

# Amathillopsidae and Epimeriidae (Crustacea, Amphipoda) from bathyal depths off the Brazilian coast

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## ABSTRACT

Deep-sea samples made during the cruise of the *Marion-Dufresne* off the Brazilian coast yielded three new species of *Epimeria* (Epimeriidae): *E. bathyalis*, *E. rotunda* and *E. ultraspinosa*. *E. bathyalis* differs from all known species of *Epimeria* by bearing maxilliped palp article 4 with two inner teeth; coxa 4 acutely pointed below; coxa 5 posteroventral corner acutely produced downwards; and posteroventral corner of epimera one to three slightly produced. *E. rotunda* is distinct from all other taxon in the following combined characters: maxilliped palp article 4 with one inner teeth; coxa 4 rounded anteriorly; and coxa 5 slightly produced posteriorly in an obtuse angle. *E. ultraspinosa* is very conspicuous because of its maxilliped palp article 4 with 5 inner teeth; long rostrum surpassing end of peduncular article 3 of antenna 1; and coxa 5 acutely produced backwards reaching middle of pleonite 3. *Amathillopsis atlantica* (Amathillopsidae) is herein redescribed from two specimens. This species was previously known from the North Atlantic Ocean and is first recorded from southwestern Atlantic.

## KEY WORDS

Amathillopsidae,  
Epimeriidae,  
*Epimeria*,  
new species,  
Brazil,  
deep-water species.

## RÉSUMÉ

*Amathillopsidae* et *Epimeriidae* (Crustacea, Amphipoda) des eaux bathyales brésiliennes.

Les prélèvements profonds effectués par le *Marion Dufresne* au large du Brésil ont livré trois nouvelles espèces d'*Epimeria* (Epimeriidae): *E. bathyalis*, *E. rotunda* et *E. ultraspinosa*. *E. bathyalis* diffère des autres espèces du genre par la présence de deux dents sur la face interne de l'article 4 du palpe du maxillipède ; par la coxa 4 saillante; par l'angle postéroventral de la coxa 5 aigu et dirigé vers l'arrière; et par les angles postéroventraux des épimères 1 à 3 légèrement saillants. *E. rotunda* se distingue des taxons congénères par la combinaison des caractères suivants : article 4 du palpe du maxillipède avec une seule dent interne ; coxa 4 arrondie antérieurement ; et coxa 5 légèrement saillante dans sa partie postérieure formant un angle obtus. *E. ultraspinosa* se caractérise par l'article 4 du palpe du maxillipède avec cinq dents internes ; par le rostre plus long que l'article 3 du pédoncule de l'antenne 1 ; et par la coxa 5 saillante, dont le bord postéroventral s'étend jusqu'à la moitié du pléonite 3. *Amathillopsis atlantica*, connue auparavant de l'océan Atlantique nord et recensée pour la première fois dans l'Atlantique sud-occidental, est redécrite d'après deux spécimens.

## MOTS CLÉS

Amathillopsidae,  
Epimeriidae,  
*Epimeria*,  
nouvelles espèces,  
Brésil,  
espèces d'eaux profondes.

## INTRODUCTION

Knowledge on the amphipods from the Brazilian deep waters is extremely fragmentary and restricted to the contributions of Stebbing (1888) and Wakabara *et al.* (1991). Only three deep sea benthic species were known from the area, as follows: *Parandania boeckii* (Stebbing, 1888) (Stegocephalidae); *Pseudotiron longicaudatus* Pirlot, 1934 (Synopiidae); *Liljeborgia quinque-dentata* Schellenberg, 1931 (Liljeborgiidae).

Four species are added herein. Three are new and belong to the genus *Epimeria*: *E. bathyalis*, *E. rotunda*, and *E. ultraspinosa*. The fourth species, *Amathillopsis atlantica*, was previously known only from the North Atlantic and is first recorded from the Southwestern Atlantic.

The classification used herein follows the recent revision proposed by Coleman & Barnard (1991). Three new species of *Epimeria* are described: *E. bathyalis* n. sp., *E. rotunda* n. sp., and *E. ultraspinosa* n. sp. *Amathillopsis atlantica* Chevreux, 1908, is redescribed and its distribution extended to the southwestern Atlantic. Both genera have a cosmopolitan distribution and are

common in deep-sea cold waters. A key to *Epimeria* species is provided. The specimens are deposited in the Museu Nacional, Rio de Janeiro (MNRJ), Universidade Santa Úrsula (USU), Muséum national d'Histoire naturelle, Paris (MNHN), and South Africa Museum (SAM).

## ABBREVIATIONS

Stn station;  
CB Blake trawl.

## SPECIMENS AND STATION DATA FOR THE MATERIAL EXAMINED IS AS FOLLOW

For a map showing location of the oceanographic stations conducted by the *Marion Dufresne* in Southeastern Brazil, see Tavares (1999).

Stn 65, CB106, 23°54'S, 42°10'W, 830 m, *Amathillopsis atlantica* Chevreux, 1908; stn 44, CB78, 18°58'S, 37°48'W, 1200 m, *Epimeria bathyalis* n. sp.; stn 45, CB79, 19°01'S, 37°47'W, 1500-1575 m, *Epimeria bathyalis* n. sp.; stn 59, CB99, 21°36'S, 39°58'W, 1190-1205 m, *Epimeria rotunda* n. sp.; stn 65, CB106, 23°54'S, 42°10'W, 830 m, *Epimeria ultraspinosa* n. sp.

Family AMATHILLOPSIDAE Pirlot, 1934  
Genus *Amathillopsis* Heller, 1875

*Amathillopsis* Heller, 1875: 35. — Gurjanova 1955: 209. — Coleman & Barnard 1991: 255.

*Acanthopleustes* Holmes, 1908: 533 [*Acanthopleustes annectens* Holmes, 1908, by original designation].

TYPE SPECIES. — *Amthillopsis spinigera* Heller, 1875 [by original designation].

DIAGNOSIS. — Body with dorsal teeth or processes. Labrum incised or entire, very broad. Mandibular incisor ordinary, molar triturative. Labium with inner lobes weak or coalesced. Mandibular palp article 2, narrow and not produced apico-medially; article 4 well-developed and setose. Coxae 1-4 progressively longer, coxa 4 mono or polycuspidate. Gnathopods feeble, similar to each other and weakly sub-chelate; carpus lobate. Telson entire or incised (modified from Barnard & Karaman 1991).

*Amathillopsis atlantica* Chevreux, 1908  
(Figs 1-3)

*Amathillopsis atlantica* Chevreux, 1908: 3, fig. 2; 1935: 113, pl. I, fig. 20; pl. XII, fig. 4. — Stephensen 1944: 6.

MATERIAL EXAMINED. — TAAF MD55/Brazil 1987, *Marion Dufresne*, stn 65 CB106, 23°54'S, 42°10'W, 830 m, 2.VI.1987, 1 ♀ 19.5 mm (MNRJ 12796), 1 ♀ 17.5 mm (USU 1301).

TYPE LOCALITY. — Azores, 39°11'N, 30°24'W, 1600-1919 m (Chevreux 1908, 1935). Other localities: east coast of Greenland, 61°30'N, 22°30'W, 1836 m (Stephensen 1944); and off Cabo Frio, Rio de Janeiro, Brazil, 23°54'S, 42°10'W, 830 m (this report).

DIAGNOSIS. — Carinae present on pereonites 5-7 and pleonites 1-3, urosomites without carinae. Coxa 2 with an acute tooth antero-ventrally. Posteroventral corner of epimeron 1-3 produced into a small tooth. Telson rectangular, apically emarginate.

DESCRIPTION

Body (Fig. 1A, B) with pereonites 5-7 and pleonites 1-3 with carinae, but number of carinae varying according to development of specimen. Head with latero-cephalic lobe quadrate and produced, without distinct eyes (Fig. 1A). Peduncular article 2 of antenna 1 slightly longer than article 1; flagellum with numerous calceoli; accessory flagellum short and spiniform.

Peduncular article 4 of antenna 2 twice length of article 5 (Fig. 1C). Upper lip (Fig. 1D) rounded, with distal setae. Mandibular molar triturative, well-developed; left lacinia mobilis larger than right one; palp articles 1 to 3 of length ratio 2.5:10.5:8.0; article 3 bearing some pectinate setae (Fig. 1E). Lower lip (Fig. 1F) without inner lobe. Maxilla 1 (Fig. 2A), inner lobe with 5 long distal setae; palp article 2 densely setose. Maxilla 2 (Fig. 2B), inner and outer lobe with fine facial setae. Palp of maxilliped (Fig. 2C) with bipectinate setae on article 3; dactylus with fine setae.

Gnathopods 1 and 2 similar. Gnathopod 1 (Fig. 2D), coxa trapezoidal; hind margin of basis slightly lobate, bearing long marginal setae; carpus roundly lobate; propodus about two times longer than wide; palm with eight spines and several long normal or bipectinate setae; dactylus long, with setae on inner and outer margins. Gnathopod 2 (Fig. 2E) coxa with anteroventral tooth, basis with posterior margin slightly lobate, bearing long marginal spines; carpus roundly lobate and more pronounced than gnathopod 1; propodus more than two times longer than wide. Bases of pereopods 5-6 with straight margin, basis of pereopod 7 slightly wider proximally (Fig. 3A).

Posteroventral corners of epimera 1-3 produced into small tooth (Fig. 1A). Uropods 1-3 (Fig. 3B-D) with small marginal spines, outer ramus distinctly shorter than inner ramus. Telson (Fig. 3E) rectangular, apically emarginate.

