

Taxonomic Notes on Two Species of the Genus *Dimorphostylis* (Crustacea, Cumacea, Diastylidae) from Korea

Chang-Mok Lee¹ and Kyung-Sook Lee^{2,*}

¹*Paju High School, Paju 413-900, Korea;* ²*Department of Biological Science, Institute of Basic Sciences, Dankook University, Cheonan 330-714, Korea*

Abstract: Through taxonomic survey of specimens collected from the coasts of Korea from 1993 to 2006, *Dimorphostylis echinata* Gamô, 1962 is new to Korean cumacean fauna. Especially, the adult male and female of *D. echinata* are described for the first time. *Dimorphostylis sculptureensis* Vassilenko and Tzareva, 1990 is proposed as a synonym of *D. acroplicata* Harada, 1960 in this research. Also, its female is redescribed for the first time in Korea.

Key words: Cumacea, *Dimorphostylis*, Diastylidae, Korea

The genus *Dimorphostylis* has been established by Zimmer (1921) for *D. asiatica* in having remarkable sexual dimorphism between adult male and female (generally in the shape and decoration of the carapace and telson). According to Bcescu (1992), 24 species of the genus *Dimorphostylis* cumaceans had been recorded in the Indian Ocean and western Pacific Ocean from 1903 to 1965. Recently three species, *Dimorphostylis sculptureensis* Vassilenko and Tzareva, 1990, *D. maledivensis* Mühlenhardt-Siegel, 1996 and *D. namhaedoensis* Lee and Lee, 2002 were added.

Among them, *D. sculptureensis* as a new species was described by Vassilenko and Tzareva (1990) only on the basis of the adult female from the Peter the Great Bay (Sea of Japan). However, through this taxonomic survey of specimens collected from the coasts of Korea, our female specimens of *D. acroplicata* Harada, 1960 was accorded undoubtedly with the female of *D. sculptureensis* (without information on male). Therefore, this species is proposed as a synonym of *D. acroplicata* and its female is redescribed for the first time in Korea. Also, *D. echinata* Gamô, 1962,

which is only described on the basis of immature female specimens from the Japanese waters, is recorded newly to Korean cumacean fauna. Furthermore, the adult male and female of *D. echinata* are described for the first time.

MATERIALS AND METHODS

The specimens were collected mainly using a light-trap from whole shallow coasts of Korea from 1993 to 2006. The specimens were fixed in 70-80% ethanol and dissected in glycerol on cobb's aluminium hole slide. Drawings and measurements were performed with the aid of a drawing tube. Measurement for the body length was made from the anterior tip of carapace to the last abdominal segment, and for each appendage was made along the mid-line of segment, exclusive of the inflated outer angle. The specimens examined were deposited in author's collection room.

SYSTEMATIC ACCOUNTS

Order Cumacea Kröyer, 1846
Family Diastylidae Bate, 1856
Genus *Dimorphostylis* Zimmer, 1921

¹**Dimorphostylis echinata* Gamô, 1962 (Figs. 1-6)

Dimorphostylis echinata Gamô, 1962, p. 203, figs. 37-38; 1963a, p. 59; 1963b, p. 88; 1967, p. 28, pl. 1, figs. 15, 16; 1968, p. 183; Bcescu, 1992, p. 332.

Material examined. 8♂♂, 13♀♀, 4 juvs., Port Namae, Gangneung-si, 20 Mar. 1993 (B. J. Kang); 23♂♂, 1♀, 1 juv., Dadaepo, Busan-si, 14 Mar. 1993 (B. J. Kang); 24♂♂, 10♀♀, Gyeokpo, Buan-gun, 23 May 1993 (B. J. Kang); 7♂♂,

*To whom correspondence should be addressed.
Tel: 82-41-550-3449; Fax: 82-41-550-3440
E-mail: kslee@dankook.ac.kr

24♀♀, Yeonggeumjeong, Sokcho-si, 26 June 1993 (B. J. Kang); 3♂♂, Port Daechon, Boryeong-si, 4 July 1997 (C. M. Lee); 8♂♂, 4♀♀, Muchangpo, Boryeong-si, 14 July 1997 (C. M. Lee); 18♂♂, 1♀, Namchang, Wando-gun, 20 May 1998 (C. M. Lee); 3♂♂, 10♀♀, Dolsan Island, Yeosu-si, 30 June 1998 (Y. H. Kim); 2♂♂, Namhae Island, 15 July 1999 (Y. H. Kim); 1♂, Daechong Island, Ongjin-gun, 10 Aug. 1999 (C. M. Lee); 69♂♂, 14♀♀, Oenaro Island, Goheung-gun, 30 July 2001 (Y. H. Kim); 2♂♂, 1♀, Jumunjin, Gangneung-si, 21 Aug. 2001 (C. M. Lee); 2♂♂, Port Jangho, Samcheok-si, 22 Aug. 2001 (C. M. Lee); 2♂♂, 1♀, Eocheong Island, Gunsan-si, 16 June 2002 (Y. H. Kim); 39♂♂, 7♀♀, Maemul Island, Tongyeong-si, 28 June 2002 (Y. H. Kim); 6♂♂, 1♀, Jindo Island, 28 June 2004 (Y. H. Kim); 3♂♂, 1♀, Port Anheung, Taean-gun, 21 Aug. 2006 (Y. H. Kim); 3♀♀, Anmyeon Island, 23 Aug. 2006 (Y. H. Kim).

Description. Adult male. Body length (Fig. 1A) about 5.7 mm, excluding telson and uropod. Body surface (Fig. 1C) covered with numerous particular sensory hairs (leaf of grass shape). Carapace (Fig. 1A, B) equal to 1/3 of body length, about 1.45 times as long as its width, 1.9 times as long as its depth; frontal lobe without transverse ridge; both sides of carapace with 1 pair of frontal and 3 pairs of oblique ridges. Anterior oblique ridge beginning at side of pseudorostrum, running upward, and turning abruptly forward to merge with dorsal median carina. Anterior oblique ridge with 1 branch not connected with middle oblique ridge. Middle oblique ridge beginning at slight distance behind antero-lateral angle, running upward and turning abruptly forward to merge with anterior one. Posterior oblique ridge not connected with middle one near dorsal submedian carina. Dorsal groove formed on postero-medial surface of carapace. Antennal notch and antero-lateral angle prominent. Antero-lateral margin smooth. Pseudorostral lobe about 1.5 times as long as ocular lobe. Ocular lobe round, with 3 lenses.

Thorax (Fig. 1A, B) about 0.6 times as long as carapace, slightly longer than 1/5 of body length. Abdomen (Fig. 1A) about 0.85 times as long as cephalothorax.

