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# Deep-sea Cumacean Crustacea from the Sea of Japan, Based on the Specimens Collected by R/V *Tansei-maru* (Cruise KT-11-9).

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**Abstract:** Deep-sea cumaceans from Japanese coast of the Sea of Japan, collected by R/V *Tansei-maru* (cruise KT-11-9) were examined. Twenty-six species of 11 genera, 5 families were recognized. Among them, *Campylaspis brevirostris* (Nannastacidae) and *Cumella tanseiae* (Nannastacidae) were new to science. Adult males of *Petalosarsia declivis* (Sars, 1865) are redescribed.

**Key words:** Crustacea, Cumacea, deep-sea, the Sea of Japan, new species.

## Introduction

Fifteen species of deep-sea cumaceans (Crustacea, Peracarida) have been known from the Sea of Japan (Vassilenko and Tzareva, 2004); *Hemilamprops gracilis* Hart, 1930, *Eudorella emarginata* Kröyer, 1846, *Eudorella pacifica* hart, 1930 *Eudorella bathyalis* Vassilenko and Tzareva, 2004, *Leucon acutirostris* Sars, 1864, *Leucon kobjakovae*, Lomakina, 1955, *Campylaspis clavata*, Lomakina, 1952, *C. glabra* Sars, 1879, *C. pisum* Vassilenko and Tzareva, 2004, *Diastylis paraspinulata* Zimmer, 1926, *D. moskalevi* Vassilenko and Tzareva, 2004, *Leptostylis villosa* Sars, 1869, *Paraleptostyls vityazi* Vassilenko and Tzareva, 2004. Lomakina (1955, 1958) reported some cumacean species from Okhotsk Sea, adjacent to the Sea of Japan, including shallow water species. In 2011, deep-sea cumacean specimens were collected by R/V *Tansei-maru* of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC, cruise KT-11-9). In the present study, these specimens were examined. Among them, two new nannastacid species are described herein. In addition, adult male specimens of *Petalosarsia declivis* (Sars, 1865) are redescribed.

## Materials and Methods

Cumacean specimens examined in the present study were collected during R/V *Tansei-maru* cruise KT-11-9 by the National Museum of Nature and Science (NSMT). The sampling sites are summarized in Table 1. Gear used for the collections was a beam trawl of 3 m span, with two ring nets (30 cm in diameter, 130 cm in length) equipped with nylon mesh of 0.5 mm opening. The collected sediment samples, including cumaceans and other tiny benthic organisms, were preserved in 70–80% ethanol or 5–10% borate buffered formalin sea water. In the Laboratory, cumacean specimens were sorted under a stereo microscope (Leica MZ6), and preserved in 70–80% ethanol. Type specimens and other specimens designated are deposited in NSMT.

Table 1. List of the sampling sites. Gear for all collections was a ORE beam trawl of 3 m span.

| Haul No. | Date | Position in | Position out | Depth (m) |
|---|---|---|---|---|
| KT-11-9-M1 | 27 May 2011 | 44°43.7′N, 140°05.79′E | 44°43.12′N, 140°05.44 E | 152–170 |
| KT-11-9-M2 | 28 May 2011 | 44°40.48′N, 140°02.38′E | 44°39.53′N, 140°02.83 E | 198–206 |
| KT-11-9-M3 | 28 May 2011 | 44°37.21′N, 139°56.68′E | 44°36.29′N, 139°57.82′E | 407–413 |
| KT-11-9-M4 | 28 May 2011 | 44°35.38′N, 139°52.93′E | 44°34.32′N, 139°53.70′E | 608–627 |
| KT-11-9-M5 | 28 May 2011 | 44°31.41′N, 139°47.13′E | 44°29.35′N, 139 °7.96′E | 1035–1080 |
| KT-11-9-M6 | 28 may 2011 | 41°16.68′N, 139°36.85′E | 44°14.25′N, 139°37.25′E | 1421–1461 |
| KT-11-9-E1 | 29 May 2011 | 41°52.01′N, 139°33.90′E | 41°52.94′N, 139°34.33′E | 222–250 |
| KT-11-9-E2 | 29 May 2011 | 41°50.26′N, 139°34.03′E | 41°48.70′N, 139°34.18′E | 388–538 |
| KT-11-9-E3 | 29 May 2011 | 41°47.46′N, 139°34.49′E | 41°48.96′N, 139°34.88′E | 563–605 |
| KT-11-9-E4 | 29 May 2011 | 42°03.91′N, 139°40.11′E | 42°03.38′N, 139°39.98′E | 802–854 |
| KT-11-9-T1 | 31 May 2011 | 37°28.45′N, 137°28.15′E | 37°29.18′N, 137°27.86′E | 160–173 |
| KT-11-9-T2 | 31 May 2011 | 37°28.77′N, 137°29.07′E | 37°29.53′N, 137°28.63′E | 207–258 |
| KT-11-9-T3 | 31 May 2011 | 37°29.18′N, 137°33.25′E | 37°29.35′N, 137°31.96′E | 383–460 |
| KT-11-9-T4 | 1 Jun. 2011 | 37°19.80′N, 137°33.38′E | 37°20.02′N 137°34.20′E | 561–583 |
| KT-11-9-T5 | 1 Jun. 2011 | 37°18.45′N, 137°31.77′E | 37°18.66′N, 137°32.85′E | 794–808 |
| KT-11-9-T6 | 1 Jun. 2011 | 37°29.18′N, 137°45.89′E | 37°26.70′N, 137°44.59′E | 1410–1564 |
| KT-11-9-N1 | 1 Jun. 2011 | 37°54.59′N, 136°56.92′E | 37°54.51′N, 136°58.43′E | 157–160 |
| KT-11-9-N2 | 1 Jun. 2011 | 37°57.06′N, 136°56.60′E | 37°57.04′N, 136°58.23′E | 201–203 |
| KT-11-9-N3 | 1 Jun. 2011 | 38°03.25′N, 136°53.39′E | 38°03.82′N, 136°55.13′E | 402–411 |
| KT-11-9-N4 | 1 Jun. 2011 | 38°08.04′N, 136°49.64′E | 38°09.00′N, 136°51.20′E | 603–622 |
| KT-11-9-K1–1 | 3 Jun. 2011 | 35°43.26′N, 134°27.11′E | 35°43.40′N, 134°27.55′E | 164–166 |
| KT-11-9-K1–2 | 3 Jun. 2011 | 35°42.89′N, 134°28.04′E | 35°43.11′N, 134°28.98′E | 143–144 |
| KT-11-9-K2 | 3 Jun. 2011 | 35°46.11′N, 134°30.94′E | 35°46.57′N, 134°32.09′E | 203–205 |
| KT-11-9-K3 | 2 Jun. 2011 | 35°54.85′N, 134°18.60′E | 35°55.17′N, 134°20.08′E | 370–411 |
| KT-11-9-K4 | 2 Jun. 2011 | 35°59.92′N, 134°20.58′E | 35°59.61′N, 134°18.82′E | 603–613 |
| KT-11-9-K5 | 2 jun. 2011 | 36°22.25′N, 134°23.61′E | 36°20.18′N, 134°22.84′E | 1277–1290 |

## Taxonomy

Family Lampropidae Sars, 1878
Genus ***Paralamprops*** Sars, 1878
***Paralamprops*** sp. 1

*Material examined*. KT-11-9-M2 (4♀, 8♂, 72 manca), NSMT-Cr 22742; KT-11-9-E1 (many ♀ and ♂), NSMT-Cr 22743; KT-11-9-E2 (2♀); KT-11-9-E3 (1♂).

*Remarks*. The specimens are similar to *Hemilamprops pectinatus* Lomakina, 1955 from the Sea of Japan, 31–440 m, morphological characters of which suggest that the species should be placed in the genus *Paralamplops*.

***Paralamprops*** sp. 2

*Material examined*. KT-11-9-M3 (23♀, 17♂, 2 juv. 85 manca), NSMT-Cr 22744; KT-11-9-M4 (1♀, 2♂, 2 juv. 55 manca), NSMT-Cr 22745; KT-11-9-E4 (1♀, 2 juv.); KT-11-9-T2 (1 juv.); KT-11-9-T3 (1♂, 5 manca); KT-11-9-N3 (1♀, 3♂, 1 juv., 4 manca), NSMT-Cr 22746: KT-11-9-N4 (2 juv., 2 manca); KT-11-9-K3 (1♀, 1 manca); KT-11-9-K4 (2♀, 4♂, 2 juv., 8 manca), NSMT-Cr 22747.

*Remarks*. The specimens are very similar to *Hemilamprops* ?*pectinatus* Lomakina, 1955 mentioned above, but are characterized by the ridges on the dorsal surface of carapace are weak, consisting of small brunt processes.

Genus ***Lamprops*** Sars, 1863

***Lamprops*** sp. 1

*Material examined*. KT-11-9-M2 (3♀, 4♂, 10 manca), NSMT-Cr 22748.

*Remarks*. The specimens are similar to *Lamprops serratus* Hart, 1930, from boreal region of the Pacific Ocean, 20–95 m and *L. carinata* Hart, 1930 from Alaska, 25–120 m in having acute pseudorostrum on the carapace, but can be distinguished from the latter two species by serrated inferior margin of carapace.

***Lamprops*** sp. 2

*Material examined*. KT-11-9-T2 (5♀, 1♂), NSMT-Cr 22749; KT-11-9-K2 (3♀), NSMT-Cr 22750.

