

Three new species of the genus *Munida* Leach, 1820 (Decapoda, Galatheididae) from the Seychelles Islands (Indian Ocean)

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ABSTRACT

Three new species of the genus *Munida* Leach, 1820 (*M. insularis*, *M. dissita* and *M. nesiotis*) are described and illustrated from specimens collected during the cruise Cepros carried out off Seychelles Islands. *M. insularis* closely resembles *M. eclepsis* Macpherson, 1994 from New Caledonia. The new species is characterized by the presence of five spines on the lateral margins of the carapace behind cervical groove, the second abdominal segment armed with spines along the anterior ridge, the distolateral spine of the basal antennular segment longer than the distomesial and the dactylus of the walking legs short, with movable spinules along the entire ventral border. *M. dissita* is closely related to *M. remota* Baba, 1989, from Madagascar, *M. rubiesi* Macpherson, 1991, from the Gulf of Aden and *M. africana* Doflein & Balss, 1913, from Somalia. *M. dissita* has five spines on the lateral margins of the carapace behind cervical groove, the second abdominal segment armed with spines along the anterior ridge, the distolateral spine of the basal antennular segment longer than the distomesial and the dactylus of the walking legs long and slender, with movable spinules along the proximal ventral border. *M. nesiotis* is close to *M. erato* Macpherson, 1994, from New Caledonia and Chesterfield Islands and belongs to the group of species having four spines on the lateral margins of the carapace behind cervical groove.

KEY WORDS

Crustacea,
Decapoda,
Galatheididae,
Munida,
new species,
Seychelles,
Indian Ocean.

RÉSUMÉ

Trois nouvelles espèces du genre *Munida* Leach, 1820 (Decapoda, Galatheididae) des îles Seychelles (océan Indien).

Trois nouvelles espèces du genre *Munida* Leach, 1820 (*M. insularis*, *M. dissita* et *M. nesioties*) sont décrites et illustrées à partir de spécimens récoltés lors de la campagne Cepros au large des îles Seychelles. *M. insularis* est proche de *M. ecleipsis* Macpherson, 1994, de Nouvelle-Calédonie. La nouvelle espèce est caractérisée par la présence de cinq épines sur les bords latéraux de la carapace en arrière du sillon cervical, le deuxième segment abdominal portant des épines le long de la crête antérieure, l'épîne distolatérale du segment antennulaire basal plus longue que la distomesiale et le dactylus des pattes ambulateurs court, avec des spinules mobiles tout le long du bord ventral. *M. dissita* est proche de *M. remota* Baba, 1989, de Madagascar, de *M. rubiesi* Macpherson, 1991, du golfe d'Aden et de *M. africana* Doflein & Bals, 1913, de Somalie. *M. dissita* a cinq épines sur les bords latéraux de la carapace en arrière du sillon cervical, le second segment abdominal portant des épines le long de la crête antérieure, l'épîne distolatérale du segment antennulaire basal plus longue que la distomesiale et le dactylus des pattes ambulateurs long et fin, avec des spinules mobiles le long du bord ventral proximal. *M. nesioties* est proche de *M. erato* Macpherson, 1994, de Nouvelle-Calédonie et des îles Chesterfield et appartient au groupe d'espèces ayant quatre épines aux bords latéraux de la carapace en arrière du sillon cervical.

MOTS CLÉS

Crustacea,
Decapoda,
Galatheididae,
Munida,
nouvelle espèce,
Seychelles,
océan Indien.

INTRODUCTION

In recent years the study of the crustacean decapods of Seychelles Islands has received some attention (e.g. Bruce 1976, 1984; Haig 1984; Serène 1984; Fransen 1994), indicating the presence of a rich fauna. Additionally, studies carried out in the Western Indian Ocean have pointed to our lack of knowledge of the interesting fauna in this area. Among these works, some have been centered on galatheid crustaceans, especially on the genus *Munida* (e.g. Tirmizi 1966, Tirmizi & Javed 1976, Tirmizi & Javaid 1992; Türkay 1986; Baba 1974, 1989; Macpherson 1991; Macpherson & Baba 1993; Galil 1999), indicating the existence of about 20 species, although very few records have been noted around Seychelles waters.