Antennule (Fig. 1D): Peduncle composed of 3 articles; first article slightly shorter than remaining ones combined, with several particular sensory hairs on inner margin, numerous hairs, 1 bent simple and 1 strong plumose seta distally on surface; second article with 1 sensory, 1 simple and 3 plumose setae; third article slightly 1.4 times as long as second one, with 2 sensory setae, numerous slender setae (blush shape) near distal margin, and 8 simple setae on outer margin, Main flagellum composed of 5 articles; second article longest, about 2.4 times as long as first one; fourth article with 1 aesthetasc; fifth article very small, with 1 aesthetasc, 1 sensory, 1 long and 1 short simple setae. Accessory flagellum composed of 4 articles, about 0.8

times as long as main flagellum; third article longest, about twice as long as second one, and with 1 sensory seta; fourth article with 1 short and 1 long simple setae.

Antenna (Fig. 1A, E) long, extending beyond telson; peduncle composed of 5 articles; second article with 1 plumose seta.

Labium (Fig. 2A) with numerous hairs on inner margin; apex of process with 3 spiniform setae.

Left mandible (Fig. 2B) with 11 serrated setae between lacinia mobilis and pars molaris; pars incisiva with 2 teeth; lacinia mobilis with 4 teeth; pars molaris truncated. Right mandible (Fig. 2C) with 11 serrated setae between pars incisiva and pars molaris; pars incisiva faintly with 3 teeth.

First maxilla (Fig. 2D): Protopod with 11 simple, 3 bifid spiniform setae on terminal margin; outer margin with several hairs, 1 plumose distal seta; palp long, with 2 filaments (one of them much longer than palp). Endite with 1 simple seta, 1 spiniform seta bearing comb-like tip, 1 spiniform seta bearing serrated tip, 1 bifid spiniform seta and 1 pectinated spiniform seta.

Second maxilla (Fig. 2E): Protopod with 1 row of setae (approximately 24) on inner margin; endites not exceeding protopod. Inner endite with 1 simple and 3 comb-like setae. Outer endite with 2 simple and 3 comb-like setae.

First maxilliped (Fig. 2F, G): Branchial apparatus with 5 lobules (branchial processes). Carpus of protopod with 1 plumose, 6 simple and 8 comb-like setae. Endite with 7 plumose, 2 distal simple setae and 2 hook-like spines near inner margin; terminal margin with 1 plump tooth, 1 plumose, 2 simple and 1 specialized setae.

Second maxilliped (Fig. 3A): Basis about 0.85 times as long as remaining articles combined, with 3 long plumose and 2 short simple setae on distal margin.

Third maxilliped (Fig. 1F): Basis about 1.7 times as long as remaining articles combined; inner margin with 9 plumose setae distally, 1 row of short setae near middle part; outer margin with numerous hairs distally; outer corner rather inflated, with 1 short and 6 long plumose setae. Merus slightly longer than length of ischium, with 3 plumose setae on inner margin, and 1 long plumose seta on outer corner. Propodus slightly longer than length of carpus, with 4 plumose setae distally on inner margin; outer margin with 2 hairy setae; outer corner with 1 plumose seta. Dactylus about 2/3 length of propodus, with 3 simple setae on outer corner; inner margin with 2 falcate pectinated setae distally; terminal margin with 1 simple seta and 2 setiform spine. Exopod well developed.

First pereopod (Fig. 3B): Basis short, about 0.6 times as long as remaining articles combined; inner margin with 5 short simple and 15 plumose setae; distal margin with 13 plumose setae. Carpus very plump, about twice as long as dactylus, with several particular sensory hairs and 5 short simple setae on surface. Propodus stout, about 1.2 times as

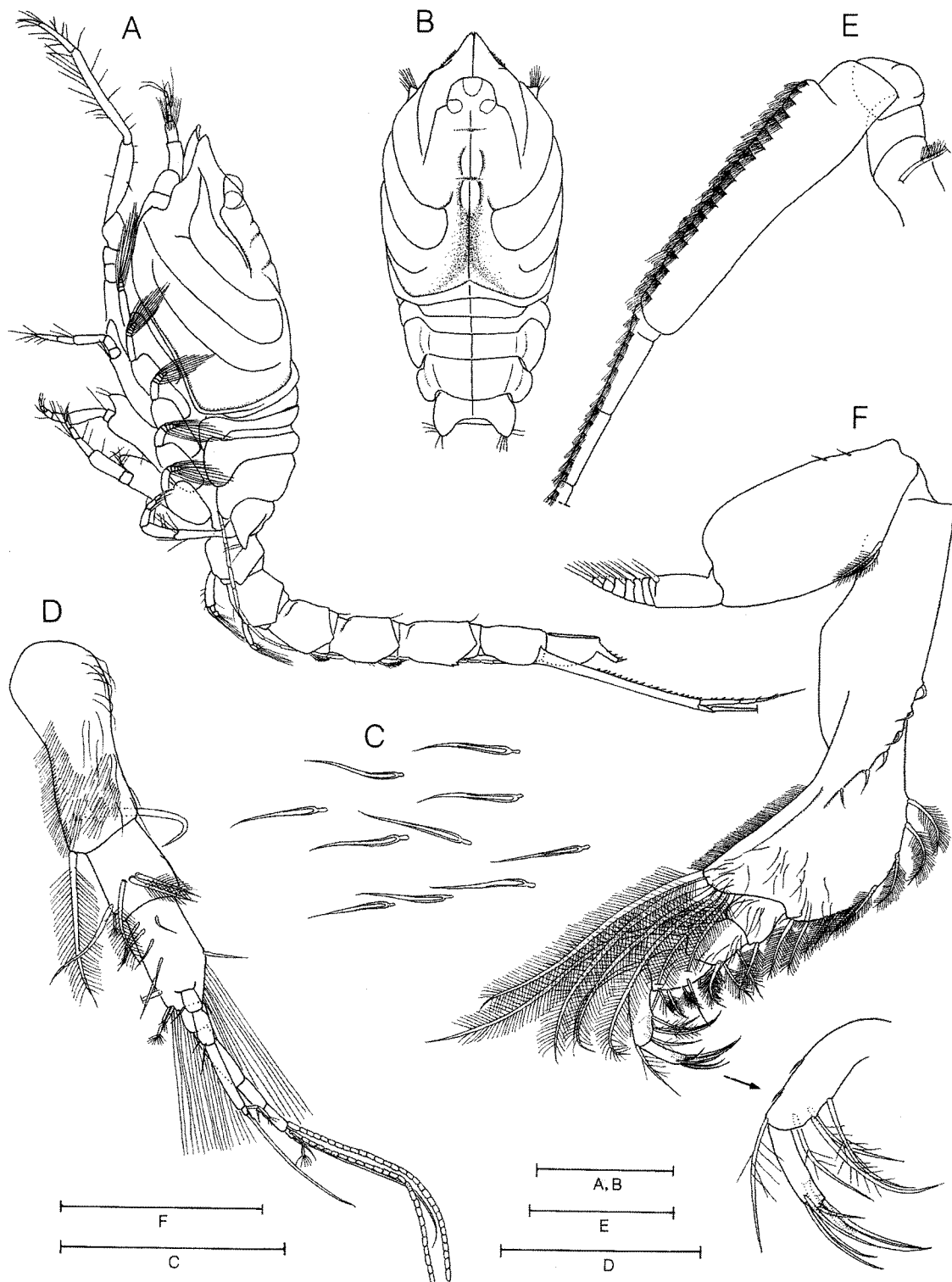


Fig. 1. *Dimorphostylis echinata* Gamô, adult male: A, Habitus, lateral; B, Cephalothorax, dorsal; C, Particular sensory hairs on body surface; D, Antennule; E, Antenna; F, Third maxilliped. Scale bars = 1 mm (A, B), 0.5 mm (F), 0.3 mm (D), 0.2 mm (E), 0.1 mm (C).

long as carpus, with numerous particular sensory hairs, 8 long and 10 short simple setae on surface. Dactylus about 0.4 times as long as propodus, with 4 particular sensory hairs on surface, 8 simple setae on inner margin, and 5

simple setae on outer margin; terminal margin with 2 simple setae and 1 setiform spine.

