

# Two New Records of Dexaminidae (Crustacea: Amphipoda) from Korea

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## ABSTRACT

Two species of the family Dexaminidae, *Paradexamine fraudatrix* Tzvetkova, 1976 and *Paradexamine gigas* Hirayama, 1984 are newly recorded from the Korean fauna. They are redescribed and figured in detail. The genus *Paradexamine* is reported from Korea for the first time.

**Key words:** *Paradexamine*, Dexaminidae, Amphipoda, Korea

## INTRODUCTION

We have worked on the taxonomic studies on the Korean amphipods collected from the shallow coastal waters of Korea. As a result, two species, *Paradexamine fraudatrix* Tzvetkova, 1976 and *Paradexamine gigas* Hirayama, 1984, turned out to be new to the Korean gammaridean fauna. The family Dexaminidae is composed of 136 species of 12 genera including the genus *Paradexamine* (Barnard and Karaman, 1991). Just one species of dexaminid amphipod, *Atylus collingi* was recorded in Korea (Kim et al., 1992). In this paper we add two species into Korean dexaminid gammaridean fauna.

## MATERIALS AND METHODS

We collected specimens mainly using a light-trap and scooping with a fine mesh hand-net from the shallow waters of Korea during 1998-2005. The specimens were fixed with 80% ethyl alcohol. Specimens were dissected in glycerol on Cobb's aluminium hollow slide. Drawings and measurements were performed with the aid of a drawing tube. The body length was measured from the tip of rostrum to apex of the telson, along the dorsal margin of the body. All examined specimens were deposited in the Department of Biology, Dankook University.

## RESULTS

Order Amphipoda Latreille, 1816

Suborder Gammaridea Latreille, 1803

Family Dexaminidae Leach, 1814

Genus <sup>1</sup>*Paradexamine* Stebbing, 1899

<sup>2</sup>*Paradexamine fraudatrix* Tzvetkova, 1976

(Figs 1-6)

*Paradexamine barnardi* Nagata, 1965, pp. 305-306, fig. 34.

*Paradexamine fraudatrix* Tzvetkova, 1976, pp. 685-687, fig. 1.

*Material examined.* 2♂♂ 3♀♀, Namchang (Haenam-gun), 20 May 1998; 14♂♂ 6♀♀, Cheongsando Is., 22 May 1998; 8♂♂ 4♀♀, Nohwado Is., 23 May 1998; 52♂♂ 4♀♀, Byeongsan (Goseong-gun), 1 Jul. 1998; 8♀♀, Aewol (Jejudo Is.), 11 Aug. 1998; 30♂♂, Sindo (Jejudo Is.), 11 Aug. 1998; 1♂ 1♀, Daepo (Geojedo Is.), 18 Jul. 1999; 16♂♂ 1♀, Geomundo Is., 29 Jul. 2001; 13♂♂ 2♀♀, Imwon, 22 Aug. 2001; 9♂♂ 2♀♀, Jinhae, 27 Jun. 2002; 2♂♂, Byeokpa (Jindo Is.), 30 Jun. 2004; 4♂♂ 6♀♀, Maryang (Gangjin-gun), 2 Jul. 2004; 4♂♂, Tongyeong, 23 Aug. 2005; 2♂♂, Guryongpo, 26 Aug. 2005.

*Description.* Adult male: Body length (Fig. 1A) about 6.2 mm, rostrum and anterior head lobe taper distally. Eye very large, entirely part of head. Dorsal pleonites tooth formulae 1-3-3-0, rear to front. Pleonal epimeron 1 with one small posteroventral tooth.

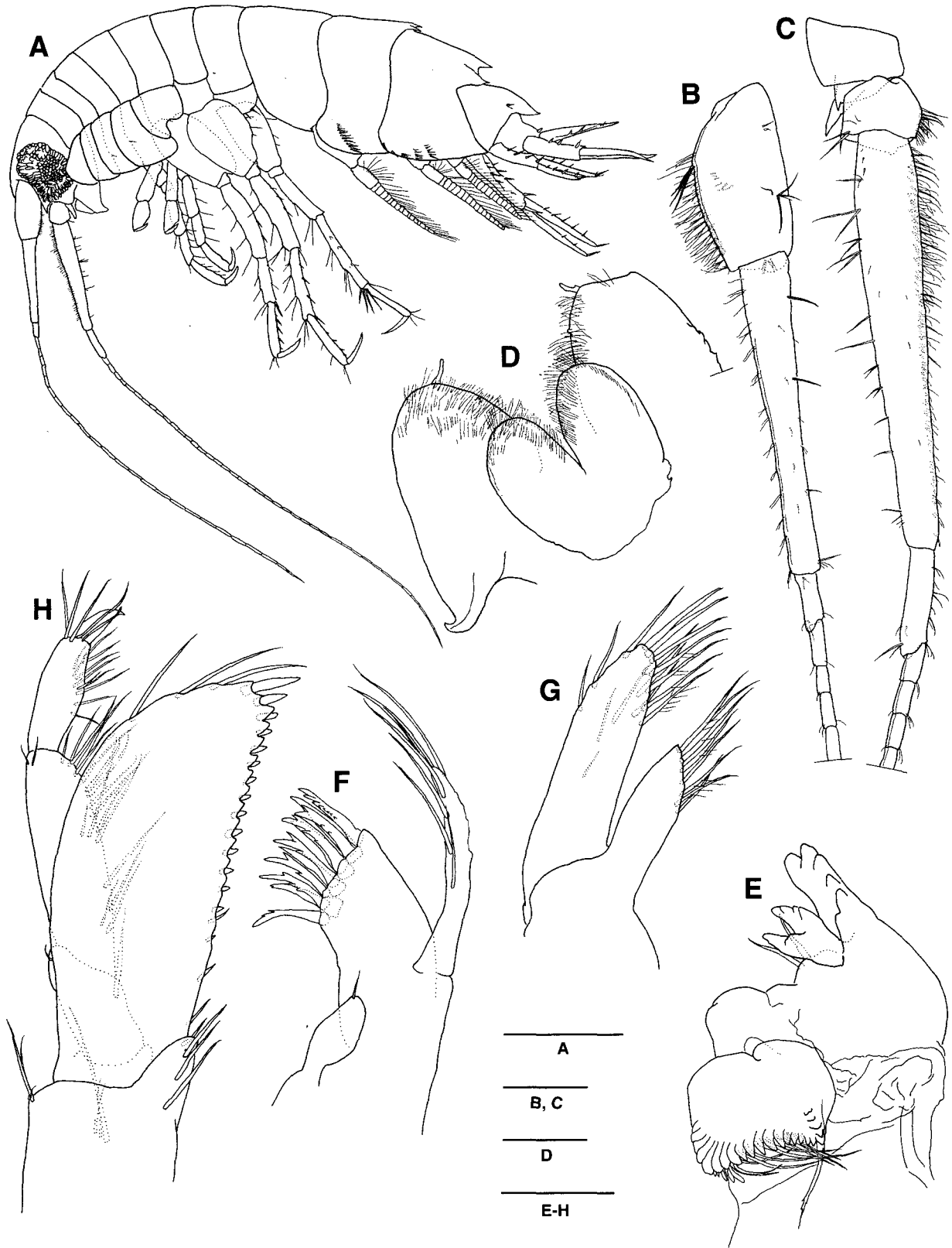
Antenna 1 (Fig. 1B). A little longer than 2/3 of body length; peduncular article 1 stout, a little shorter than head, with numerous setular tufts ventrally; length ratio of peduncular articles 1-3=1.00 : 1.73 : 0.32; its flagellum 25 seg-

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**Fig. 1.** *Paradexamine fraudatrix*, male, 6.2 mm: A, habitus, lateral; B, antenna 1; C, antenna 2; D, lower lip; E, mandible; F, maxilla 1; G, maxilla 2; H, maxilliped. Scale bars=1 mm (A), 0.2 mm (B, C), 0.1 mm (D-H).

mented, about 2.2 times as long as peduncle; accessory flagellum uniarticulate and vestigial.