During the cruise CEPROS, an expedition to evaluate the crustacean resources in the continental shelf and slope of the Seychelles Islands (Intes & Bach 1989), some specimens of the genus *Munida* were taken. Through the courtesy of Alain Crosnier, these specimens have been examined, being considered as belonging to three new species.

The types of the new species and other specimens are deposited in the collections of the Muséum national d'Histoire naturelle de Paris. The measurements given are the carapace length, excluding rostrum. The terminology used follows previous papers (see Zariquiey-Alvarez 1952; Macpherson & de Saint-Laurent 1991; Baba & de Saint-Laurent 1996).

SYSTEMATICS

Munida insularis n. sp.
(Fig. 1)

MATERIAL EXAMINED. — CEPROS, stn 67, 4°59.8'S, 56°48.8'E, 300 m, 31.X.1987, 1 ♂ holotype 24.2 mm, 1 ov. ♀ 24.7 mm.

ETYMOLOGY. — From the Latin, *insula*, island in reference to the islands where the type specimens were collected.

DISTRIBUTION. — Seychelles Islands, 300 m.

DESCRIPTION

Carapace slightly longer than wide. Transverse

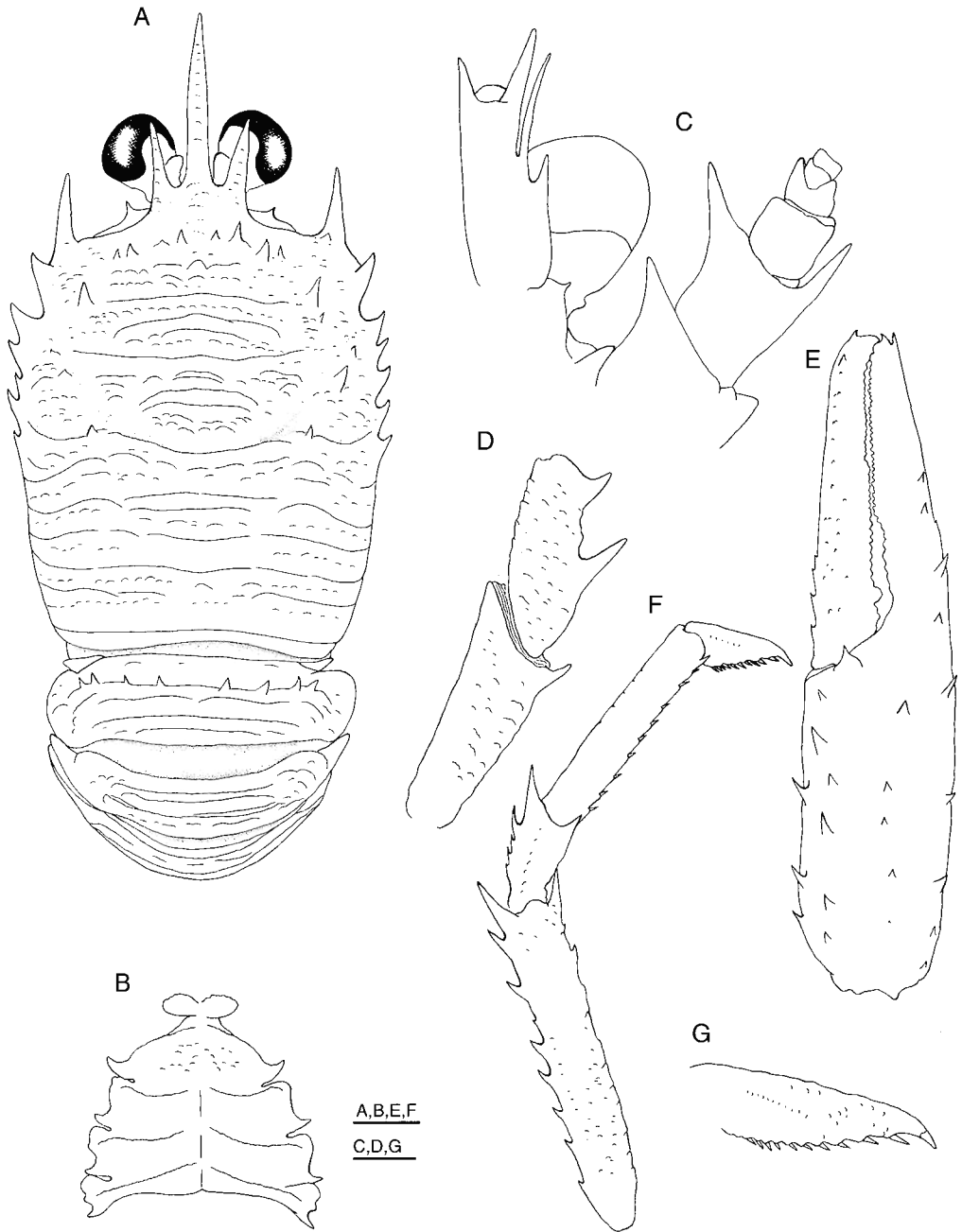


FIG. 1. — *Munida insularis* n. sp., holotype, ♂ 24.2 mm, setae of carapace, abdomen and pereopods not illustrated; **A**, carapace and abdomen, dorsal view; **B**, sternal plastron; **C**, ventral view of cephalic region, showing antennular and antennal peduncles; **D**, right third maxilliped, lateral view; **E**, right cheliped, dorsal view of the palm and fingers; **F**, right first walking leg, lateral view; **G**, dactylus of right first walking leg, lateral view. Scale bars: A, B, E, F, 5 mm; C, D, G, 2 mm.

ridges mostly interrupted, with dense very short, not iridescent, setae and few long iridescent setae. Main transverse striae on posterior part of carapace interrupted in cardiac region. Numerous small scales between main striae. Several small scales on intestinal region. Gastric region with a row of four pairs of epigastric spines, pair just behind supraocular spines being largest. One parahepatic, one branchial anterior and one post-cervical spine on each side. Occasionally, one small additional spine on each parahepatic and branchial anterior region.