Second pereopod (Fig. 3C): Basis about 1.25 times as long as remaining articles combined; inner corner strongly

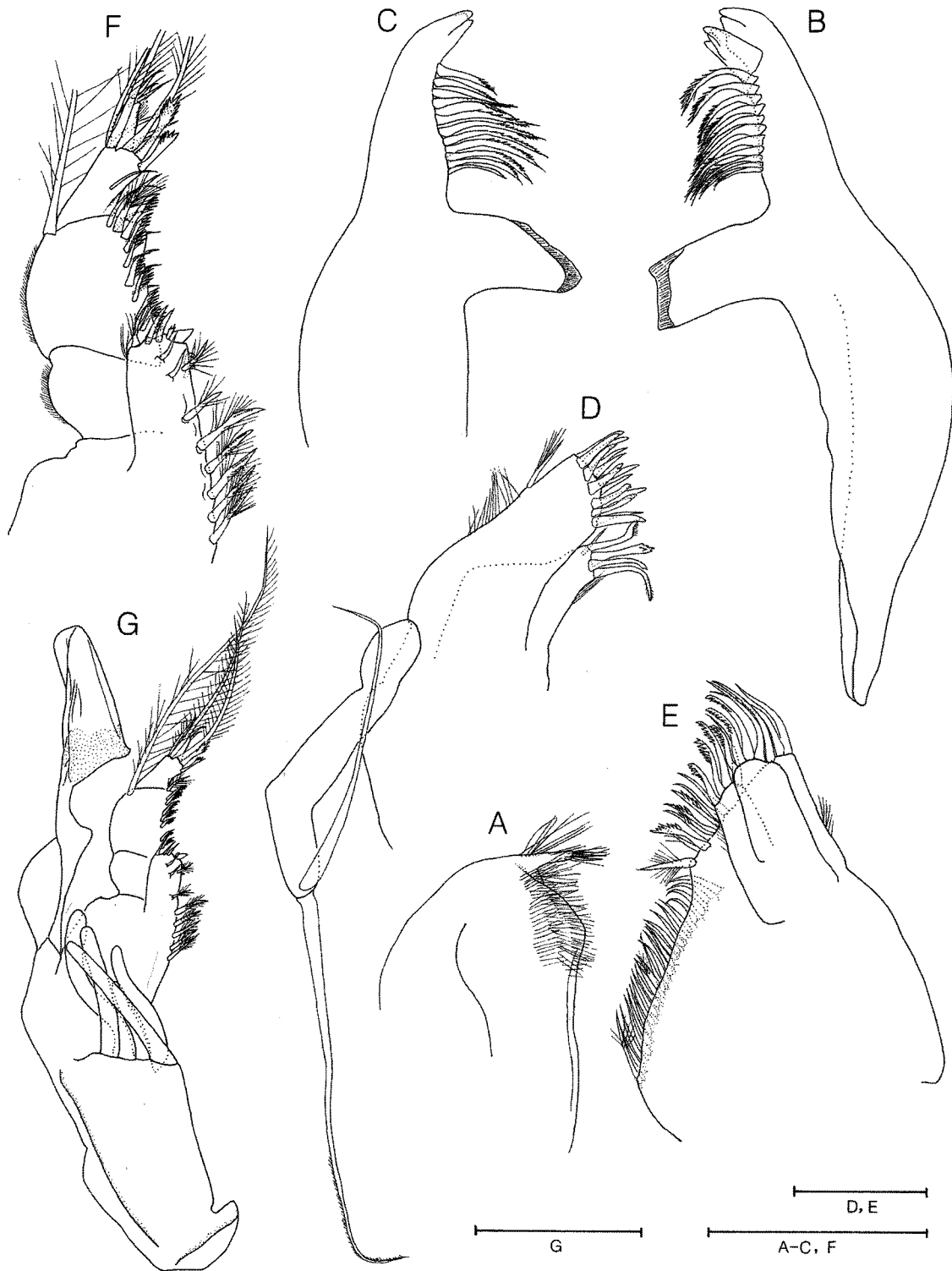


Fig. 2. *Dimorphostylis echinata* Gamô, adult male: A, Labium; B, Left mandible; C, Right mandible; D, First maxilla; E, Second maxilla; F, First maxilliped omitted branchial apparatus and siphon; G, First maxilliped. Scale bars = 0.3 mm (G), 0.2 mm (A-C, F), 0.1 mm (D, E).

inflated, with 9 plumose setae; outer margin with 12 plumose setae. Merus slightly longer than 2/3 length of carpus, with 3 long plumose setae distally on surface. Carpus slightly longer than length of dactylus, with 8

simple setae on inner and outer margins. Propodus about 0.6 times as long as carpus, with 1 sensory and 2 simple setae near distal margin. Dactylus about 1.5 times as long as propodus, with 11 simple setae on surface.