Antenna 2 (Fig. 1C). 1.2 times as long as antenna 1; peduncular articles 1-3 short, peduncular article 4 elongate, gradually decreasing in thickness; setular tufts on the dorsal edge of peduncular articles 3 and 4, typical male morphology; its flagellum 43 segmented, 2.5 times as long as peduncle.

Lower lip (Fig. 1D). Outer and inner lobes with densely pubescent on inner margin; outer lobe with one long and one short cusp respectively, mandibular process upturned and curled.

Mandible (Fig. 1E). Incisor produced forward, with 6 blunt teeth, lacinia mobilis well developed, bifid, upper part with 4 teeth, lower part with blunt 2 teeth, 2 accessory spines in right mandible and 3 in left one, molar process developed, truncate, with regular setae on right.

Maxilla 1 (Fig. 1F). Inner plate small, bearing one apical seta; outer plate apically with 11 serrate teeth, palp uniarticulate, extending beyond outer plate, with apical and medial setae.

Maxilla 2 (Fig. 1G). Apical margin of inner plate and distal and apical margins of outer plate with 8 and 13 feeble setae, respectively; outer plate with 3 subproximal setae on inner face; inner plate distinctly shorter than outer one.

Maxilliped (Fig. 1H). Inner plate small, with one apical seta and 3 lateral setae; outer plate large, inner margin with 14 conical teeth, 4 small setae, outer distal margin with 3 simple setae; palp 4 articulate, rather slender, inner margin with simple setae, slightly extending outer plate.

Gnathopod 1 (Fig. 2A). Coxa 1 gradually widening, lower margin roundish, with weakly setose anteriorly and inner margin; basis slender, 2/5 the length of gnathopod 1; ischium square, about 0.4 times as long as merus; merus 0.5 times as long as carpus, taper posterodistally, posterodistal margin with short and long setae; carpus 1.4 times as long as propodus, gradually becoming wider, anterior margin with 2 medial setae and 4 distal setae, posterior margin with 7 medial setae and 9 distal setae; propodus 0.6 times as long as merus and carpus combined, inner face with a row of 9 weakly pectinate or simple setae, palm oblique, finely serrate, with many small setae and 4 long spines and one small spine posterodistally; dactylus falcate, bearing pectinations to inner teeth.

Gnathopod 2 (Fig. 2B). Coxa 2 rectangular, lower margin with weakly setose, midposterior margin with one stout spine; gnathopod 2 similar to gnathopod 1, but more slender and longer.

Pereopod 3 (Fig. 2C). Coxa 3 similar to coxa 2, midposterior margin with one spine; basis slightly longer than 1/4 the length of pereopod 3; ischium short, posterior margin

subequal to width in length; merus about 0.7 times as long as carpus and propodus combined; carpus slightly shorter than propodus; posterior margins of merus, carpus and propodus with spines and setae; dactylus 0.7 times as long as propodus, falcate, distal part with 2 feeble setae.

Pereopod 4 (Fig. 2D). Coxa 4 similar to coxa 3, except posterodistal margin expanding convexly; pereopod 4 similar to pereopod 3.

Pereopod 5 (Fig. 3A). Basis slightly shorter than about 1/3 as long as pereopod 5, roundish, posteroventral lobe broad, extending somewhat posterodistal margin of ischium; with a row of single spines along anterior margin, posterior margin nearly straight; merus 0.8 times as long as carpus and propodus combined; carpus as long as propodus, posterior margin with 1, 2, 2, 3 spines in formula; dactylus 0.6 times as long as propodus and falcate.

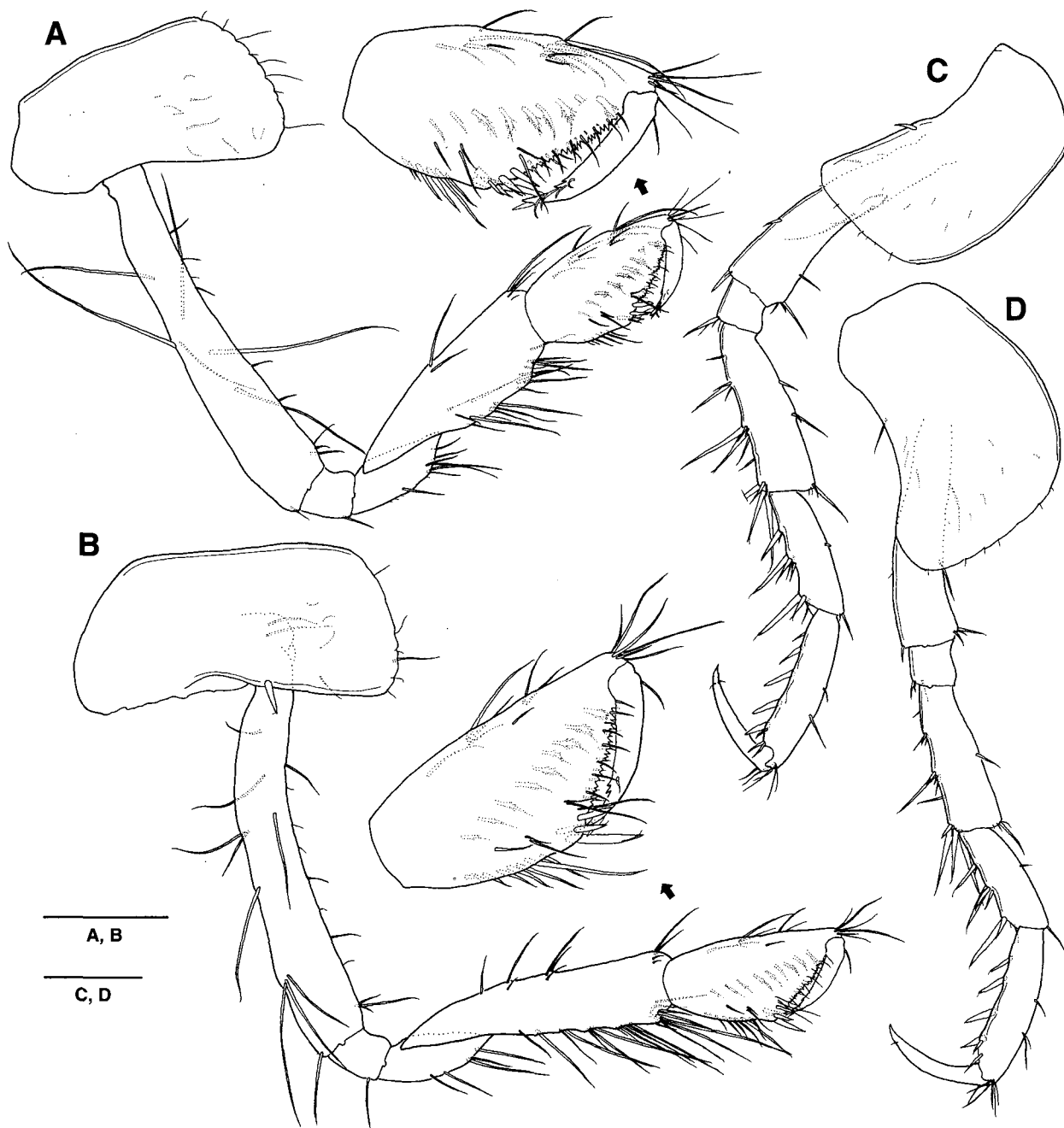
Pereopod 6 (Fig. 3B). Basis slightly shorter than about 1/4 as long as pereopod 6, pyriform, jagged and expanding posteriorly, with a row of small spines along anterior margin and one spine midposterior margin; ischium rectangular, anterodistal edge with one spine and one small seta; merus 1.2 times as long as carpus, anterior margin with 4 clusters of spines and setae, increase in number of spines distally, posterior margin with a row of spines, its length increasing distally, posterodistal edge with one short and one long spines; carpus 1.2 times as long as propodus, anterior margin with 4 clusters of spines, posterior margin with 2, 3, 3, 3 spines in formula; propodus 1.6 times as long as dactylus, posterior margin with 1, 2, 2, 1, 2, 2 spines in formula; dactylus falcate, with a feeble plumose seta anteroproximally.