*Remarks*. The specimens are similar to *Lamprops japonicus* Zimmer, 1937 which is characterized by obsolete anterolateral angle, but has normal length of pseudorostrum (very short in *L. japonicus*).

Family Bodotriidae T. Scott, 1901

Genus ***Vaunthompsonia*** Bate, 1858

***Vaunthompsonia*** sp.

*Material examined*. KT-11-9-M2 (1♂), NSMT-Cr 22751; KT-11-9-E1 (2 juv.), NSMT-Cr 22752.

*Remarks*. The carapace of the specimens, characterized by serrated dorsal crest, is similar to that of *Vaunthomsonia serratifrons*, Gamô, 1964 from Sagami Bay, Japan (Gamô, 1964), however, the former species is distinguishable from the latter by the uropod endopod shorter than peduncle (longer in *V. serratifrons*).

Family Leuconidae Sars, 1878

Genus ***Eudorella*** Norman, 1867

***Eudorella bathyalis*** Vassilenko and Tzareva, 2004

*Eudorella bathyalis* – Vassilenko and Tzareva, 2004: 9–13, figs. 5–6; Akiyama and Gamô, 2012, 11–15, Figs. 7–9.
*Eudorella* ?*hispida* Akiyama 2009: 486.

*Materials examined*. KT-11-9-M4 (1♀, 2 juv.), NSMT-Cr 22753; KT-11-9-M5 (1 juv.); KT-11-9-M6 (1♀, 3 juv., (damaged)), NSMT-Cr 22754; KT-11-9-E3 (1♀, 2 juv.); KT-11-9-T4 (1♀, 1 juv.), NSMT-Cr 22755; KT-11-9-T6 (4 juv., 1 manca); KT-11-9-K3 (1♀, 1♂, 1 juv.), NSMT-Cr 22756; KT-11-9-K5 (1 juv.).

*Distribution*. The Sea of Japan, Pacific coast of Japan, Okinawa Trough, East China Sea, 370–3290 m.

***Eudorella emarginata*** (Kröyer, 1846)

*Leucon emarginattus* Kröyer, 1846: 181, 209–211, pl. 2, fig. 3a–h.
*Eudorella emarginata* – Sars, 1900: 36, pls. 27–28; Stebbing 1913, 75–77, Figs. 40–42; Jones 1976, 28, Fig. 9E–H; Akiyama 2009: 486; Akiyanma and Gamô 2012, 27–30, Figs. 18–19.

*Material examined*. KT-11-9-M4 (1♀, 1juv.), NSMT-Cr 22757; KT-11-9-M5 (1♀), NSMT-

Cr 22758; KT-11-9-E3 (1 juv., 8 manca); KT-11-9-E4 (4 juv., 2 manca); KT-11-9-T3 (3juv., 4 manca); KT-11-9-T4 (4 juv.); KT-11-9-T5 (1♂, 8 juv.), NSMT-Cr 22759; KT-11-9-T6 (3 manca); KT-11-9-N3 (4 juv., 3 manca); KT-11-9-N4 (8 juv., 11 manca); KT-11-9-K3 (1 juv); KT-11-9-K4 (1♀, 3 juv., 4 manca), NSMT-Cr 22760; KT-11-9-K5 (1 juv.).

*Distribution.* Atlantic boreal region, Arctic region, eastern Russia, northern Japan, the Sea of Japan, Alaska, Canada, 0–2000 m.

### ***Eudorella orientaris*** Akiyama and Gamô, 2012

*Eudorella orientaris* – Akiyama and Gamô, 2012, 42–46, Figs. 30–31.

*Material examined*. KT-11-9-T2 (5♀, 1♂, 11 juv.), NSMT-Cr 22761; KT-11-9-T3 (3♀, 1 juv.), NSMT-Cr 22762; KT-11-9-T4 (8♀, 3♂); KT-11-9-T5 (7♀, 7♂), NSMT-Cr 22763; KT-11-9-K2 (1♀, 13 juv.), NSMT-Cr 22764.

*Distribution*. Japan, 52–1219 m.

### Genus ***Leucon*** Kröyer, 1846
### Subgenus ***Crymoleucon*** Watling, 1991
### ***Leucon*** **(*Crymoleucon*)** sp.

*Material examined.* KT-11-9-M3 (14♀, 4♂), NSMT-Cr 22765; KT-11-9-M4 (24♀, 6♂), NSMT-Cr 22766; KT-11-9-M5 (3♀, 1♂); KT-11-9-E3 (4♀, 1♂, 1 juv.); KT-11-9-E4 (5♀, 1♂, 1 juv.); KT-11-9-T3 (19♀, 6♂, 6 manca); KT-11-9-T4 (51♀,16♂, 5 manca); KT-11-9-T5 (22♀, 7♂,1 manca); KT-11-9-T6 (3♀, 2♂, 2 juv., 1 manca); KT-11-9-N3 (24♀, 3♂, 2 juv., 1 manca); KT-11-9-N4 (35♀, 7♂, 14 juv., 6 manca), NSMT-Cr 22767; KT-11-9-K3 (4♀, 1 manca); KT-1-9-K4 (21♀, 5♂, 3 juv.), NSMT-Cr 22768; KT-11-9-K5 (1♀; 2♂).

*Remarks*. The specimens are characterized by (1) acute pseudorostrum, small eye lobe, (2) pereopod 2 dactylus similar to that of the genus *Eudorella*, and (3) uropod peduncle shorter than rami.

### Subgenus ***Leucon*** Kröyer, 1846
### ***Leucon*** **(*Leucon*) ?*nasicoides pacificus*** Zimmer, 1937

*Leucon nasicoides* Liljeborg, 1855, 122.
*Leucon (Leucon) nasicoides pacificus* – Zimmer, 1937, 38, figs. 1–2.

*Material examined*. KT-11-9-T6 (1 manca), NSMT-Cr 22769; KT-11-9-N4 (1 manca), NSMT-Cr 22770.

*Remarks*. The specimens from the Sea of Japan are similar to *Leucon* ?*nasicoides* (*pacificus*) Zimmer, 1937 the Sea of Japan and Okhotsk Sea. However, further examination using additional specimens should be necessary to determine the taxonomic status of these two manca specimens. In addition, it is problematic that Lomakina (1955) identified the Zimmer's species as subspecies of *L. nasicoides*, because morphology of the uropod differs between them.

### ***Leucon*** **(*Leucon*)** sp. 1

*Material examined*. KT-11-9-M4 (1♀, 2 manca); KT-11-9-M5 (3♀, 2 manca); KT-11-9-E3 (1♀); KT-11-9-E4 (6♀, 1 juv.); KT-11-9-T3 (3♀, 4 juv., 3 manca); KT-11-9-T4 (6♀, 1♂, 13 juv.), NSMT-Cr 22771; KT-11-9-T5 (1♀, 5 juv.); KT-11-9-N3 (7♀, 2♂, 21 juv., 6 manca), NSMT-Cr 22772; KT-11-9-N4 (8♀, 15 juv., 1 manca); KT-11-9-K4 (8♀, 3♂, 6 juv.).

*Remarks*. The specimens are similar to *Leucon kobjakovae*, Lomakina, 1955 in having curved ridge on each side of the carapace. However, the former species is different from the latter by coarsely serrated median ridge and elongate pseudorostrum of carapace and uropod endopod which is shorter than exopod

### ***Leucon* (*Leucon*)** sp. 2

*Material examined*. KT-11-9-M2 (10♀, 10♂), NSMT-Cr 22773.

*Remarks*. The specimens are similar to *Leucon kobjakovae,* but can be discriminated from the latter by two minute spines on the frontal lobe and uropod exopod which is slightly shorter than endopod.

### ***Leucon* (*Leucon*)** sp. 3

*Material examined*. KT-11-9-M2 (10♀, 10♂), NSMT-Cr 22774.

*Remarks*. The specimens are similar to Leucon sp. 1, but can be discriminated from the latter by the curved ridge on the carapace is weak, with minute spines, and uropod endopod article 1 is less than twice as article 2 (more than twice in *Leucon* sp. 1).

### **?*Leucon*** sp.

*Material examined*. KT-11-9-M2 (19♀, 2♂, 2 juv., 1 manca), NSMT-Cr 22775; KT-11-9-M3 (28♀, 3♂, 13 juv., 7 manca), NSMT-Cr 22776; KT-11-9-E2 (62♀, 10♂, 45 juv., 6 manca), NSMT-Cr 22777; KT-11-9-E3 (6♀, 1♂, 5 juv., 2 manca); KT-11-9-T2 (9♀, 1♂, 4 manca); KT-11-9-K2 (20♀, 9 juv., 1 manca); KT-11-9-K3 (12♀, 5♂, 4 juv., 2 manca), NSMT-Cr 22778.

*Remarks*. The specimens are similar to *Leucon homorhynchus* Bishop, 1981 from the deep Atlantic. However, the specimens have no accessory flagellum on antenna 1, which is unusual in the genus *Leucon* (Watling, 1991).

### Family Nannastacidae Bate, 1866
### Genus ***Campylaspis*** Sars, 1865
### ***Campylaspis pisum*** Vassilenko and Tzareva, 2004

*Campylaspis pisum* – Vassilenko and Tzareva, 2004: 702, 13–16, figs. 7–8.

*Materials examined*. KT-11-9-T2 (4♀, 2♂, 9 juv.), NSMT-Cr 22779; KT-11-9-N2 (1♂); KT-11-9-K2 (14♀, 5♂, 11 juv.), NSMT-Cr 22780.