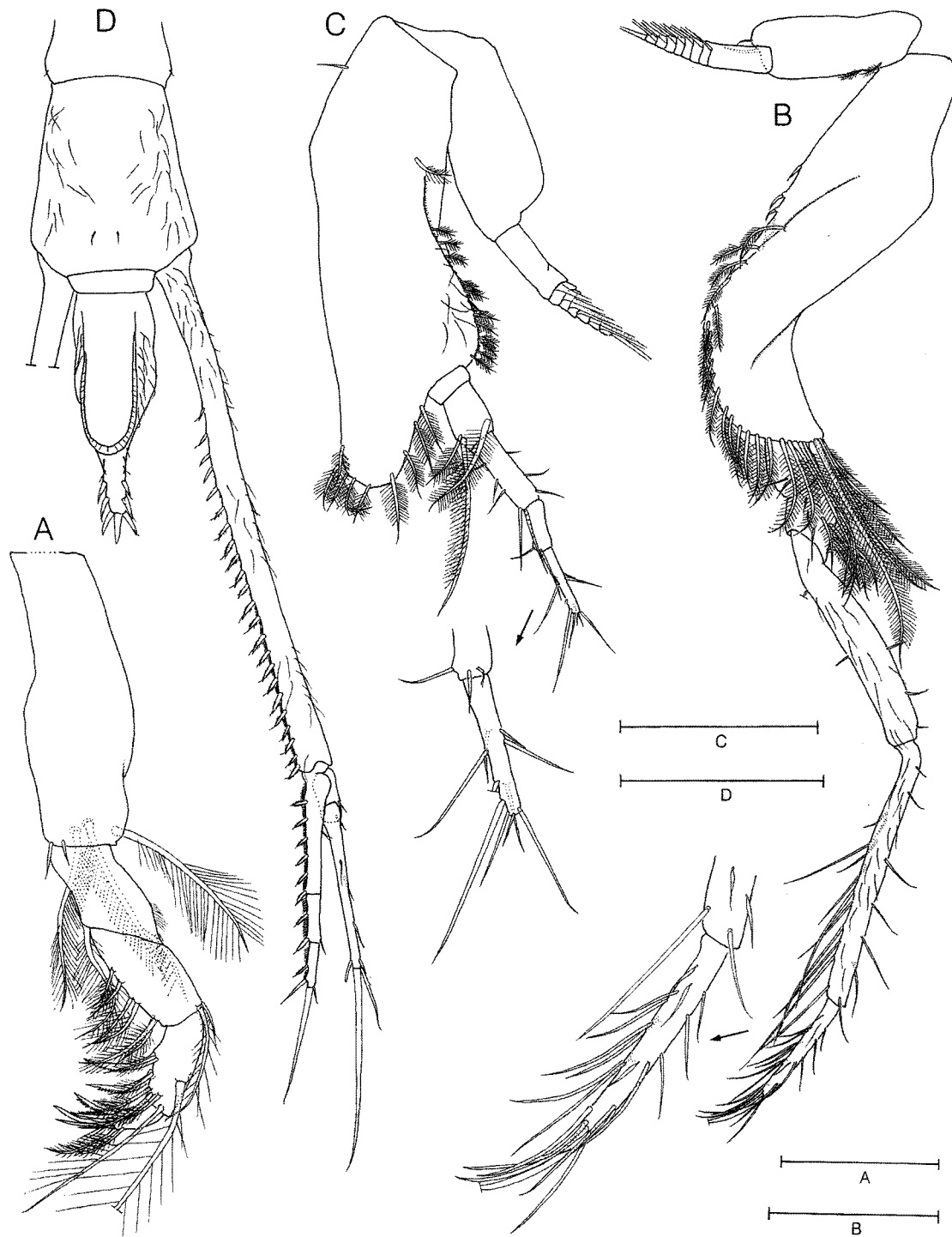


Fig. 3. *Dimorphostylis echinata* Gamô, adult male: A, Second maxilliped; B, First pereopod; C, Second pereopod; D, Uropod, telson and last abdominal segment, dorsal. Scale bars = 0.5 mm (B-D), 0.2 mm (A).

Third pereopod (Fig. 4A): Basis about 1.3 times as long as remaining articles combined; inner corner inflated, with 1 simple and 1 plumose setae.

Fourth pereopod (Fig. 4B): Basis subequal to length of remaining articles combined; inner corner inflated, with 2 simple and 1 plumose setae.

Fifth pereopod (Fig. 4C): Basis about 0.7 times as long as remaining articles combined.

Telson and uropod (Fig. 3D): Telson slightly longer than length of last abdominal segment; pre-anal section with alphabet U-shaped dorsal projection; its both lateral margins depressed, with numerous particular sensory hairs;

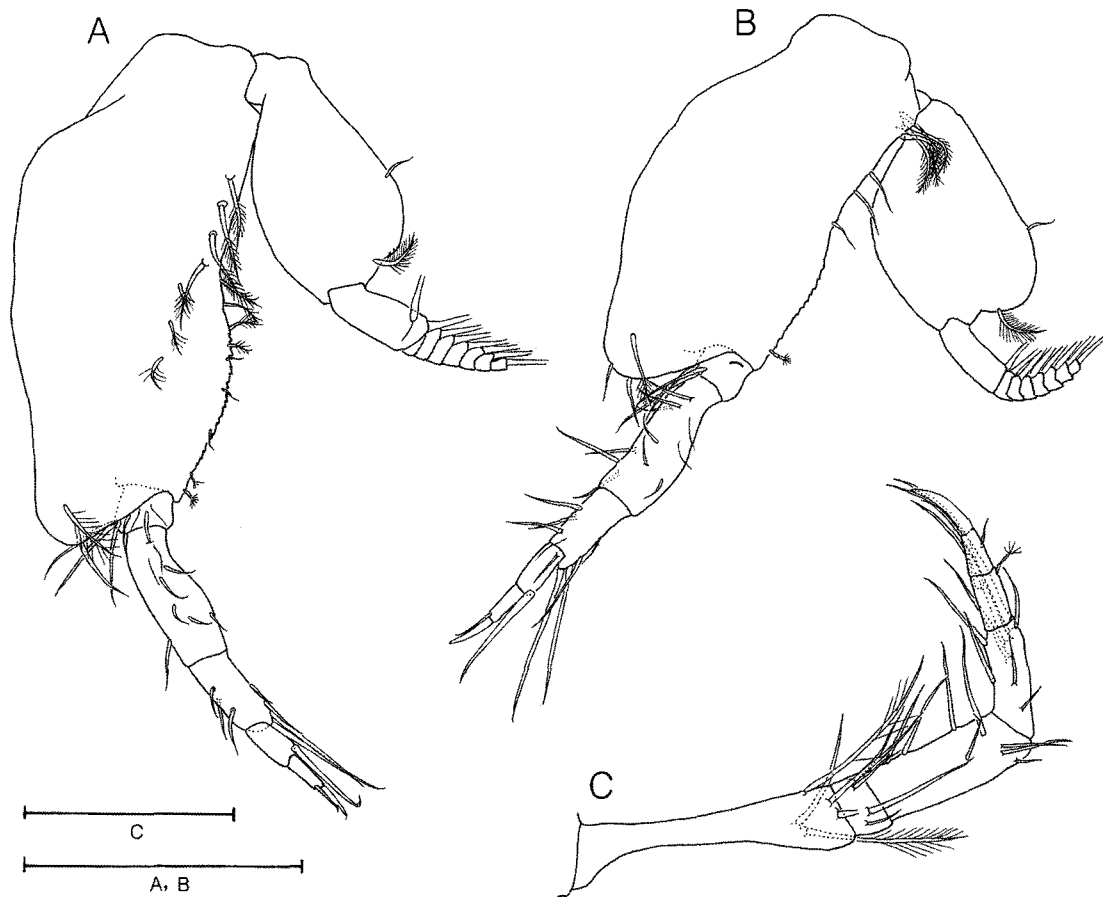


Fig. 4. *Dimorphostylis echinata* Gamô, adult male: A, Third pereopod; B, Fourth pereopod; C, Fifth pereopod. Scale bars = 0.5 mm (A, B), 0.3 mm (C).

post-anal section with 2-3 pairs of bristles and 2 pairs of spines on both lateral margins; terminal margin with 3 apical spines. Uropodal peduncle about 2.5 times as long as last abdominal segment, with 23 spines on inner margin. Endopod composed of 3 articles, about 0.4 times as long as peduncle; first article about 2.6 times as long as second one, with 6 inner spines and 1 outer sensory seta; second article with 2 inner spines and 1 short outer seta; third article slightly shorter than second one, with 1 spine and 1 seta on inner margin; terminal margin with 1 short and 1 long setae. Exopod composed of 2 articles, slightly shorter than length of endopod; second article with 1 inner distal, 4 outer and 2 terminal setae (one of them long).

