



A new species of *Arenosetella* Wilson, 1932 from Turkey with notes on the genus (Copepoda, Harpacticoida, Ectinosomatidae)

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Abstract

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Key Words

Taxonomy

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A new species of the genus *Arenosetella* CB Wilson, 1932 is described from specimens that were collected from the Mediterranean coast of Turkey. The new species is closely related to *A. fimbriacaudata* McLachlan & Moore, 1978, *A. germanica* Kunz, 1937 and *A. kaiseri* Lang, 1965 within the 21 species/subspecies of the genus by having five setae at the exopod of the first and the second swimming leg, six setae at the terminal exopod segment of the fourth swimming leg, four setae at the terminal segment of the endopod of the first to fourth swimming legs and four marginal and one surface seta at the exopod of the fifth swimming leg of female. It can be differentiated from all of the species above by the loss of the inner seta at the first segment of the exopod of the second and the third swimming legs. As the diagnosis of the genus was not up to date and did not cover all of the species, a revised and extended diagnosis is provided. The antenna of *A. bassantae* Mitwally and Montagna 2001 was re-examined from the holotype, as the given armature in the original description was unusual for the basic pattern of the family, an amended description and drawing are presented herein.

Introduction

In the course of a survey conducted along the mediolittoral zone of the Mediterranean coast of Turkey between 2007–2008, a new species of the genus *Arenosetella* was encountered in the interstitial samples and is described herein.

The genus *Arenosetella* CB Wilson, 1932 is one of the 21 genera of the family Ectinosomatidae (Wells 2007, Kihara and Huys 2009) and currently has 21 valid species / subspecies (Wells 2007). They are all marine and interstitial, and can easily be differentiated from other ectinosomatids by their vermiform body, well-developed maxilla and the dorsal ornamentation of the anal somite.

The genus was established by Wilson (1932) to accommodate the new species *A. spinicauda* CB Wilson, 1932 and *A. fissilis* CB Wilson, 1932 from Woods Hole, USA. In Wilson's original diagnosis female antennule was described as five- or six-segmented but Lang (1965) revised

the diagnosis according to the eight species known by that time and amended the female antennule as six-segmented. As the new species does not fit with Lang's (1965) diagnosis and 13 species have been described after Lang (1965), a revised and extended diagnosis of the genus is given.

The antenna of *A. bassantae* Mitwally and Montagna 2001 is redrawn and redescribed from the holotype [BM(NH) 1999.1236] as its armature was unusual for the pattern described for the family.

Material and methods

Samples were collected from 42 interstitial habitats along the mediolittoral (intertidal) zone of the Mediterranean Coast of Turkey (Fig. 1 and Table 1) by Karaman-Chaupuis method (Delamare Deboutteville 1954). Illustrations of the habitus of the holotype and the paratype were

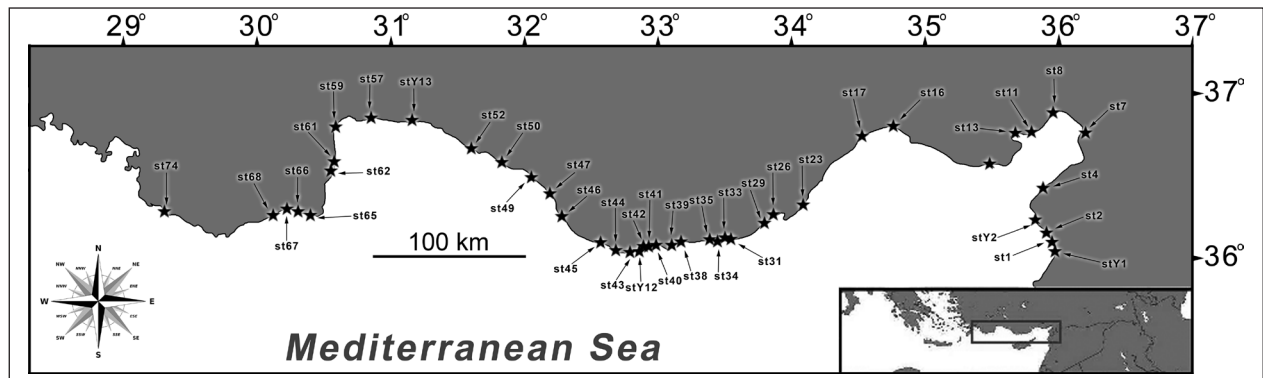


Figure 1. Map of sampling localities

Table 1. Sampling localities and dates.