*Distribuion*. The Sea of Japan, 201–950 m.

### ***Campylaspis brevirostris*** n. sp.
(Figs. 1–3)

*Material examined*. Holotype: NSMT-Cr 22781, ovigerous female, length 2.36 mm, off Esashi, 41°47.46′N, 139°34.49′E–41°48.96′N, 139°34.88′E, 563–605 m, 29 May 2011 (KT-11-9-E3). Paratypes: NSMT-Cr 22782, 17 females, 4 subadult males, 23 juveniles (3 ovigerous females dissected), same date and locality as holotype female (KT-11-9-E3); NSMT-Cr 22783, 3 females, 3 males, 5 juveniles (1 female and 14 adult male dissected), off Noto Peninsula,

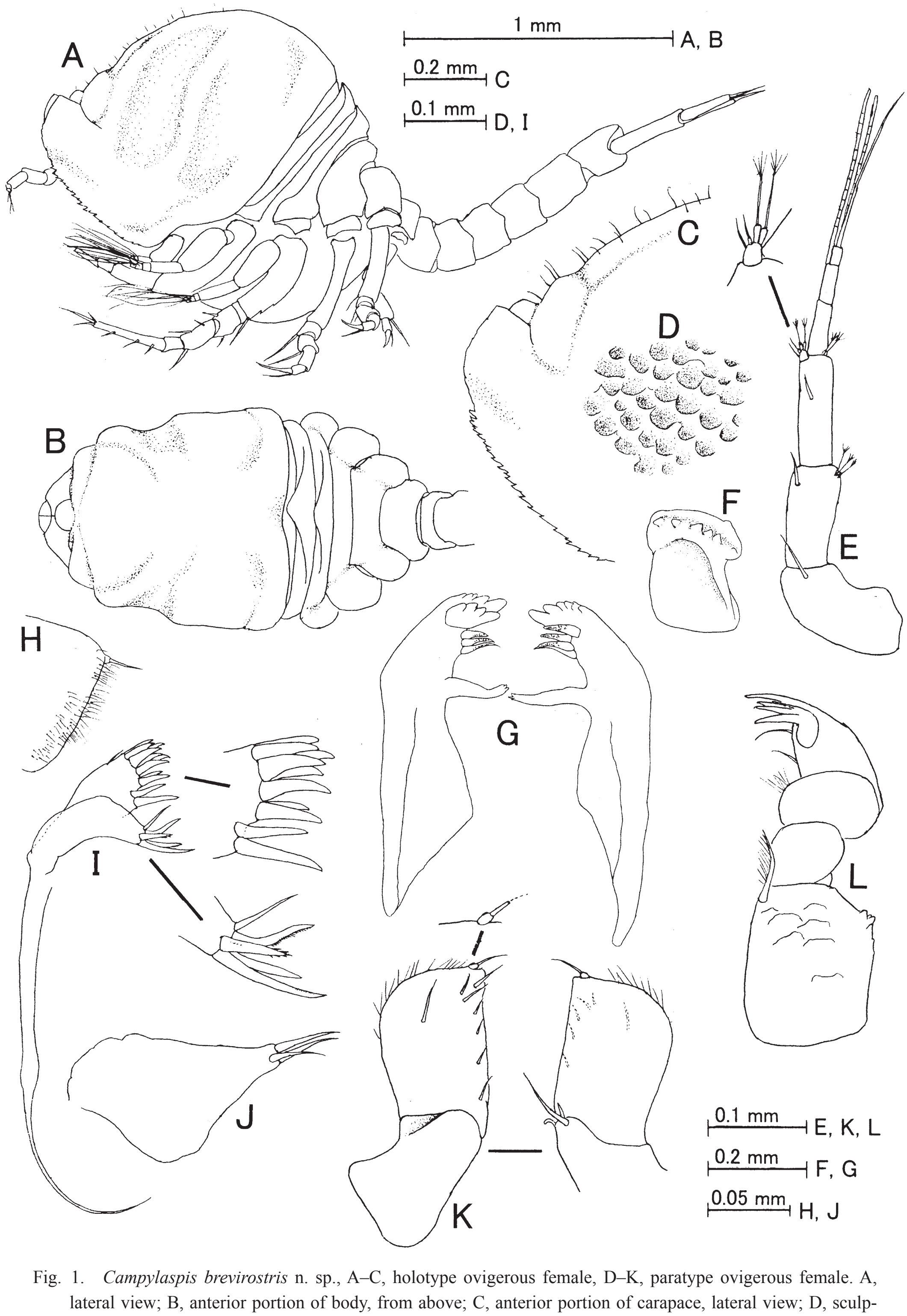



Fig. 1. *Campylaspis brevirostris* n. sp., A–C, holotype ovigerous female, D–K, paratype ovigerous female. A, lateral view; B, anterior portion of body, from above; C, anterior portion of carapace, lateral view; D, sculpture of carapace; E, antenna 1; F, antenna 2; G, left and right mandibles; H, labium; I, maxilla 1; J, maxilla 2; K, maxilliped 1; L, maxilliped 2.

38°08.04′N, 136°49.64′E–38°09.00′N, 136°51.20′E, 603–622 m, 1 June 2011 (KT-11-9-N4). Other material: KT-11-9-T1 (2♀, 1 juv., 3 manca); KT-11-9-T3 (9♀, 4♂, 10 juv., 4 manca), NSMT-Cr 22784; KT-11-9-T4 (7♀, 2♂, 7 juv., 1 manca); KT-11-9-T5 (16♀, 1♂, 2 juv., 1 manca), NSMT-Cr 22785; KT-11-9-N2 (1♂, 3 juv., 1 manca); KT-11-9-N3 (7♀, 3 juv.).

*Diagnosis*. Females; carapace antero-posteriorly compressed; pseudorostrum very short; each side with 3 weak oblique ridges; broad transverse ridge running above eye lobe; maxilliped 3 broad, serrated on inner margin; uropod peduncle 1.50–1.63 pleonite 6, 1.9–2.1 times endopod, exopod longer than endopod. Males; width of pereon shorter than carapace width; maxilliped propodus with finger-like process; uropod peduncle 2.3 times pleonite 6 and 1.9 times endopod.

*Description.* Holotype ovigerous female. Carapace antero-posteriorly compressed (Fig. 1A), 0.38 times total body length, smooth, greatly elevate posteriorly; integument with scale-like sculpture; each side with 3 weak oblique ridges; pseudorostrum truncate; antennal notch very shallow (Fig. 1C); anterolateral angle and inferior margin with a small teeth; width of eye lobe, 0.13 times carapace width; broad transverse ridge running above eye lobe. Pereon (Fig. 1A) 0.65 times carapace length; dorsal region of pereonite 1 and 2 produced anteriorly. Well-developed exopods present on maxilliped 3 and pereopods 1–2. Pleon (Fig. 1A) 0.39 times total body length; posterior end of pleonite 6 round. Uropod exopod longer than endopod.

Paratype four ovigerous females. 2.33–2.59 mm. Carapace 0.37 times total body length; width of eye lobe, 0.13–0.14 times carapace width. Pereon (Fig. 1A) 0.62–0.66 times carapace length; Pleon (Fig. 1A) 0.32–0.39 times total body length; pleonite 6 (Fig. 2G) 0.93–0.99 times as long as wide.

Antenna 1 (Fig. 1E), peduncle basal article curved, 0.5–0.6 times combined length of articles 2 and 3; article 3 1.0–1.2 times article 2; main flagellum tri-articulate, 0.9–1.0 times peduncle 3rd article; basal article 0.8–1.0 times combined length of articles 2 and 3; accessory flagellum 0.2–0.3 times basal article of main flagellum. Antenna 2 (Fig. 1F) small, uniarticulate, with no setae. Left and light mandibles (Fig. 4F) truncate at base, with 3 and 4 stuff setae on inner margin, respectively; lacinia mobilis flat, with 4 denticle; right and left incisor processes strongly constructed, with 5–6 dentate. Maxilla 1 (Fig. 1I) with 1 filament on palp; outer endite with 10 spiniform setae on tip; inner endite with 5 stiff setae. Maxilla 2 (Fig. 1J) with a 3 simple setae on tip. Maxilliped 1 (Fig. 1K) with 4–7 small branchial lobules; basis subequalin length to merocarpus; merocarpus with 7 simple setae on inner margin and naked seta on ventral surface, dactylus minute. Maxilliped 2 (Fig. 1 L) basis short, 1.1–1.3 times as long as wide, with plumose seta on inner distal corner; propodus with 1 stout, long spine on distal end; dactylus with 3 long and 1 short spines. Maxilliped 3 (Fig. 2A) with well-developed exopod; basis 0.9–1.0 times distal articles together, with 2 spines on inner distal corner; outer distal corner not produced, with 2 long plumose setae; ischium very short; merus with several simple setae on inner margin, 1.0–1.2 times combined length of carpus and propodus; carpus with 3 spines and 1 plumose seta on outer margin; propodus 1.8–2.0 times dactylus.