Pereopod 7 (Fig. 3C). Basis about 1/4 as long as pereopod 7, thinly pyriform, posterior margin serrate, with 3 spines and triad spines posterodistally; ischium rectangular, with 2 spines anterodistal edge; merus 3/4 as long as basis, with a row of spines along posterior margin and one short and 3 long spines posterodistal edge; carpus 1.2 times as long as ischium and merus combined, narrower than merus, anterior margin with 4 clusters of spines, posterior margin with 2, 2, 3, 5 spines in formula; propodus 0.6 times as long as and narrower than carpus; dactylus 0.6 times as long as propodus and falcate.

Uropod 1 (Fig. 3D). Peduncle equal to rami in length, dorsal margin with 2 slender setae and 5 spines, 5 dorsolateral spines and one apicolateral large spine; rami subequal in length, dorsal margin of outer ramus with a longitudinal row of 7 spines and one apicolateral spine.

Uropod 2 (Fig. 3E). 0.6 times as long as uropod 1; peduncle subequal outer ramus, dorsal margin with 4 spines; inner ramus longer than outer ramus.

Uropod 3 (Fig. 3F). Peduncle shorter than rami, dorsal margin with 2 small setae and 3 spines, 3 dorsolateral spines



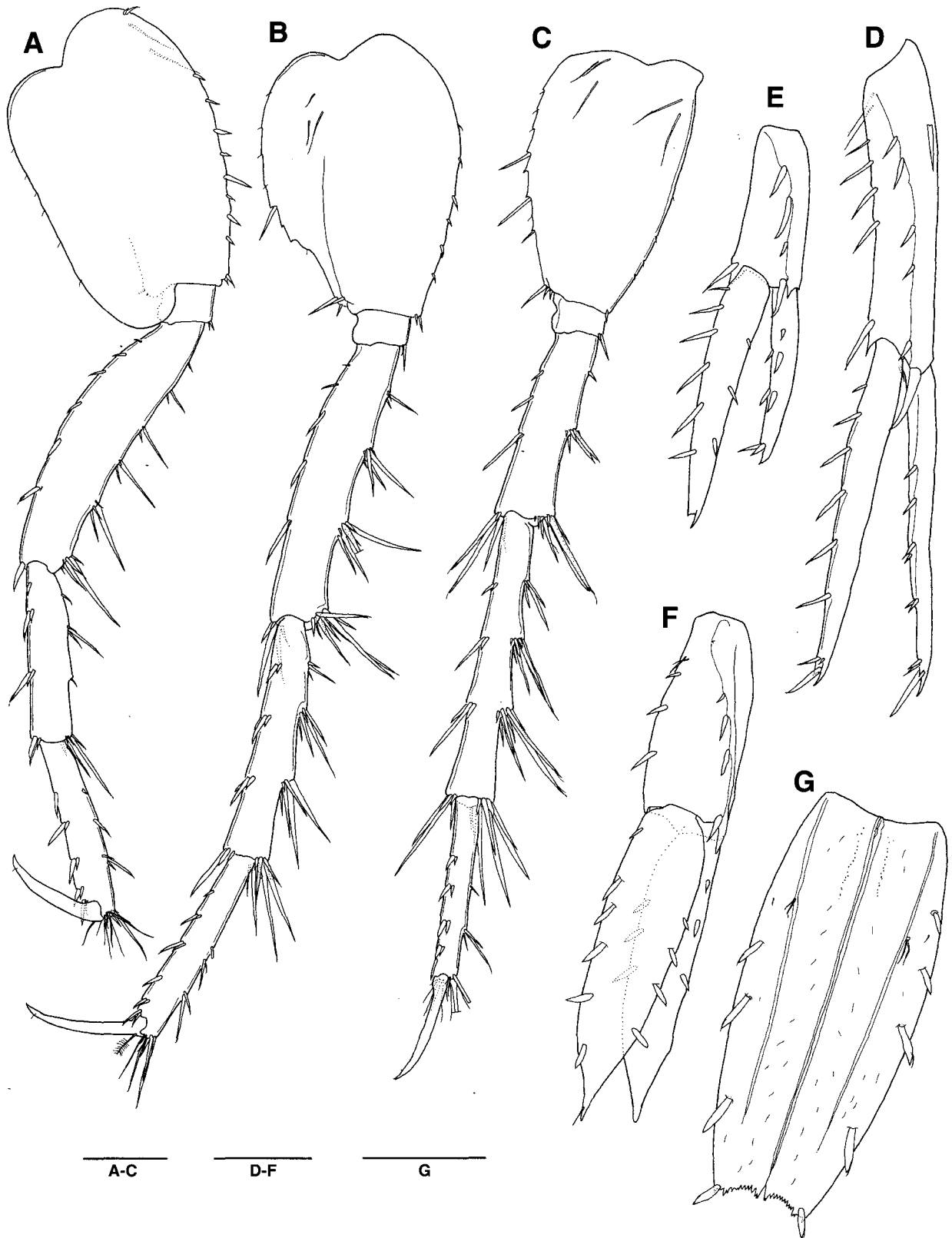
**Fig. 2.** *Paradexamine fraudatrix*, male, 6.2 mm: A, gnathopod 1; B, gnathopod 2; C, pereopod 3; D, pereopod 4. Scale bars=0.2 mm (A-D).

and one apicolateral spine; both rami subequal in length, broader than rami of uropod 1 and 2 and distal apices converge.

Telson (Fig. 3G). Comparatively longish, 2.3 times as long as wide; thoroughly cleft, each lobe ridged on central line, with a pair of supple setae; lateral margin with 3 and 4

spines respectively; apices broad, with deep serration and one marginal spine, respectively.