St.	Sampling Dates				Localities	Coordinates
	1.	2.	3.	4.		
Y1	-	25.07.07	24.11.07	-	100 m south of Asi River, /Hatay	N36°02.774'; E35°57.753'
1	07.04.07	25.07.07	24.11.07		Samandağ beach, Mağaracık / Hatay	N36°05.783'; E35°56.182'
2	07.04.07	25.07.07	24.11.07		North of Mağaracık / Hatay	N36°08.315'; E35°54.598'
Y2	-	25.07.07	24.11.07		North of Samandağ beach / Hatay	N36°15.344'; E35°49.028'
4	07.04.07	25.07.07	24.11.07		Arsuz beach / Hatay	N36°24.808'; E35°53.202'
7	07.04.07	24.07.07	24.11.07		Payas beach / Hatay	N36°45.604'; E36°11.834'
8	08.04.07	24.07.07	25.11.07	13.09.08	Kurtpınar beach / Hatay	N36°53.409'; E35°56.775'
11	08.04.07	24.07.07	25.11.07		West beach of Yumurtalık / Adana	N36°46.133'; E35°46.553'
13	08.04.07	24.07.07	25.11.07	13.09.08	Deveciüsağı village / Adana	N36°44.809'; E35°37.699'
16	09.04.07	26.07.07	26.11.07		Kazanlı beach / Mersin	N36°48.617'; E34°45.442'
17	09.04.07	26.07.07	26.11.07		Viranşehir beach / Mersin	N36°44.357'; E34°32.478'
23	10.04.07	27.07.07	27.11.07	14.09.08	Arkum beach / Mersin	N36°21.519'; E34°04.762'
26	10.04.07	27.07.07	27.11.07	14.09.08	Akçakıl camping area-Taşucu/Mersin	N36°17.829'; E33°50.863'
29	10.04.07	27.07.07	27.11.07		Vadi/Mersin	N36°15.129'; E33°48.489'
31	11.04.07	28.07.07	28.11.07	-	West of Yeşilovacık/Mersin	N36°11.297'; E33°37.723'
33	11.04.07	28.07.07	28.11.07	-	Ahi beach, (East side)	N36°08.990'; E33°29.961'
34	11.04.07	28.07.07	28.11.07	-	Ağaçlı beach / Mersin	N36°09.382'; E33°28.917'
35	11.04.07	28.07.07	28.11.07	-	Eskur-2 beach / Mersin	N36°09.315'; E33°26.548'
38	11.04.07	28.07.07	28.11.07	15.09.08	Tekeli beach / Mersin	N36°08.281'; E33°09.728'
39	11.04.07	-	-	-	Gözsüzce beach / Mersin	N36°08.934'; E33°07.734'
40	11.04.07	28.07.07	28.11.07	-	Bozyazı beach / Mersin	N36°06.023'; E32°58.201'
41	11.04.07	28.07.07	29.11.07	15.09.08	Mamure castle beach / Mersin	N36°05.167'; E32°54.354'
42	12.04.07	29.07.07	29.11.07	-	Anamur beach / Mersin	N36°04.319'; E32°52.271'
Y12	-	29.07.07	29.11.07	-	Dragon kamping beach, / Mersin	N36°04.806'; E32°53.480'
43	12.04.07	29.07.07	29.11.07	-	2 km east of Anamuryum / Mersin	N36°01.959'; E32°48.749'
44	12.04.07	29.07.07	29.11.07	-	Melleç beach / Mersin	N36°02.582'; E32°41.029'
45	12.04.07	29.07.07	29.11.07	-	Kaledran beach / Mersin	N36°05.932'; E32°34.066'
46	12.04.07	29.07.07	29.11.07	-	Gazipaşa marina / Antalya	N36°16.137'; E32°16.783'
47	12.04.07	29.07.07	29.11.07	-	East of Demirtaş /Antalya	N36°22.930'; E32°11.374'
49	12.04.07	29.07.07	29.11.07	-	Alanya Krizantem hotel beach / Antalya	N36°32.066'; E32°02.028'
50	12.04.07	29.07.07	29.11.07	-	Payallar beach / Antalya	N36°35.549'; E31°50.348'
52	12.04.07	29.07.07	29.11.07	-	10 km east of İncekum / Antalya	N36°40.720'; E31°37.163'
Y13	-	30.07.07	30.11.07	-	Boğazkent beach / Antalya	N36°49.866'; E31°09.394'
57	13.04.07	30.07.07	30.11.07	-	Lara beach / Antalya	N36°51.031'; E30°50.966'
59	13.04.07	30.07.07	01.12.07	-	Küçükçaltıcak beach, Kemer / Antalya	N36°47.710'; E30°34.490'
61	13.04.07	31.07.07	01.12.07	-	East of Kemer / Antalya	N36°37.291'; E30°33.399'
62	13.04.07	31.07.07	01.12.07	16.09.08	Phaselis beach / Antalya	N36°31.624'; E30°33.087'
65	13.04.07	31.07.07	01.12.07	-	Karaöz beach / Antalya	N36°16.467'; E30°24.543'
66	13.04.07	31.07.07	01.12.07	-	Mavikent beach / Antalya	N36°17.269'; E30°20.491'
67	14.04.07	31.07.07	01.12.07	16.09.08	Hasyurt intersection / Antalya	N36°18.913'; E30°11.915'
68	14.04.07	31.07.07	-	-	3 km east of Finike, Sahilkent / Antalya	N36°18.491'; E30°09.857'
74	14.04.07	01.08.07	01.12.07	-	Patara beach / Antalya	N36°15.162'; E29°18.720'

drawn from whole specimens; the specimens were then dissected, and the dissected parts were mounted in lacticophenol under an Olympus SZX-12 stereomicroscope. Broken coverslip pieces were placed between the slide and the coverslip in order to avoid compression of the specimen and to assist rotation and manipulation. Afterwards, preparations were sealed with Entellan (Merck) for permanent preservation. All drawings were made using a U-DA drawing tube which was attached to an Olympus BX-51 differential interference contrast microscope. Measurements were made with an ocular micrometre.

Scanning electron microscopy (SEM) examinations were made with a Zeiss SUPRA 55VP (FESEM) microscope in Mersin University Advanced Technology Education, Research and Application Centre (MEITAM). Specimens for SEM observation were prepared as described in Kaymak and Karaytuğ (2014). The descriptive terminology is adopted from Huys et al. (1996). Abbreviations used in the text are: ae, aesthetasc; P1–P6, for swimming legs 1–6; exp (enp)-1 (-2, -3) to refer to the proximal (middle, distal) segment of a ramus. Material was deposited in the Zoology Museum of Adiyaman University (ZMADYU) and in the collection of Balıkesir University Zoology Museum (BUZM).

Results

Phylum Arthropoda

Subphylum Crustacea Brünnich, 1772

Superclass Multicrustacea Regier et al., 2010

Subclass Copepoda Milne-Edwards, 1840

Order Harpacticoida GO Sars, 1903

Family Ectinosomatidae GO Sars, 1903

Genus *Arenosetella* CB Wilson, 1932

Amended diagnosis. Ectinosomatidae. Body cylindrical, slightly compressed laterally, without definite demarcation between urosome and prosome. All somites except the penultimate somite with hyaline frills. Genital double somite without any trace of subdivision. Penultimate somite with a parabolic shaped pseudo-operculum. Anal somite ornamented with cuticular projections. Antennule 5 or 6 segmented in female, first segment with a long plumose seta; 6 or 7 segmented in male. Antenna basis distinct, with two segmented endopod and three segmented exopod, first segment of exopod naked or with a seta at inner distal corner, second segment with a seta at inner distal corner, last segment bears a short and a relatively long seta apically. Maxillae well developed, syncoxa slightly longer than wide, with three endites, basis elongated, about two times as long as syncoxa, slightly tapers to the tip, endopod uni-segmented, very short and curved on the anterior margin of the basis. Maxilliped stenopodial. P1–P4 with three segmented rami. Endopod longer than exopod. Setal formula of the swimming legs:

	Exopod			Endopod		
	1	2	3	1	2	3
P1	0	0-1	(0-1)22	1	0-1-2*	(0-1-2)2(0-1-2)
P2	0-1	0-1	(0-1-2)22	1	2*	(1-2)2(0-1)
P3	0-1	0-1	(1-2)22	1	1-2*	(1-2)2(0-1)
P4	0-1	0-1	(0-1-2)2(1-2)	1	1-2*	(1-2)2(0-1-2)

*in case of two setae, one of them is a hyaline seta which originates from the posterior surface.

