

Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»	Vol. XLIX	pp. 35–47	© Octobre 2006
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**ANTHURIDEAN ISOPODS (CRUSTACEA:  
ISOPODA: ANTHURIDEA) FROM THE EASTERN ATLANTIC  
OCEAN (OFF IBERO-MOROCCAN COASTS). II. *KUPELLONURA  
CRYOSI* NEW SPECIES**

ILEANA NEGOESCU

Abstract. A new species of anthuridean isopod, *Kupellonura cryosi* n. sp. is described; *Hyssura ligurica* is reported for the first time in Atlantic Ocean (off Ibero-Moroccan Bay).

Résumé. On décrit une espèce nouvelle d'isopode anthuridé, *Kupellonura cryosi* n. sp.; on signale pour la première fois l'espèce *Hyssura ligurica* dans l'Océan Atlantique (golfe ibéro-marocain).

Key words: Isopoda, Anthuridea, Hyssuridae, *Kupellonura cryosi* new species, Eastern Atlantic Ocean, off Ibero-Moroccan Bay.

The present paper completes my previous studies on the anthuridean isopod fauna of the Eastern Atlantic, off the Ibero-Moroccan Bay, namely that collected during the French BALGIM 84 cruise (Negoescu, 2005). The objectives of BALGIM project were the study of faunistic transit between the Atlantic and the Mediterranean and the study of correlation between composition of the benthic fauna and the origin of water masses.

A new species, *Kupellonura cryosi* is described, and the species *Hyssura ligurica* is recorded for the first time in the waters of Atlantic Ocean.

*MATERIAL AND METHODS*

The French oceanographical cruise BALGIM 84, organised by the Muséum National d'Histoire Naturelle (Paris), under the direction of Dr. Philippe Bouchet, collected material within the period May 22–June 22 1984 aboard R. V. „Cryos” in Atlantic and Mediterranean waters on both sides of the Gibraltar Straits, at depths between 115 and 2110 m. BALGIM is the abbreviation for „Benthos – Atlantic – Gibraltar – Mediterranean”. The material has been sorted by the Centre National de Tri d'Océanographie Biologique (CENTOB Brest).

The material studied in this paper was collected from two stations, off the Ibero-Moroccan Bay, at depth of 556 m and 1141 m (Fig. 1). The specimens were preserved in 70% ethanol and dissected parts were mounted on slides in 50:50 ethanol:glycerin solution. The material is preserved in the Muséum National d'Histoire Naturelle (Paris) and in the „Grigore Antipa” National Museum of Natural History (Bucharest).

Abbreviations used in text: C – cephalothorax; P – pereopod; Pln – pleon; Tel – telson; l – left; r – right; MNHN - Muséum National d'Histoire Naturelle, Paris; MGAB – Muzeul Național de Istorie Naturală „Grigore Antipa”, București („Grigore Antipa” National Museum of Natural History, Bucharest).