REMARKS

The specimens examined do not differ from Chevreux (1908) original description of *Amathillopsis atlantica* in the head, gnathopods, pereopods and uropods. Some variation in the number of mid-dorsal teeth was observed in both specimens examined. The larger female specimen (19.5 mm) had five mid-dorsal teeth and the pereonite 5 bore a small hump (Fig. 1A). The smaller female specimen (17.5 mm) had only four mid-dorsal teeth, and small humps on pereonite 5 and pleonite 3 (Fig. 1B). However, Chevreux' specimens, always had six mid-dorsal teeth instead of four and five teeth. Another difference observed was in the telson, which was as long as broad instead of longer than broad as in

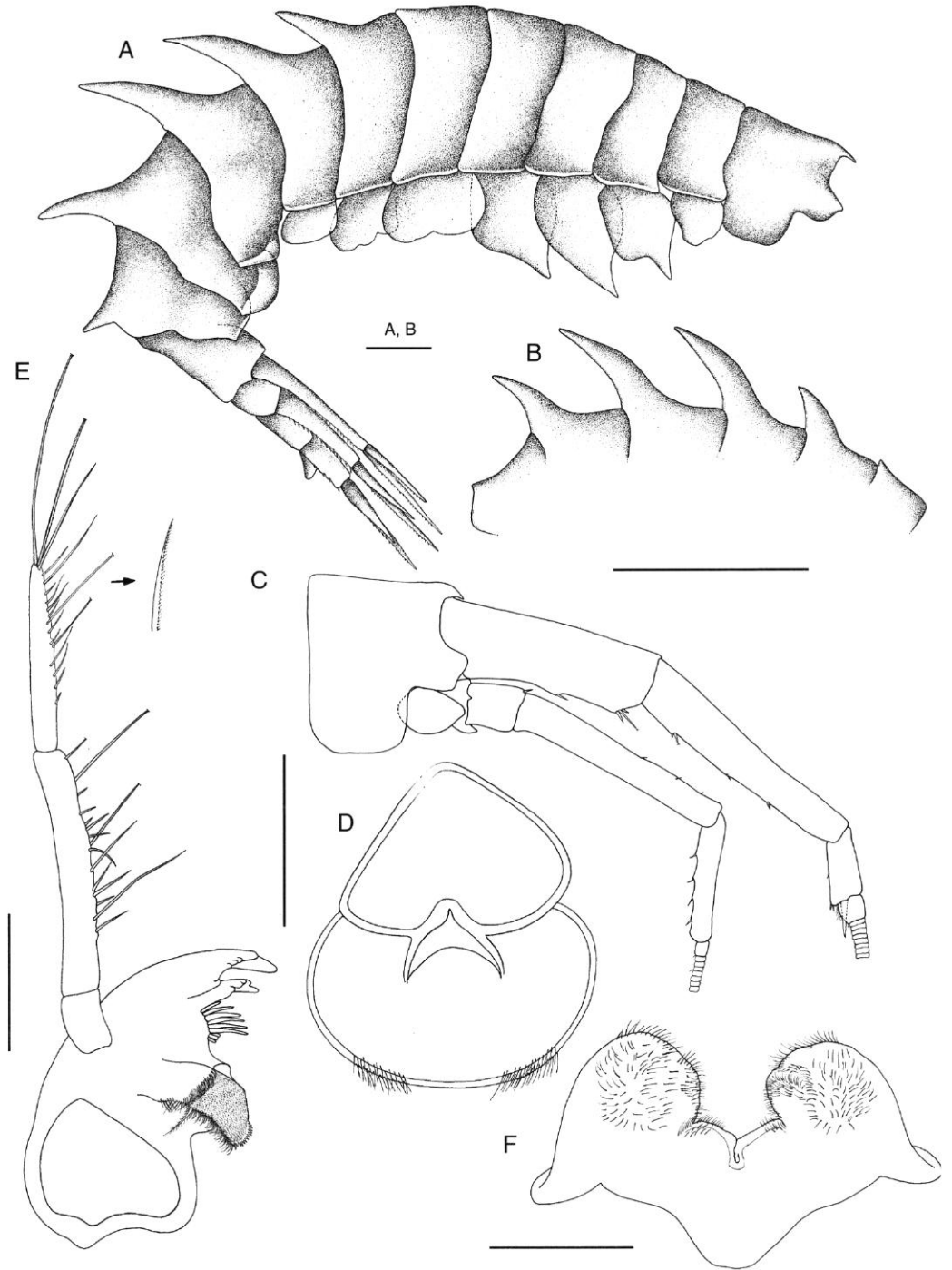


FIG. 1. — *Amathillopsis atlantica* Chevreux, 1908, ♀ 19.5 mm; **A**, habitus ♀, 17.5 mm; **B**, dorsal carinae, ♀ 19.5 mm. **C**, head and antennae 1-2; **D**, upper lip; **E**, mandible; **F**, lower lip. Scale bars: A, B, 1 mm; C, 2 mm; D-F, 0.5 mm.

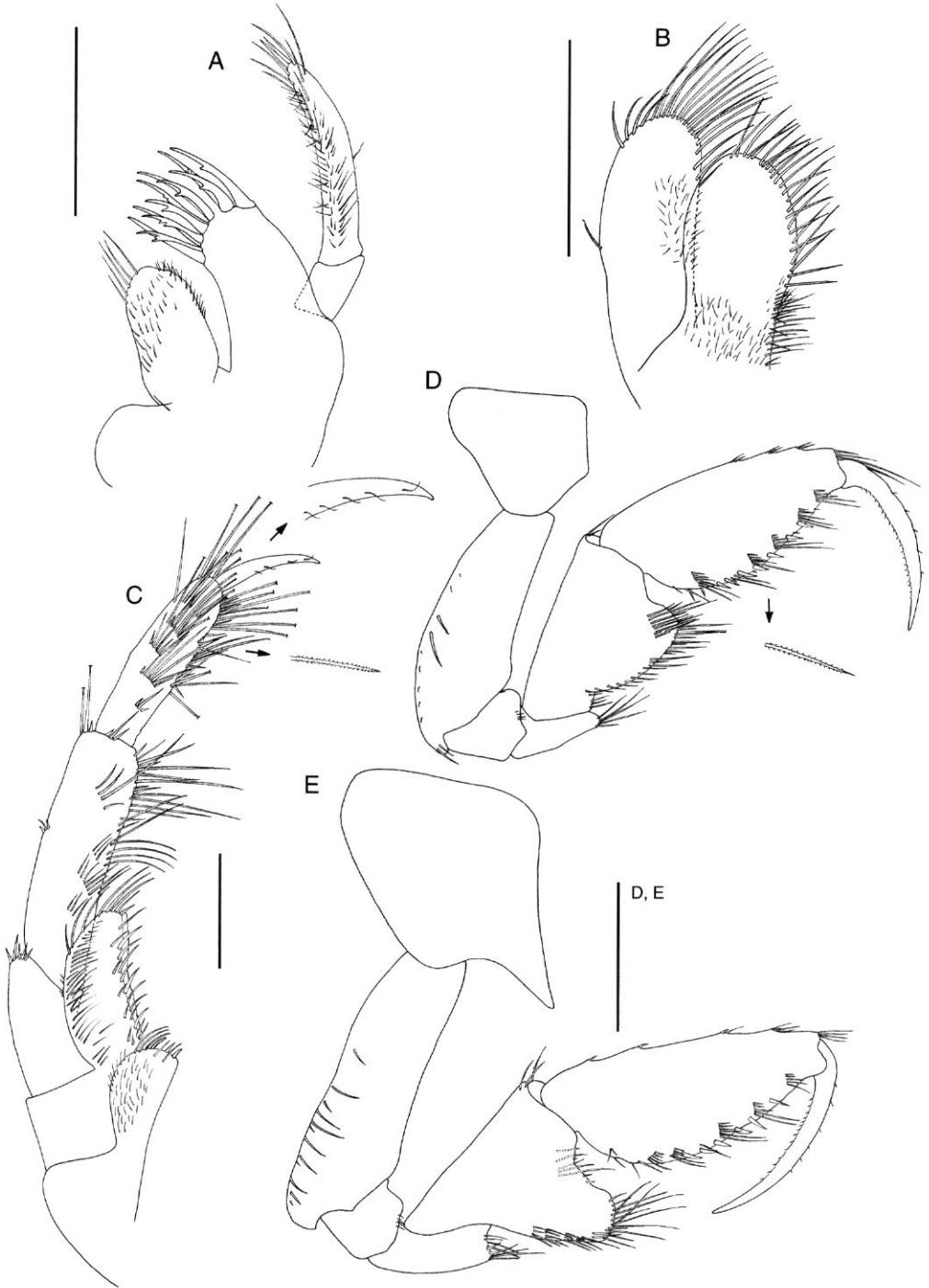


FIG. 2. — *Amathillopsis atlantica* Chevreux, 1908, ♀ 19.5 mm; **A**, maxilla 1; **B**, maxilla 2; **C**, maxilliped; **D**, gnathopod 1; **E**, gnathopod 2. Scale bars: A-C, 0.5 mm; D-E, 1 mm.