Arenosetella bassantae Mitwally & Montagna, 2001

Fig. 3C, D

Material examined. Holotype ♀ [BM(NH) 1999.1236]

Amended description. Antenna (Fig. 3C) with a distinct basis. Exopod (Fig. 3D) three segmented; first segment slightly longer than wide, bears a short unipinnate seta at distal corner; second segment short and squarish, armed with a unipinnate seta distally; third segment longest, about four times as long as wide, armed with two unipinnate setae at tip. Endopod two-segmented, second segment slightly shorter than the first, bears two unipinnate setae on inner edge and six setae apically.

Arenosetella lanceorostrata sp. n

<http://zoobank.org/E5456DB7-064E-47CB-AD8C-16755D2596CF>

Figs 2, 3, 4, 5, 6, 7

Diagnosis. Differs from all other members of the genus by the unique shape of the anal somite dorsal ornamentation which is a strongly chitinated symmetric projection, resembling three strong spines with a common base on dorsal surface.

Type-locality. Kazanlı beach/Mersin (st16), 09.04.2007, 36°48.614'N - 34°45.434'E. Leg. Süphan Karaytuğ, Serdar Sak, Alp Alper, Serdar Sönmez.

Type-specimen. Holotype ♀ (ZMADYU2015/01) and paratype ♂ (ZMADYU2015/02) dissected in 8 slides, 13 ♀♀ and 11 ♂♂ in ethanol (BUZM).

Additional material. 1. *Sampling* st1 (3♀♀, 1♂), st13 (2♀), st17 (9♀♀, 7♂♂), st23 (13♀♀, 4♂♂), st29 (11♀♀), st33 (11♀♀, 1♂), st34 (8♀♀, 4♂♂), st39 (3♀♀), st40 (15♀♀), st41 (3♀♀, 3♂♂), st42 (4♂♂), st44 (1♀), st45 (16♀♀, 4♂♂), st52 (4♀♀, 6♂♂), st65 (2♀♀, 3♂♂), st66 (11♀♀, 11♂♂), st68 (1♀), st74 (2♀♀, 1♂); 2. *Sampling* st1 (2♀♀), st2 (20♀♀, 4♂♂), st7 (2♂♂), st8 (14♀♀, 20♂♂), st11 (13♀♀, 4♂♂), st23 (12♀♀, 3♂♂), st29 (2♀♀), st31 (1♀), st32 (4♀♀), st35 (4♀♀), st40 (3♀♀), st45 (3♀♀, 1♂), st46 (5♀♀, 4♂♂), st47 (26♀♀, 2♂♂), st50 (2♀♀, 3♂♂), st57 (5♀♀), st59 (1♀), st61 (1♀), st62 (1♀), st65 (11♀♀, 3♂♂), st66 (1♀), st67 (4♀♀, 3♂♂), stY1 (14♀♀), stY12 (1♀), stY13 (8♀♀, 10♂♂); 3. *Sampling* st1 (5♂♂), st4 (1♀, 2♂♂), st8 (9♀♀, 3♂♂), st11 (8♀♀, 1♂), st16 (2♀♀, 1♂), st17 (11♀♀, 9♂♂),