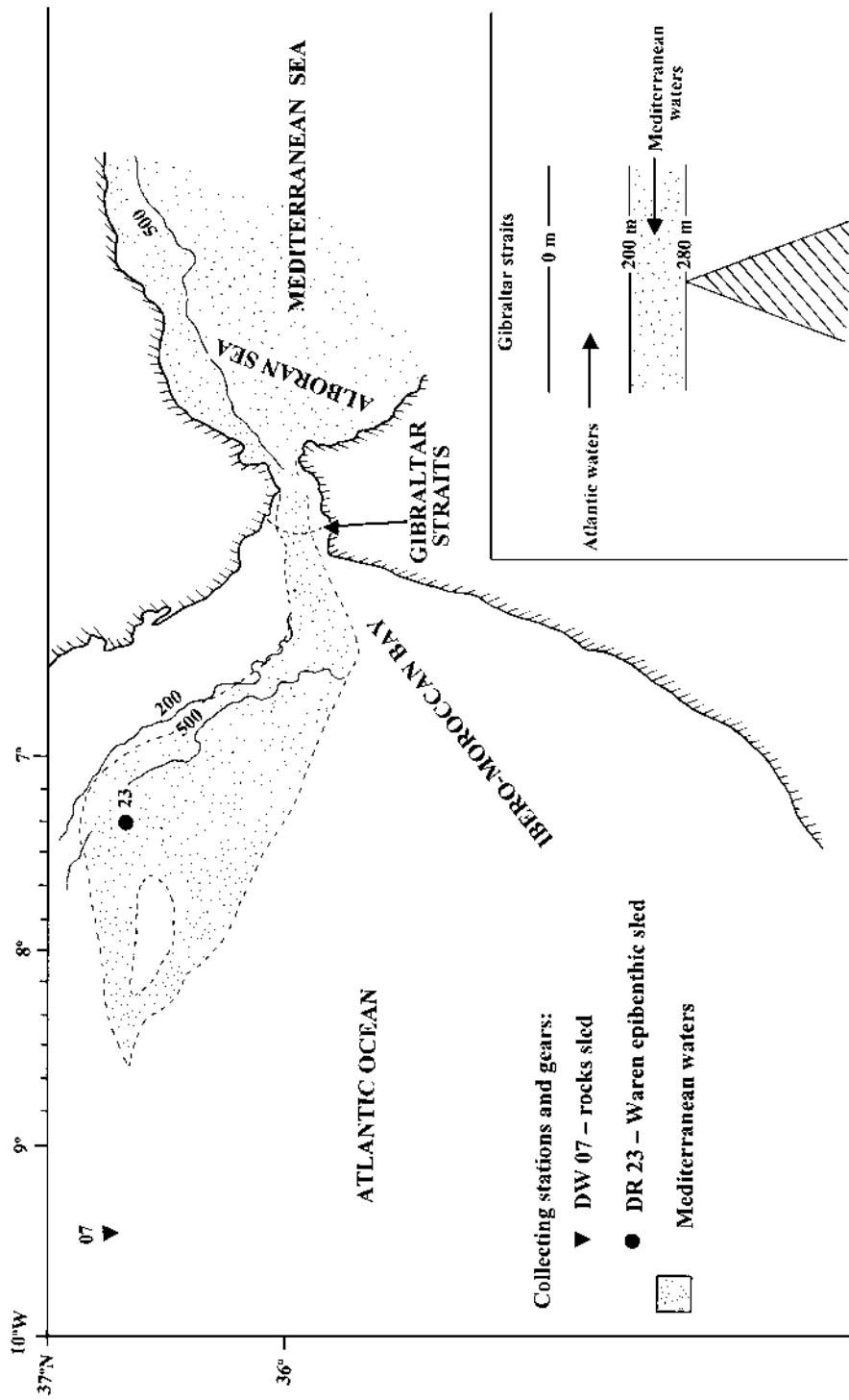


Fig. 1 – Map of the studied area: collecting stations. Mediterranean waters (outflow in contact with the bottom of the bay) – punctuated (according to the maps provided by CENTOB, Brest, November 1986).

## RESULTS AND DISCUSSIONS

Family Hyssuridae Wägele, 1981  
*Hyssura* Norman & Stebbing, 1886  
*Hyssura ligurica* Wägele, 1981  
(Figs 2-4)

*Material.* 1 specimen: non-ovigerous female (dissected, one slide), No. MGAB-ISP 901. *Locality:* E Atlantic Oc., BALGIM 84, RV „Cryos”, st. DR 23, 36°38'N, 7°19'W, 556 m, bottom with shells debris, pteropods, 31.05.1984.

*Remarks.* The specimen corresponds to the description accurately made by Wägele (1981) on 3 immature specimens (4-4.5 mm length), from Ligurian Sea.

The studied specimen (with slightly damaged pereonites 4-7) (Fig. 2 A) presents some differences comparatively with the original description: bigger size (7.3 mm); article 3 of mandibular palp with 3 setae (Fig. 2 B) instead of 2, some insignificant variations of proportions in pereopod articles (i. e. carpus of P4-P7 narrower in Atlantic specimen) (Figs 3, 4), uropodal exopod wider (Fig. 2 E) and more setae on pleopod 1 (Fig. 4 D).

I record *H. ligurica* for the first time in the Atlantic Ocean, namely in northern Ibero – Moroccan Bay. The explanation of the species presence in the Atlantic, at 556 m depth, at about the same depth it was occurred in the Mediterranean (Ligurian Sea, 600-690 m depth), could be that the waters where the collecting was made are of a Mediterranean origin. According to the data received from CENTOB (Brest): the Mediterranean water occupies the water column down to the sill of Gibraltar, between 200 and 280 m depth; it flows westward into the Atlantic, to the northern part of the Ibero-Moroccan Bay and sinks to its equilibrium level, which is reached south of Portugal at depths of 1200-1300 m. Between Gibraltar Straits and southern Portugal, this Mediterranean outflow is in contact with the bottom and it is directly responsible for sedimentological processes in the area (see fig. 1).