*Female.* Rostrum and anterior head lobe taper distally (Fig. 4A). Eye large, but smaller than male; dorsal pleonites tooth formulae 1-3-3-0, rear to front (Fig. 4B), each of pleonal epimera 1-3 with one posteroventral tooth; urosomite 1



**Fig. 3.** *Paradexamine fraudatrix*, male, 6.2 mm: A, pereopod 5; B, pereopod 6; C, pereopod 7; D, uropod 1; E, uropod 2, F, uropod 3; G, telson. Scale bars=0.2 mm (A-G).

dorsal carinate tooth developed, with a pair of spines dorsolateral surface; urosomite 2, 3 coalescent, with 2 pairs of spines, pointed at the end.

Antenna 1 (Fig. 4C). Peduncular article 1 stout, a little shorter than head, dorsal margin with 2 setae, ventral margin with two clusters of setae, posterolateral margin with 7 setae and with 3 small setae ventrodistally; peduncular article 2 slender, 1.5 times as long as peduncular article 1; peduncular article 3 short, 0.3 times as long as peduncular article 1; accessory flagellum uniarticulate, vestigial, with one short and 2 simple setae apically; its flagellum 32 segmented.

Antenna 2 (Fig. 4D). Peduncular articles 1-3 short, gland cone of peduncular article 2 developed, extending peduncular article 3; peduncular article 4 slightly slender, 4.6 times as long as article 3; peduncular article 5 a half as long as article 4; its flagellum 22 segmented. Lower lip (Fig. 4E). As that of male.

Mandible (Fig. 4F). Incisor with 6 blunt teeth, lacinia mobilis well developed, 2 accessory spines in right mandible and 3 in left one.

Maxilla 1 (Fig. 4G). Inner plate bearing one apical seta; outer plate with 11 serrate teeth, palp uniarticulate, extending outer plate, with 3 apical and 3 medial setae.

Maxilla 2 (Fig. 4H). Apical margin of inner plate with 5 onesidely barbed setae and 4 simple setae, distal and apical margins of outer plate with 5 onesidely barbed setae and 7 simple setae, outer plate with 2 subproximal setae on inner face; inner plate distinctly shorter than outer one.

Maxilliped (Fig. 4I). Inner plate small, with one apical seta and 4 lateral setae; outer plate large, inner margin with 13 conical teeth, 4 small setae, outer distal margin with 4 simple setae; palp 4 articulate, inner margin of articles 2, 3 with many simple setae, article 4 0.7 times as long as article 3, comparatively slender and falcate.

Gnathopod 1 (Fig. 5A). Coxa 1 gradually widening, lower and inner margins with weakly setose anteriorly; basis slender, 2/5 the length of gnathopod 1, anterior margin with short setae and 4 long simple setae at inner face, posteroproximal margin with 8 long simple setae; ischium square, about 0.4 times as long as merus, posterodistal edge with one seta and 2 feeble setae; merus 0.5 times as long as carpus, taper posterodistally, midposterior margin with 2 setae, posterodistal margin with short and long setae; carpus 1.3 times as long as propodus, gradually becoming wider; propodus 1.8 times as long as dactylus, inner margin with a row of 8 weakly pectinate or simple setae, palm oblique, finely serrate, with many small setae and 4 robust spines and one small spine posterodistally; dactylus falcate.

Gnathopod 2 (Fig. 5B). Coxa 2 rectangular, lower margin with weakly setose, midposterior margin with 1 stout spine;

gnathopod 2 similar to gnathopod 1, but more setose, slender and longer; carpus 1.5 times as long as propodus.

Pereopod 3 (Fig. 5C). Coxa 3 similar to coxa 2, midposterior margin with one spine; basis about 0.3 times as long as pereopod 3; ischium square, posterior margin subequal to width in length; merus about 1.2 times as long as carpus, posterior margin with three clusters of setae; carpus 0.9 times as long as propodus, narrower than merus; propodus 1.4 times as long as dactylus, with 7 spines posteriorly; dactylus falcate, distal part with 2 feeble setae.

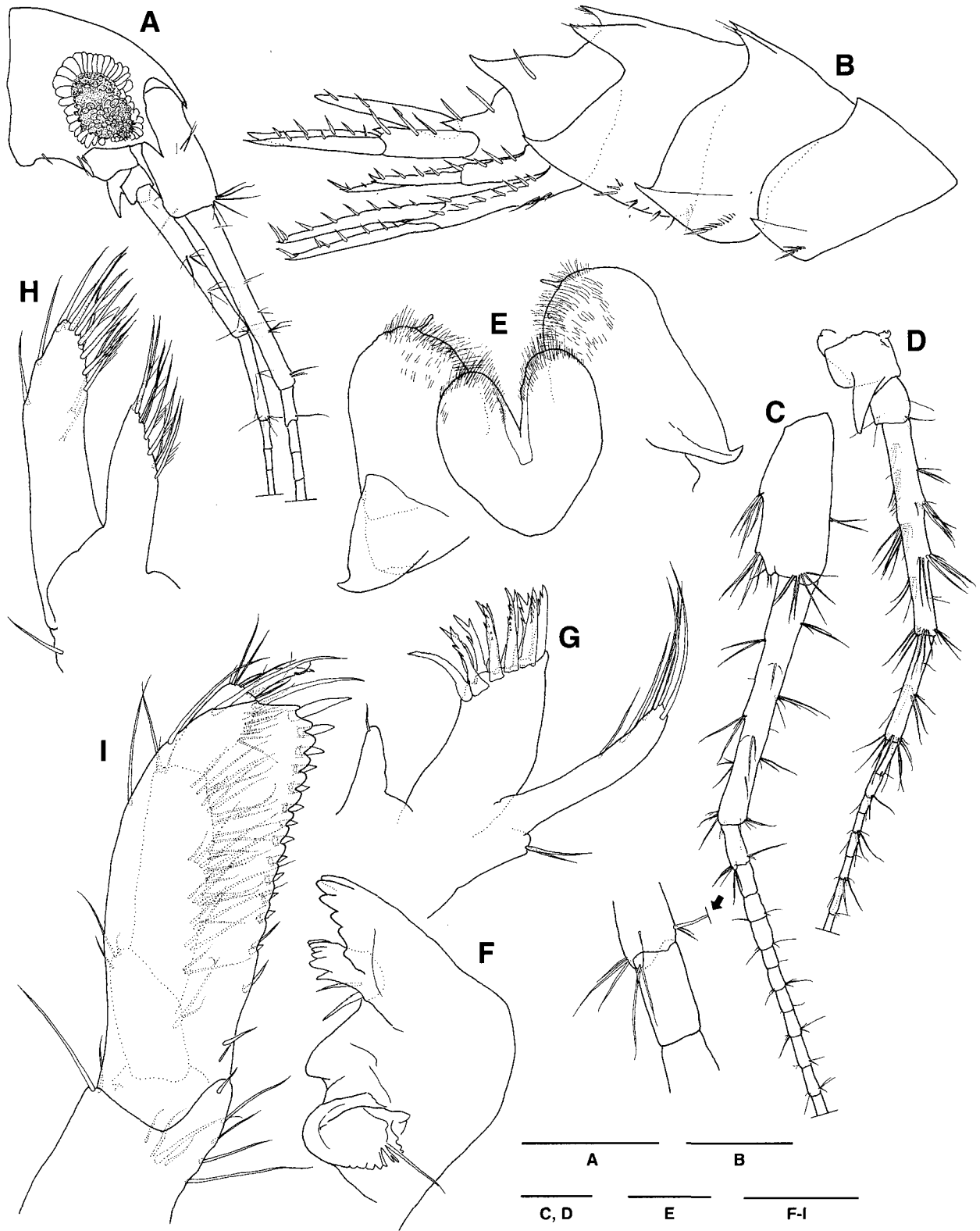
Pereopod 4 (Fig. 5D). Coxa 4 similar to coxa 3, except slightly more broader, posterodistal margin expanding convexly and no spine at the midposteriorly; pereopod 4 similar to pereopod 3.

