2015)	This Study
Specimens	2 males	1 male	4 males	2 males	16 males, 19 females	1 male
Body length in male	650	250	780–847	300–420	600–900	808
Body length in female	-	-	-	-	700–1000	-
Number of body ring	70	77	71–77	63–72	70–78	78
Width of body	39	14	32–39	19–21	44–57	30
Length of head	31	-	25	12–16	-	26
Width of head	32	-	27	15–19	-	28
Cephalic seta	-	-	28–32	17–21	21–23	23
Esophagus ring	-	-	-	11	-	10
Spicule length	-	-	30	32–35	19–23	28
Length of gubernaculum	-	-	-	14–15	-	16
Number of tail rings	-	10	10–11	11–12	-	12
Tail length	-	43	112–119	60–84	-	125
Somatic setae pattern (subdorsal/subventral)	-	-	8–9/12–15	9/12–13	-	8,8/13,14
Length of the terminal ring	-	-	22–58	16–23	-	38
Locality	Clew bay, Atlantic coast of Ireland, 24 fms, bottom of sand and shells	Prampram, Gold coast, the west coast of Africa, 9 m	McMurdo sound, Antarctica, Hut point, 4457 m, Scott Base, 540 m	Mozambique Channel	Bay of Bengal continental shelf, southeast coast of India, 30–176 m, sandy silt sediment	Northeastern of Guam, Pacific Ocean, 1425.52 m, sediment

Desmoscolex longirostris Southern, 1914, p. 62, fig. 29A–D.

Tricoma longirostris: Steiner, 1916, p. 33.

Tricoma glutinosa Steiner, 1916 p. 340, fig. 13; Freudenhammer, 1975, p. 25; Decraemer, 1983, p. 16.

Tricoma septentrionalis Timm, 1978, p. 233, fig. 4E,H; Decraemer, 1983, p. 16.

Material examined: The examined material comprised one male specimen (MNB011), which was mounted in anhydrous glycerin between two coverslips on an HS slide. This specimen is deposited in the Marine Biodiversity Institute of Korea (MABIK) in Seocheon, Korea.

Type locality and habitat: The designated location is a seamount area in the deep sea, situated at coordinates 15°38′20.93″ S, 151°59′50.35″ E, in northeastern Guam. The specimen was collected on 1 September 2023, by J.M. Lee. The nematodes were retrieved from sediment in the deep sea using a suction sampler mounted on an ROV at a depth of 1425.52 m.

Description: Male. The body measures 808 µm in length and is relatively slender and elongated, tapering toward both ends. The maximum body diameter at the mid-body level is 30 µm. The cuticle is composed of 78 tricomoid rings, with the desmen covered in secretion and fine foreign material (Figures 9A and 10A).

The head is narrow and triangular in shape when viewed from the side, measuring 28 µm in width and 26 µm in height (Figure 9B). It tapers anteriorly from the peduncles of the cephalic setae, ending in a truncated manner, with the truncated end measuring 5 µm wide (Figure 9B). The edge of the head cuticle is thickly hardened, except in the labial region, and it gradually thickens toward the peduncle of the cephalic setae.

The labial region is inconspicuous, bearing six small labial papillae. The cephalic setae measure 24 µm in length, tapering to a fine tip, and are inserted on high peduncles. Each seta features a cuticular groove along its side and is enclosed by a thin membrane, which is challenging to observe from a lateral view (Figures 9B and 10C).

The amphids are rounded and vesicular in shape, measuring 22 µm in width and 20 µm in height (Figure 10D). They cover the entire head region except for the labial area and extend to the posterior border of the head.

The stoma is small and cylindrical, measuring approximately 3 µm in depth. The esophagus is also cylindrical, measuring 101 µm in length, with an inflated esophageal gland in its posterior part. It is surrounded by a nerve ring situated at the level of the main ring 5. The esophagus–intestinal junction occurs between main rings 9 and 10, with a corresponding body diameter of 29 µm. The ocelli are very large and brownish, measuring 8–9 µm in width and 23–24 µm in length. They are positioned opposite main rings 12–13 and 14–16, respectively. Additionally, smaller pigment spots are present along the esophagus.

The somatic setae are slender and taper toward the tip, inserted into peduncles surrounded by concretions (Figure 10F). They gradually increase in length toward the middle of the body, with an overall length ranging from 14 to 22 µm. The subventral setae on the most anterior main ring (4 or 5) measure 8–11 µm, while those around the cloacal region range from 10 to 14 µm, both being shorter than the other setae. The somatic setae consist of 13 or 14 subventral setae and eight subdorsal setae on each side, measuring 8–22 µm and 14–21 µm, respectively. The anterior-most pair on main rings 4 or 5 is sublaterally inserted. The somatic setae are nearly directly inserted into the peduncle cuticular rings, and some of the setae may be severed or damaged.

The arrangement of the somatic setae in the male is as follows:

Subdorsal	Left side:	7,14,20,28,40,50,57,67	= 8
	Right side:	7,15,21,28,38,51,59,70	= 8
Subventral	Left side:	4,7,12,17,22,29,36,43,49,54,62,68,72	= 13
	Right side:	5,7,11,16,19,24,30,36,43,48,54,61,68,71	= 14

The reproductive system is characteristic of the genus. The distal end of the vas deferens is flanked by fine granular ejaculatory glands. The spicules measure 28 µm in length, are arcuate, and taper distally, featuring a proximal capitulum (Figure 10E). The gubernaculum, measuring 16 µm in length, is a distally sclerotized structure that runs parallel to the spicules. The dorso-caudally proximal part, marking the end of the sclerotized area, is distinguished by the presence of a conspicuous knob (Figure 9C).