As regard the occurrence of *Hyssura* genus in Atlantic Ocean, previously it was recorded in North Atlantic the species *H. producta* described by Norman & Stebbing (1886) on one immature adult of 6.5 mm, collected by „Porcupine” expedition (1903), (56°11'N, 37°41'W, 2653 m depth) and redescribed by Wägele (1981). Unfortunately the description is incomplete because the specimen is damaged and it is difficult to compare it with *H. ligurica*. As concerns the presence of *Hyssura* genus in the Mediterranean, the species *H. profunda* is the only one recorded till now. The description made by Barnard (1925) on one specimen of 10 mm, collected by „Travailleur” expedition, in 1881, at 2018 m depth, is also inadequate.

*Kupellonura* Barnard, 1925  
***Kupellonura cryosi*** n. sp.  
(Figs 5-8)

*Material.* 2 specimens: *Holotype* non-ovigerous female (dissected, one slide), No. MNHN-Is 5889; *paratype*: 1 non-ovigerous female, No. MGAB-ISP 902. *Type locality:* E Atlantic Oc., BALGIM 84, RV „Cryos”, st. DW 07, 36°46' N, 9°27'W, 1141 m, bottom with shells debris, pteropods, 29.05.1984.

*Etymology.* The species name refers to „Cryos”, the French research vessel of BALGIM 84 cruise.