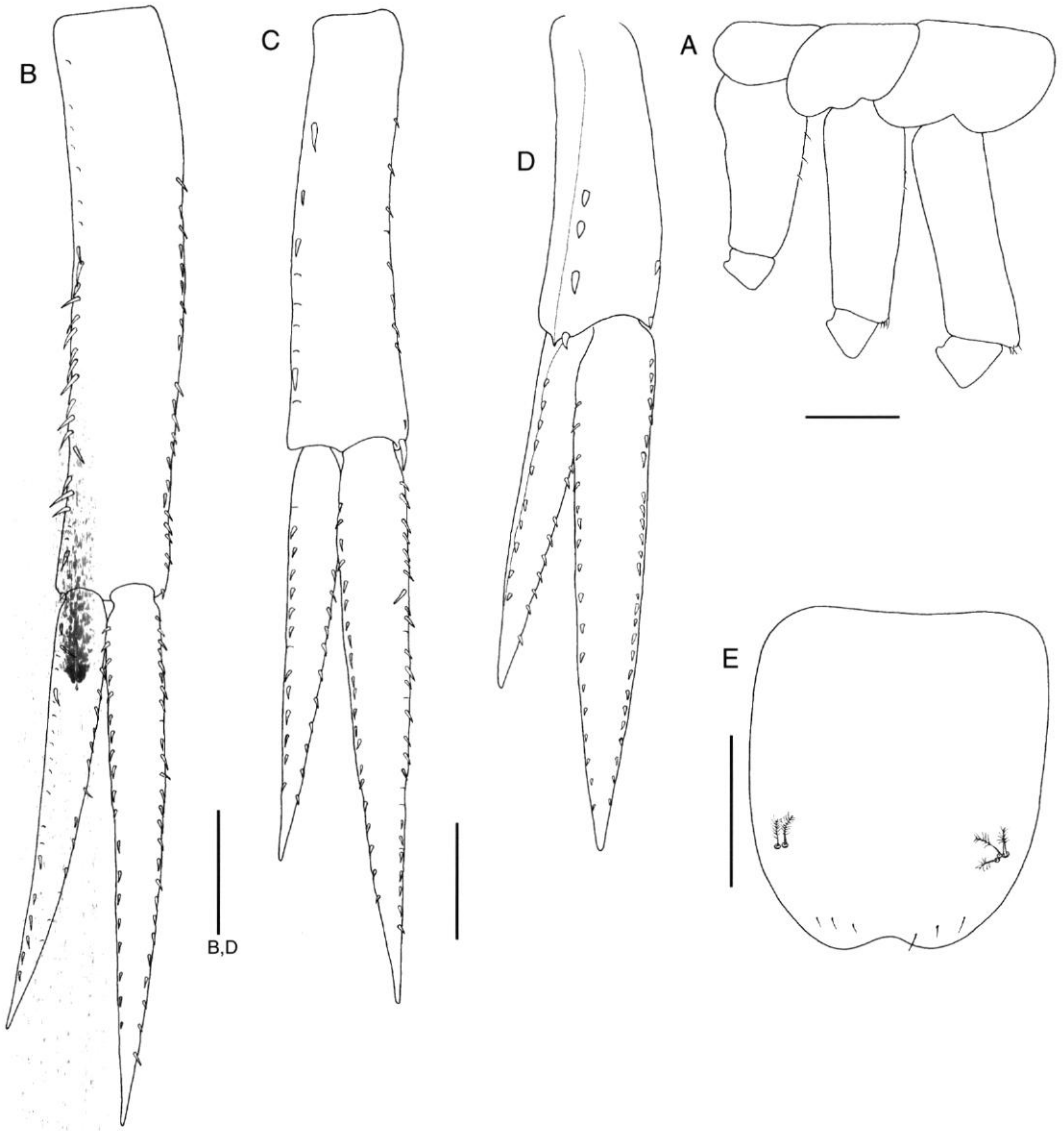


FIG. 3. — *Amathillopsis atlantica* Chevreux, 1908, ♀ 19.5 mm; A, bases of pereopods 5-7; B-D, uropods 1-3; E, telson. Scale bars: A, 1 mm; B-D, 0.5 mm; E, 0.3 mm.

Chevreux' material. Considering the impossibility of getting the type material and the small number of specimens available, it is difficult to determine whether this variability is specific or justifies the separation of our specimens in a new species.

Family EPIMERIIDAE Boeck, 1871  
Genus *Epimeria* Costa in Hope, 1851

*Epimeria* Costa in Hope, 1851: 46. — Watling & Holman 1980: 642.  
*Pseudepimeria* Chevreux, 1912: 216 [type species:

*Pseudepimeria grandirostris* Chevreux, 1912, by original designation].

*Subepimeria* Bellan-Santini, 1972: 225 [type species: *Subepimeria geodesiae* Bellan-Santini, 1972, by original designation].

TYPE SPECIES. — *Epimeria tricristata* Costa in Hope, 1851 [by monotypy].

DIAGNOSIS. — Body with dorsal teeth or processes. Antenna 1, peduncular article 2 shorter than article 1. Mouthparts quadrate projected. Labrum almost entire, epistome very broad. Mandibular molar blunt and tritirative. Lower lip without inner lobes. Maxilliped with inner plate narrower but as long as outer plate, palp article 4 well-developed, unguiform. Coxae 1-4 progressively longer, coxae 4-5 forming a ventral arc. Coxa 4 long, cuspidate. Gnathopods 1-2 similar to each other simple or subchelate, carpus and propodus elongate. Telson incised or cleft (modified from Barnard & Karaman 1991).

***Epimeria bathyalis* n. sp.**

(Figs 4-6)

MATERIAL EXAMINED. — TAAF MD55/Brazil 1987, *Marion Dufresne*, stn 45 CB79, 19°01'S, 37°47'W, 1500-1575 m, 28.V.1987, holotype ♀ 23.3 mm (MNRJ 12801); paratype: 1 ♂ (MNHN-Am5116). — Stn 44 CB78, 18°58'S, 37°48'W, 1200 m, 27.V.1987, 1 ♀ and 1 ♂ (USU 1302).

ETYMOLOGY. — The name refers to the deep sea zone where the species was collected (from the Greek *bathys*, deep; from the Latin suffix *alis*, belongs to).

DIAGNOSIS — Rostrum curved, reaching end of first peduncular article of antenna 1. Eyes slightly bulging on head, lacking pigment. Mandibular palp article 2 slightly longer than article 3. Maxilliped palp article 4 with 2 inner teeth. Coxa 4 acutely pointed below. Coxa 5 posteroventral corner acutely produced downwards, not exceeding width of coxa 6. Pleon segments 1-4 carinate, first carina smaller than other carinae, carinae 2-4 subequal in length. Posteroventral corner of epimera 1-3 slightly produced. Telson slightly longer than wide, notched distally to one eighth of its length.

DESCRIPTION

Holotype (female 23.3 mm). Body entirely pitted (Fig. 4A). Pereon without carinae. Pleon segments 1-4 carinate, first carina smaller than the others, carinae 2-4 subequal in length. Rostrum

reaching end of first peduncular article of antenna 1 (Fig. 4A). Accessory flagellum minute. Antenna 2, peduncular article 4 longer than article 5. Eyes slightly bulging, lacking pigment. Upper lip (Fig. 4B) rounded and slightly concave distally. Mandibles with asymmetric lacinia mobilis, right lacinia reduced; spine row with 13 to 14 spines; palp article 2 slightly longer than article 3 (Fig. 4C, D). Lower lip (Fig. 4E) with a disto-medial bunch of blunt spines. Maxilla 1, inner lobe with 10-11 plumose setae; outer lobe bearing 10-11 strongly dentate spines. Maxilla 2 ordinary. Maxilliped (Fig. 4F), outer plate with inner margin serrate; palp article 4 with two teeth on inner margin.

Coxae 1-3 subacute distally. Coxa 4 acutely pointed below. Coxa 5 posteroventral corner acutely produced downward, not exceeding width of coxa 6. Gnathopods 1-2 subchelate and similar; palm oblique and denticulate; dactylus exceeding palm, inner margin with several spines (Fig. 5A, B). Pereopods 3-4 long and slender; dactylus long, reaching approximately middle of propodus (Fig. 5C). Bases of pereopods 5-6 straight posteriorly (Fig. 5D-E). Basis of pereopod 7 enlarged proximally but narrowing abruptly in distal half (Fig. 5F).

Posteroventral corner of epimera 2-3 slightly produced (Fig. 4A). Rami of uropod one longer than peduncle, bearing marginal spines (Fig. 6A). Outer ramus of uropod 2 about three fourth of inner ramus, both rami with marginal spines (Fig. 6B). Rami of uropod 3 lanceolate (Fig. 6C). Telson slightly longer than wide, notched to one eighth of its length (Fig. 6D).

REMARKS

*Epimeria bathyalis* n. sp. closely resembles *E. subcarinata* Nagata, 1963 from Japan in having coxae 4-5 with a similar shape, the bases of pereopods 5-6 straight posteriorly, and the basis of pereopod 7 narrowing abruptly in its distal half. However, *E. bathyalis* n. sp. can be distinguished from *E. subcarinata* by the following characteristics of the latter species: rostrum not reaching the end of peduncular article 1 of the first antenna, the carina of pleon segment 2 weak, coxa 4 with a long, narrow anterior process; posteroventral corners of epimera 1-2 forming an acute tooth.