The tail consists of 12 main rings, measuring 125 µm in length. The terminal ring is conical, with a length of 38 µm and a slightly thicker cuticle. The anterior 39% of the terminal ring is covered with debris, while the distal end remains bare. Circular phasmata, measuring 3 µm in diameter, are located on the desmos of the terminal ring (Figures 9D and 10G).

Female. Unknown.

Distribution: *Tricoma* (*Tricoma*) *longirostris* (Southern, 1914) has been documented in a variety of geographic locations, including the Atlantic coast of Ireland [28], the west coast of Africa [29], Antarctica [26], the Mozambique Channel [20], the Bay of Bengal in Indian waters [30], and most recently, the Northwest Pacific Ocean (this study). This broad distribution suggests a high level of adaptability to diverse marine environments across different climatic zones.

Remarks. *Desmoscolex longirostris* was first described by Southern (1914) based on two male specimens from the Atlantic coast of Ireland (Figure 9E–G). Southern's description lacked details on the somatic setae pattern and characterized the species by its wedge-shaped head [28]. Later, Steiner (1916) transferred this species to the genus *Tricoma*, noting that Southern's description was insufficiently detailed to make a definitive assessment [29]. Steiner also described a new species, *Tricoma glutinosa* Steiner, 1916, based on two male specimens from the west coast of Africa (Figure 9H). He distinguished it from *T. longirostris* based on similarities in the general habitus and head shape but noted significant differences in the number of main rings (77 vs. 70), body length (250 µm vs. 650 µm), and gubernaculum morphology. However, Freudenhammer (1975) observed that Steiner's description of male individuals of *Tricoma glutinosa* exhibited characteristics typical of the species but considered it a "species inquirenda" pending further investigation [27]. Subsequently, in 1983, Decraemer noted that the gubernaculum of *T. longirostris* had been depicted in an oblique ventral position, potentially obscuring the complete structure [20]. She also suggested that the two male specimens of *T. glutinosa* might correspond to *T. longirostris*, given the observed variability in the number of main rings and body length between the specimens (Figure 9K,L). In addition to these findings, four male specimens of *T. septentrionalis* collected in Antarctica by Timm in 1978 were also reclassified by Decraemer as *T. longirostris*

(Figure 9I,J) [20]. More recently, Ansari, Lyla, and Ajmal Khan (2015) reported *T. longirostris* from the Bay of Bengal continental shelf in Indian waters, based on 35 specimens [30].

A summary of the diagnostic characteristics of various populations tentatively identified as *T.* (*T.*) *longirostris* is provided in Table 4. However, apart from the number of main rings, tail rings, and body length, other morphological features are either insufficiently detailed, inconsistent, or exhibit variability. A review of the diagnostic traits described in the available literature suggests that *T.* (*T.*) *longirostris* can be recognized by its slender body with 63 to 78 main rings, a long and narrow head shape, the specific arrangement of the somatic setae, and a gubernaculum featuring a stout, knobbed apophysis.

The current specimen of *T.* (*T.*) *longirostris* was discovered in sediment collected from a deep-sea seamount in northeastern Guam. Although only a single individual was found, it exhibits key diagnostic features consistent with *T.* (*T.*) *longirostris*, including 78 main rings, a long and narrow head, eight subdorsal and 13 to 14 subventral setae, relatively large pigment spots, and a gubernaculum with a knobbed apophysis. However, this specimen displays slightly shorter cephalic setae relative to the head diameter, which differs from typical observations of the species. Additionally, while Decraemer (1983) described males with spine-like preanal structures, these were not observed in the present specimen [20].

4. Conclusions

This study expands our knowledge of marine desmoscolecid nematodes in the deep-sea environments of the Northwest Pacific Ocean, specifically off northeastern Guam. Two species belonging to the subgenus *Tricoma* were documented, including the newly described *Tricoma* (*Tricoma*) *disparseta* sp. nov. This new species, collected from sponge and starfish habitats at depths ranging from 1300 to 1500 m, is distinguished by several unique morphological features, such as 59 to 62 main rings, asymmetrical somatic setae distribution with 9 to 10 subdorsal setae and 14 to 18 subventral setae on each side, and a distinctive curved, hooked gubernaculum. These characteristics set *T.* (*T.*) *disparseta* sp. nov. apart from other congeners, highlighting its adaptation to deep-sea habitats. The other species observed in this study, *T.* (*T.*) *longirostris*, exhibits morphological features consistent with previously described specimens, such as 78 main rings, a long and narrow head, and a gubernaculum with a knobbed apophysis. The comprehensive documentation of these two species through differential interference contrast (DIC) microscopy and scanning electron microscopy (SEM) provides detailed morphological illustrations and insights into their structural variations. The inclusion of pictorial keys and comparative tables for species with 50 to 64 main rings serves as a valuable taxonomic tool, facilitating the identification and differentiation of closely related species within the subgenus *Tricoma*. These findings contribute to our understanding of the diversity and distribution of deep-sea nematodes and underscore the importance of continued exploration and documentation of marine biodiversity in these remote and understudied habitats.

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