*Description of non-ovigerous female (holotype)*

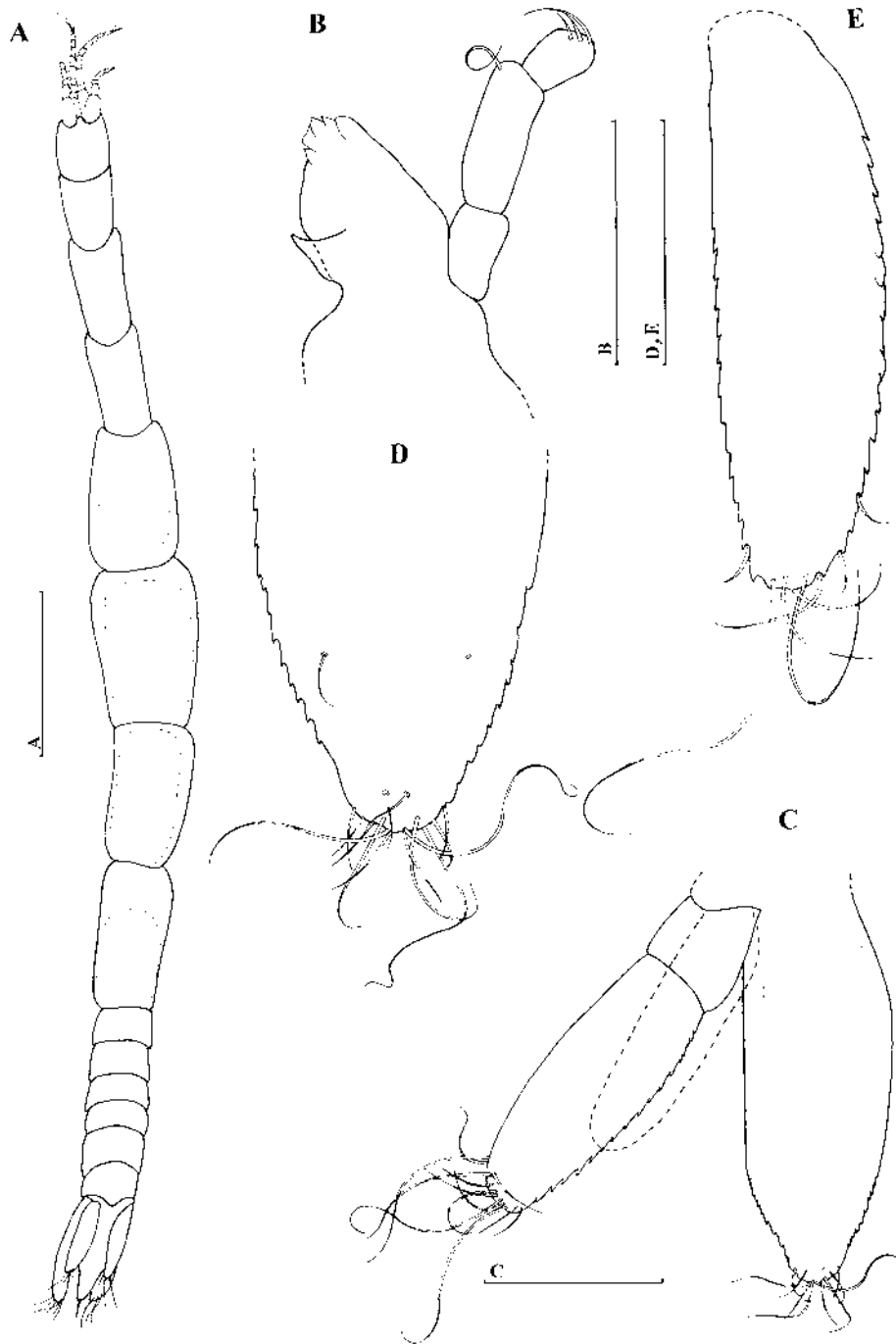


Fig. 2 – *Hyssura ligurica* Wägele, 1981, non-ovigerous female. A, dorsal view; B, mandible; C, telson and uropod (sympod and endopod, l); D, distal part of telson; E, exopod of uropod (r). Scale (in mm): A 1; B 0.1; C 0.3; D,E 0.2.