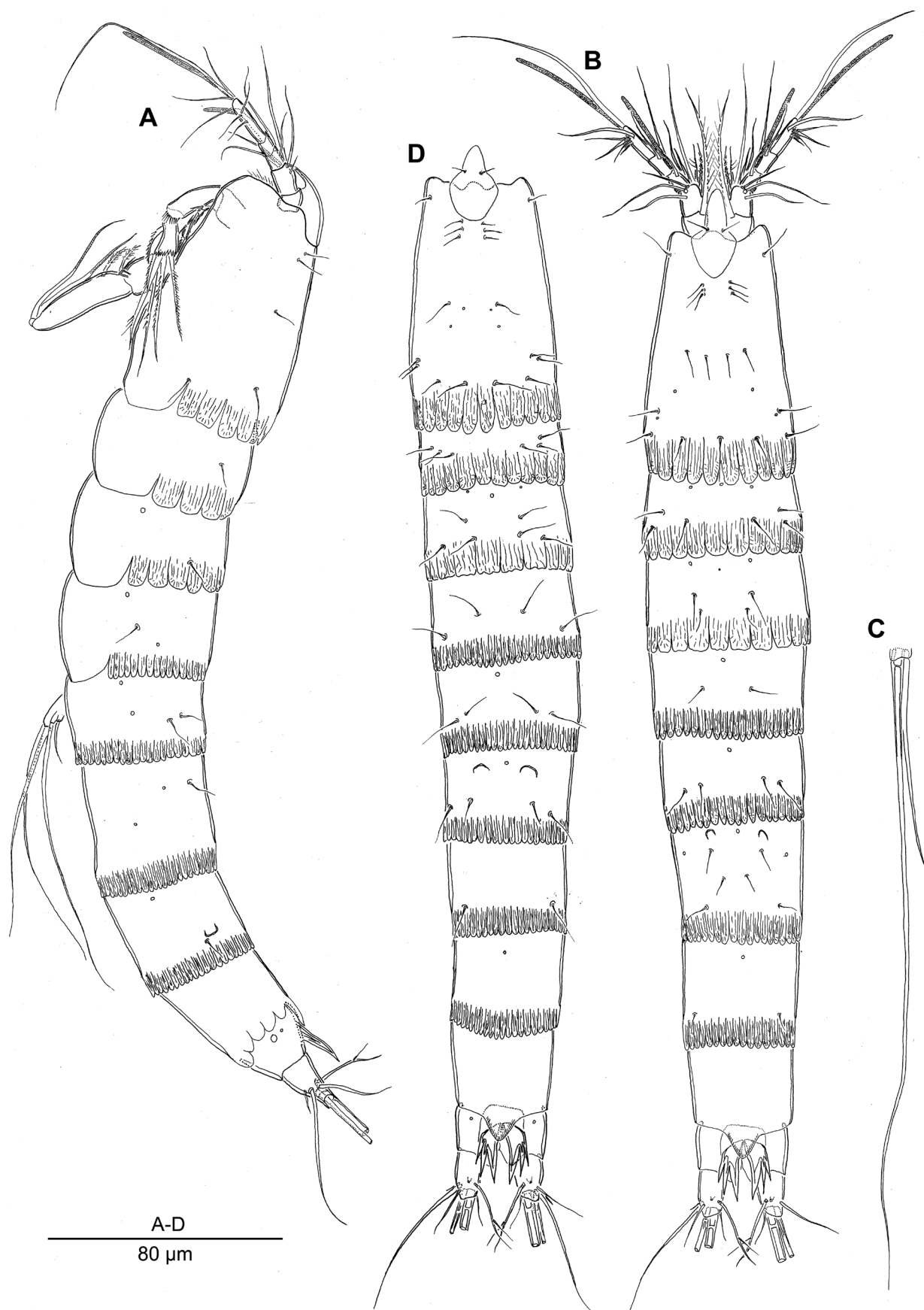


Figure 2. *Arenosetella lanceorostrata* sp. n., Habitus, A ♀, lateral view B ♀, dorsal view C Terminal setae of right caudal ramus D ♂ dorsal view.

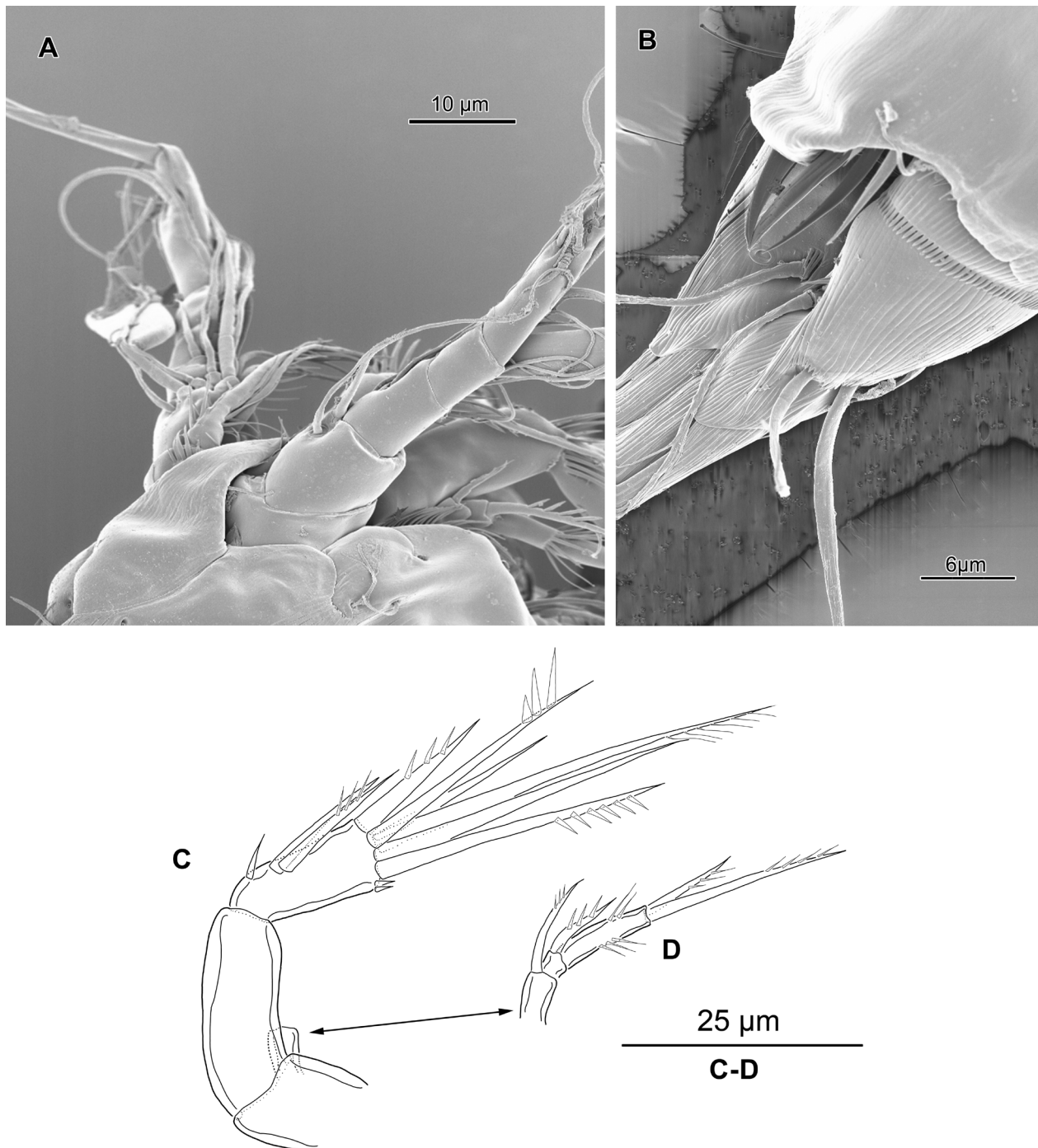


Figure 3. A, B SEM micrographs of *Arenosetella lanceorostrata* sp. n., ♀, A Rostrum and antennule B Anal somite and caudal ramus C Antenna of *A. bassantae*, ♀ Holotype

st23 (5♀♀, 1♂), st26 (2♀♀), st29 (15♀♀, 2♂♂), st34 (2♂♂), st35 (29♀♀, 1♂), st38 (1♀), st40 (46♀♀, 4♂♂), st42 (3♀♀), st43 (1♀), st45 (12 ♀), st47 (3♀♀, 1♂), st49 (1♀), st52 (36♀♀, 1♂), st57 (5♀♀, 3♂♂), st65 (14♀♀, 3♂♂), st66 (13♀♀, 6♂♂), stY1 (16♀♀, 10♂♂); 4. *Sampling* st23 (7♀♀), st26 (3♀♀) (BUZM).

Description of female. Total body length from tip of rostrum to the posterior margin of the caudal rami 353 µm (267 - 412 µm, mean = 348 µm, n = 10). Body (Fig.