Adult female with marsupium. Body length (Fig. 5A) about 4.9-5.0 mm, excluding telson and uropod. Body surface covered with numerous particular sensory hairs as male. Carapace (Fig. 5A, B) slightly longer than 1/3 of body length, about 1.15 times as long as its width, 1.85 times as long as its depth; pseudorostral lobe and ocular lobe with 1 pair of small spines respectively; frontal lobe with 1 row of spines along median carina, no transverse

ridge. Both sides of carapace with 1 pair of frontal and 3 pairs of oblique ridges serrated; each of ridges more elevated than in male. Pattern of ridges almost same as female. Antennal notch and antero-lateral angle prominent. Antero-lateral margin serrated. Pseudorostral lobe slightly longer than twice length of ocular lobe.

Thorax (Fig. 5A, B) about 2/3 of carapace length, slightly longer than 1/5 of body length. Abdomen (Fig. 5A) about 0.7 times as long as cephalothorax.

Antennule (Fig. 5C): Peduncle composed of 3 articles covered with several particular sensory hairs on inner margin respectively; first article slightly shorter than remaining ones combined, with several serrations on inner margin, 1 bent simple and 1 strong plumose seta distally on surface; second article with 1 short and 4 long simple setae; third article slightly 1.8 times as long as second one, with 7 simple setae on outer margin, 2 long simple and 3 sensory setae near distal margin. Main flagellum composed of 3 articles; second article subequal to first one, with 1 short simple seta, and 1 aesthetasc; third article 0.3 times as long as second one, with 1 aesthetasc, and 1 sensory, 1 long and 2 short simple setae. Accessory flagellum composed of 3

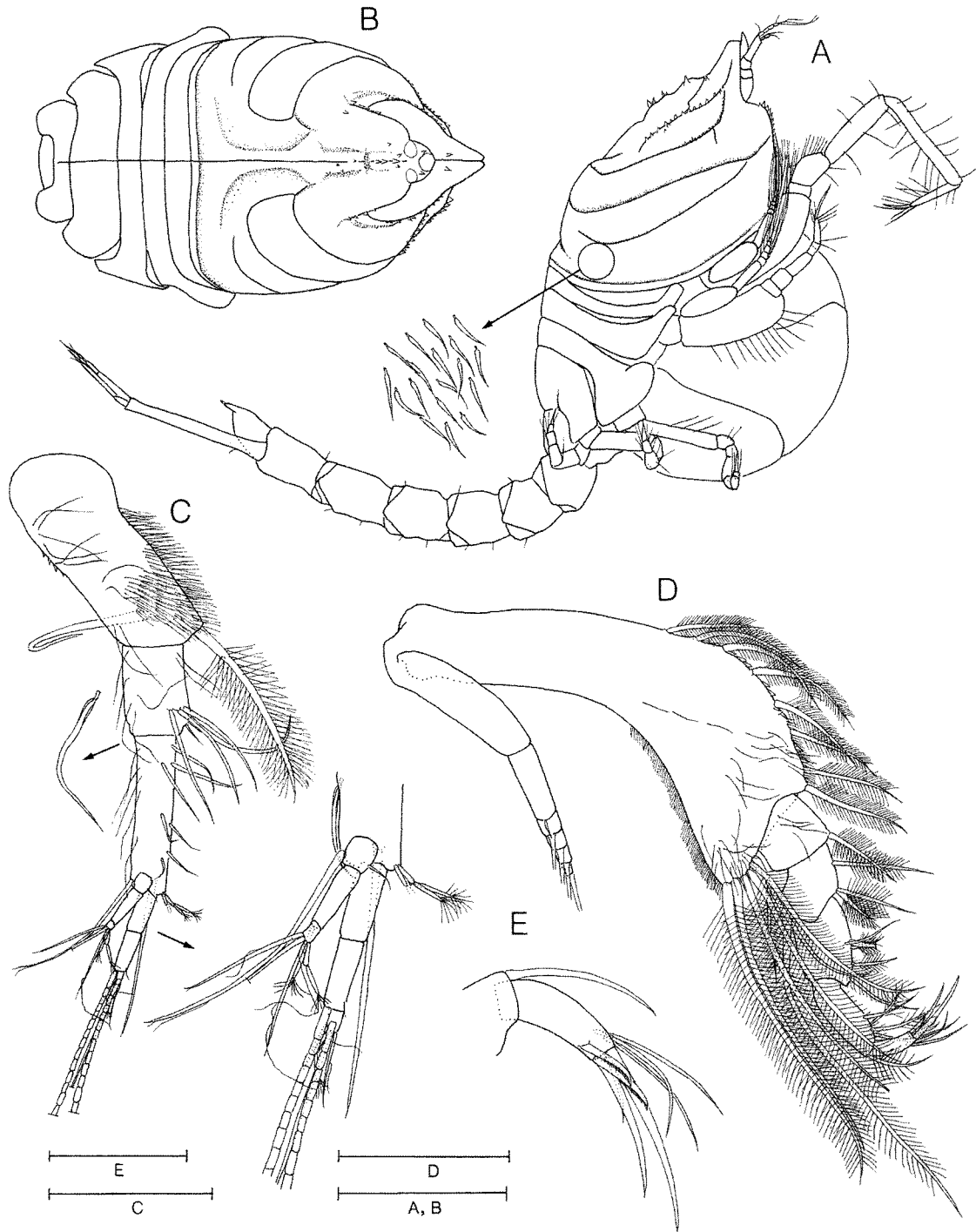


Fig. 5. *Dimorphostylis echinata* Gamô, marsupial female: A, Habitus, lateral; B, Cephalothorax, dorsal; C, Antennule; D, Third maxilliped; E, Dactylus of maxilliped. Scale bars = 1 mm (A, B), 0.3 mm (D), 0.2 mm (C), 0.1 mm (E).

articles, about 0.65 times as long as main flagellum; second article longest, about twice as long as first one, with 1 sensory seta; third article with 1 sensory and 3 simple setae.

Third maxilliped (Fig. 5D, E): Basis about 1.4 times as long as remaining articles combined; inner margin serrated, with 8 plumose setae distally; outer margin with numerous hairs distally; outer corner rather inflated, with 1 short and 5

long plumose setae. Propodus slightly shorter than length of carpus, with 4 plumose setae distally on inner margin; outer corner with 1 plumose seta. Dactylus about half length of propodus, with 3 simple setae on outer corner; inner margin with 2 falcate pectinated setae distally; terminal margin with 1 simple seta and 2 setiform spines. Exopod well developed.