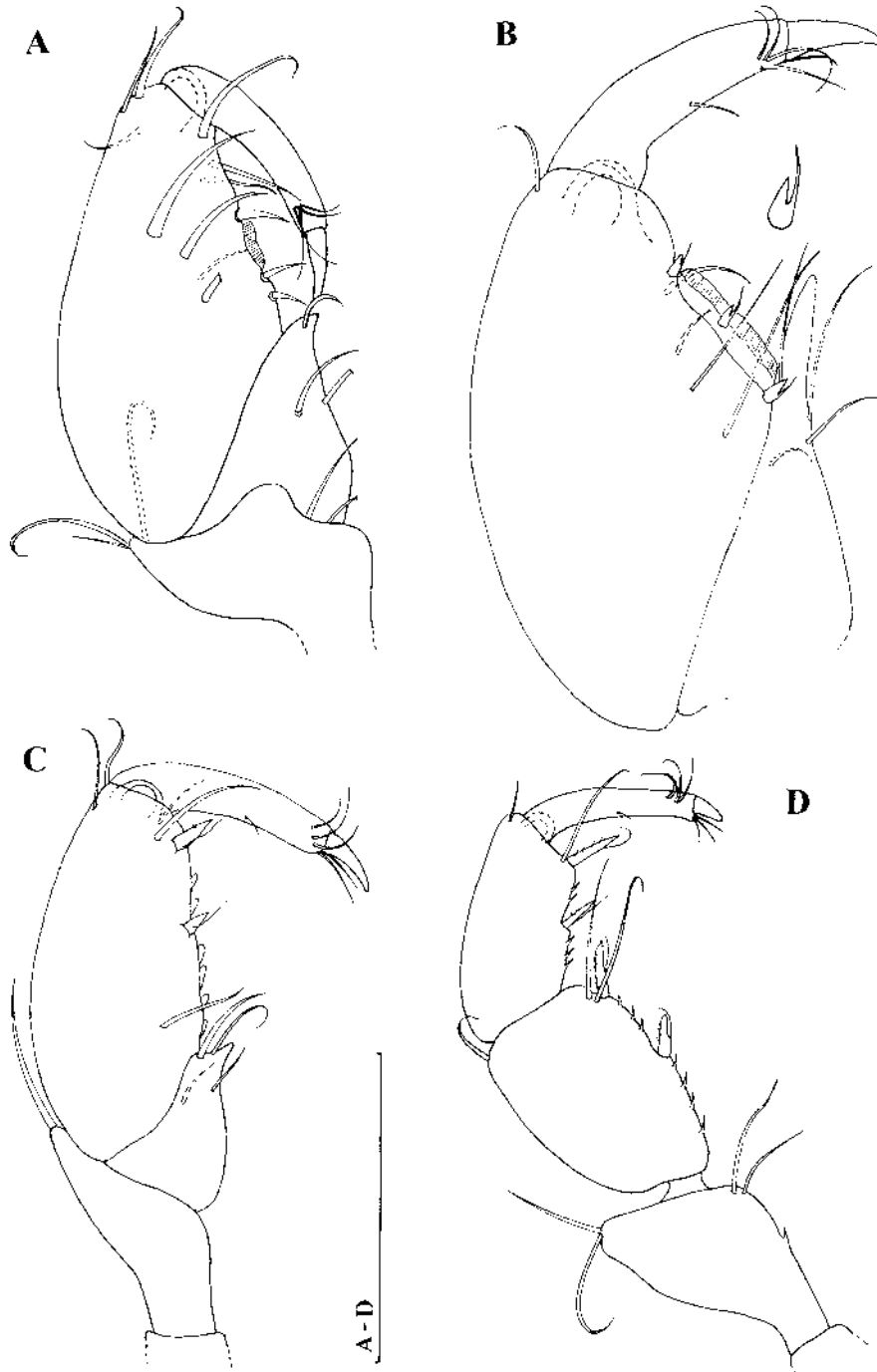


Fig. 3 – *Hyssura ligurica* Wägele, 1981, non-ovigerous female. Pereopods (r): A, 1: distal part of merus, carpus, propodus, dactylus; B, 2: distal part of carpus, propodus, dactylus; C, 3: merus, carpus, propodus, dactylus; D, 4: merus, carpus, propodus, dactylus. Scale (in mm): A-D 0.2.