2A–C) cylindrical, urosome and prosome demarcation not distinct, slightly compressed laterally. All somites except the penultimate somite with hyaline frills as figured (Fig. 2A, B). Antenna, mouthparts and swimming legs partially covered with the lateral extensions of the urosomites. Penultimate somite with a parabolic shaped pseudo-operculum on posterior margin dorsally. Anal somite (Fig. 4A) armed with a strongly chitinised symmetric projection, resembling three strong spines with a common base on dorsal surface, bears a pair of pores and

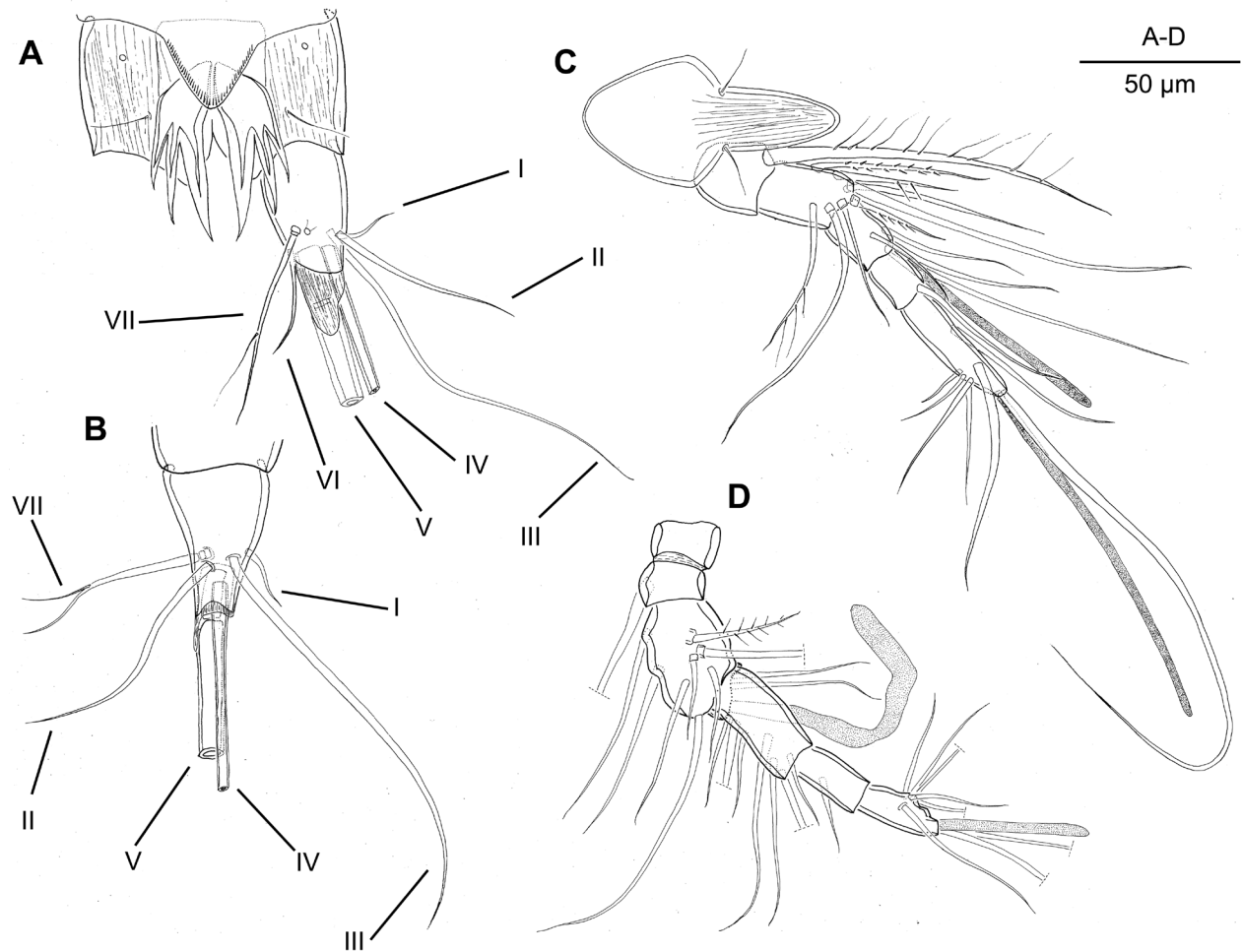


Figure 4. *Arenosetella lanceorostrata* sp. n. **A** ♀, Anal somite and caudal rami, dorsal view **B** ♀, caudal rami, ventral view **C** ♀, Rostrum and antennule, dorsal view **D** ♂, antennule.

a pair of sensillae dorsally and a pair of tube pores on ventral surface. Surface cuticle of anal somite and caudal rami wrinkled (Figs 3B, 4A).

Caudal rami (Figs 3B, 4A, B) longer than wide, posterior margin prolonged as a hyaline membrane that covers the bases of seta IV and V, bears seven setae and a tube pore near the base of seta VII; seta I short and naked, seta II long and naked, seta III naked, longer than seta II, seta IV and V located at the terminal of the caudal rami, seta V about three times longer than seta IV, with a fracture plane basally (Fig. 2C), seta VI naked, located at the inner distal corner of the caudal rami, seta VII located at the dorsal surface, tri-articulated at base.

Rostrum (Figs 3A, 4C) distinct at base, spearhead shaped, cuticle of anterior surface wrinkled, bears two sensillae, curved to ventral at tip.

Antennule (Figs 3A, 4C) short, five segmented. First segment squarish, second segment is longer than wide, third segment slightly longer than wide, bears an aesthetasc which originates from the inner distal corner of the ventral surface, fourth segment short, slightly longer than wide, fifth segment long and narrow, about four times longer than wide, bears an apical acrothek consisting of

a long aesthetasc fused basally to one very long and one short bare setae. Setal formula as follows: 1- [1 plumose], 2-[4+3 spinulose +1 plumose], 3- [3+(1+ae)], 4- [1], 5 [6+acrothek].