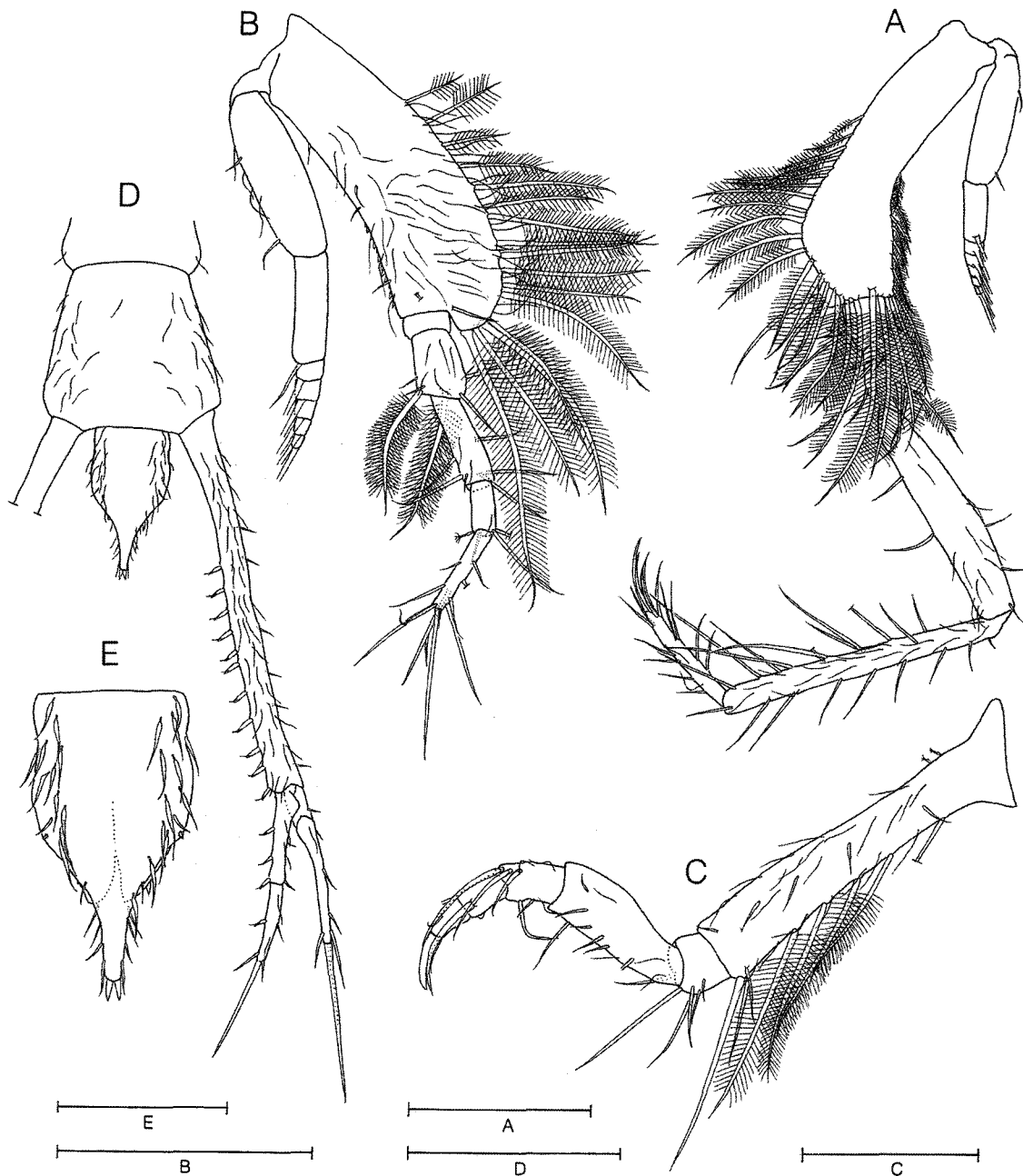


Fig. 6. *Dimorphostylis echinata* Gamô, marsupial female: A, First pereopod; B, Second; C, Third pereopod; D, Uropod, telson and last abdominal segment, dorsal; E, Telson, dorsal. Scale bars = 0.5 mm (A, B, D), 0.3 mm (C), 0.2 mm (E).

First pereopod (Fig. 6A): Basis short, about 0.4 times as long as remaining articles combined; inner margin with 17 plumose setae; inner corner with 2 simple setae; outer margin with 8 plumose setae; distal margin with 6 long plumose setae. Carpus very plump, about twice as long as dactylus, with several particular sensory hairs and 5 short simple setae on surface. Propodus stout, about 1.2 times as long as carpus, with 8 long and 12 short simple setae on surface. Dactylus about 0.4 times as long as propodus, with 12 simple setae on surface; terminal margin with 2 simple

setae and 1 setiform spine.

Second pereopod (Fig. 6B): Basis slightly longer than remaining articles combined; inner corner inflated, with 4 plumose setae; inner margin with 12 plumose setae; outer margin serrated, with 4 hairy setae. Merus slightly longer than $\frac{2}{3}$ length of carpus, with 2 long plumose and 4 simple setae near distal margin.

Third pereopod (Fig. 6C): Basis about 1.1 times as long as remaining articles combined, with 5 short setae on middle surface; inner margin with 5 long plumose, 1 long

and 2 short simple setae; outer margin with 2 short sensory setae proximally.

Telson and uropod (Fig. 6D, E): Telson about 0.85 times as long as last abdominal segment; both lateral margins depressed, with numerous particular sensory hairs near proximal portion, 2 pairs of spines near middle portion, and 6 pairs of bristles near distal portion; terminal margin with 2 apical spines. Uropodal peduncle about 2.3 times as long as last abdominal segment, with 11 spines on inner margin; outer margin with about 6 hairy setae. Endopod composed of 3 articles, slightly shorter than 1/2 of peduncle; each of articles with 3, 1, and 1 spines on inner margin, respectively. Exopod composed of 2 articles, slightly shorter than endopod; second article with 1 inner distal seta, 4 outer setae, and 2 terminal setae (one of them long).

Remarks. This species was originally described on the basis of the immature female specimen (body length 2.4 mm) from Japanese waters by Gamô (1962). He subsequently recorded the immature male specimen (body length 2.5 mm) which had almost the same features as the immature female specimen except for the size of telson: the telson is slightly shorter than the length of the last abdominal segment in immature female, while it is subequal in immature male (Gamô, 1968). We collected many mature (adult) male and female specimens of the *Dimorphostylis echinata* from the shallow coasts of Korea.

The male and female of the species have common taxonomic characters between Gamô's immature specimens and our mature specimens: each of the articles of the first pereopod is stout (most of congeners are slender); the propodus of the first pereopod has long setae somewhat richly; the length ratio of merus to propodus of the first pereopod is 2 : 3; the transverse ridge is absent on the frontal lobe of the carapace.