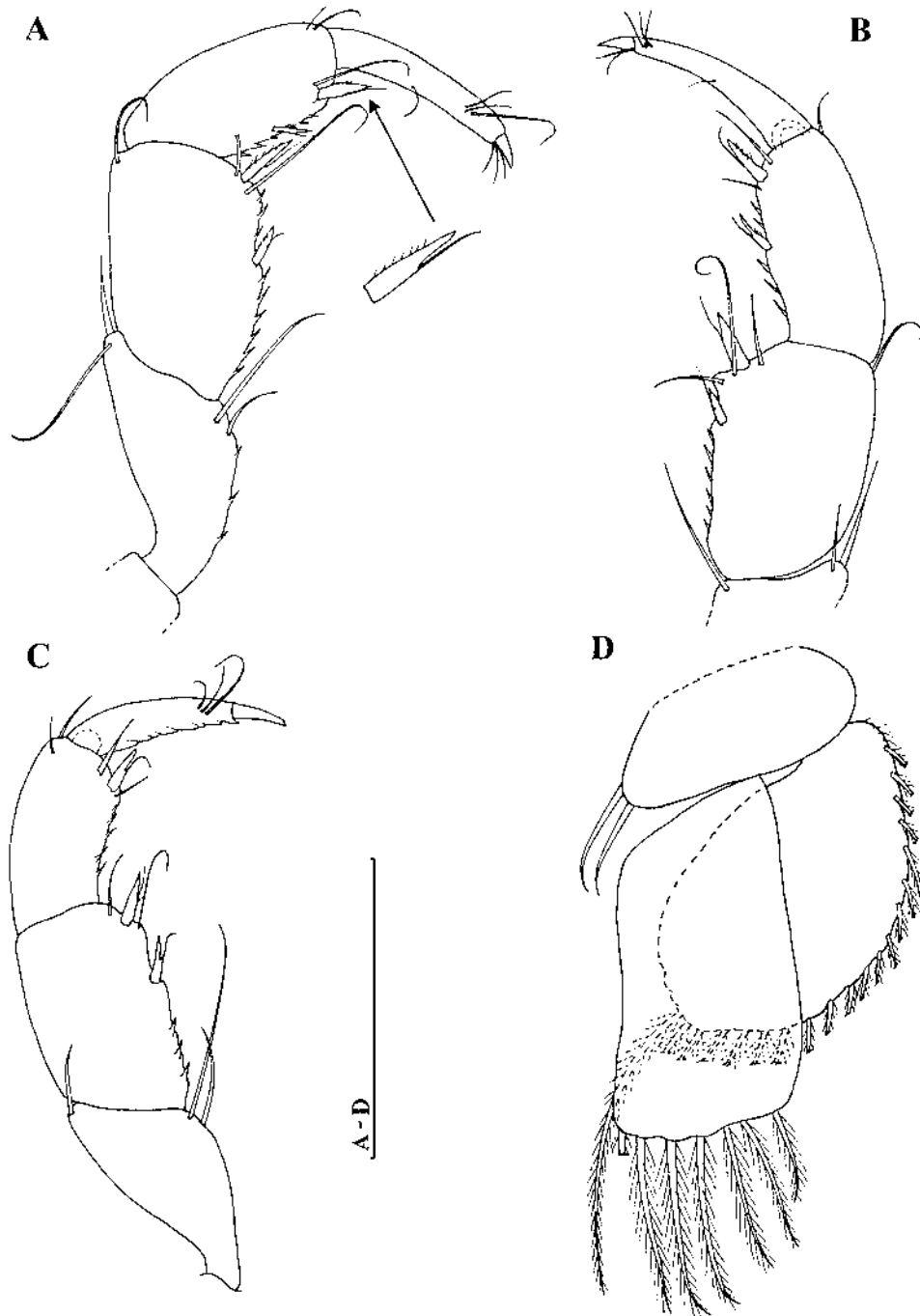


Fig. 4 – *Hyssura ligurica* Wägele, 1981, non-ovigerous female. A-C, pereopods: A, 5 (r): merus, carpus, propodus, dactylus; B, 6 (l): carpus, propodus, dactylus; C, 7 (r): merus, carpus, propodus, dactylus; D, pleopod 1 (r) (setae cut off in exopod). Scale (in mm): A-D 0.2.

*Integument* thin, smooth, unpigmented.

*Body* (Fig. 5 A): fine; length 5.35 mm, about 16.2 times longer than greatest width; proportions: C<1<2≈3<4≈5≈6>7<Pln>Tel. *Cephalothorax* elongate, 1.2 times longer than greatest width; rostrum small. *Pereonites*: 1 shortest, 6 longest; 7 about same length as telson. *Pleon* 2.3 times longer than greatest width, 1.6 times longer than pereonite 7; pleonite 1 longest, 2-6 subequal.

*Telson* (Fig. 8 A-C): 2.7 times longer than greatest width, linguiform, dorsally flat, ventally convex, with almost parallel, straight margins, tapering in the distal fifth to a narrow rounded apex, with six pairs of apical long setae, first and sixth ones shortest; dorsally subapically one pair of fine short setae.

*Antennula* (Fig. 5 B): peduncle article 1 1.1 times longer than articles 2 and 3 together; article 2 1.5 times longer than article 3; article 3 distally with three short setae and laterally one long seta. Flagellum of four articles; article 1 half length of article 2, of same length with article 3; article 4 the smallest, apically with one broad aesthetasc and two simple setae.

*Antenna* (Fig. 5 C, D): distally article 5 of peduncle with three simple setae and two plumose sensory setae; peduncle 2.3 times longer than flagellum. Flagellum of eight articles; article 1 longest, articles 4-7 subequal; articles 2-7 with short aesthetascs each, article 8 with two broad aesthetascs.

*Mandible* (Fig. 5 E): pars incisiva with three cusps; lamina dentata without teeth, pars molaris blunt, concave. Palp: article 1, with one distolateral seta; article 2 about as long as articles 1 and 3 together, with two distal setae; article 3 smallest, distally with comb of 3 unequal simple setae, the distal the longest one.

*Maxilla* (Fig. 5 F): lateral endite with 5 teeth; medial endite with a short, fine seta.

*Maxilliped* (Fig. 5 G): basis with endite narrow, with one apical seta, surpassing 2/3 of the length of the second palpal article. Palp of five articles, 1.3 times longer than basis; article 1 short; article 2 as long as article 3, with one distomedial seta; article 3 distally with two medial setae and one lateral; article 4 obliquely set on distal margin of article 3, medially with one seta; article 5, smallest, with a bunch of four setae.

*Pereopods* (Figs 6, 7): P1 and P2 longest and strongest, P4 shortest, P5 and P6 equal in length, P7 a little longer than P4. P1 (Fig. 6 A, B): distoventrally merus with three setae and carpus, distoventrally truncated, with two simple, thin spines; propodus enlarged oval, about 2 times longer than greatest width; palm with straight margin, mesially bordered by three simple spines, two distal unequal setae and short, fine hairs; laterally on propodus three unequal strong setae. P2 and P3 (Fig. 6 C-E) quite similar in shape: carpus distoventrally with acute prolongation, with one simple spine, and ventrally one simple spine; propodus broad oval, 1.6 times and respectively narrow oval, 2.1 times longer than greatest width, mesially palm with two bifid spines. P4-P7 (Figs 6 F, 7 A-D) quite similar in shape: distoventrally merus with two setae; carpus trapezoid-like, ventrally margin bordered by about three scales and distally with one simple sensory spine and two setae; propodus elongate oval, 2.4 (P4), 2.1 (P5), 2.3 (P6) and 2 (P7) times longer than wide, distoventrally one simple sensory spine; in P7 ventral margin fringed with setulated lobules.