Pereopod 5 (Fig. 5E). Coxa 5 bilobate, anterior lobe protruding downward, ventral margin of posterior lobe with 4 thin spines and 9 setae at the inner face; basis 0.3 times as long as pereopod 5, with short and stout spines on anterior margin and small setae on posterior margin, posterodistal margin bulging downward; merus 0.8 times as long as carpus and propodus combined, with five clusters of spines and setae anteriorly, a row of spines posteriorly; carpus narrower than merus, as long as propodus, anterior margin with three clusters of spines and setae, posterior margin with 2, 2, 3, 4 spines in formula; posterior margin of propodus with 2, 2, 2, 2, 2 spines in formula.

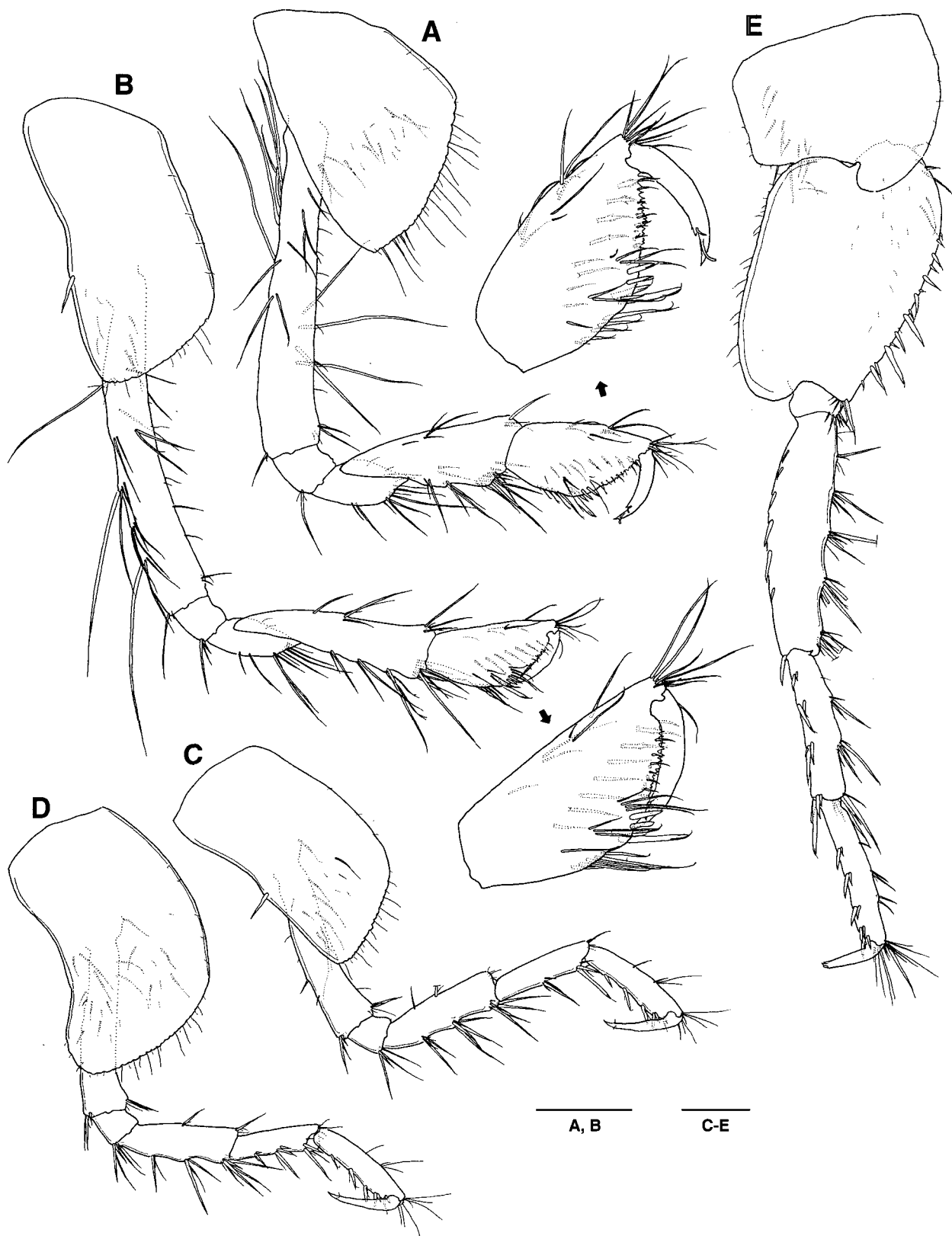
Pereopod 6 (Fig. 6A). Coxa 6 similar to coxa 5, but more smaller and anterior lobe narrower than coxa 5; anterior margin straight, posterior margin roundish; ventral margin and inner face of posterior lobe with several thin spines or setae; basis slightly longer than about 1/5 as long as pereopod 6, pyriform, jagged and expanding posteriorly; merus 1.1 times as long as carpus, anterior margin with four clusters of spines and setae, increase in number of spines distally, posterior margin with a row of spines, spines length increasing distally, posterodistal edge with 3 spines; carpus 1.3 times as long as propodus; propodus narrower than carpus, twice as long as dactylus.

Pereopod 7 (Fig. 6B). Coxa 7 subrectangular, posteroventral margin with 3 thin spines and several setae; basis about 1/4 as long as pereopod 7, thinly pyriform, posterior margin serrate, with 2 spines and feeble setae, anterior margin 4 small spines, 3 long setae anteroproximally; merus 0.7 times as long as basis; carpus 1.3 times as long as ischium and merus combined, narrower than merus, increase in number of spines distally; propodus 0.6 times as long as carpus, posterior margin with 1 2, 2, 2, 2 spines in formula; dactylus 0.6 times as long as propodus and falcate.

Uropod 1 (Fig. 6C). Peduncle subequal to rami in length, dorsal margin with 3 medial spines, 7 dorsolateral spines, ventral margin with 4 spines and one large apicolateral