Pereopod 1 (Fig. 2B) similar to maxilliped 3; basis 1.0–1.1 times distal articles together, with 2 plumose setae on inner distal corner; ischium with plumose seta on inner margin; merus 1.3–1.6 times carpus, with 2 plumose and 2 simple setae on inner margin, with 2 plumose setae on outer margin; carpus 0.9 times propodus, with 2 plumose setae on outer margin, with 3–4 simple setae on inner margin; propodus 1.4–1.5 times dactylus, with 3 plumose setae on outer margin. Pereopod 2 (Fig. 2C) basis 0.5 times distal articles, with plumose seta on inner and outer distal corner, respectively; dactylus 3.1–3.6 times propodus and 1.1–1.2 times combined length of merus and carpus. Pereopod 3 (Fig. 2D) basis 1.3–1.5 times remaining distal articles; carpus 1.2–

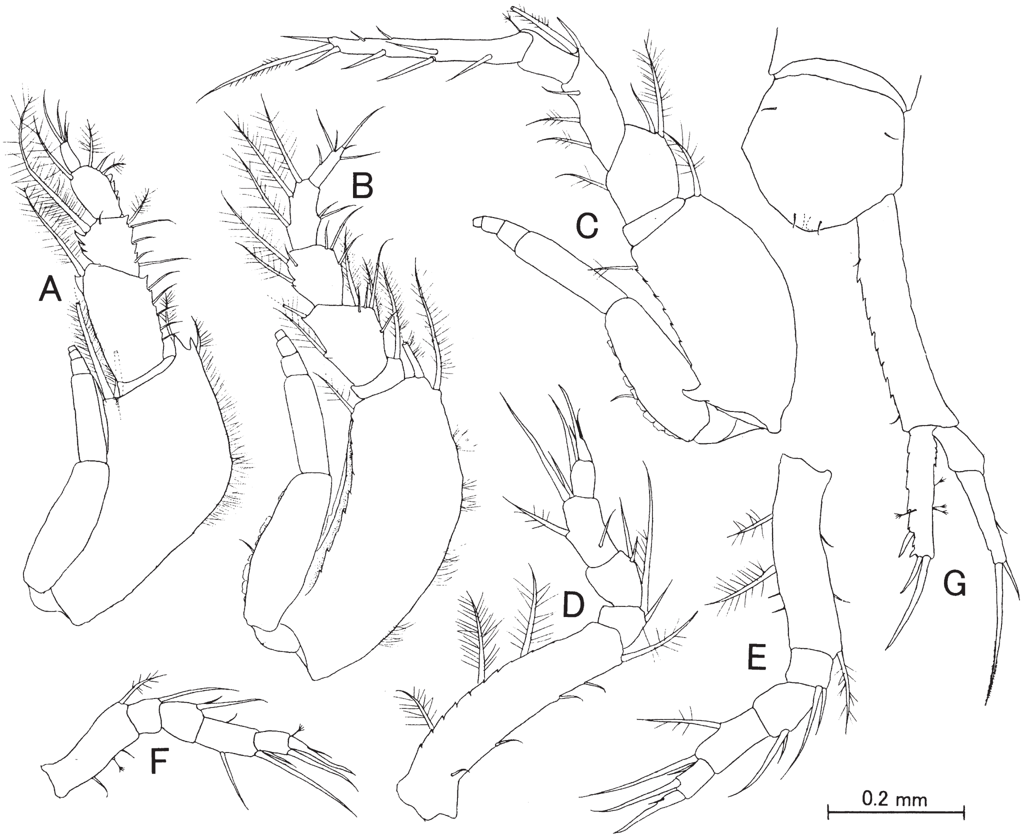



Fig. 2. *Campylaspis brevirostris* n. sp., paratype ovigerous female. A, maxilliped 3; B–F, pereopods 1–5; G, uropod with pleonite 6.

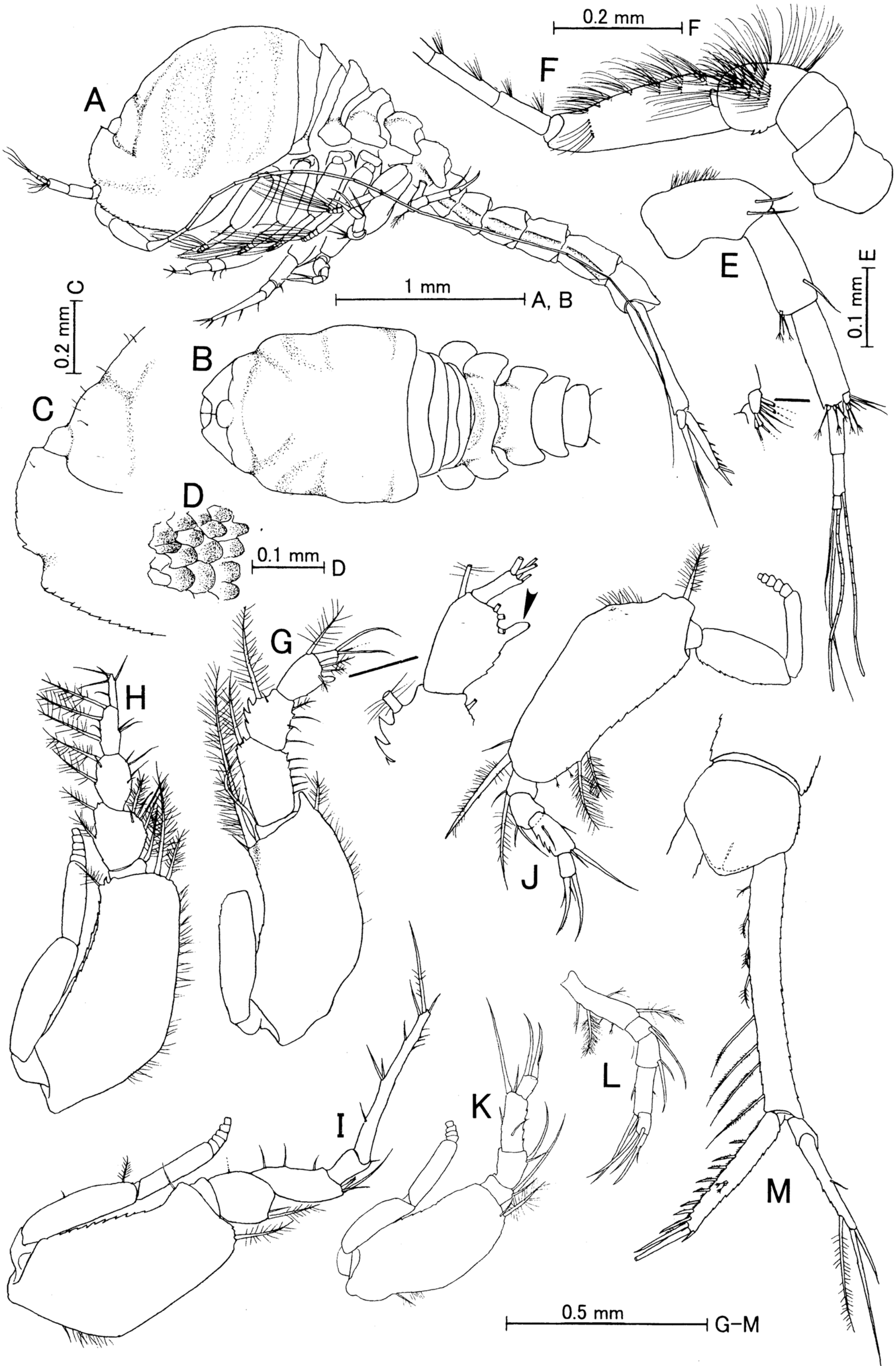
1.5 times merus and 1.8–2.4 times propodus; terminal seta fused to dactylus. Pereopod 4 (Fig, 2E) basis 0.9–1.0 times distal articles together; carpus 1.1–1.3 times merus and 1.9–2.3 times propodus; terminal seta fused with dactylus. Pereopod 5 (Fig. 2F) basis 0.5–0.6 times distal articles together; carpus 1.3–1.6 times merus and 1.7–2.1 times propodus; terminal seta f–sed. Pereopods 1 and 2 with well-developed exopods.