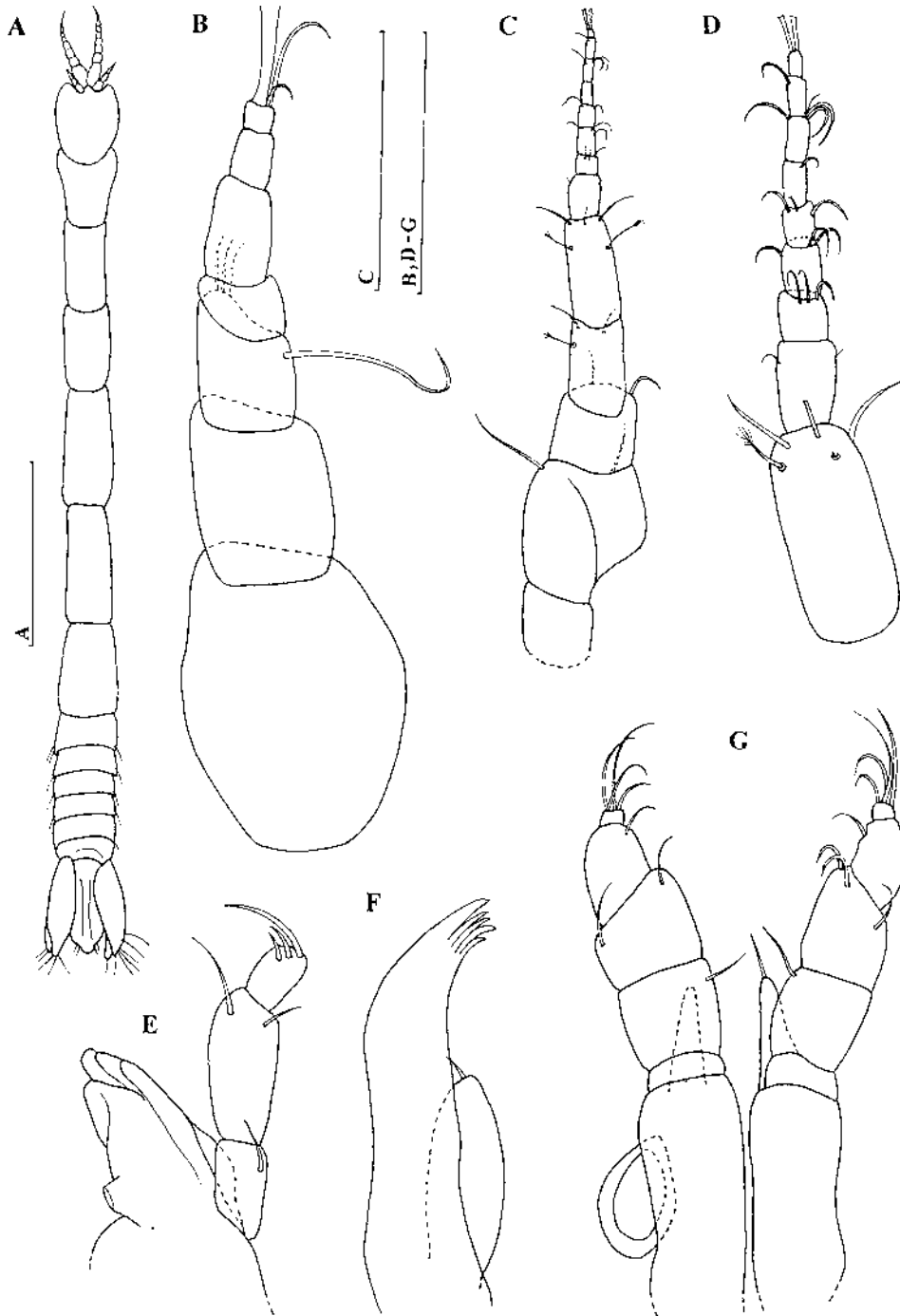


Fig. 5 – *Kupellonura cryosi* n. sp., non-ovigerous female holotype. A, dorsal view; B, antennula (aesthetasc cut off); C, antenna; D, antennal flagellum; E, mandible; F, maxilla; G, maxillipeds. Scale (in mm): A 1; B, D-G 0.1; C 0.2.