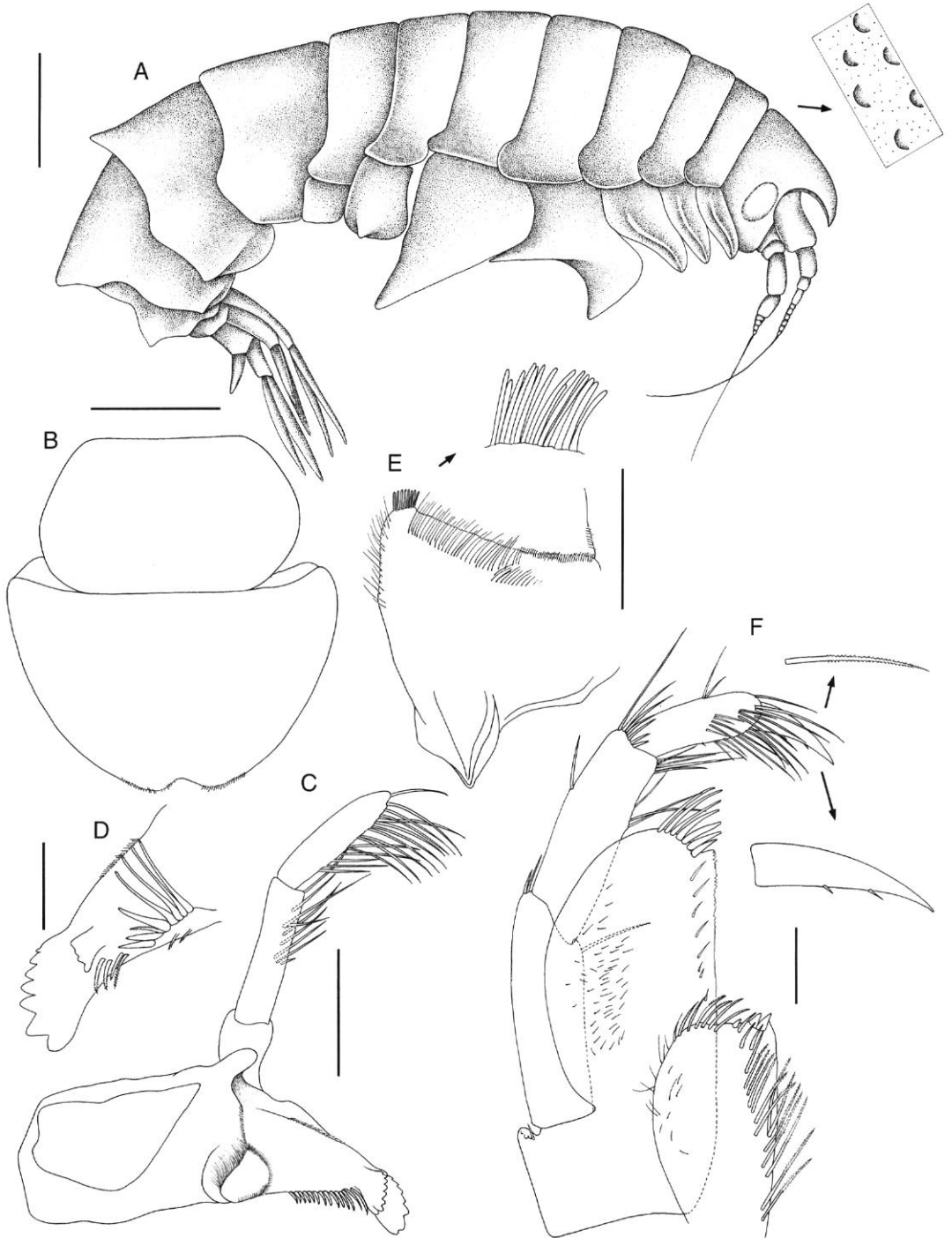


FIG. 4. — *Epimeria bathyalis* n. sp., holotype ♀ 23.3 mm; **A**, habitus; **B**, upper lip; **C**, left mandible; **D**, detail of right mandible; **E**, lower lip; **F**, maxilliped. Scale bars: A, 2.5 mm; B, D, F, 0.25 mm; C, E, 0.5 mm.



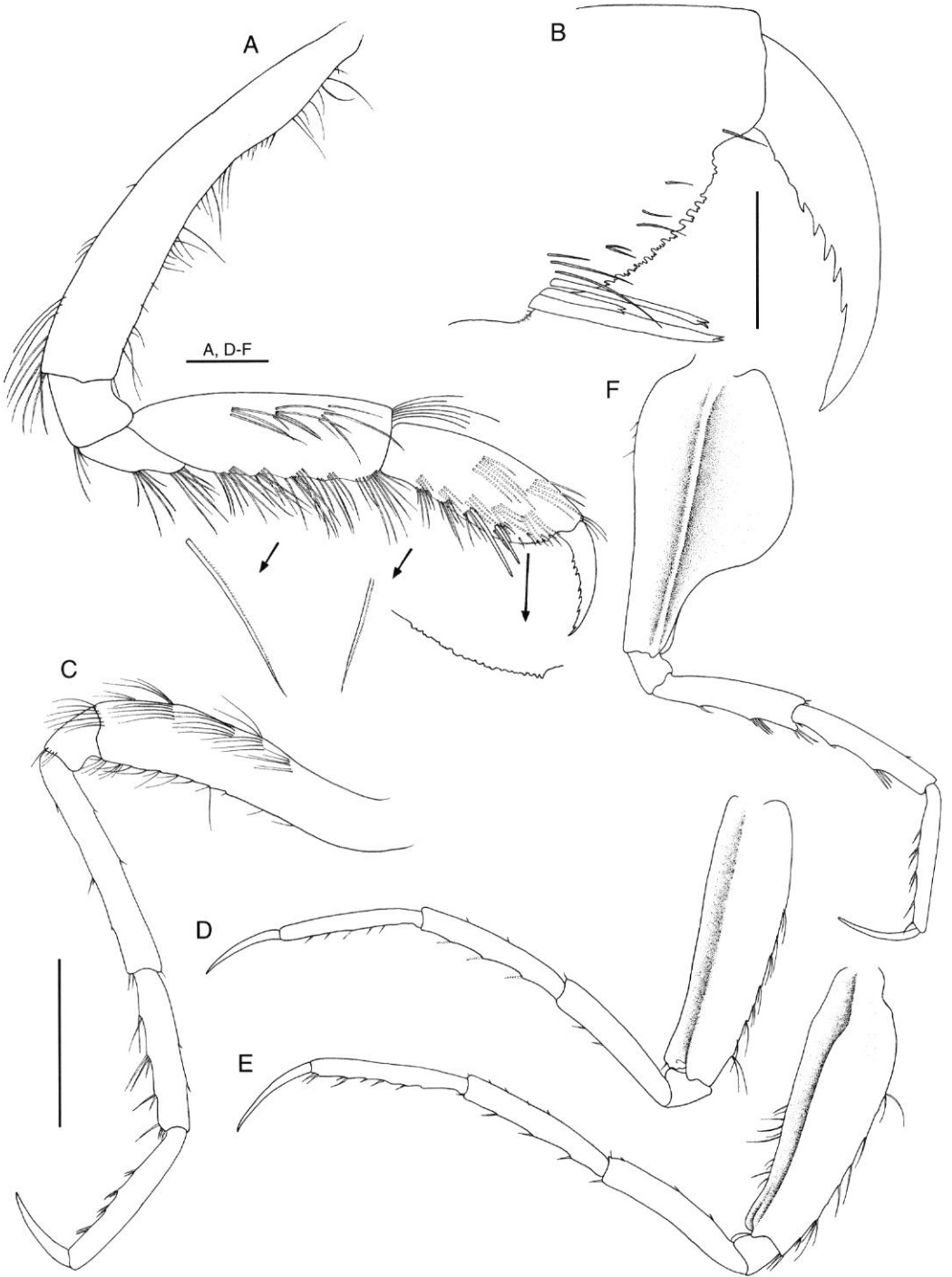


FIG. 5. — *Epimeria bathyalis* n. sp., holotype ♀ 23.3 mm; **A**, gnathopod 1; **B**, detail of gnathopod 2; **C**, pereopod 4; **B-D**, pereopods 5-7. Scale bars: A, C, 0.5 mm; B, 0.2 mm; D-F, 1 mm.