The features mentioned above are important taxonomic characters to separate *D. echinata* from other congeners. This species is closely allied to *D. asiatica* Zimmer, 1921, *D. acroplicata* Harada, 1960 and *D. namhaedoensis* Lee and Lee, 2002, widely distributed in Korean waters, in the aspect of having the carapace which is ornamented three pairs of oblique ridges on the lateral surface and telson which is decorated with three terminal and 2-4 pairs of lateral spines in male. On the other hand, there are major discrepancies between the three species and *D. echinata* as follows: 1) the carapace possesses transverse ridge on the frontal lobe in *D. asiatica* and *D. namhaedoensis*, while this is absent in *D. echinata* and *D. acroplicata*; 2) the propodus of first pereopod is slender and has short setae poorly on the surface in *D. acroplicata*, while it is stout and bears long setae somewhat richly in *D. echinata*; 3) the post-anal section of the adult male telson is decorated with more than two lateral spines in *D. asiatica* and *D. namhaedoensis*,

while it has less than two in *D. echinata* and *D. acroplicata*; 4) the telson of the adult female is about 2/3 length of the last abdominal segment and bears two small terminal spine in *D. asiatica* and *D. echinata*, while it is about 3/4 and has rather large terminal spine in *D. namhaedoensis* and *D. acroplicata*. Additionally, all of our mature specimens are covered with numerous particular hairs (grassleaf-like) on the body surface. Both mature sexes of *D. echinata* are described for the first time in this paper.

Distribution. Korea (Yellow Sea, South Sea, East Sea), Japan.

Dimorphostylis acroplicata Harada, 1960 (Figs. 7-8)

Dimorphostylis acroplicata Harada, 1960, p. 210, fig. 5; Gamô, 1968, p. 180; Bcescu, 1992, p. 329; Kang and Lee, 1995, p. 178, figs. 8, 9; Lee and Lee, 1999, p. 86.

Dimorphostylis sculpturensis Vassilenko and Tzareva, 1990, p. 61, figs. 5-7.

Material examined. 14♂♂, 2♀♀, Port Namae, Gangneung-si, 20 Feb. 1993 (B. J. Kang); 1♀, Yulpo, Boseong-gun, 20 Sep. 1993 (B. J. Kang); 55♂♂, 3♀♀, Seongsanpo, Jeju Island, 7 May 1994 (B. J. Kang); 2♂♂, Seomang, Jindo Island, 23 July 1994 (I. S. Seo); 3♂♂, Jeongja, Ulsan-si, 6 Aug. 1995 (B. J. Kang); 3♀♀, Namchang, Wando-gun, 20 May 1998 (C. M. Lee); 4♂♂, 8♀♀, Bangjukpo, Dolsan Island, 30 June 1998 (Y. H. Kim); 2♂♂, 3 juvs., Chubong Island, 10 July 1998 (C. M. Lee); 29♂♂, 19♀♀, Misudong, Tongyeong-si, 11 July 1998 (C. M. Lee); 1♂, Mongsanpo, Taean-gun, 4 Aug. 1998 (C. M. Lee); 145♂♂, 2♀♀, Gimnyeong, Jeju Island, 12 Aug. 1998 (Y. H. Kim); 15♂♂, 7♀♀, 1 juv., Dadaepo, 28 July 2000 (Y. H. Kim); 10♂♂, 3♀♀, Pyeongsanri, Namhae Island, 14 July 1999 (Y. H. Kim); 2♂♂, 23♀♀, Daepo, Geoje Island, 18 July 1999 (Y. H. Kim); 3♂♂, Oenaro Island, 30 July 2001 (Y. H. Kim); 14♂♂, 2♀♀, Port Daejin, Yeongdeok-gun, 23 Aug. 2001 (C. M. Lee); 6♂♂, Port Jangho, Goseong-gun, 22 Aug. 2001 (C. M. Lee); 20♂♂, Hwajeongri, Pohang-si, 23 Aug. 2001 (C. M. Lee); 12♂♂, 1♀, Anpo, Yeosu-si, 20 Mar. 2004 (Y. H. Kim); 1♂, Seomang, Jindo Island, 23 Aug. 2004 (Y. H. Kim); 2♂♂, Port Geojin, Goseong-gun, 21 July 2006 (Y. H. Kim).

Description. Adult female with marsupium. Body length (Fig. 7A) about 5.8 mm, excluding telson and uropod. Carapace (Fig. 7A, B) slightly shorter than 1/3 of body length, about 1.45 times as long as its width and 1.7 times as long as its depth; ocular lobe with 1 pair of small spines; frontal lobe with median carina serrated. Both sides of carapace with 1 pair of frontal and 3 pairs of oblique ridges; each of ridges more elevated than in male; their pattern



Fig. 7. *Dimorphostylis acroplicata* Harada, marsupial female: A, Habitus, lateral; B, Cephalothorax, dorsal; C, Antennule; D, Third maxilliped. Scale bars = 1 mm (A, B), 0.3 mm (C, D).

almost same as in male. Anterior oblique ridge alphabet W-shaped; posterior oblique ridge beginning near anterior part of middle oblique ridge, running upward, and not connecting with middle ridge and submedian carina. Antennal notch

and antero-lateral angle prominent. Antero-lateral margin serrated. Pseudorostral lobe about twice length of ocular lobe. Ocular lobe round, with 3 lenses.