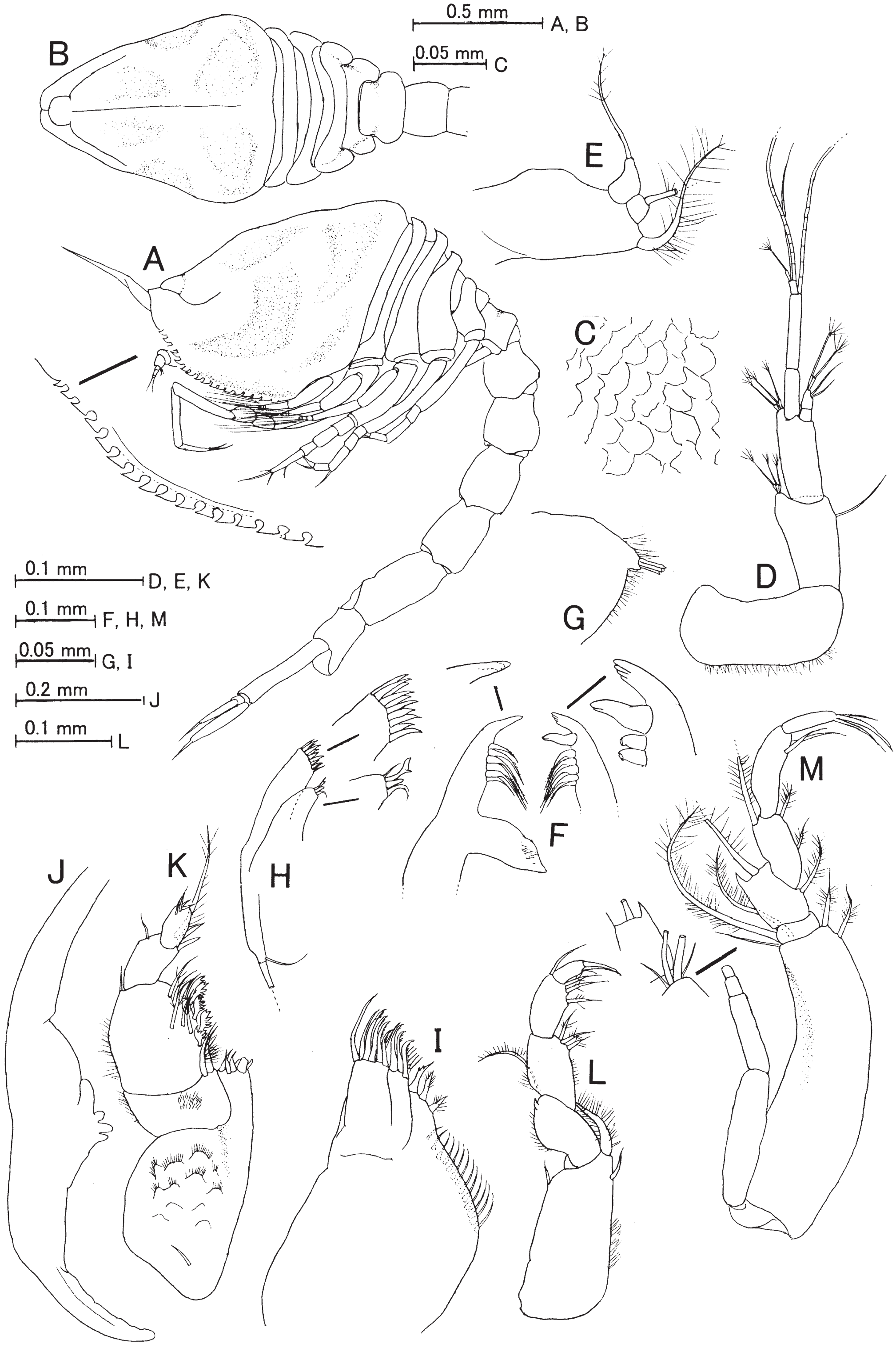
Uropod (Fig. 2G) peduncle 1.50–1.63 times pleonite 6, 1.58–1.77 times exopod and 1.89–2.14 times endopod, without small seta on inner margin; exopod 1.17–1.21 times endopod, with stiff terminal seta; endopod uniarticulate, with 2 spiniform setae on inner margin.

Paratype adult male, 3.30 mm (Fig. 3). Carapace (Fig. 3A–B) 0.32 times total body length; pseudorostrum truncate, very short; antennal notch distinct; inferior margin with small teeth. Width of eye lobe 0.16 times carapace width, without corneal lenses. Pereon (Fi. 3A) 0.88 times carapace length, dorsal surface of pereonite 1 and 2 with weak, triangular projection. Pleon (Fig. 6A) 0.41 times total body length; pleonite 1–5 with a pair of lateral grooves; pleonite 6 (Fig. 3M) 1.01 times as long as wide: posterior end not exceeding anal opening. Pleopods absent (Fig. 3A).

Antenna 1 (Fig. 3E), peduncle basal article slightly curved, 0.5 times combined length of

Fig. 3. *Campylaspis brevirostris* n. sp., paratype adult male. A, lateral view; B, anterior portion of body, from above; C, anterior portion of carapace, lateral view; D, sculpture of carapace; E, antenna 1; F, antenna 2; G, maxilliped 3; H–L, pereopods 1–5; M, uropod with pleonite 6.


A
B
C
D
E
F
G
H
I
J
K
L
M
0.2 mm F
1 mm A, B
0.2 mm C
0.1 mm D
0.1 mm E
0.5 mm G–M


0.5 mm A, B
0.05 mm C
B
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0.1 mm D, E, K
0.1 mm F, H, M
0.05 mm G, I
0.2 mm J
0.1 mm L

article 2 and 3; article 3 1.0 times article 2. Main flagellum tri-articulate, 1.1 times peduncle article 3; article 1 0.9 times combined length of articles 2 and 3; accessory flagellum uniarticulate, 0.2 times basal article of main flagellum. Antenna 2 (Fig. 3F) flagellum of 20 articles, exceeding posterior end of pleon. Maxilliped 3 (Fig. 3G) with well-developed exopod; basis 1.1 times distal articles together, with plumose seta and 1 spine on inner margin; outer distal corner not protrude, with 2 long plumose setae; merus 0.9 times combined length of carpus and propodus; carpus 1.0 times propodus; propodus with a finger-like process (arrow head) on inner margin.

Pereopod 1 (Fig. 3H) similar to maxilliped 3; basis 1.2 times distal articles together, with 2 long plumose seta on outer distal corner; ischium short; merus 1.7 times carpus; carpus 1.0 times propodus; propodus 2.3 times dactylus. Pereopod 2 (Fig. 3I) basis 0.6 times distal articles together, with plumose seta on inner distal corner; carpus 1.3 times merus; dactylus 4.2 times propodus and 1.3 times combined length of merus and carpus. Pereopod 3 (Fig. 3J) basis 1.8 times distal articles together, with 2 long plumose setae on inner margin; carpus 1.4 times merus and 2.2 times propodus; terminal seta fused with dactylus. Pereopod 4 (Fig, 3K) basis 1.2 times distal articles together; carpus 1.5 times merus and 2.5 times propodus; terminal seta fused with dactylus. Pereopod 5 (Fig. 3L) basis 0.6 times distal articles together; carpus 1.4 times merus and 2.2 times propodus. Pereopods 1–4 with well-developed exopods (Fig. 3H–K).

Uropod (Fig. 3M) peduncle 2.29 times pleonite 6, 2.16 times exopod and 1.87 times endopod, 8 plumose setae on inner margin; exopod 0.87 times endopod, with plumose seta on inner margin and 2 simple terminal setae; endopod uniarticulate, with 9 spiniform setae on serrated inner margin.

*Etymology*. The species name refers to the short pseudorostrum on the carapace.

*Remarks*. Arrangement of ridges on the carapace are similar to *Campylaspis pisum* Vassilenko and Tzareva, 2004, including a transverse ridge on the frontal lobe, but can be distinguishable from the latter species by antrero-posteriorly compressted carapace with broad, weak ridges and with very short pseudorostrum.

## ***Campylaspis ?schnabelae*** Gerken, 2012

*Campylaspis schnabelae* – Gerken, 2012: 3524, 72–76, figs. 41–42.

*Material examined*. KT-11-9-M2 (2♀, 3 juv., 1 manca); KT-11-9-M3(1♀, 2♂, 2 juv., 5 manca), NSMT-Cr 22786; KT-11-9-E1 (4♀, 1♂, 10 juv., 78 manca); KT-11-9-E2 (8♀, 3♂), NSMT-Cr 22787; KT-11-9-E3 (6♀, 4♂, 8 juv.), NSMT-Cr 22788; KT-11-9-T3 (1♂, 1 juv.); KT-11-9-N3 (1 juv.).

## ***Campylaspis*** sp. 1

*Material examined*. KT-11-9-M2 (53♀, 22♂, 11 juv.), NSMT-Cr 22789; KT-11-9-E2 (17♀, 4♂, 9 juv.), NSMT-Cr 22790; KT-11-9-E3 (14♀, 4♂, 10 juv.); KT-11-9-T2 (3♀, 6 juv., 3 manca); KT-11-9-T4 (13♀, 7♂, 29 juv., 12 manca), NSMT-Cr 22791; KT-11-9-T5 (8♀, 4♂., 13 juv.)

*Remarks*. Arrangement of ridges on the carapace is similar to *Campylaspis pisum* except for that transvers ridge on the frontal lobe absent. The specimens are similar to *Campylaspis*

Fig. 4. *Cumella tanseiae* n. sp., A–C, holotype ovigerous female, D–M, paratype ovigerous female. A, lateral view; B, anterior portion of body, from above; D, sculpture of carapace; D, antenna 1; E, antenna 2; F, left and right mandibles; G, labium; H, maxilla 1; I, maxilla 2; J–K, maxilliped 1; L maxilliped 2; M, maxilliped 3.

*crispa* Lomakina, 1955 from the Sea of Japan (Lomakina, 1955, 1958), but are distinguishable from *C. crispa* by that the uropod peduncle twice as long as endopod (three times in *C. crispa*).

### ***Campylaspis*** sp. 2

*Material examined*. KT-11-9-E3 (53♀, 22♂, 11 juv.), NSMT-Cr 22792.

*Remarks*. The specimens are very similar to *Campylaspis* sp. 1. The former species is discriminated from the latter by weak ridges on the carapace.

### ***Campylaspis*** sp. 3

*Material examined*. KT-11-9-M2 (1♂, 1 juv., 1 manca); KT-11-9-M3 (2♀, 2♂, 8 juv., 11 manca), NSMT-Cr 22793; KT-11-9-E3 (2♀, 1♂, 3 juv., 1 manca), NSMT-Cr 22794; KT-11-9-T2 (1♂, 2 juv., 2 manca); KT-11-9-T4 (1♀, 1♂, 2 juv., 1 manca); KT-11-9-T5 (1♀ 2 juv., 1 manca); KT-11-9-N2 (2 juv.); KT-11-9-N3 (1♀, 4 juv., 1 manca); KT-11-9-N4 (3 juv., 1 manca); KT-11-9-K5 (1♀, 1♂, 2 manca).