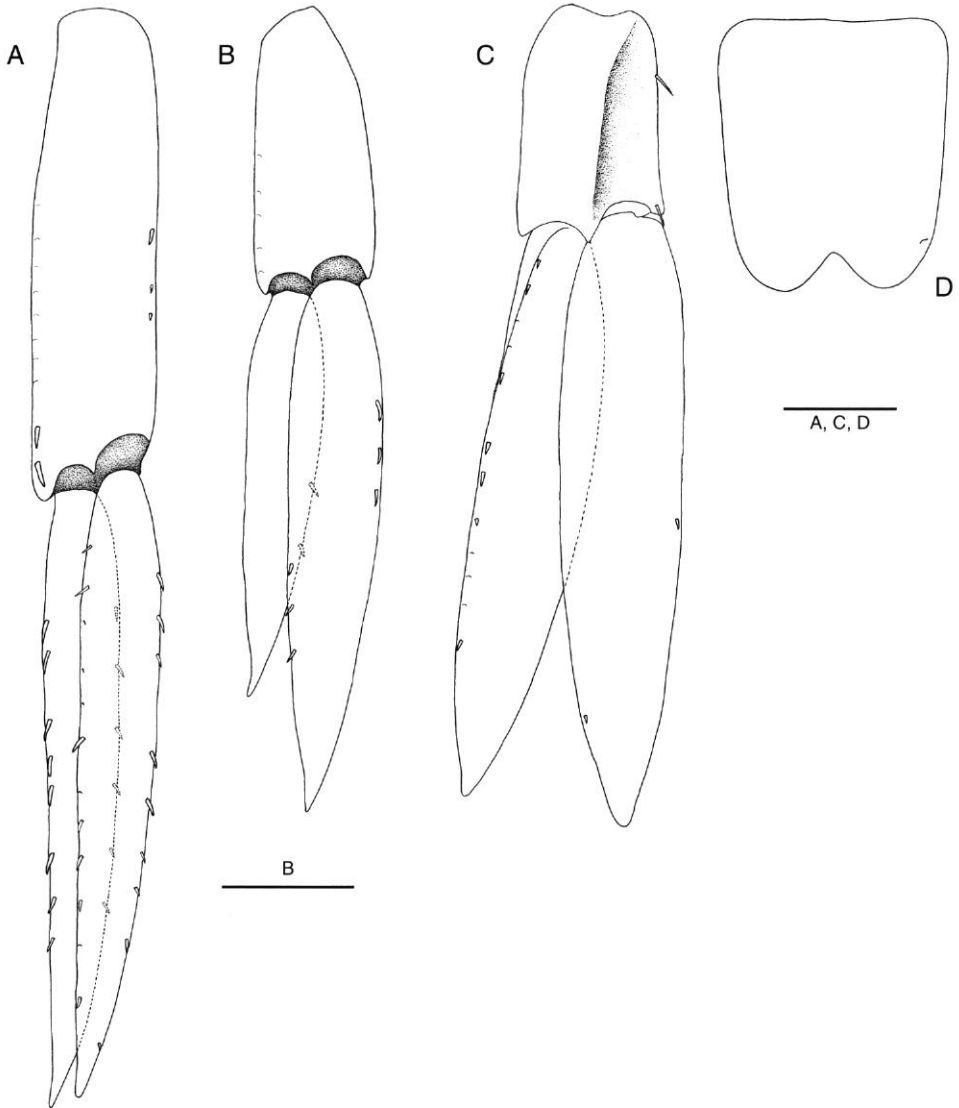


FIG. 6. — *Epimeria bathyalis* n. sp., holotype ♀ 23.3 mm; **A-C**, uropods 1-3; **D**, telson. Scale bars: 0.5 mm.

***Epimeria rotunda*** n. sp.  
(Figs 7; 8)

**MATERIAL EXAMINED.** — TAAF MD55/Brazil 1987, *Marion Dufresne*, stn 59 CB99, 21°36'S, 39°58'W, 1190-1205 m, 31.V.1987, holotype ♀ 18.1 mm (MNRJ 12798); paratypes 1 ♀ (MNRJ 12799); 1 ♀ (USU 1303); 1 specimen (MNHN-Am5117).

**ETYMOLOGY.** — The specific name refers to the round shape of coxae 4-5 (from the Latin *rotundus*, round).

**DIAGNOSIS.** — Rostrum curved, reaching end of peduncular article 1 of antenna 1. Eyes slightly bulging, lacking pigment. Mandibular palp article 2 about same size as article 3. Maxilliped palp article 4 with one inner tooth. Coxa 4 rounded anteriorly. Coxa 5 slightly produced posteriorly in an obtuse

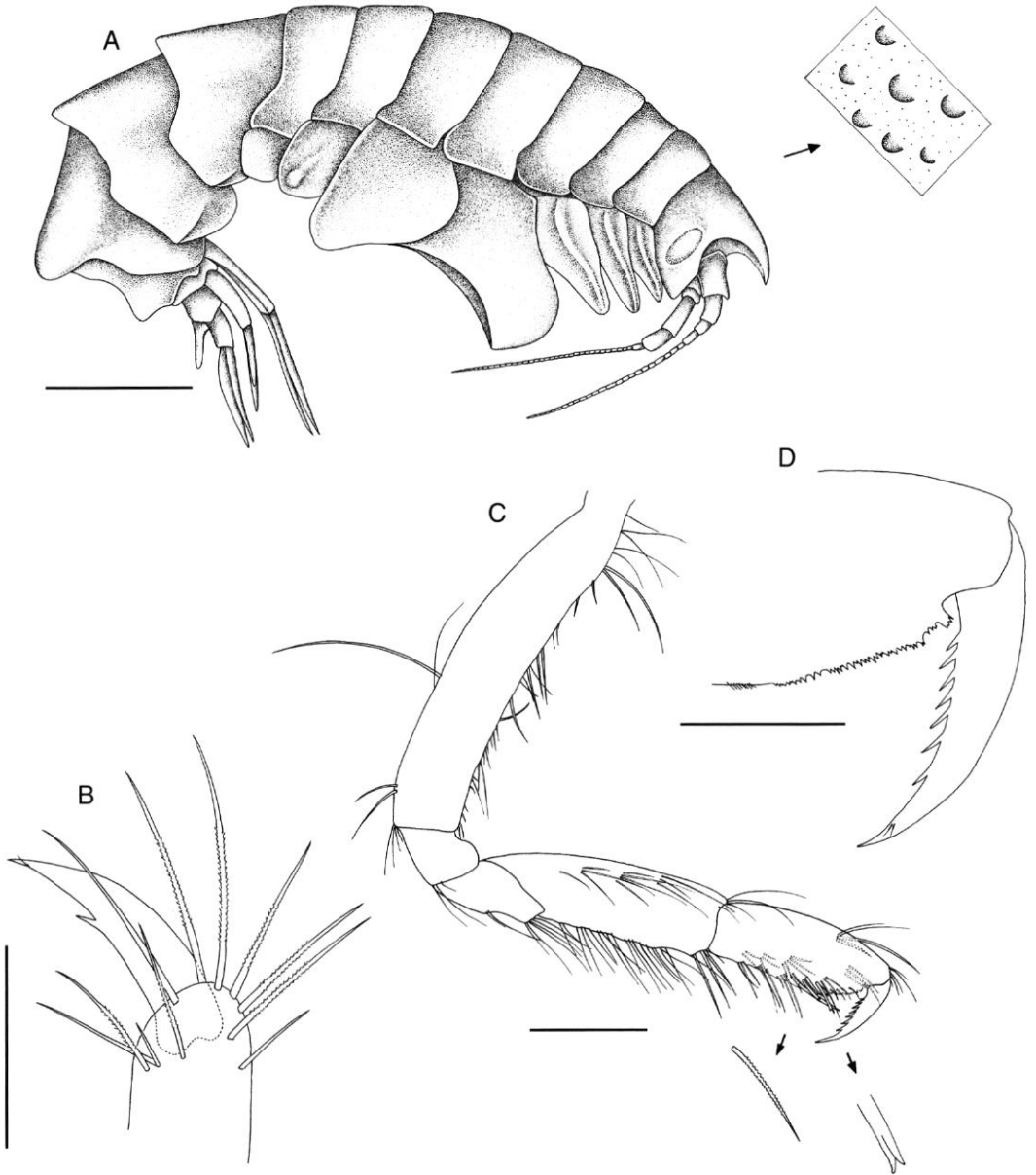


FIG. 7. — *Epimeria rotunda* n. sp., holotype ♀ 18.1 mm; A, habitus; B, dactylus of maxilliped; C-D, gnathopod 1. Scale bars: A, 2.5 mm; B, D, 0.2 mm; C, 0.5 mm.

angle. Posteroventral corners of epimera 1-3 rounded. Pleon segments 1-4 carinate, first carina smaller than the others, carinae 2-4 subequal in length. Telson slightly longer than wide, notched distally to one quarter of its length.

#### DESCRIPTION

Female (14.8-20.9 mm). Body entirely pitted. Pereon without carinae. Pleon segments 1-4 carinate, carina one smaller than the others, carinae

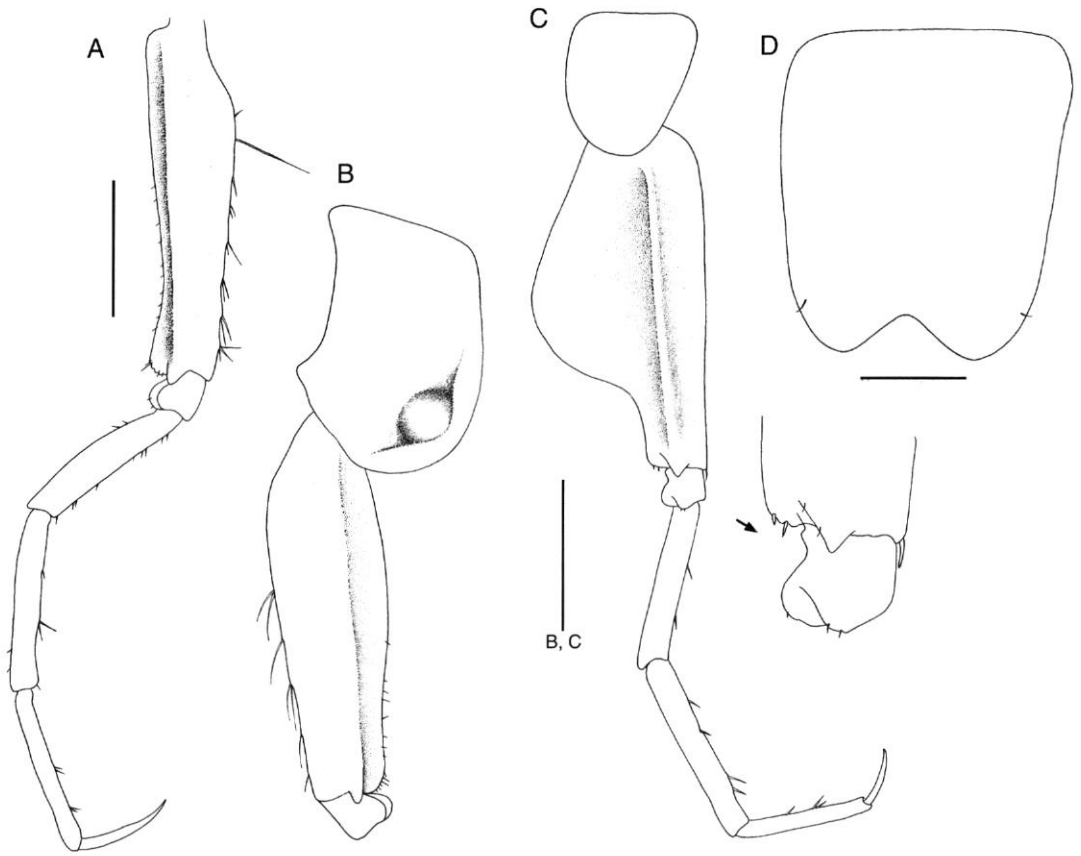


FIG. 8. — *Epimeria rotunda* n. sp., holotype ♀ 18.1 mm; **A-C**, pereopods 5-7; **D**, telson. Scale bars: A-C, 1 mm; D, 0.25 mm.