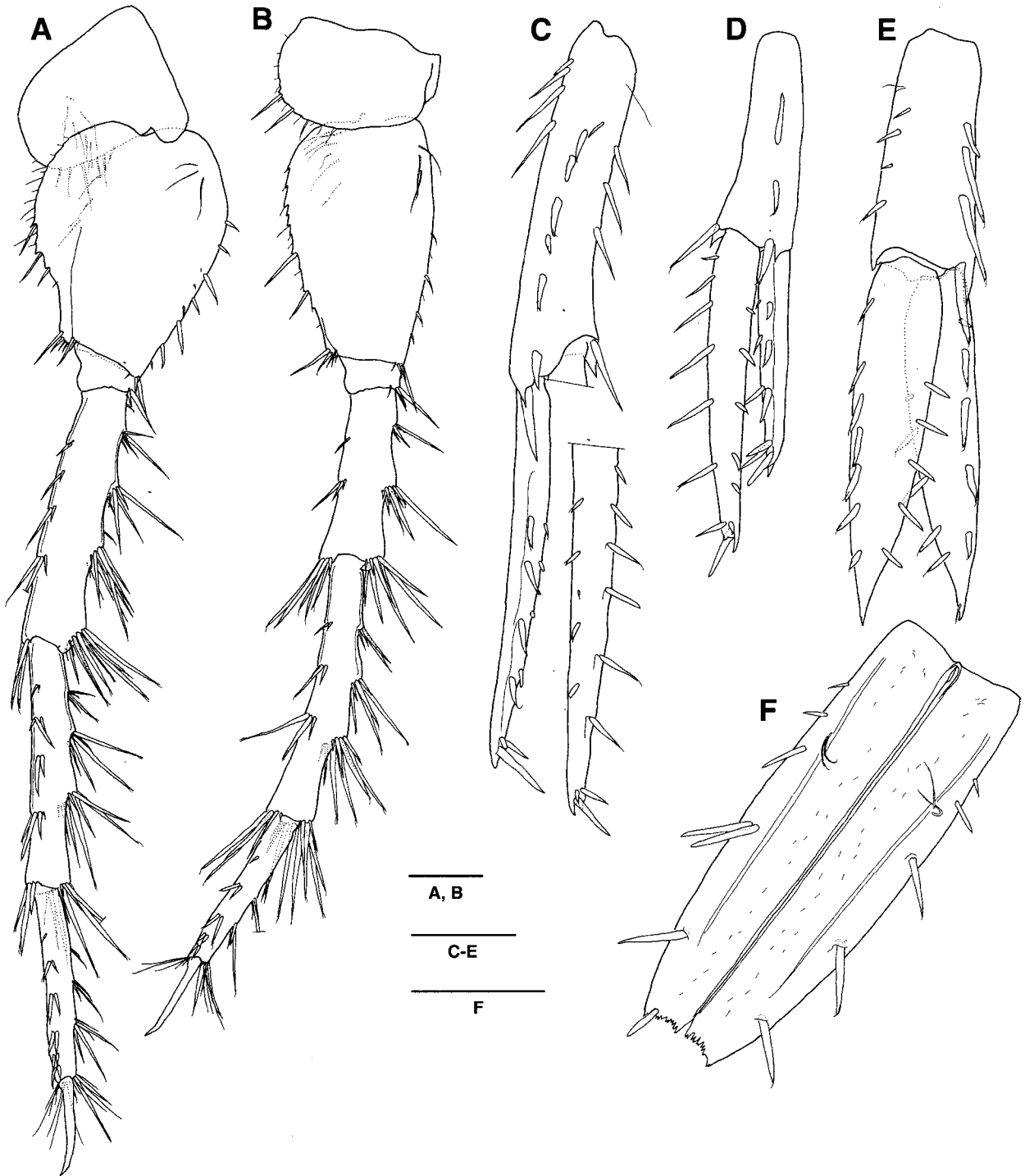


**Fig. 4.** *Paradexamine fraudatrix*, female, 6.1 mm: A, head; B, pleonites, urosomites and uropods; C, antenna 1; D, antenna 2; E, lower lip; F, mandible; G, maxilla 1; H, maxilla 2; I, maxilliped. Scale bars=0.5 mm (A, B), 0.2 mm (C, D), 0.1 mm (E-I).



**Fig. 5.** *Paradexamine fraudatrix*, female, 6.1 mm: A, gnathopod 1; B, gnathopod 2; C, pereopod 3; D, pereopod 4; E, pereopod 5. Scale bars=0.2 mm (A-E).





**Fig. 6.** *Paradexamine fraudatrix*, female, 6.1 mm: A, pereopod 6; B, pereopod 7; C, uropod 1; D, uropod 2; E, uropod 3; F, telson. Scale bars=0.2 mm (A-F).

spine; rami subequal in length.

Uropod 2 (Fig. 6D). 0.7 times as long as uropod 1; peduncle equal in length outer ramus; outer ramus  $\frac{3}{4}$  the length

of inner ramus, dorsal and dorsolateral margins with 4 spines and one apicolateral spine, respectively; inner ramus 1.3 times as long as peduncle.

Uropod 3 (Fig. 6E). 1.2 times as long as uropod 2, peduncle and rami stouter than ones of uropod 2; peduncle with 3 dorsal spines, 4 small ventral spines and one apicolateral spine; both rami subequal in length.

Telson (Fig. 6F). Comparatively longish, 2.7 times as long as wide; lateral margins of each lobe with 5 or 6 spines and upper proximal place of ridge with 2 supple setae.

*Remarks.* *Paradexamine fraudatrix* has closest affinity to *P. setigera*, *P. linga*, *P. pacifica* and *P. marilie* by dorsal pleonites tooth formulae 1-3-3-0, rear to front. However, the four relative species are apparently discernible from *P. fraudatrix* by the following characteristics: *P. marilie* is easily distinguishable by no accessory spine in the mandible. Midposterior margins of coxae 2-3 of *P. pacifica* have no spine and are shorter than carpus of gnathopod 2. Inner plate of maxilla 2 of *P. linga* is reaching more than 80 percent along outer, while it is smaller in *P. fraudatrix*. *P. setigera* is very much similar to *P. fraudatrix* in most of morphological characteristics however, they differ from each other in the shape of the mandibular process of lower lip. Our specimens are well accorded with the original description given by Tzvetkova (1976).

*Distribution.* Korea, Japan.

<sup>1</sup>\**Paradexamine gigas* Hirayama, 1984 (Figs 7-8)

*Paradexamine gigas* Hirayama, 1984, pp. 219-225, figs. 120-121.

*Material examined.* 1♂, Cheongsando Is., 22 May 1998.

*Description.* Male: Body length (Fig. 7A) about 2.8 mm, anterior head lobe taper distally. Eye large. Dorsal pleonites tooth formulae 1-3-3-3 (rear to front), lateral teeth of pleonites 1 and 2 smaller than median tooth. Pleonal epimera 1 and 2 (Fig. 7B) with one small posteroventral tooth, anterior part of pleonal epimeron 2 with one spine and an oblique row of 5 spines, pleonal epimeron 3 with a larger posteroventral tooth than teeth in the pleonal epimera 1, 2 and anteroventral margin with 4 spines.

Antenna 1 (Fig. 7C). A little shorter than 3/5 of body length; peduncular article 1 slightly stout, a little shorter than head; length ratio of peduncular articles 1-3=1.00 : 1.59 : 0.38; left flagellum 14, right one 12 segmented, respectively, about 1.3 times as long as peduncle; accessory flagellum uniaarticulate, vestigial, with 2 apical setae and one pointed aesthetasc.

Antenna 2 (Fig. 7D). 0.76 times as long as antenna 1; peduncular articles 1-3 short, peduncular article 4 elongate; setular tufts on the dorsal edge of peduncular article 4; its flagellum 10 segmented, 0.9 times as long as peduncle.

Lower lip (Fig. 7E). Outer and inner lobes with densely pubescent on inner margin; outer lobe with a long cusp, mandibular process blunt and roundish.

Mandible (Fig. 7F, G). Similar to each other, lacking palp and accessory spine; incisor and lacinia mobilis produced forward, blunt, roundish, with indistinct teeth; molar process large and massive.