Thorax (Fig. 7A, B) about 0.6 times as long as carapace

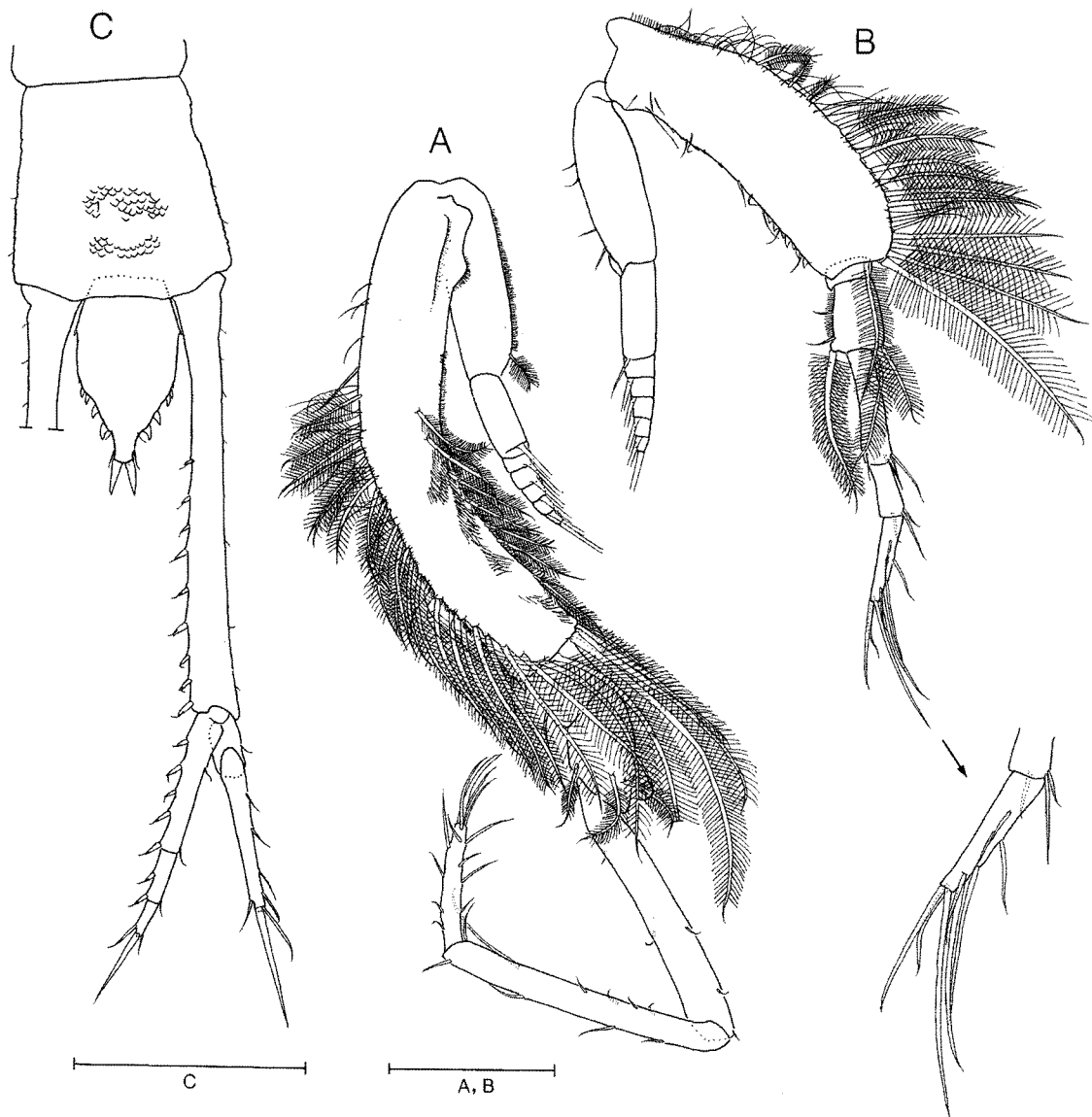


Fig. 8. *Dimorphostylis acroplicata* Harada, marsupial female: A, First pereopod; B, Second pereopod; C, Uropod, telson and last abdominal segment, dorsal. Scale bars = 0.5 mm (C), 0.3 mm (A, B).

length, subequal to 1/5 of body length. Abdomen (Fig. 7A) about 0.9 times as long as cephalothorax.

Antennule (Fig. 7C): Peduncle composed of 3 articles; first article slightly longer than remaining articles combined, with numerous hairs, 1 bent simple and 1 strong plumose setae, and 1 spine distally on surface; third article slightly 1.75 times as long as second article, with 1 long and 5 short simple setae on middle part surface, and 2 simple and 3 sensory setae near outer margin. Main flagellum composed of 3 articles; second article subequal to first one, with 1 short simple seta and 1 aesthetasc; third article subequal to half of second one, with 1 aesthetasc, 1 sensory, 1 long and 2 short simple setae. Accessory flagellum composed of 3 articles, about 0.6 times as long as main flagellum; second article longest, about 2.5 times as long as first one, with 1

sensory seta; third article with 1 sensory and 3 simple setae (one of them very long).

Third maxilliped (Fig. 7D): Basis about 1.55 times as long as remaining articles combined; inner margin with 17 plumose distal setae; inner corner with 1 simple seta and 1 spine; outer margin with numerous hairs distally; outer corner rather inflated, with 5 long plumose setae. Propodus with 4 plumose setae on inner margin; outer corner with 1 plumose seta. Dactylus about 0.55 times as long as propodus, with 3 simple setae on outer corner; inner margin with 2 pectinated setae distally; terminal margin with 1 seta and 2 setiform spines. Exopod well developed.

First pereopod (Fig. 8A): Basis about 0.65 times as long as remaining articles combined; inner margin with numerous long hairy setae, 1 distal spine, 1 proximal simple and 22

plumose setae; outer margin with 8 plumose setae; distal margin with 5 long plumose setae. Carpus about twice length of dactylus, with 4 short simple setae on surface. Propodus slightly longer than carpus, with 1 long and 9 short simple setae on surface. Dactylus slightly shorter than 1/2 length of propodus, with 10 simple setae on surface; terminal margin with 2 simple setae and 1 setiform spine.

Second pereopod (Fig. 8B): Basis slightly shorter than remaining articles combined; inner corner no inflated, with 3 plumose setae; inner margin with numerous long hairy setae and 12 plumose setae; outer margin serrated, with 10 hairy setae. Merus slightly shorter than 2/3 length of carpus, with 3 long plumose setae on distal margin. Carpus slightly longer than propodus and dactylus combined, with 3 simple setae on inner margin. Dactylus about 1.55 times as long as propodus, with 4 short and 2 long simple setae on surface; terminal margin with 3 long simple setae (one of them very long).

Telson and uropod (Fig. 8C): Telson about 0.75 times as long as last abdominal segment; both lateral margins with 1 pair of projections bearing 1 small spine near proximal portion, 4 pairs of spines near middle portion, and 2 pairs of bristles near distal portion; terminal margin with 2 strong apical spines. Uropodal peduncle about twice as long as last abdominal segment, with 9 spines on inner margin; outer margin with about 7 hairy setae. Endopod composed of 3 articles, slightly longer than 1/2 of peduncle; each of articles with 5, 2, and 1 spines on inner margin, respectively. Exopod composed of 2 articles, about 0.85 times as long as endopod; second article with 1 inner distal, 4 outer and 2 terminal setae (one of them long).

Remarks. Since *Dimorphostylis acroplicata* was described by Harada (1962) from the Japanese waters (mainly from waters of Izu Peninsula), the only male of this species was redescribed by Kang and Lee (1995) from the Korean waters. Vassilenko and Tzareva (1990) recorded a new species, *Dimorphostylis sculpturensis*, on the basis of the female specimens collected from Peter the Great Bay (Sea of Japan). Our female specimen, however, accords undoubtedly with *D. acroplicata* and *D. sculpturensis*. We deal with *D. sculpturensis* as a synonym of *D. acroplicata* because of common features: the pattern of ridges on carapace is the same, the anterior oblique ridge is of distinct alphabet W-shaped, the propodus of first pereopod carries a few setae, and the both sides of telson bear 4-5 pairs of spines. The features mentioned above coincide with Harada's description for *D. acroplicata*. Also, all the collecting localities of Vassilenko and Tzareva's, ours, and type female specimens are the western portion of North Pacific Ocean, i. e., the Peter the Great Bay, Korean and Japanese

waters. It is possible that Vassilenko and Tzareva may have overlooked that the genus *Dimorphostylis* shows sexual dimorphism between adult male and female or missed the Harada's article. The female of *D. acroplicata* is redescribed for the first time in Korea.

Distribution. Korea (the whole coast), Japan, Peter the Great Bay.

ACKNOWLEDGMENTS

The present research was supported by the research fund of Dankook University in 2006.

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[Received September 28, 2007; accepted November 5, 2007]