*Remarks*. There are several *Campylaspis* species with smooth carapace lacking no redges and sulcus. Among them, the Japanese specimens are similar to *C. rufus* Gerken, 2012 from New Zealand, 346–530 m, but is distinguishable from the latter by the uropod peduncle less than two times as endopod (more than two times in *C. rufus*).

### Genus ***Cumella*** Sars, 1865
### ***Cumella tanseiae*** sp. nov.
(Fig. 4–6)

*Material examined*. Holotype: NSMT-Cr 22795, preparatory female, length 2.66 mm, Musashi-tai, 44°40.48′N, 140°02.38′E–44°39.53′N, 140°02.83′E, 198–206 m, 28 May 2011 (KT-11-9-M2). Paratypes: NSMT-Cr 22796, many preparatory females (4 specimens dissected), many subadult males, same date and locality as holotype female (KT-11-9-M2); NSMT-Cr 22797, 83 preparatory females, 41 adult males (3 specimens dissected), 1 subadult males, 45 manca larvae, off Esashi, 41°52.01′N, 139°33.90′E–41°52.94′N, 139°34.33′E, 222–250 m, 29 May 2011 (KT-11-9- E1).

*Diagnosis*. Females; carapace without teeth or spines on median ridge; lateral and dorsal surface with 3 pairs of shallow depressions, forming weak transverse ridges; lower margin with two-cornered teeth; antenna 1 main flagellum article 2 longer than article 1; antenna 2 with article-like swellings at basal region of 2 plumose setae; outer distal corner of maxilliped 3 basis not reaching distal end of ischium; pereopod 2 propodus with shallow notch on distal end; uropod peduncle 1.4–1.5 times pleonite 6 and 1.4–1.8 times endopod. Males; lenses on eye love not well-developed; pleonite 1–5 with lateral grooves; antenna 2 flagellum exceeding posterior end of pleon.

*Description*. Holotype preparatory female. Carapace (Fig. 4A–B), 0.30 times total body length; integument with scale-like sculpture; median dorsal ridge running for entire length, without spines; anterior and posterior regions of dorsal surface and lateral surface with 3 pairs of shallow depressions, forming weak transverse ridges; pseudorostrum 0.05 times carapace length; antennal notch obsolete; anterolateral angle (Fig. 4A) and inferior margin with 18 two-cornered tooth directing forward (Fig. 4A); width of eye lobe 0.16 times carapace width; corneal lenses not well developed. Pereon (Fig. 4A) 0.64 times carapace length. Well-developed exopods pres-

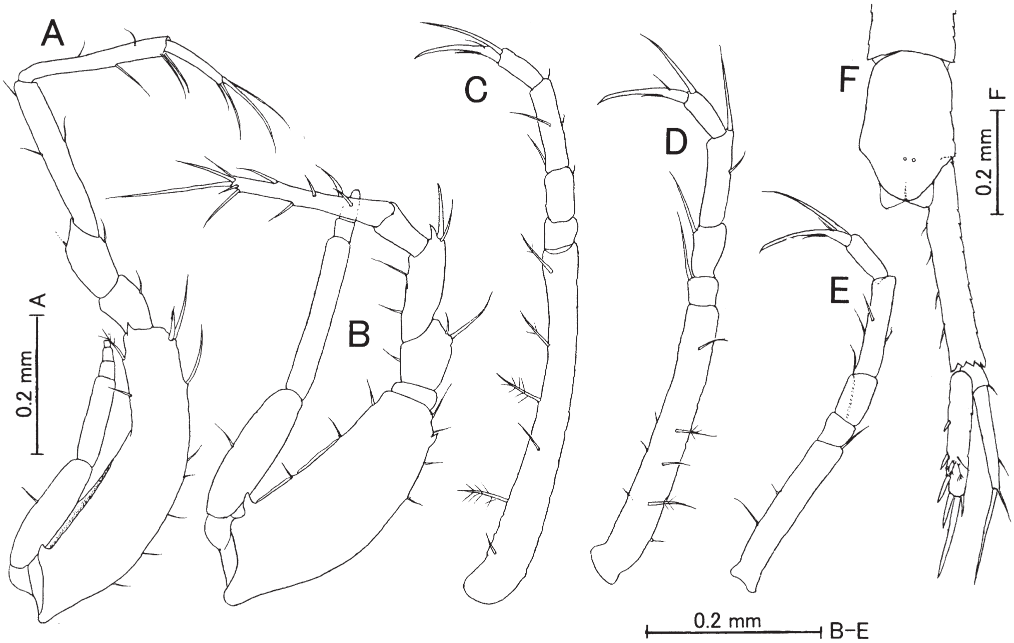


Fig. 5. *Cumella tanseiae* n. sp., paratype ovigerous female. A–E, pereopods 1–5; F, uropod with pleonite 6.

ent on maxilliped 3 and pereopods 1–2. Pleon (Fig. 4A) 0.52 times total body length..

Paratype four preparatory females, 2.59–2.78 mm (Figs. 4, 5). Carapace, 0.28–0.29 times total body length; pseudorostrum 0.05–0.07 times carapace length; inferior margin with 16–18 two-cornered tooth; width of eye lobe 0.15–0.18 times carapace width; Pereon (Fig. 4A) 0.59–0.70 times carapace length. Pleon (Fig. 4A) 0.52–0.54 times total body length; pleonite 6 (Fig. 5F) 1.42–1.54 times as long as wide.

Antenna 1 (Fig. 4D), peduncle basal article curved, 0.7–0.9 times combined length of articles 2 and 3; article 3 0.9 times article 2. Tri-articulate main flagellum 1.4–1.6 times peduncle 3rd article; article 1 0.5–0.6 times combined length of articles 2 and 3; article 2 1.4–1.6 times article 1; accessory flagellum 0.6–0.7 times basal article of main flagellum: Antenna 2 (Fig 4E) with 2 article-like swellings and 3 plumose setae present on outer margin. Left and light mandibles (Fig. 4F) navicular form, with 5 and 6 ciliated setae on inner margin, respectively; lacinia mobilis bi-dentate; inscissor process 3 or 4 dentate. Labium (Fig. 4G) with 4 setae; Maxilla 1 (Fig. 4H) with 3 filaments on palp; outer endite with 10 spiniform setae on outer margin; inner endite with 4 minute setae on outer margin. Maxilla 2 (Fig. 4I) with a row of 13 thin simple setae on inferior margin; narrow endites with 6 and 3 setae, respectively.

Maxilliped 1 (Fig. J–K) with 2–4 small branchial lobules; basis much shorter than remaining articles combined, with simple seta at proximal region; carpus with 5 broad, tridentate setae and several simple setae on inner margin. Maxilliped 2 (Fig. 4 L) basis 0.8 times combined length of succeeding 4 articles, with stiff plumose seta on inner distal corner; carpus with 3 plumose setae on inner margin; propodus with 3 setae on inner margin. Maxilliped 3 (Fig. 4M) with well-developed exopod; basis 1.1–1.2 times distal articles together, with 2 stiff plumose setae on distal region of inner margin; outer distal corner not produced, with 2 long plumose setae and 1–2 thin setae; merus and carpus 0.9–1.0 times propodus, with 2 and 1 setae on inner and outer margin, respectively.