2-4 subequal in length. Rostrum curved, reaching end of peduncular article 1 of antenna 1. Eyes slightly bulging, lacking pigment (Fig. 7A). Upper lip rounded and slightly concave distally. Mandibles with asymmetric lacinia mobilis, right lacinia reduced; spine row with about 12 spines; palp article 2 about same size as article 3. Lower lip, outer lobe with disto-medial group of spines. Maxilla 1, inner lobe with 8-9 plumose setae; outer lobe with 10-11 dentate spines. Maxilla 2 typical for genus. Maxilliped outer plate with inner margin deeply serrate; palp article 4 with one inner tooth (Fig. 7B).

Coxa 4 anteriorly rounded. Coxa 5 slightly produced posteriorly in an obtuse angle. Gnathopods 1-2 (Fig. 7C, D) subchelated and similar to

each other; palm oblique, finely serrate; dactylus longer than palm, with inner margin dentate. Posterior margins of merus, carpus, and propodus with long plumose setae. Pereopods 3 and 4 long and slender; dactylus long, reaching more than half length of propodus. Bases of pereopods 5-6 (Fig. 8A-B) straight posteriorly. Basis of pereopod 7 (Fig. 8C) enlarged proximally and narrowing abruptly in distal half.

Posteroventral corners of epimera 1-3 rounded (Fig. 7A). Rami of uropods 1-3 with small marginal spines. Rami of uropod 1 longer than peduncle. Outer ramus of uropod 2 about three quarters length of inner ramus. Rami of uropod 3 lanceolate. Telson (Fig. 8D) slightly longer than wide, notched to one quarter of its length.

## REMARKS

*Epimeria rotunda* n. sp. resembles *E. puncticulata* K. H. Barnard, 1930 in the shape of coxae 4-5 and having carinae only on pleonites 1-4. *Epimeria rotunda* n. sp. differs from the latter in the bases of pereopods 5-6 which are straight posteriorly, without processes, and the basis of pereopod 7 has the posterior margin abruptly narrowing, not produced as in *E. puncticulata*. *Epimeria rotunda* n. sp. is also similar to *E. bathyalis* n. sp. herein described, in the body shape, gnathopods, bases of pereopods 5-7, and the long dactylus of pereopods 3-7. The former species can be distinguished from *E. bathyalis* by the maxilliped article 4 bearing only one inner tooth, coxae 4-5 not acutely produced, the posteroventral corner of epimera 2-3 rounded, and the distal notch of the telson extending to about one quarter its length.

***Epimeria ultraspinosa* n. sp.**

(Figs 9; 10)

MATERIAL EXAMINED. — TAAF MD55/Brazil 1987, *Marion Dufresne*, stn 65 CB106, 23°54'S, 42°10'W, 830 m, 2.VI.1987, holotype ♀ 23.6 mm (MNRJ 12797); paratypes: 1 ♀ 23 mm (USU 1304), 1 ♂ 17 mm (MNHN-Am5118).

COMPARATIVE MATERIAL. — *Epimeria longispinosa* K. H. Barnard, 1916: South Africa, Cape Point, holotype ♀ 11 mm (SAM A 220).

ETYMOLOGY. — Refers to the very long spiniform process of coxa 5 (from the Latin words *ultra*, beyond and *spina*, spine).

DIAGNOSIS. — Rostrum long, surpassing end of peduncular article 3 of antenna 1. Eyes bulging on head. Mandibular palp, article 2 longer than article 3. Maxilliped palp article 4 with five inner teeth. Coxa 5 acutely produced in spiniform process, reaching middle of pleonite 3. Bases of pereopods 5-7 with posterodistal lobe. Pleon segments 1-4 with long narrow acute mid-dorsal carinae. Second carina largest. Posteroventral margins of epimera 1-3 produced in a small tooth. Telson slightly longer than wide, notched to one fifth of its length.

## DESCRIPTION

Holotype (female 23.6 mm). Body entirely pitted. Pereon without carinae, pleon segments 1-4 with long, narrow, acute mid-dorsal carinae.

Second carina largest. Head with long rostrum, surpassing end of peduncular article 3 of antenna 1. Eyes bulging on head, lacking pigment. Antenna 1 peduncle and first articles of flagellum with bunches of ventral setae; accessory flagellum minute (Fig. 9A). Upper lip rounded and slightly concave distally. Mandibles with asymmetric lacinia mobilis, right lacinia reduced; spine row with about 13 spines; palp article 2 slightly longer than article 3 (Fig. 9B). Lower lip, outer lobe with disto-medial group of spines. Maxilla 1, inner lobe with nine plumose setae; outer lobe with 11 strongly dentate spines. Maxilla 2 typical for genus. Maxilliped outer plate with inner margin deeply serrate; palp article 4 with five inner teeth and two subapical setae (Fig. 9C-D).

Coxae 1-3 subacute distally. Coxa 4 anteriorly produced into narrow, acute process and posteriorly pronounced as lobe. Coxa 5 acutely produced in a spiniform process reaching midlength of pleonite 3 (Fig. 9A). Coxa 6 cuspidate. Gnathopods 1-2 subchelate; merus, carpus, and propodus, posterior margins with bunches of setae; palm oblique and finely denticulate; dactylus as long as palm, with inner margin serrate (Fig. 10A). Dactylus of pereopod 3 and 4 long, about half length of propodus. Bases of pereopods 5-7 with characteristic posterodistal lobe (Fig. 10B-E). Bases of pereopods 5-6 straight posteriorly. Basis of pereopod 7 narrowing abruptly in distal half (Fig. 10E).

Posteroventral corner of epimeron 3 produced in small tooth (Fig. 9A). Rami of uropod 1 longer than peduncle. Outer ramus of uropod 2 about three fourth length of inner ramus, bearing small marginal spines. Rami of uropod 3 lanceolate. Telson (Fig. 10F) slightly longer than wide, notched distally to one fifth of its length, lobes apically rounded.

## REMARKS

*Epimeria ultraspinosa* n. sp. closely resembles *E. longispinosa* K. H. Barnard, 1916 and *E. pacifica* Gurjanova, 1955, in having the rostrum long, the spiniform process on coxae 4-5 well developed and acute, the body carinate on pleonites 1-4, the bases of pereopods 5-6 with the posterior margin straight, and the basis of pereopod 7 narrowing abruptly in its distal half. The holotype of *E. lon-*