Frontal margins slightly oblique. Lateral margins feebly convex. Anterolateral spine well-developed, situated at anterolateral angle, overreaching level of sinus between rostrum and supraocular spines. Second marginal spine before cervical groove four times smaller than preceding one. Branchial margins with five spines decreasing in size posteriorly.

Rostrum spiniform, half as long as remaining carapace, slightly sinuous and horizontal. Supraocular spines reaching midlength of rostrum and not overreaching end of corneas, slightly divergent, upwardly directed.

Fourth thoracic sternite with some short granulated striae; lateral surface of fifth to seventh sternites smooth, without striae, granules or carinae. Anterior part of fourth sternite slightly narrower than third. Transverse ridges between fifth, sixth and seventh sternites obtuse, feebly granulated.

Second abdominal tergite with one row of four to five pairs of spines on anterior border. Second and third tergites with one main transverse stria, and three to four additional continuous striae or interrupted medially. Fourth abdominal tergite with one main transverse continuous stria and two additional weak striae.

Eyes moderately large, maximum corneal diameter about one third the distance between bases of anterolateral spines.

Basal segment of antennule (distal spines excluded), about one quarter carapace length, elongate, slightly overreaching corneas, with two distal spines, mesial spine shorter than lateral spine; two spines on lateral margin, proximal one short, located at midlength of segment, distal one long, not overreaching distolateral spine.

First segment of antennal peduncle with one dis-

tal spine on mesial margin not reaching end of second segment; second segment with two long distal spines, mesial spine slightly longer than lateral spine, reaching end of penultimate segment, although not overreaching antennal peduncle; penultimate segment unarmed.

Ischium of third maxilliped about 1.5 time length of merus measured along dorsal margin, distoventrally bearing spine. Merus of third maxilliped bearing two well-developed spines on flexor margin, distal smaller; extensor margin unarmed.