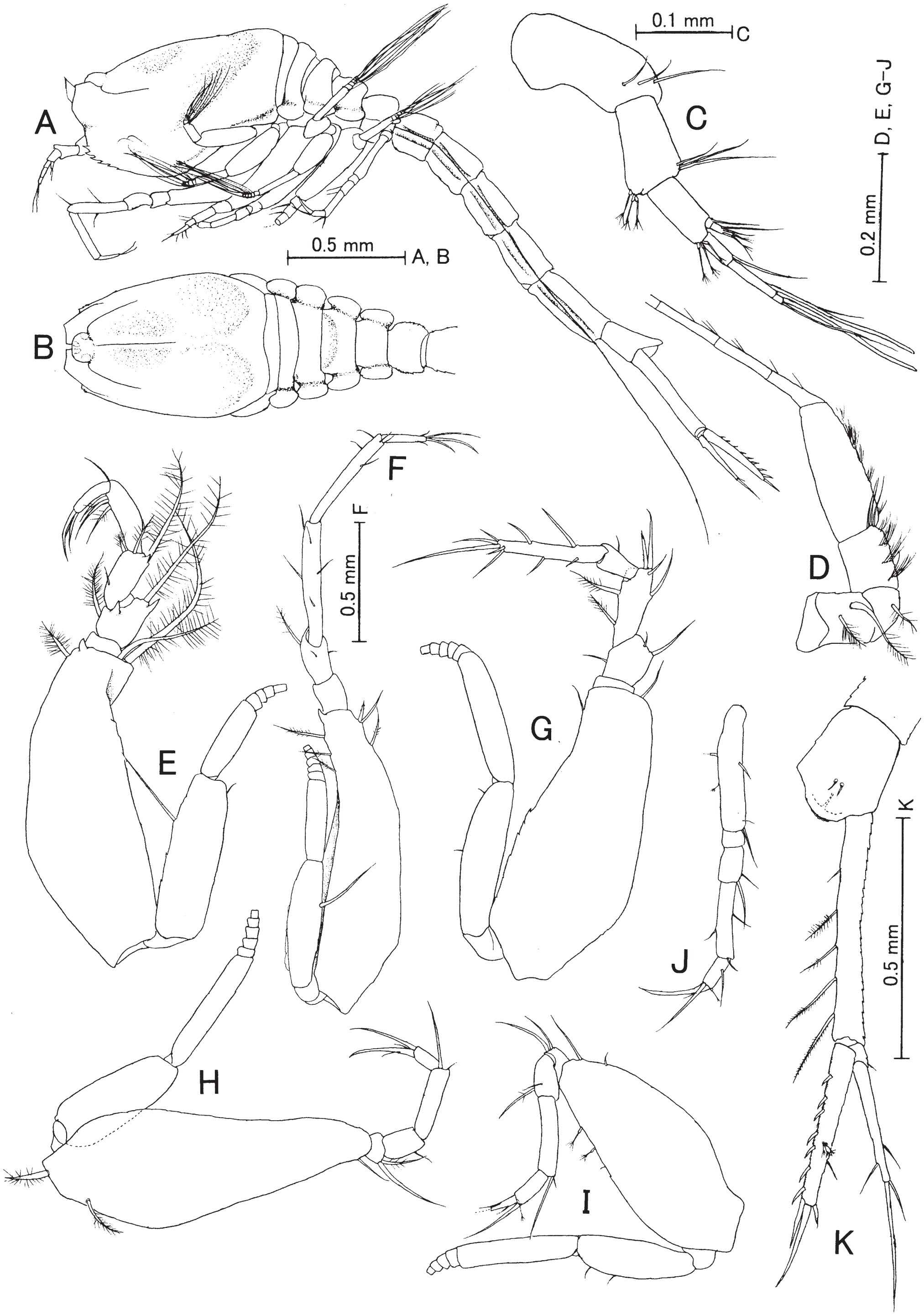


Fig. 6. *Cumella tanseiae* n. sp., paratype adult male. A, lateral view; B, anterior portion of body, from above; C, antenna 1; D, antenna 2; E, maxilliped 3; F–J, pereopods 1–5; K, uropod with pleonite 6.

Pereopod 1 (Fig. 5A) with well-developed exopod; basis 0.6–0.7 times distal articles together, with robust spiniform seta on inner margin distally; carpus 1.0–1.1 times propodus; propodus 2.0–2.3 times dactylus; dactylus with 4 terminal setae. Pereopod 2 (Fig. 5B) basis 0.7 times distal articles together, propodus with shallow notch on distal end; dactylus 2.5–2.9 times propodus, 1.0–1.1 times combined length of merus and carpus. Pereopod 3 (Fig. 5C) basis 1.5–1.6 times remaining distal articles; carpus 1.5–1.7 times merus and 1.7–1.8 times propodus. Pereopod 4 (Fig, 5D) basis 1.1–1.2 times distal articles together; carpus 1.6–1.8 times merus and 1.7–2.0 times propodus. Pereopod 5 (Fig. 5E) basis 0.6–0.7 times distal articles together; carpus 1.9–2.1 times merus and 1.9–2.7 times propodus. Pereopods 1 and 2 with well-developed exopods.

Uropod (Fig. 5F) peduncle 1.41–1.49 times pleonite 6, 1.54–1.86 times exopod, 1.44–1.76 times endopod, with 4–5 thin short setae on inner margin; exopod 0.86–1.01 times endopod; endopod uniarticulate, with 4 spiniform setae on inner margin; terminal seta robust.

Paratype three adult males, 2.88–3.04 mm (Fig. 6). Carapace (Fig. 6A–B) 0.29–0.30 times total body length; median dorsal ridge running for anterior half of carapace, with no spines; pseudorostrum very short, 0.03–0.05 times carapace length, not contact each other; siphon shorter than females; antennal notch very shallow; anterolateral angle and anterior portion of inferior margin with 3–6 triangular teeth; width of eye lobe 0.20–0.21 times carapace width, without corneal lenses. Pereon (Fig. 6A) 0.64–0.67 times carapace length. Pleon (Fig. 6A) 0.50–0.52 times total body length; pleonite 1–5 with a pair of lateral grooves. Pleonite 6 1.29–1.41 times as long as wide; slightly exceeding anal opening; posterior end round. Pleopods absent.

Antenna 1 (Fig. 6C) peduncle article 1 0.8–0.9 times combined length of article 2 and 3; article 3 0.8–0.9 times article 2. Main flagellum tri-articulate, 1.4–1.5 times peduncle article 3; article 1 0.5–0.6 times combined length of articles 2 and 3; article 2 1.3–1.5 times article 1, article 3 minute; accessory flagellum bi-articulate, 0.4–0.6 times main flagellum article 1. Antenna 2 (Fig. 6D) articles 4 and 5 with numerous short setae; flagellum of 20–21 articles, exceeding posterior end of pleon.

Maxilliped 3 (Fig. 6E) with well-developed exopod; basis 1.4–1.6 times distal articles together; with 1–2 plumose setae and 1 spine on inner distal corner; outer distal corner not protrude, with 2 long plumose setae; carpus 0.8 times propodus; propodus 1.6–1.87 times dactylus, with 3 plumose setae on inner margin; merus and carpus with long plumose seta on outer distal corner.

Pereopod 1 (Fig. 6F), basis 0.8–0.9 times distal articles together, with 3 setae on inner margin, with simple seta on outer distal corner; carpus 0.8–0.9 times propodus; propodus 2.3 times dactylus; dactylus with 5 terminal setae. Pereopod 2 (Fig. 6G) basis 1.2 times distal articles together; propodus with shallow notch on distal end; dactylus 2.3–2.5 times propodus, 0.9times combined length of merus and carpus. Pereopod 3 (Fig. 6H) basis 1.7–2.0 times distal articles together; carpus 1.5–1.9 times merus and 1.8–2.3 times propodus seta fused with dactylus. Pereopod 4 (Fig, 6I) basis 1.2–1.3 times distal articles together; carpus 1.7–2.3 times merus and 2.0–2.6 times propodus; terminal seta fused with dactylus. Pereopod 5 (Fig. 6J) basis 0.6–0.7 times distal articles together; carpus 2.1 times merus and 2.2 times propodus. Pereopods 1–4 with well-developed exopods (Fig. 6F–I).

Uropod (Fig. 6K) peduncle 1.89–2.04 times pleonite 6, 1.58–1.70 times exopod and 1.31–1.43 times endopod, with 5 setae on inner margin; exopod 0.83–0.84 times endopod; terminal setae long; endopod uni-articulate, with 8–9 spiniform setae on inner margin; terminal seta robust.

*Etymology*. The species name is dedicated to the research vessel *Tansei-maru*.

*Remarks*. Carapace of the new species is similar to *Cumella sadoensis* Gamô, 1968 and *C. alveata* Gamô, 1964, both of which are from shores of Japanese and Korean waters (Gamô, 1964, 1968; Lee and Lee, 1999). The female specimens of the former species is discriminated from the latter two by (1) lower margin of carapace with two-cornered teeth, (2) antenna 2 main flagellum article 2 longer than article 1 (3) pereopod 1 carpus subequal in length to propodus, and (4) uropod peduncle 1.4–1.5 times pleonite 6.

*Distribution*. The Sea of Japan, 198–250 m.

### Family Diastylidae Bate, 1856

### Genus ***Diastylis*** Say, 1818

### ***Diastylis samurai*** Zimmer, 1943

*Diastylis samurai* – Zimmer, 1943: 133, figs. 1–3; Gamô, 1968: 149–150, fig. 22.

*Material examined*. KT-11-9-E2 (1♀, 5 juv.), NSMT-Cr 22798; KT-11-9-K3 (1♀, 1 juv.), NSMT-Cr 22799.

*Distribution*. Pacific coast of northern Japan, the Sea of Japan, 320–1511 m.

### ***Disatylis ?moskalevi*** Vassilenko and Tzareva, 2004

*Material examined*. KT-11-9, E1 (9♀, 4♂, 2 juv.), NSMT-Cr 22800; KT-11-9-E2 (4♀, 11 juv., 51 manca), NSMT-Cr 22801; KT-11-9-T3 (2♀, 1♂, 3 manca), NSMT-Cr 22802; KT-11-9-K4 (2♀, 4 manca), NSMT-Cr 22803.

### Genus ***Leptostylis*** Sars, 1869

### ***Leptostylis ?villosa*** Sars, 1869

*Materials examined*. KT-11-9-E1 (7♀, 13♂, 19 juv.), NSMT-Cr 22804; KT-11-9-E2 (27♀, 15♂), NSMT-Cr 22805; KT-11-9-E3 (30♀, 9♂); KT-11-9-E4 (1♀); KT-11-9-T2 (2♀); KT-11-9-T3 (2♀); KT-11-9-N2 (1♀, 2♂, 3 juv.), NSMT-Cr 22806; KT-11-9-K3 (4♀, 3♂), NSMT-Cr 22807.

*Remarks*. The carapace of the specimens from off Esashi has sparse short hairs, whereas *Leptostylis villosa* and the specimens from Toyama Bay, Noto Peninsula and off Kasumi are characterized by dense hairs on the carapace.

### Genus ***Paraleptostylis*** Vassilenko, 1990

### ***Paraleptostylis vityazi*** Vassilenko and Tzareva, 2004

*Paraleptostylis vityazi* – Vassilenko and Tzareva, 2004: 702, 6–9, figs. 3–4.