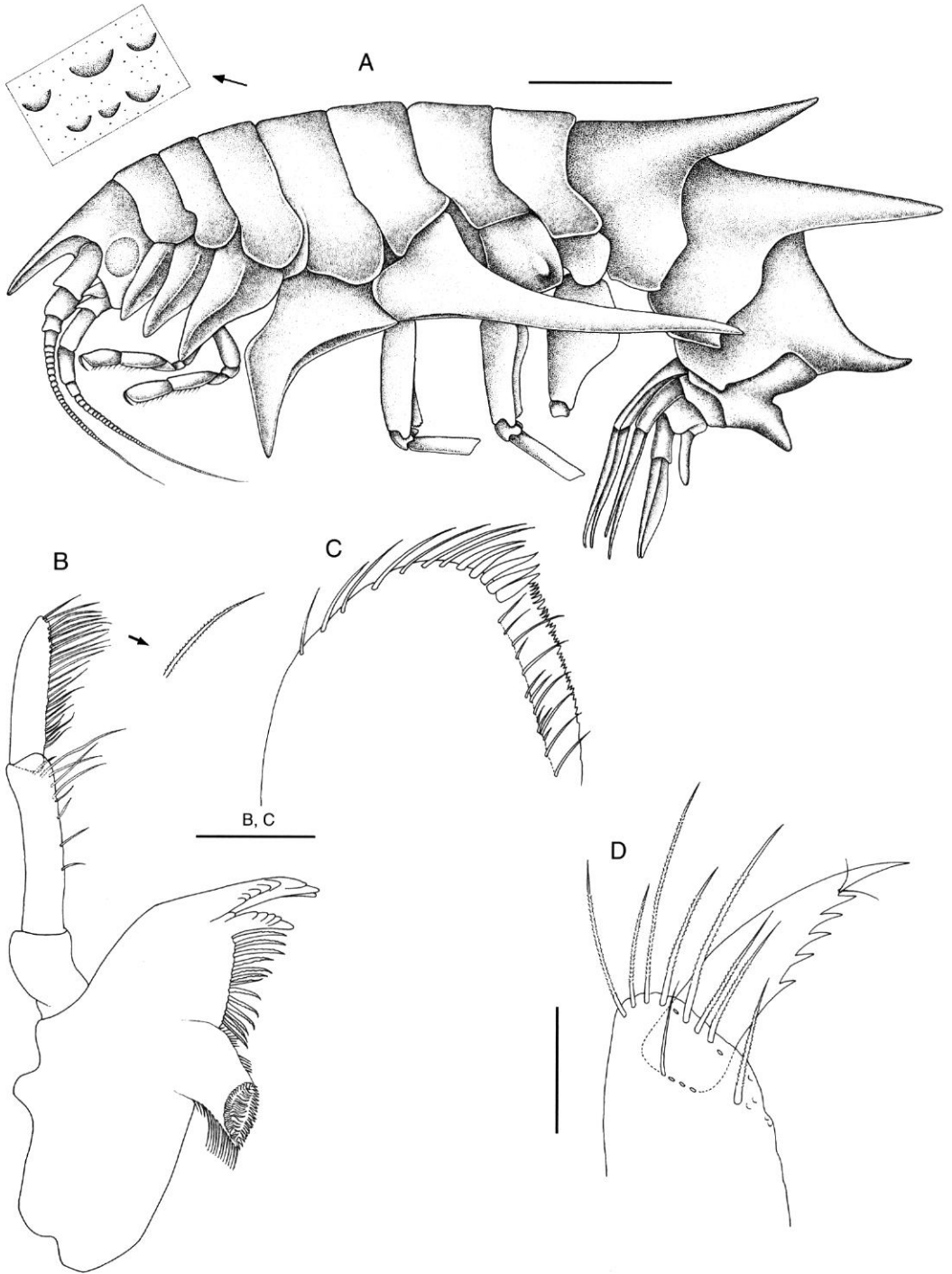


FIG. 9. — *Epimeria ultraspinosa* n. sp., holotype ♀ 23.6 mm; A, habitus; B, left mandible; C, outer plate of maxilliped; D, palp article 4 of maxilliped. Scale bars: A, 2.5 mm; B, 0.5 mm; C, 0.3 mm; D, 0.2 mm.

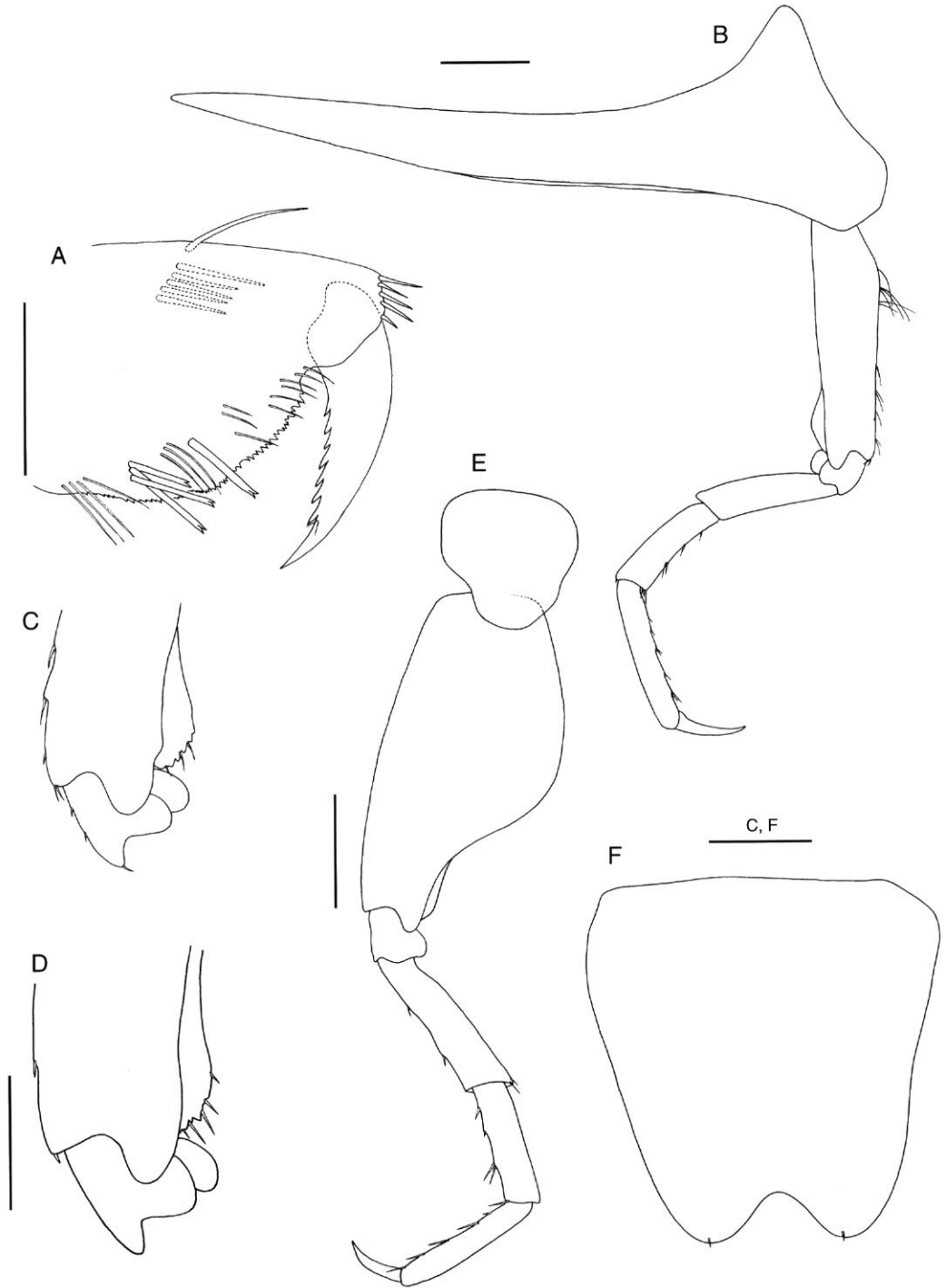


FIG. 10. — *Epimeria ultraspinosa* n. sp., holotype ♀ 23.6 mm; **A**, detail of gnathopod 1; **B**, pereopod 5; **C-D**, distal end of bases of pereopods 5-6; **E**, pereopod 7; **F**, telson. Scale bars: **A**, **F**, 0.3 mm; **B**, 1 mm; **C-D**, 0.5 mm; **E**, 0.1 mm.