Antenna (Fig. 6E) with a short and naked coxa. Basis slightly longer than wide, clearly distinct from endopod. Exopod three segmented; first segment slightly longer than wide, bears a short unipinnate seta at distal corner; second segment short and squarish, armed with a unipinnate seta distally; third segment longest, about three times as long as wide, armed with a transverse row of spinules near apical margin, with two unipinnate setae at tip. Endopod two segmented, first segment about three times longer than wide, ornamented with a transverse row of spinules apically; second segment shorter than the first, about two times as long as wide ornamented with short spinules along apical margin, bears two short unipinnate setae on inner edge and six spinulose and one plumose setae apically.

Mandible (Fig. 5A, B). Gnathobase well developed, armed with 8 teeth that fused to cutting edge. Basis longer than wide, clearly narrower at base, bears one plumose and two bipinnate setae. Exopod reduced to a short and

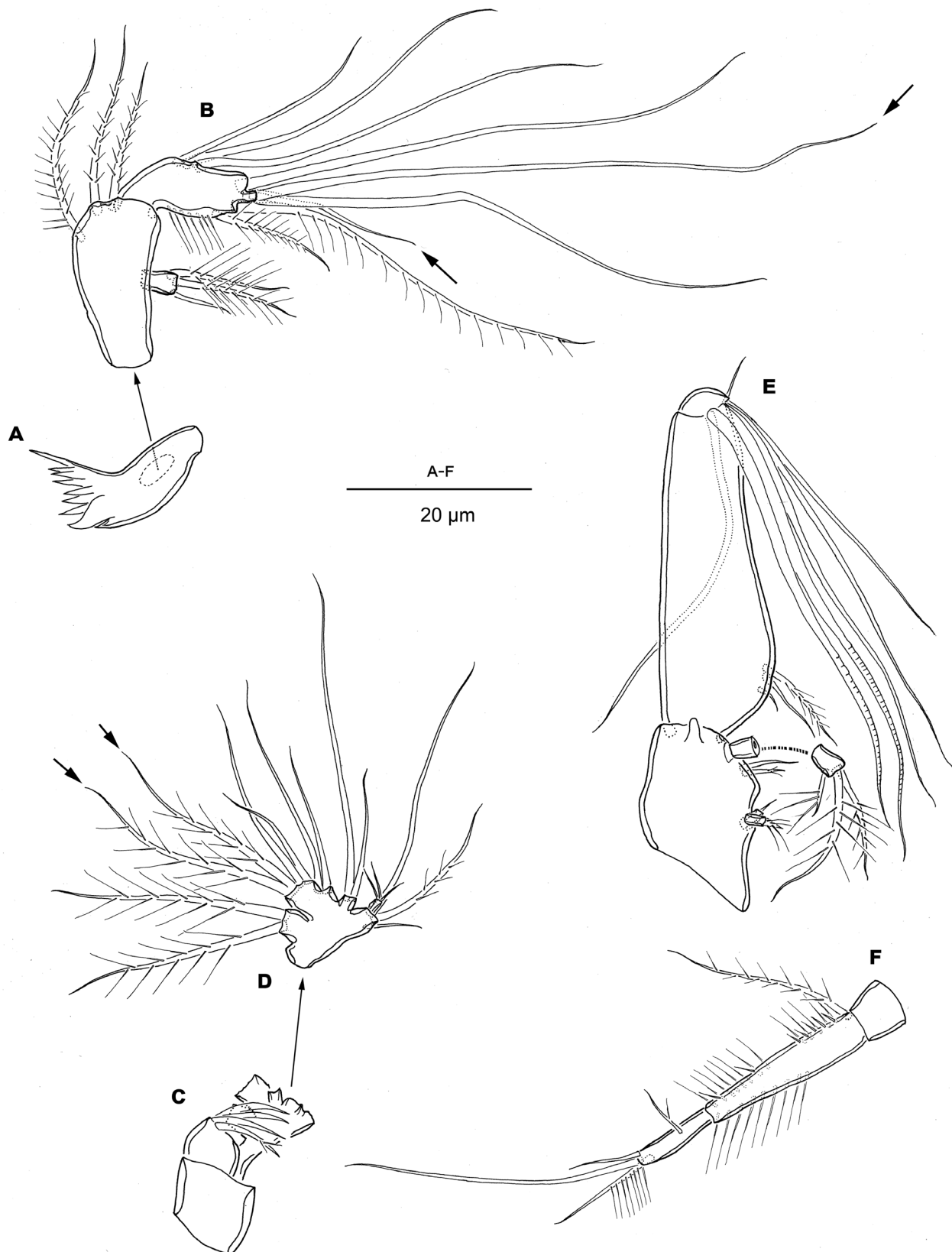


Figure 5. *Arenosetella lanceorostrata* sp. n. ♀, mouthparts, **A** Mandibular gnathobase **B** Mandibular palp **C, D** Maxillule **E** Maxilla **F** Maxilliped.