Chelipeds subequal, squamous, with numerous short uniramous setae more dense on mesial borders of articles. Palm slightly more than twice as long as high and nearly as long as fingers. Merus armed with some spines, strongest spine on distal border short, not overreaching proximal quarter of carpus. Carpus with several spines on dorsal side and several spines scattered on mesial and ventral sides. Palm with several spines scattered on mesial and dorsal sides and one row of dorso-lateral spines, continuing onto first half of fixed finger. Fingers distally curving and crossing, ending in a sharp point; movable with two spines near base and one spine near tip; fixed with two additional spines near tip; cutting edges with small teeth of different sizes.

Second pereopod slightly less than twice carapace length; merus shorter than carapace, about 5.5 times as long as high, about three times carpus length and 1.5 times as long as propodus; propodus five times as long as high, about twice dactylus length. Merus with eight to twelve spines on dorsal border, increasing in size distally, ventral margin with one long distal spine, one additional spine on distal half. Carpus with four to five dorsal spines and one distoventral spine. Propodus with nine to ten movable ventral spines. Dactylus short, with dorsal margin slightly convex on proximal half, slightly curving distally, with nine to ten movable spinules along entire ventral margin. Third pereopod similar to second; fourth pereopod shorter than second and third. Merus of fourth pereopod two thirds length of second pereopod. Epipods absent from all pereopods.

REMARKS

Munida insularis belongs to the group of species

having five spines on the lateral margins of the carapace behind cervical groove, eyes moderately large, the second abdominal segment armed with spines along the anterior ridge, the lateral parts of the posterior thoracic sternites without granules or carinae, rostrum spiniform, the distolateral spine of the basal antennular segment longer than the distomesial and the dactylus of the walking legs short, with movable spinules along the entire ventral border. The new species is closely related to *M. eclepsis* Macpherson, 1994, from New Caledonia. However, both species can be distinguished by several aspects :

- The secondary striae are clearly more numerous in the new species than in *M. eclepsis*.
- The distomesial spine of the second segment of the antennal peduncle is long and overreaches the antennal peduncle in *M. eclepsis*, whereas in the new species this spine is very short and only reaches the end of the third segment.
- The dactylus of the walking legs are clearly shorter in the new species than in *M. eclepsis*.

***Munida dissita* n. sp.**
(Fig. 2)

MATERIAL EXAMINED. — CEPROS, stn 17, 4°35.2'S, 56°24.9'E, 400 m, 22.X.1987: 1 ♂ Holotype 26.5 mm, 1 ♀ 16.4 mm.

ETYMOLOGY. — From the Latin, *dissitus*, distant, apart, in reference to the creole name of the Seychelles ("zil eloigne sesel").

DISTRIBUTION. — Seychelles Islands, 400 m.

DESCRIPTION

Carapace longer than wide. Transverse ridges mostly interrupted, with dense short, not iridescent setae and few long iridescent setae. Main transverse striae on posterior part of carapace interrupted in cardiac region. Intestinal region with some small striae. Numerous small scales between main striae. Gastric region with a row of five pairs of epigastric spines, pair just behind supraocular spines being the largest. One parahaepatic, one branchial anterior and one postcervical spine on each side. Occasionally one small additional spine on parahaepatic and hepatic regions. Frontal margins slightly oblique. Lateral margins

feebly convex. Anterolateral spine well-developed, situated at anterolateral angle, reaching level of sinus between rostrum and supraocular spines. Second marginal spine before cervical groove three times smaller than preceding one. Branchial margins with five spines decreasing in size posteriorly.

Rostrum spiniform, half as long as remaining carapace, slightly sinuous and horizontal. Supraocular spines reaching midlength of rostrum and end of corneas, subparallel or slightly divergent, upwardly directed.

Fourth thoracic sternite with some short granulated striae; lateral surface of fifth to seventh sternites smooth, without striae, granules or carinae. Anterior part of fourth sternite clearly narrower than third, deeply concave medially. Transverse ridges between fifth, sixth and seventh sternites obtuse, feebly granulated.

Second abdominal tergite with one row of nine spines on anterior border. Second and third tergites with one main transverse stria, and one to two weak continuous or medially interrupted striae. Fourth tergite with one continuous stria and one additional medially interrupted stria.

Eyes large, maximum corneal diameter more than one third the distance between bases of anterolateral spines.