Maxilla 1 (Fig. 7H). Inner plate small, without apical seta; outer plate apically with 11 serrate or bifid teeth, palp uniaarticulate, extending beyond outer plate, with 4 setae.

Maxilla 2 (Fig. 7I). Apical margin of inner plate with 5 simple setae, outer plate with 2 setae on outer distal margin and 6 simple setae apically; inner plate slightly shorter than outer one.

Maxilliped (Fig. 7J). Inner plate small, with one long and one short setae; outer plate large, gradually narrowing distally, inner margins of both plates with 2 simple setae and 7 and 9 conical teeth respectively; palp 4 articulated, rather slender, inner margin with simple setae, second segment 1.7 times as long as 3 and 4 segments combined.

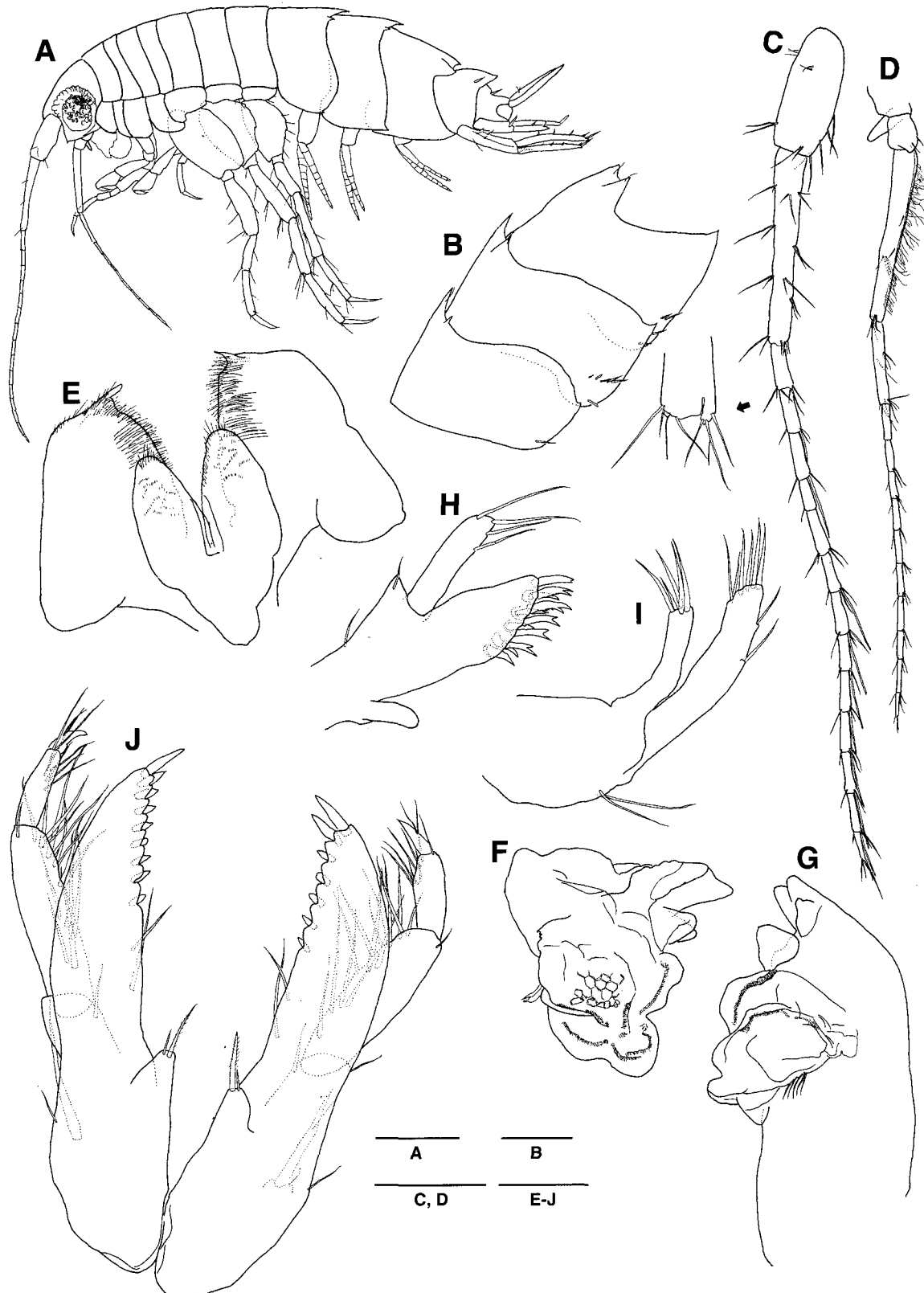
Gnathopod 1 (Fig. 8A). Coxa 1, slightly widening, lower margin roundish, with weakly setose anteriorly and inner margin; basis longer than about 2/5 as long as gnathopod 1, anterior margin with 4 long and 2 short setae, posterior margin with 2 long setae; ischium square, about 0.4 times as long as merus, with one posterodistal seta; merus 0.6 times as long as carpus, taper posterodistally, posterodistal margin with 2 setae; carpus 1.2 times as long as propodus, gradually becoming wider, anterior margin with 2 distal setae, posterior margin with 2 medial and 5 distal setae; propodus longer than 0.6 times as long as merus and carpus combined, anterior margin with 3 medial setae, inner face with a row of 3 simple setae, palm oblique, finely serrate, with a few feeble setae and 4 spines posterodistally; dactylus slightly longer than 0.6 times as long as propodus, anteroproximal margin with one seta and falcate.

Gnathopod 2 (Fig. 8B). Coxa 2 rectangular, lower margin with weakly setose; gnathopod 2 similar to gnathopod 1, but more slender and longer.