*Material examined*. KT-11-9-M3 (1♀, 4♂, 19 manca), NSMT-Cr 22808; KT-11-9-M4 (1♂, 5 manca); KT-11-9-M5 (1♀); KT-11-9-E1 (3♀); KT-11-9-E2 (47♀, 24♂, 1 juv., 113 manca); KT-11-9-E3 (36♀, 25♂, 55 manca), NSMT-Cr 22809; KT-11-9-E4 (1♀); KT-11-9-T4 (1♀, 1♂, 2 manca); KT-11-9-T5 (1 manca); KT-11-9-N2 (3♀, 1♂, 1 juv.); KT-11-9-K3 (3♀, 2♂, 5 manca), NSMT-Cr 22810; KT-11-9-K4 (1♀, 2♂, 8 manca).

*Distribution*. The Sea of Japan, 201–1130 m.

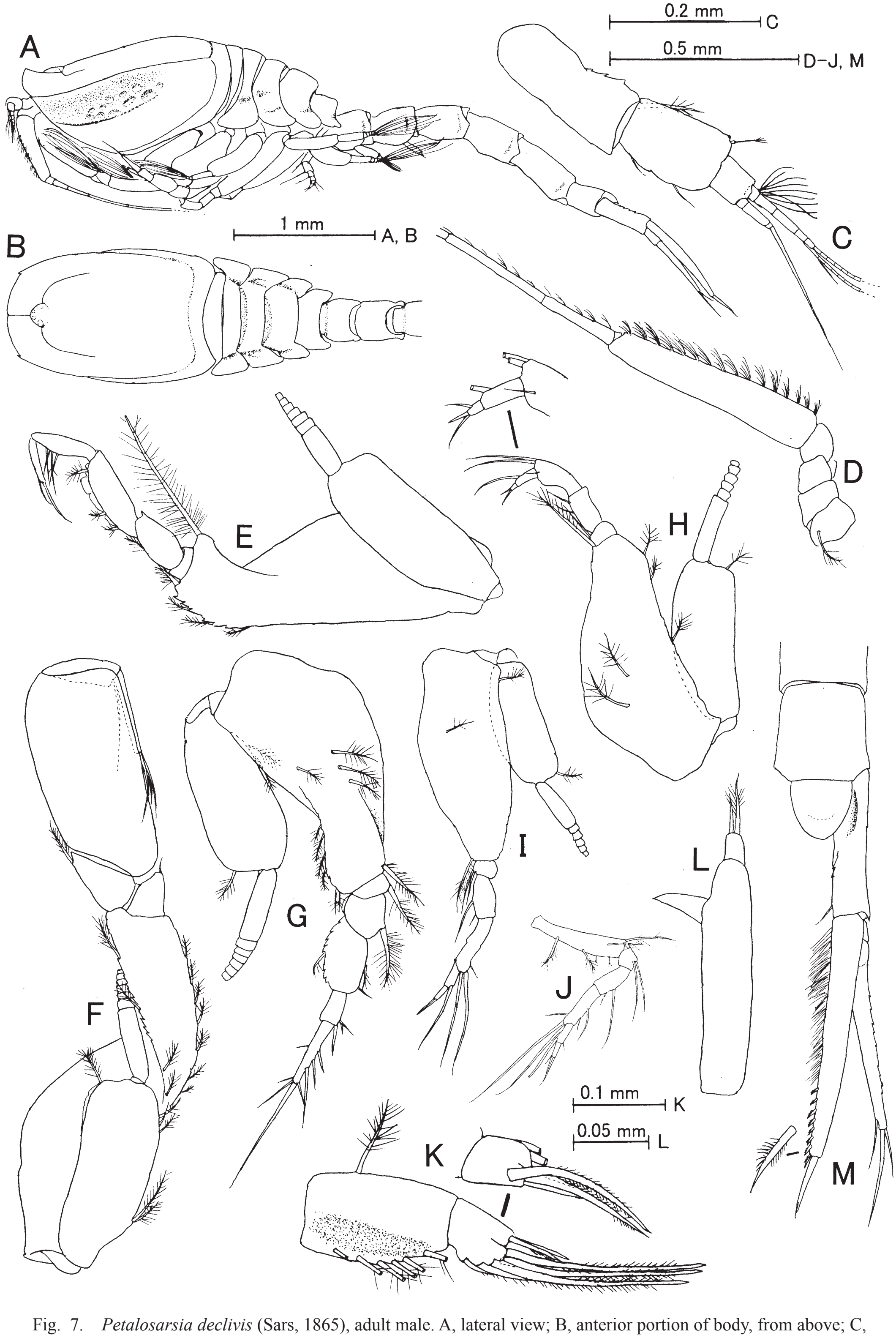


Fig. 7. *Petalosarsia declivis* (Sars, 1865), adult male. A, lateral view; B, anterior portion of body, from above; C, antenna 1; D, antenna 2; E, maxilliped 3; F–J, pereopods 1–5; K–L, pleopods 1–2; M, uropod with pleonite 6.

## Family Pseudocumatidae Sars, 1878
## Genus ***Petalosarsia*** Stebbing, 1893
## ***Petalosarsia declivis*** (Sars, 1865)
(Fig. 7)

*Petalopus declivis* Sars, 1865: 197.
*Petalomera declivis* Sars, 1883, 13.
*Petalosarsia declivis* – Stebbing, 1893: 308; Sars, 1900, 77–79, pl. 54; Given, 1965, 222, Fig. 5; Bacescu and Muradian, 1974, 224–227, Figs. 5–7; Akiyama and Gerken, 2012, 3–5, Figs. 1, 2.

*Material examined*. KT-11-9-M2 (3♀, 1♂, 6juv.); KT-11-9-M3 (1♀); KT-11-9-E1 (2♀, 1♂, 6 juv.) KT-11-9-E3 (6♀, 2♂, 7 juv., 2 manca), NSMT-Cr 22811; KT-11-9-T2 (6♀); KT-11-9-T4 (2♀, 1♂, 4 manca); KT-11-9-T5 (1juv,); KT-11-9-N3 (4♂, 1 specimen dissected, 2 juv,), NSMT-Cr 22812; KT-11-9-K2 (2♀); KT-11-9-K4 (9♀, 6♂, 2 specimens dissected, 9 juv.), NSMT-Cr 22813.

*Description*. Adult males (Fig. 7), 4.17–4.34 mm. Carapace (Fig. 7A–B) length 0.32–0.34 times total animal length, 1.47–1.55 times greatest width and 1.89–2.01 times depth; lateral carina running for entire length, with a teeth on anterior end; hind margin of dorsal surface with transverse ridge; frontal margin between lateral carina 0.61–0.63 times greatest width; pseudo-rostrum 0.10–0.11 times length of carapace; width of eye lobe 0.16–0.18 times carapace width. Pereon (Fig, 7A) 0.55–0.63 times carapace. Pleon 0.47–0.48 times total animal length, with 2 pairs of pleopods. Pleonites 1–6 with groove on ventral surface, very shallow on pleonite 6; pleonite 6 length as long as wide.

Antenna 1 (Fig. 7C) basal article of peduncle 1.1–1.5 times combined length of 2nd and 3rd; main flagellum of 4–5 articles; 1st article with 8–9 aesthetascs; accessory flagellum of 3 articles, 0.4 times main flagellum. Antenna 2 (Fig. 7D) peduncle with plumose seta on basal article; flagellum reaching posterior end of pleonite 6, of 22 articles. Maxilliped 3 (Fig. 7E) basis 1.2–1.3 times remaining distal articles, with 4–6 plumose setae on inner margin.

Pereopod 1(Fig. 7F) basis 1.43–1.50 times combined length of ischium and carpus; carpus length 1.9–2.0 times width, 2.5 times dactylus length, 0.6 times basis length. Pereopod 2 (Fig. 7G) basis 1.1–1.2 times length of remaining distal articles. Pereopod 3 (Fig. 7H) basis 1.9 times distal articles combined. Pereopod 4 (Fig. 7I) basis 1.4 times distal articles combined. Pereopod 5 (Fig. 7J) basis 0.7 times remaining distal articles. Pleopod 1 (Fig. 7K) outer and inner ramus fused. Pleopod 2 (Fig. 7 L) rudimentary, with minute lamus, basal aricle with robust seta on outer margin distally.

Uropod (Fig. 7M) peduncle 1.5–1.6 times pleonite 6 length, 0.70–0.73 times exopod length and 0.59–0.63 times endopod length; exopod 0.80–0.88 times endopod; endopod with 8–10 spiniform setae on inner margin. Telson (Fig. 7M) round, 0.62–0.75 times pleonite 6.

*Remarks*. The male specimens agree with description by Sars (1900) and Bacescu and Muradian, 1974. Local variation of morphology of females' carapace suggests the name *P. declivis* may represent a species complex (Given, 1965; Akiyama and Gerken, 2012), which is also supported by a secondary sexual character in the males from the Sea of Japan, minute pereopod 3 dactylus (along with curved carpus) (Fig. 7H). Telsons of the adult male specimens are round, whereas those of *Petalosarsia* adult males from southern Japan and the Sulu Sea is triangular.

*Distribution*. North Atlantic boreal and Arctic region, NW Canada, Detroit de Davis, Iceland, Scandinavia, Spitsbergen, Beloe More, Novaya Zemlya, Kamchatka, the Sea of Japan. Okhotsk Sea, Alaska, 18–808 m. Habitat of the species from the Sea of Japan seems to be deeper than those of the other localities.

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