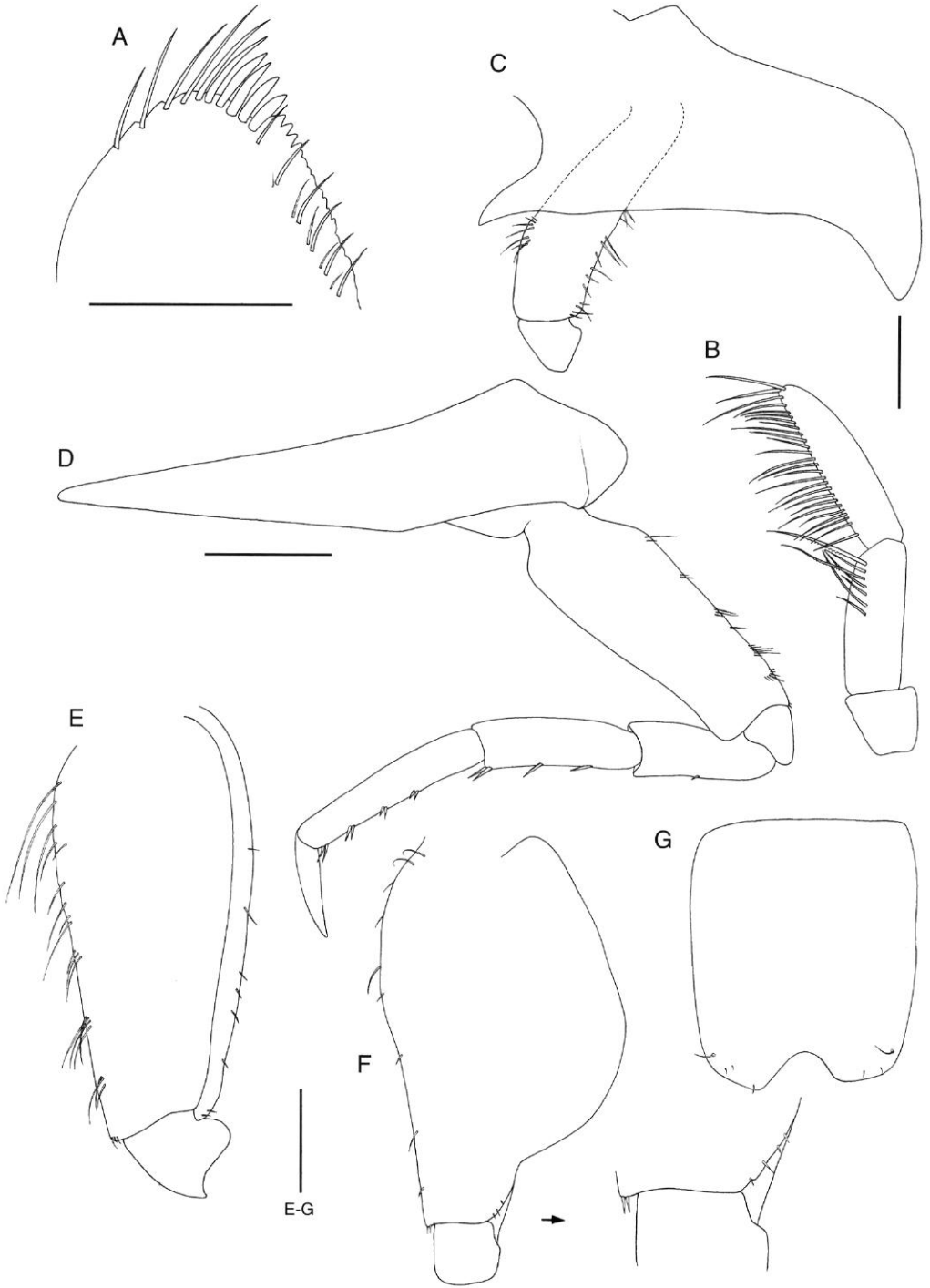


FIG. 11. — *Epimeria longispinosa* K. H. Barnard, 1916, holotype ♀ 11 mm (SAM A220); **A**, outer plate of maxilliped; **B**, mandible palp; **C**, coxa 4; **D**, pereopod 5; **E-F**, bases of pereopods 6-7; **G**, telson. Scale bars: A, B, G, 0.2 mm; C, D, 0.5 mm; E, F, 0.3 mm.



*gispinosa* from South Africa was examined and compared with *E. ultraspinosa* n. sp. *Epimeria longispinosa* can be distinguished from *E. ultraspinosa* as follows: rostrum reaching the second article of antenna 1; outer lobe of the maxilliped less serrate (Fig. 11A); mandibular palp with article 2 shorter than article 3 (Fig. 11B); anteroventral spiniform process on coxa 4 shorter and broader (Fig. 11C); posterior spiniform process on coxa 5 shorter (Fig. 11D), reaching the middle of pleonite 1 as described by K. H. Barnard (1916) or pleonite 2 as observed by Watling (1981); the bases of pereopods 5-7 without a distinct posterodistal lobe (Fig. 11D-F); and the telson has its apical lobe truncate (Fig. 11G).

Comparing *E. ultraspinosa* n. sp. with *E. pacifica*, the former also has the posterior spiniform process longer, the carinae are more developed and the palms of the gnathopods are nearly transverse, not oblique as in *E. pacifica*.

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#### WORLD KEY TO SPECIES OF *EPIMERIA*

1. Some or all pereon segments bearing dorsal carinae ..... 2
  - All pereon segments lacking dorsal carinae ..... 14
2. Only segment 7 of pereon with a small posterodorsal carina or hump ..... 3
  - All pereon segments with carinae ..... 4
  - Only some pereon segments with carinae ..... 7
3. Pleonites 1-3 with slightly enlarged dorsal tooth; third epimeron lacking accessory tooth above lower corner ..... *E. cora* J. L. Barnard, 1971
  - Pleonites 1-3 with large dorsal tooth, third epimeron with accessory tooth above lower corner ..... *E. concordia* Griffiths, 1977
4. Carina on pereonite 1 slightly curved forward and more than two times longer than that of pereonite 2 ..... *E. oxycarinata* Coleman, 1990
  - Carina on pereonite 1 curved backward and distinctly shorter than carina of pereonite 2 ..... *E. rubriqueues* De Broyer & Klages, 1991
  - Carinae on pereonite 1-2 about the same size, or carinae on pereonite 1 slightly longer than pereonite 2 ..... 5
5. Pereonites 4-7 with dorsal teeth more than 2 times longer than wide .....
  - .....*E. pulchra* Coleman, 1990
  - Pereonites 4-7 with dorsal teeth as long as wide .....
    - .....*E. grandirostris* (Chevreux, 1912)

- Pereonites 4-7 with dorsal teeth smaller, wider than long ..... 6
- 6. Coxae 4-5 not acutely produced; basis of pereopod 6 with proximal posterior process ..... *E. intermedia* Schellenberg, 1931
- Coxae 4-5 acutely produced, basis of pereopod 6 without proximal posterior process ..... *E. loricata* Sars, 1879
- 7. Coxa 5 strongly and acutely produced posteriorly ..... 8
- Coxa 5 not produced posteriorly ..... 10
- 8. Pereonites 3-7 with dorsal teeth; pereopods 5-6, posterodistal corner of basis acutely produced ..... *E. macrodonta* Walker, 1906
- Pereonites 6-7 with dorsal teeth; pereopods 5-6, posterodistal corner of basis not acutely produced ..... 9
- 9. Epimeron 3 with two small teeth on posterior margin .....  
..... *E. cornigera* (Fabricius, 1779)
- Epimeron 3 with one large tooth on posterior margin .... *E. parasitica* (Sars, 1858)
- 10. Basis of pereopod 5 strongly notched posteriorly .. *E. georgiana* Schellenberg, 1931
- Basis of pereopod 5 lobate postero-proximally ..... *E. heldi* Coleman, 1998
- Basis of pereopod 5 straight posteriorly ..... 11
- 11. Mid-dorsal carinae on pereonites 5-7 clearly bilobed; basis of pereopod 6 with large posteroproximal process ..... *E. rimicarinata* Watling & Holman, 1980
- Mid-dorsal carinae on pereonites 5-7 not bilobed; basis of pereopod 6 without posteroproximal process ..... 12
- 12. Coxa 4 broadly rounded below ..... *E. inermis* Walker, 1903
- Coxa 4 tapering below, with blunt apex ..... 13
- 13. Epimeron 3 rounded, without tooth at lower posterior margin .....  
..... *E. bruuni* J. L. Barnard, 1961
- Epimeron 3 not rounded, with two teeth at lower posterior margin .....  
..... *E. tuberculata* Sars, 1895
- 14. Coxa 5 acutely produced posteriorly ..... 15
- Coxa 5 not acutely produced posteriorly ..... 18

15. Coxa 5 posteroventral corner acutely produced posteriorly as far as pleonite 1 .. 16  
 — Coxa 5 posteroventral corner acutely produced downward, not exceeding width of coxa 6 ..... 17  
 — Coxa 5 posteroventral corner acutely produced posteriorly as far as pleonite 3 .....  
 ..... *E. ultraspinosa* n. sp.
16. Eyes absent; rostrum reaching end of first peduncular article of antenna 1; dorsal tooth of pleonite 1 scarcely produced ..... *E. glaucosa* J. L. Barnard, 1961  
 — Eyes present; rostrum reaching end of second peduncular article of antenna 1; dorsal tooth of pleonite 1 strongly produced, reaching the middle of pleonite 2 .....  
 ..... *E. longispinosa* K. H. Barnard, 1916  
 — Eyes present; rostrum reaching end of third peduncular article of antenna 1; dorsal tooth of pleonite 1 short, barely exceeding pleonite 2 .....  
 ..... *E. pacifica* Gurjanova, 1955
17. Rostrum reaching end of first peduncular article of antenna 1; posteroventral margin of epimera 2-3 slightly produced ..... *E. bathyalis* n. sp.  
 — Rostrum not reaching end of first peduncular article of antenna 1; posteroventral margin of epimera 2-3 produced in an acute tooth .... *E. subcarinata* Nagata, 1963
18. Basis of pereopod 5 with posterior margin sharply notched .....  
 ..... *E. robusta* K. H. Barnard, 1930  
 — Basis of pereopod 5 with smooth posterior margin ..... 19
19. Pleon without dorsal carinae ..... *E. obtusa* Watling, 1981  
 — Pleon with carinae (well-defined or as a small hump) beginning on segment 1 .. 20  
 — Pleon with carinae beginning on segment 3 ..... 23
20. Basis of pereopod 7 expanded postero-distally into a lobe .....  
 ..... *E. puncticulata* K. H. Barnard, 1930  
 — Basis of pereopod 7 not expanded postero-distally ..... 21
21. Coxa 4 narrowing abruptly and forming a slender process with tip bluntly rounded; gnathopods 1 and 2, carpus nearly triangular, shorter than propodus, palm smooth, defined by an acute tooth ..... *E. yaquinae* McCain, 1971  
 — Coxa 4 not narrowing abruptly, anteriorly rounded; gnathopods 1 and 2, carpus nearly rectangular, longer than propodus, palm finely serrate, without tooth .... 22
22. Eyes absent; rostrum not reaching end of peduncular article 1 of antenna 1 .....  
 ..... *E. bispinosa* Ledoyer, 1986

- Eyes present; rostrum reaching end of peduncular article 1 of antenna 1 ..... *E. rotunda* n. sp.
23. Coxa 4 broadly rounded ventrally ..... 24
- Coxa 4 acutely pointed ventrally ..... 25
24. Basis of pereopod 7 with posterodistal lobe regularly rounded, not reaching distal margin of ischium ..... *E. monodon* Stephensen, 1947
- Basis of pereopod 7 with posterodistal lobe rounded and with slightly concave margin, reaching almost midlength of merus ..... *E. extensa* Andres, 1985
- Basis of pereopod 7 with posterodistal lobe acute, reaching midlength of merus ....  
..... *E. annabellae* Coleman, 1994
25. Rostrum long, reaching end of peduncular article 2 of antenna 1 .....  
..... *E. semiarmata* K. H. Barnard, 1916
- Rostrum short, not reaching end of peduncular article 1 of antenna 1 .....  
..... *E. pelagica* Birsten & Vinogradov, 1958

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