Basal segment of antennule (distal spines excluded) about one quarter carapace length, elongate, overreaching corneas, with two distal spines, mesial spine shorter than lateral spine; two spines on lateral margin, proximal one short, located at midlength of segment, distal one long, not overreaching distolateral spine.

First segment of antennal peduncle with one strong distal spine on mesial margin, slightly overreaching second segment; second segment with two long distal spines, mesial spine longer than lateral spine, reaching end of penultimate segment, although not overreaching antennal peduncle; penultimate segment unarmed.

Ischium of third maxilliped about 1.5 time length of merus measured along dorsal margin, distoventrally bearing spine. Merus of third maxilliped bearing two well-developed spines on flexor margin, distal smaller; extensor margin unarmed.

Chelipeds subequal, squamous, with numerous

short uniramous setae more dense on mesial borders of articles. Chelipeds of male densely covered with setae. Palm slightly less than twice as long as high and slightly longer than fingers. Merus armed with some spines, longer on distal border, strongest spine on distal border moderately long, not overreaching proximal third of carpus. Carpus with several spines on dorsal side and several spines scattered on mesial and ventral sides. Palm with several spines scattered on mesial and dorsal sides and one row of dorso-lateral spines, continuing along fixed finger. Fingers distally curving and crossing, ending in a sharp point; movable finger with several spines along mesial border, one spine near tip; fixed with one additional spine near tip; cutting edges with small teeth of different sizes.

Second pereiopod twice carapace length; merus as long as carapace, about seven times as long as high, four times carpus length and 1.7 time as long as propodus; propodus five times as long as high, about 1.4 time dactylus length. Merus with ten to eleven spines on dorsal border, increasing in size distally, ventral margin with one long distal spine, one additional spine, and three projecting scales on distal half. Carpus with three dorsal spines and one distoventral spine. Propodus with six to eight movable ventral spines. Dactylus long and slender, with dorsal margin slightly convex on proximal half, slightly curving distally, with six movable spinules along ventral margin, distal part unarmed. Third pereiopod similar to second; fourth pereiopod shorter than second and third. Merus of fourth pereiopod half length of second pereiopod. Epipods absent from all pereiopods.

REMARKS

The new species resembles *M. microps* Alcock, 1894, from the Indian and Western Pacific waters (Alcock 1894; Baba 1988, 1994; Macpherson 1994), *M. remota* Baba, 1989 from Madagascar, *M. rubiesi* Macpherson, 1991 from the Gulf of Aden and *M. africana* Doflein & Balss, 1913 from Somalia (Macpherson 1991) in having five spines on the lateral margins of carapace behind cervical groove, eyes moderately large, the second abdominal segment armed with spines along the anterior ridge, the lateral parts

of the posterior thoracic sternites without granules, rostrum spiniform and the distolateral spine of the basal antennular segment longer than the distomesial.

M. microps and *M. remota* can be distinguished from *M. dissita* by several aspects:

– The secondary striae are clearly more numerous in the new species than in *M. microps* and *M. remota*.

– The anterior part of the fourth thoracic sternite is clearly narrower than the third and deeply concave medially in the new species, whereas this concavity is practically absent in *M. microps* and *M. remota*.

– The corneae are larger in *M. dissita* than in *M. microps* and *M. remota*.

– The distomesial spine of the basal segment of the antennal peduncle overreaches the second segment in *M. dissita*, whereas this spine clearly not overreach the end of the second segment in *M. microps* and *M. remota*.

– The fingers of the chelipeds have spines along external borders in *M. dissita*, whereas in *M. microps* and *M. remota* the fingers are unarmed or only have one spine in the proximal half of the fixed finger, in addition to the distal spines.

M. dissita can be distinguished from *M. rubiesi* by the following aspects:

– The secondary striae are clearly more numerous in the new species than in *M. rubiesi*.

– The chelipeds are more slender in *M. rubiesi* than in *M. dissita*. Furthermore, the fingers of the chelipeds have spines along external borders in *M. dissita*, whereas *M. rubiesi* has only one median spine on the lateral border of the fixed finger, in addition to distal spines.