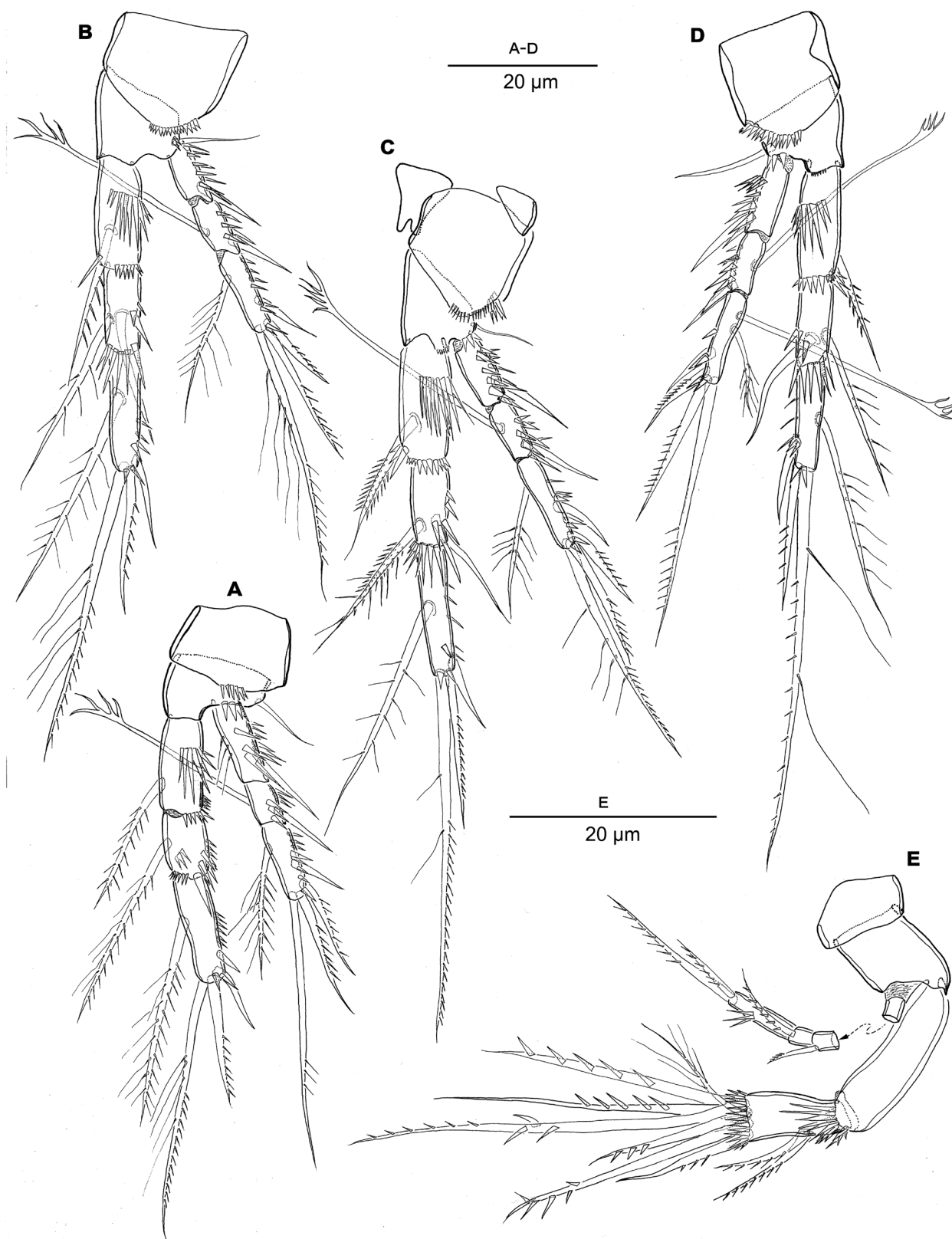


Figure 6. *Arenosetella lanceorostrata* sp. n. ♀ A P1 B P2 C P3 D P4 E Antenna.

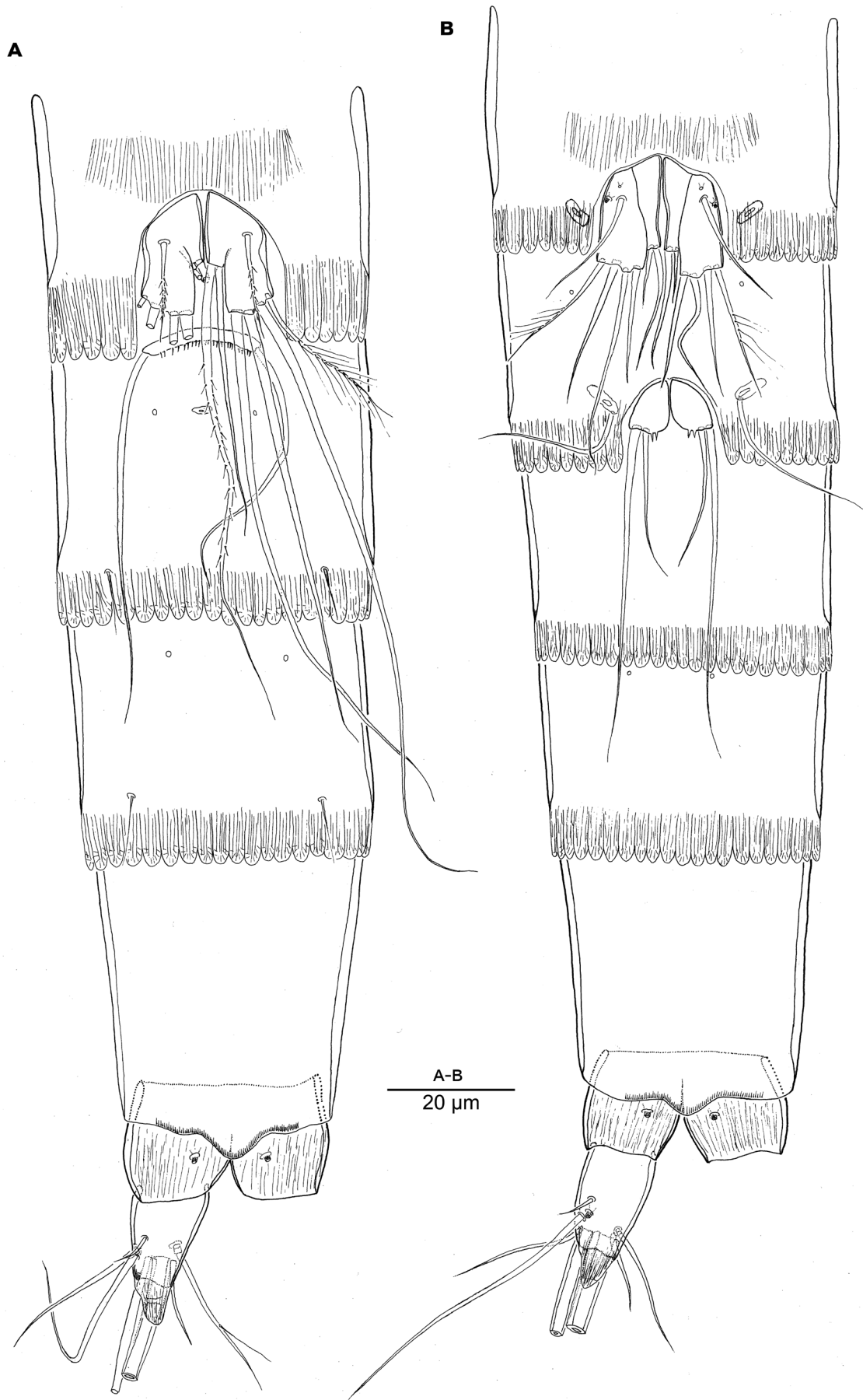


Figure 7. *Arenosetella lanceorostrata* sp. n., urosome, ventral view **A** ♀, **B** ♂.

squarish segment, armed with one short bare and two relatively longer plumose setae. Endopod uni-segmented, rectangular, ornamented with fine spinules at outer margin, bears three long bare setae at inner margin, one short plumose seta at outer distal corner, one long plumose and four bare setae apically which of two fused at base (arrowed in Fig. 5B)

Maxillule (Fig. 5C, D). Pre-coxal arthrite with four setae. Coxa, basis and endopod fused, armed with five plumose setae which of two fused at base (arrowed in Fig. 5D) and eight bare setae. Exopod reduced to a very short segment, bears three minute bare setae.