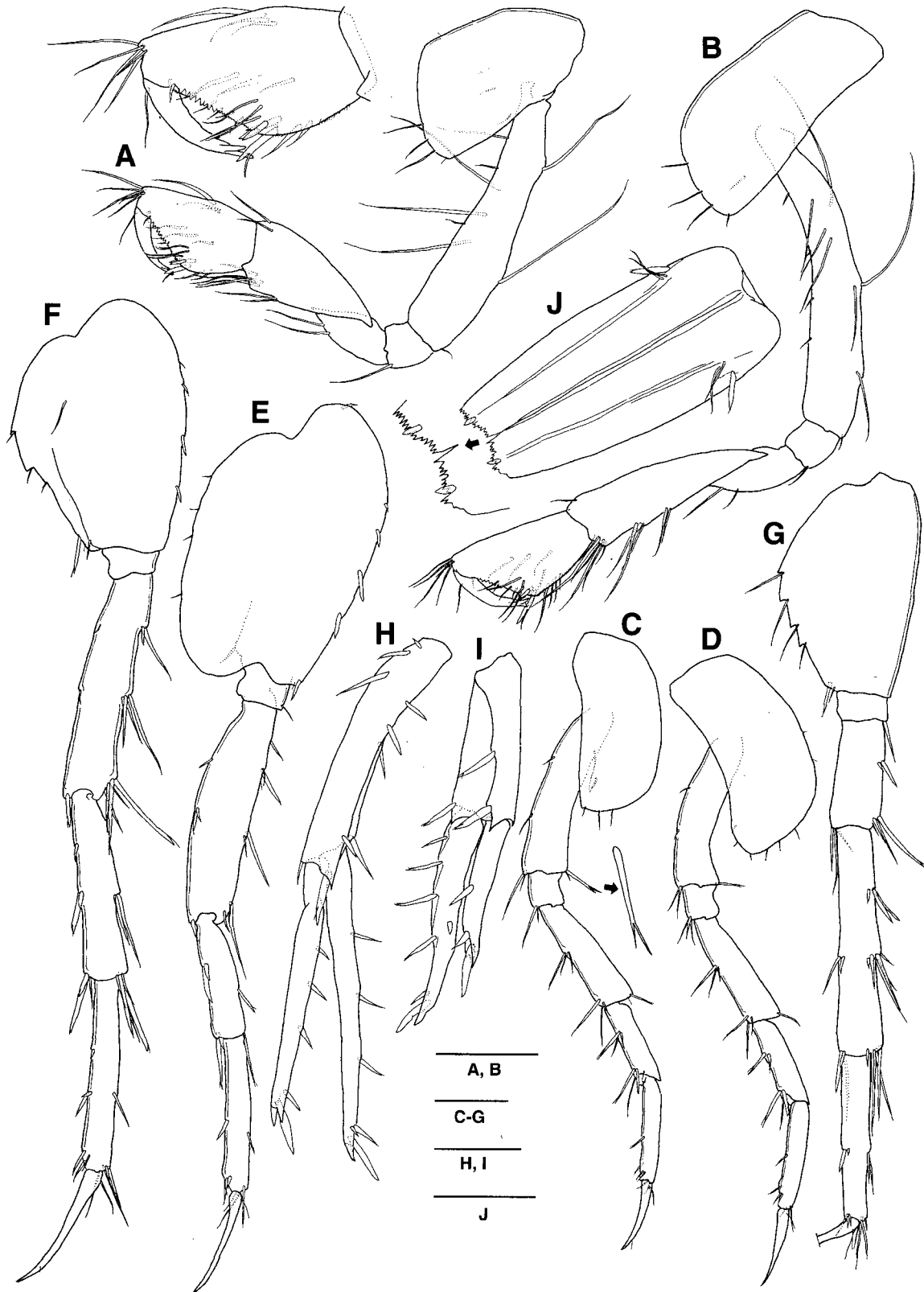
Pereopod 3 (Fig. 8C). Coxa 3 rectangular, similar to coxa 2; basis slightly shorter than 1/3 the length of pereopod 3; ischium square, posterior margin subequal to width in length; merus about 2/3 as long as carpus and propodus combined; posterior margins of merus, carpus and propodus with spines and setae; dactylus 0.7 times as long as propodus and falcate.

Pereopod 4 (Fig. 8D). Coxa 4 similar to coxa 3, except posterodistal margin expanding convexly; pereopod 4 similar to pereopod 3.

<sup>1</sup>\*넓적옆가시붙은꼬리옆새우(신칭)



**Fig. 7.** *Paradexamine gigas*, male, 2.8 mm: A, habitus, lateral; B, pleonites; C, antenna 1; D, antenna 2; E, lower lip; F, left mandible; G, right mandible; H, maxilla 1; I, maxilla 2; J, maxilliped. Scale bars=0.4 mm (A), 0.2 mm (B-D), 0.05 mm (E-J).



**Fig. 8.** *Paradexamine gigas*, male, 2.8 mm: A, gnathopod 1; B, gnathopod 2; C, pereopod 3; D, pereopod 4; E, pereopod 5; F, pereopod 6; G, pereopod 7; H, uropod 1; I, uropod 2; J, telson. Scale bars=0.1 mm (A-J).

Pereopod 5 (Fig. 8E). Basis roundish, 0.3 times as long as pereopod 5, posteroventral lobe broad, with 5 spines along anterior margin, inner posterodistal end of muscular part with one spine; merus 0.8 times as long as carpus and propodus combined; carpus 0.8 times as long as propodus, narrower than merus; dactylus 0.7 times as long as propodus and falcate.

Pereopod 6 (Fig. 8F). Basis about 1/4 as long as pereopod 6, pyriform, jagged and expanding posteriorly, with a row of small spines along anterior margin and posterodistal margin and posterodistal end of muscular part with one spine; ischium short and rectangular; merus 1.2 times as long as carpus, anterior margin with three clusters of spines and setae, increasing in number of spines distally; carpus as long as propodus, anterior margin with two clusters of spines, posterior margin with 1, 2, 3 spines in formula; dactylus 0.7 times as long as propodus and falcate.

Pereopod 7 (Fig. 8G). Basis about 1/4 as long as pereopod 7, anterior margin straight, posterior margin with 4 setae, jagged and expanding medially, posterodistal margin with one spine and one seta; merus 1/2 as long as carpus, anterior margin with two clusters of spines, posterodistal margin with 3 spines; propodus 3/4 as long as and narrower than carpus.

Uropod 1 (Fig. 8H). Peduncle slightly shorter than inner ramus, dorsal margin with 3 spines, 2 dorsolateral spines and a apicolateral large spine, anteroventral and posterodistal margins with 3 and one spines respectively; inner ramus longer than outer ramus, dorsal margins of both rami with a longitudinal row of spines and one apicolateral spine.

Uropod 2 (Fig. 8I). 0.6 times as long as uropod 1; peduncle intermediate between both rami in length; outer ramus shorter than inner ramus.

Uropod 3. Lost.

Telson (Fig. 8J). Comparatively longish, 2.3 times as long as wide, cleft thoroughly, each lobe ridged on central line, with a pair of supple setae and lateroproximal part with one spine; apices broad, with serration and one small spine.

*Remarks.* *Paradexamine gigas* is characterized by having the dorsal pleonites tooth formulae 1-3-3-3 (rear to front), blunt mandibular process of lower lip and basis of pereopod

5 roundly expanding and posterior margin conspicuously jagged. Our specimen is congruent with Hirayama (1984)'s original description. However, a few morphological differences are found between our specimen and original description: (1) in the original description, peduncular article 1 of flagellum of antenna 2 is subequal in length to peduncular article 5, while 1/2 in our specimen; (2) inner plate of maxilla 1 has one apical seta in the original description, while no seta in our specimen; (3) in the original description, ischium of pereopod 3 is about 1/2 as long as basis, while 1/5 in our specimen.

*Distribution.* Korea, Japan.

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## REFERENCES

- Barnard, J.L. and G.S. Karaman, 1991. The families and genera of marine gammaridean Amphipoda (except marine gammaroids). *Rec. Austr. Mus., Suppl.*, 13: 1-866.
- Hirayama, A., 1984. Taxonomic studies on the shallow water gammaridean Amphipoda of West Kyushu, Japan. III. Dexaminidae (*Polycheria* and *Paradexamine*). *Publ. Seto Mar. Biol. Lab.*, 29(4/6): 187-230.
- Kim, C.B., H.S. Kim and W. Kim, 1992. Three species of gammaridean amphipod (Crustacea) from Korean waters. *Korean J. Syst. Zool. Spec. Iss.*, 3: 101-112.
- Nagata, K., 1965. Studies on marine gammaridean Amphipoda of the Seto Inland Sea. III. *Publ. Seto Mar. Biol. Lab.*, 13: 291-326.
- Tzvetkova, N.L., 1976. New species of Dexaminidae, Phliantidae and Biancolinidae, warm-water elements of the Possjet bay fauna (Sea of Japan). *Zool. Zhur.*, 55: 684-695.

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