– The dactylus of the walking legs is clearly longer and more curved in *M. rubiesi* than in *M. dissita*, having clearly more movable spinules along ventral margin in *M. rubiesi* than in the new species.

M. dissita can be distinguished from *M. africana* by the following characters:

– The front margins of the carapace are distinctly oblique in *M. africana*. In the new species the margins are transverse.

– The secondary striae are clearly more numerous in the new species than in *M. africana*.

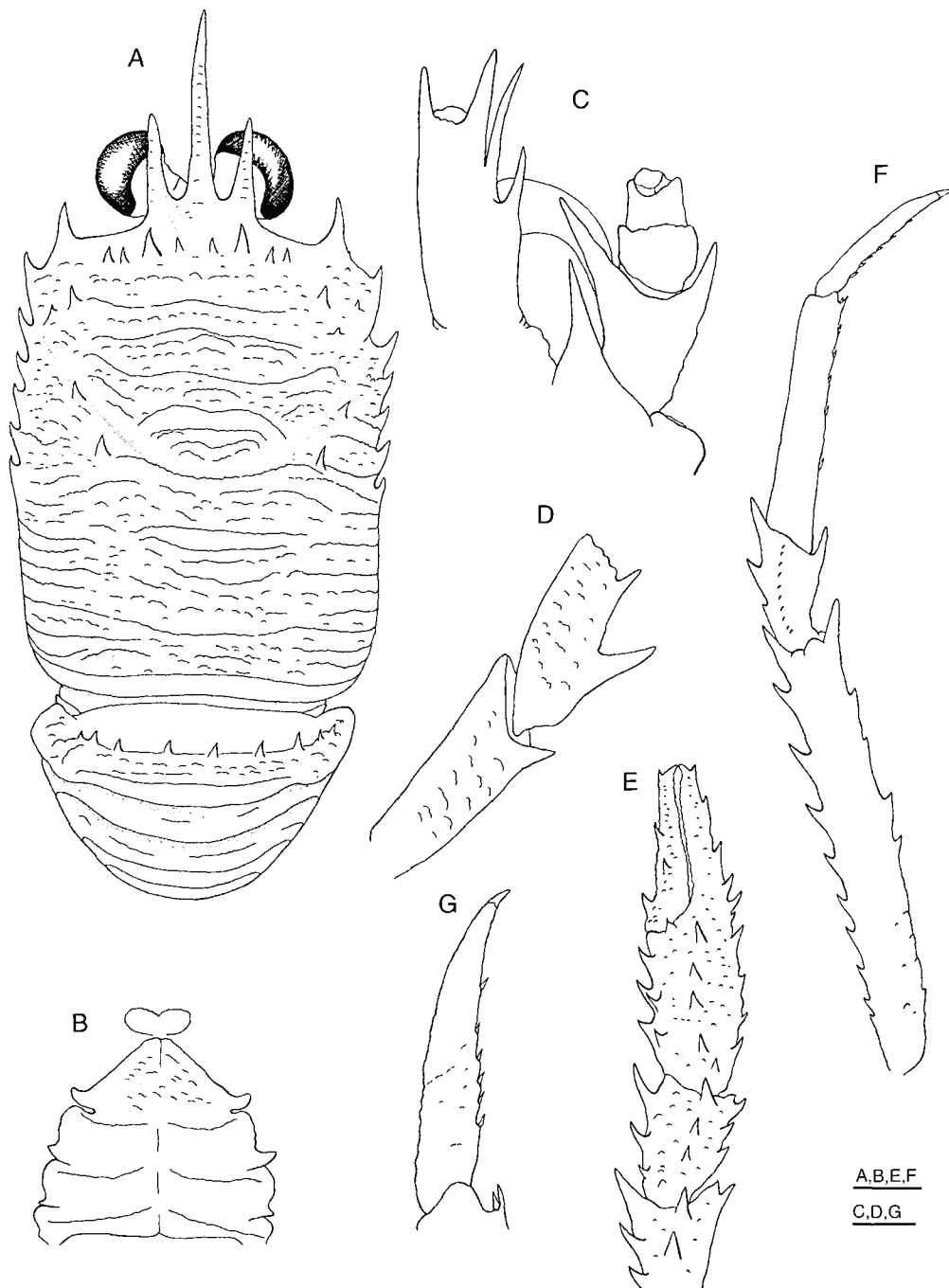


FIG. 2. — *Munida dissita* n. sp., A-D, F-G, holotype, ♂ 26.5 mm, E, paratype, ♀ 16.4 mm, setae of carapace, abdomen and pereopods not illustrated; A, carapace and abdomen, dorsal view; B, sternal plastron; C, ventral view of cephalic region, showing antennular and antennal peduncles; D, right third maxilliped, lateral view; E, right cheliped, dorsal view of the palm and fingers; F, right first walking leg, lateral view; G, dactylus of right first walking leg, lateral view. Scale bars: A, B, E, F, 5 mm; C, D, G, 2 mm.

— The chelipeds and walking legs are more slender in *M. africana*.

Munida nesiotae n. sp.
(Fig. 3)

MATERIAL EXAMINED. — CEPROS, stn 22, 4°46.5'S, 56°38.4'E, 200 m, 23.X.1987, 1 holotype ov. ♀ 17.0 mm.

ETYMOLOGY. — From the Greek, *nesos*, insular, island, in reference to the type locality.

DISTRIBUTION. — Seychelles Islands, 200 m.

DESCRIPTION

Carapace slightly longer than wide. Transverse ridges mostly interrupted, with dense short, not iridescent setae and few long iridescent setae. Main transverse striae on posterior part of carapace interrupted in cardiac region. Some small scales between main striae. Intestinal region with several scales. Gastric region with a row of five pairs of epigastric spines, pair just behind supraocular spines being the largest. One parahepatic, one branchial anterior and one postcervical spine on each side.

Frontal margins slightly oblique. Lateral margins feebly convex. Anterolateral spine well-developed, situated at anterolateral angle, slightly overreaching level of sinus between rostrum and supraocular spines. Second marginal spine before cervical groove two to three times smaller than preceding one. Branchial margins with four spines decreasing in size posteriorly.