Maxillae (Fig. 5E) Syncoxa slightly longer than wide, armed with two short seta near distal corner, bears a short cuticular projection near anterior margin, with three endites. First and second endite very short and narrow, located close to each other; first endite with one very short plumose and thick seta, second endite with one minute bare seta; third endite well developed, located near distal corner, bears one short and plumose seta at distal corner and two relatively long and plumose setae apically. Basis elongated, about two times as long as syncoxa, slightly tapers to the tip, armed with one plumose and two bare setae at inner margin. Endopod uni-segmented, very short, curved on the anterior margin of basis, bears seven setae which of two geniculate.

Maxilliped (Fig. 5F) stenopodial. Coxa squarish and naked. Basis elongated, about 4 times as long as basis and two times as long as endopod, bears a long plumose seta located at proximal corner, ornamented with fine spinules on both margins. Endopod long and narrow, armed with one plumose seta medially, bears one plumose and two bare setae apically.

P1-P4 (Fig. 6A–D) coxa well developed, armed with a row of tiny spinules on distal edge. Basis bears a bare seta at outer edge, with three segmented rami. Exopod shorter than endopod, first segment bears well developed spinules and a bare spiniform seta at outer edge, inner edge naked (P2-P4) or ornamented with fine spinules (P1); second segment with well-developed spinules and a bare spiniform seta at outer edge, bears a very long seta directed obliquely upwards, with a fringed tip; third segment ornamented with well-developed spinules, bears one bare and one unipinnate spiniform seta at outer edge, two setae apically, one (P1-P3) or two setae (P4, one of them directed obliquely upwards with a fringed tip) at inner margin. First endopod segment ornamented with a transverse row of spinules on anterior surface and distal margin, outer margin naked, bears a long bipinnate seta at inner margin; second segment ornamented with well-developed spinules along the outer and distal margins, bears a long plumose seta at inner margin and a hyaline seta located at the posterior surface (except P1); third segment with a short bare seta at outer distal corner, one short unipinnate and one relatively long unipinnate and plumose setae apically and a long plumose seta at inner margin. Setal formula of the swimming legs as follows:

	Exopod	Endopod
P1	0.1.122	1.1.121
P2	0.1.122	1.2.121
P3	0.1.122	1.2.121
P4	0.1.222	1.2.121

P5 (Fig. 7A) baseo-endopod and exopod fused, baseo-endopod bears one long and plumose and one bare setae terminally. Exopod bears one relatively short and plumose and three very long and bare setae terminally and one short and bipinnate surface seta located near the proximal part of the exopodal lobe.

P6 (Fig. 7A) pairs fused and formed a short and broad plate, posterior margin of the plate ornamented with fine spinules, each side bears a very long, bare seta.

Description of male. Antennule, P5 and P6 are sexually dimorphic. Total body length from tip of rostrum to the posterior margin of the caudal rami 364 µm (253–364 µm, mean = 322 µm, n = 6). Body ornamentation (Fig. 2D) generally as in female.

Antennule (Fig. 4D) seven segmented. First and second segment short and broad, third segment widest, fourth segment very short, located at the posterior of the fifth segment, bears an aesthetasc, fifth segment longest, sixth segment with a naked seta, seventh segment with an acrothek at tip, consisting of one short aesthetasc and two bare setae fused at base. Setal formula: 1-[0], 2-[1], 3-[7+1 plumose], 4-[2 + ae], 5-[7], 6-[1], 7-[6+acrothek].

P5 (Fig. 7B) baseo-endopod and exopod distinction clear. Baseo-endopod armed with two bare setae terminally. Exopod armed with one bare surface seta and three bare and one plumose terminal setae, bears two tube pores.

P6 (Fig. 7B) baseo-endopod and exopod fused forming a triangular plate, armed with two bare setae and two minute mucroniform projections. P6 bearing somite with a long bare seta at each side of the P6 originated from a button like structure.

Etymology. The specific name “*lanceorostrata*” refers to the spearhead shaped rostrum.

Discussion

In the original description of *A. bassantae* the exopod of the antenna was described as “3-segmented and longer than first endopod segment. First segment with two setae on distal corner. Second segment with two setae on distal corner and one on proximal corner. The 3rd segment with two terminal setae.” (Mitwally and Montagna 2001). As this situation does not fit with the general pattern found in the Ectinosomatidae (Seifreid 2003), the holotype was re-examined. This examination revealed that the illustration and the description of the holotype were inaccurate so they are redrawn and described.

The new species is closely related to the *A. fimbriata* McLachlan & Moore, 1978, *A. germanica germanica*

Kunz, 1937, *A. germanica galapagosensis* Mielke, 1979, *A. kaiseri* Lang, 1965 within the 21 species / sub species of the *Arenosetella* by having five setae at P1-P2 exp-3, six setae at P4 exp-3, four setae at P1-P4 enp-3 and four marginal and one surface seta at P5 of female. However, it can be differentiated from all of the species above by the loss of the inner seta at the first segment of P2-P3 exopods and the unique shape of the anal somite dorsal ornamentation. Additionally the new species is very similar to *A. kaiseri* Lang, 1965 with its anal somite dorsal ornamentation but differs from this species by having a 5 segmented female antennule and not having an inner seta at P2 - P4 exp-1.

The first record of the genus from Turkish marine waters was provided by Karaytuğ and Sak (2006) from Sarımsaklı beach (Edremit Bay, Aegean coast of Turkey) with *A. germanica*, which was subsequently reported by Sönmez et al. (2012) from the Mediterranean coasts of Turkey. Therefore the new species described herein is the second representative of the genus in the Turkish marine waters.

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