Rostrum spiniform, half as long as remaining carapace, slightly sinuous and horizontal. Supraocular spines reaching midlength of rostrum and end of corneas, nearly subparallel, upwardly directed.

Fourth thoracic sternite with some short granulated striae; lateral surface of fifth to seventh sternites smooth, without scales, granules or carinae. Anterior part of fourth sternite narrower than third. Transverse ridges between fifth, sixth and seventh sternites obtuse, feebly granulated.

Second abdominal tergite with one row of nine spines on anterior border. Second and third tergites with three uninterrupted transverse striae. Fourth abdominal tergite with one main trans-

verse continuous stria and one additional weak stria interrupted medially.

Eyes small, maximum corneal diameter about one fourth the distance between bases of anterolateral spines.

Basal segment of antennule (distal spines excluded) about one quarter carapace length, elongate, overreaching corneas, with two distal spines, mesial spine shorter than lateral spine; two spines on lateral margin, proximal one short, located at midlength of segment, distal one long, not overreaching distolateral spine.

First segment of antennal peduncle with one strong distal spine on mesial margin, overreaching third segment; second segment with two long distal spines, mesial spine longer than lateral spine, clearly overreaching antennal peduncle; penultimate segment unarmed.

Ischium of third maxilliped about 1.5 time length of merus measured along dorsal margin, distoventrally bearing spine. Merus of third maxilliped bearing two well-developed spines on flexor margin, distal smaller; extensor margin unarmed.

Chelipeds subequal, squamous, with numerous short uniramous setae more dense on mesial borders of articles. Palm slightly about two times as long as high and as long as fingers. Merus armed with some spines, strongest spine on distal border moderately long, not overreaching proximal third of carpus. Carpus with several spines on dorsal side and several small spines scattered on mesial and ventral sides. Palm with several spines scattered on mesial and dorsal sides and one row of dorsolateral spines, continued along fixed finger. Fingers distally curving and crossing, ending in a sharp point; movable with one spine near the base and one spine near tip; fixed with one additional spine near tip; cutting edges with small teeth of different sizes.

Second pereopod slightly less than twice carapace length; merus shorter than carapace length, about five times as long as high, three times carpus length and 1.5 time as long as propodus; propodus five times as long as high, about 1.4 time dactylus length. Merus with 10-11 spines on dorsal border, increasing in size distally, ventral margin with one long distal spine, three additional spines on distal half. Carpus with three dorsal spines and one distoventral spine.

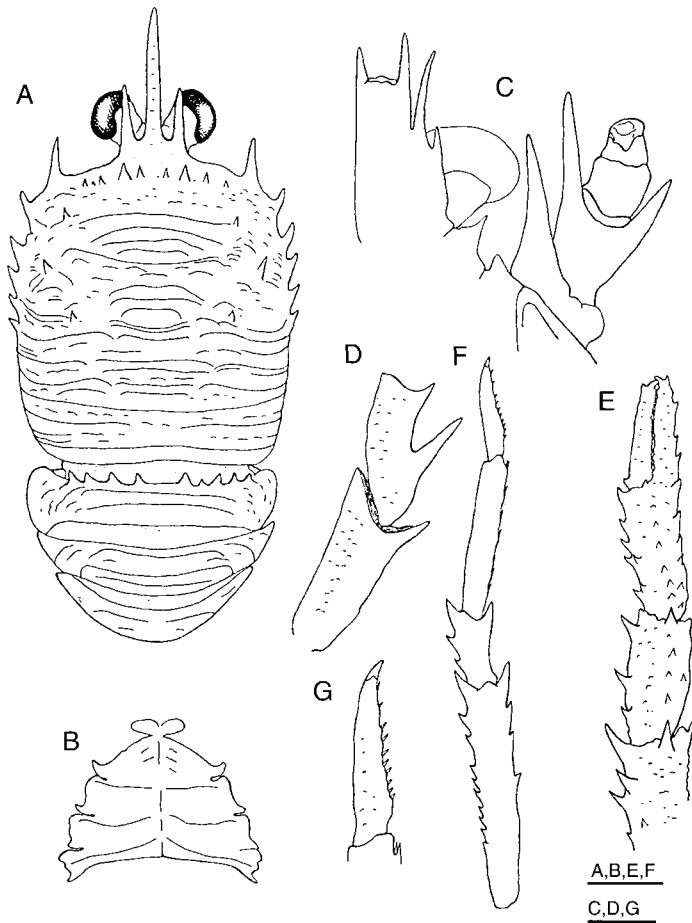


FIG. 3. — *Munida nesiotis* n. sp., holotype, ♂ 17.0 mm, setae of carapace, abdomen and pereiopods not illustrated; **A**, carapace and abdomen, dorsal view; **B**, sternal plastron; **C**, ventral view of cephalic region, showing antennular and antennal peduncles; **D**, right third maxilliped, lateral view; **E**, right cheliped, dorsal view of the palm and fingers; **F**, right first walking leg, lateral view; **G**, dactylus of right first walking leg, lateral view. Scale bars: A, B, E, F, 5 mm; C, D, G, 2 mm.

Propodus with seven movable ventral spines. Dactylus with dorsal margin slightly convex on proximal half, slightly curving distally, with ten movable spinules along ventral margin. Third pereiopod similar to second; fourth pereiopod shorter than second and third. Merus of fourth pereiopod two thirds length of second pereiopod. Epipods absent from all pereiopods.

REMARKS

The new species belongs to the group of species having four spines on the lateral margins of the

carapace behind cervical groove, the second abdominal segment armed with spines along the anterior ridge, the lateral parts of the posterior thoracic sternites without granules or carinae, the distolateral spine of the basal antennular segment longer than the distomesial and the dactylus of the walking legs with movable spinules along the entire ventral border. The closest species is *Munida erato* Macpherson, 1994, from New Caledonia and Chesterfield Islands (Macpherson 1994). However, both species are easily distinguishable by the length of the basal antennular

segment, clearly longer in *M. erato* than in the new species. Furthermore, the propodus of the second pereopod is clearly less than two times the length of the dactylus, whereas in *M. erato* the ratio is two times.

Acknowledgements

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