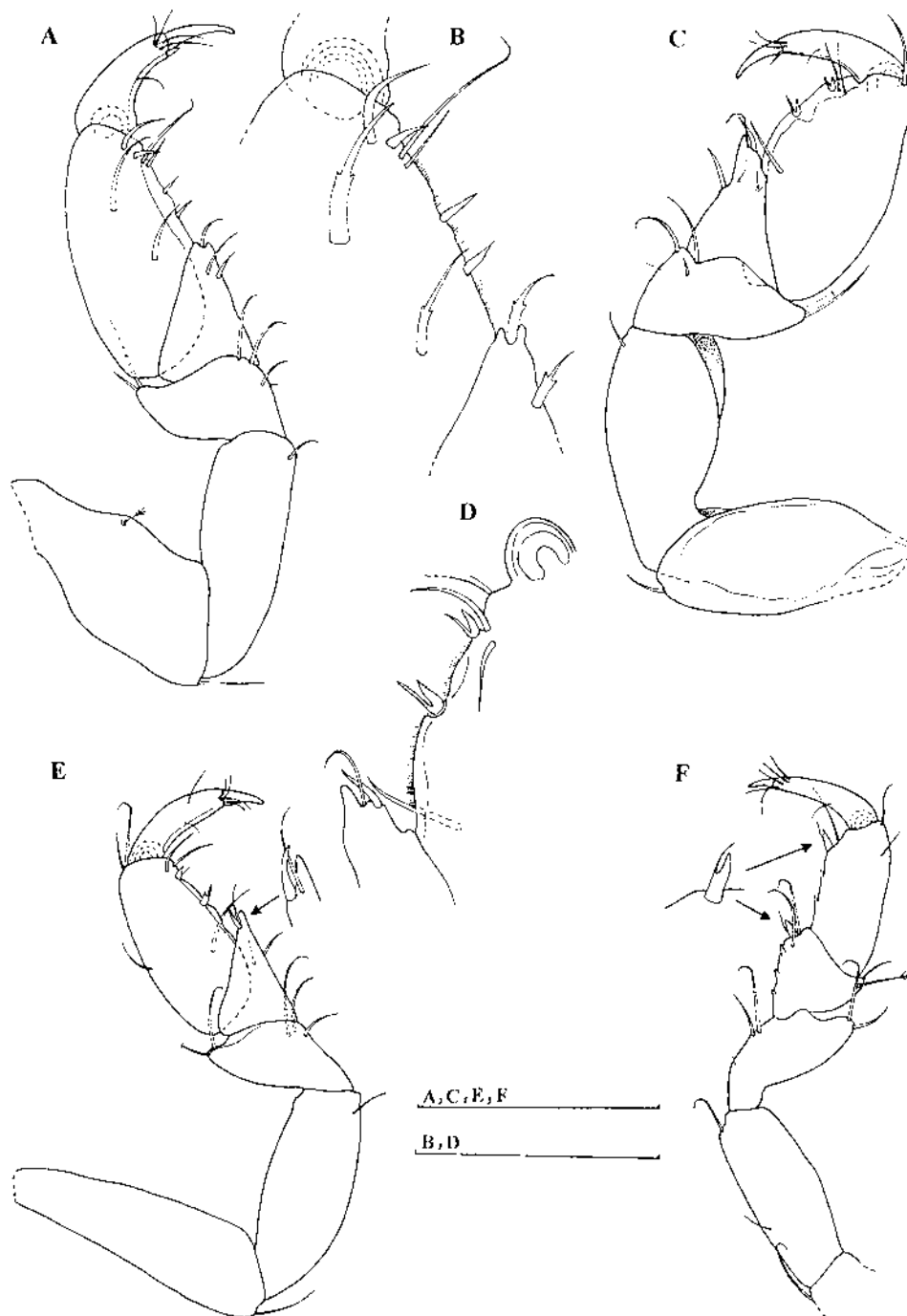


Fig. 6 – *Kupellonura cryosi* n. sp., non-ovigerous female holotype. Pereopods: A, 1 (r); B, 1 (r): distoventral part of carpus, propodus palm; C, 2 (l); D, 2 (l): distoventral part of carpus, propodus palm; E, 3 (r); F, 4 (r). Scale (in mm): A,C,E,F 0.2; B,D 0.1.

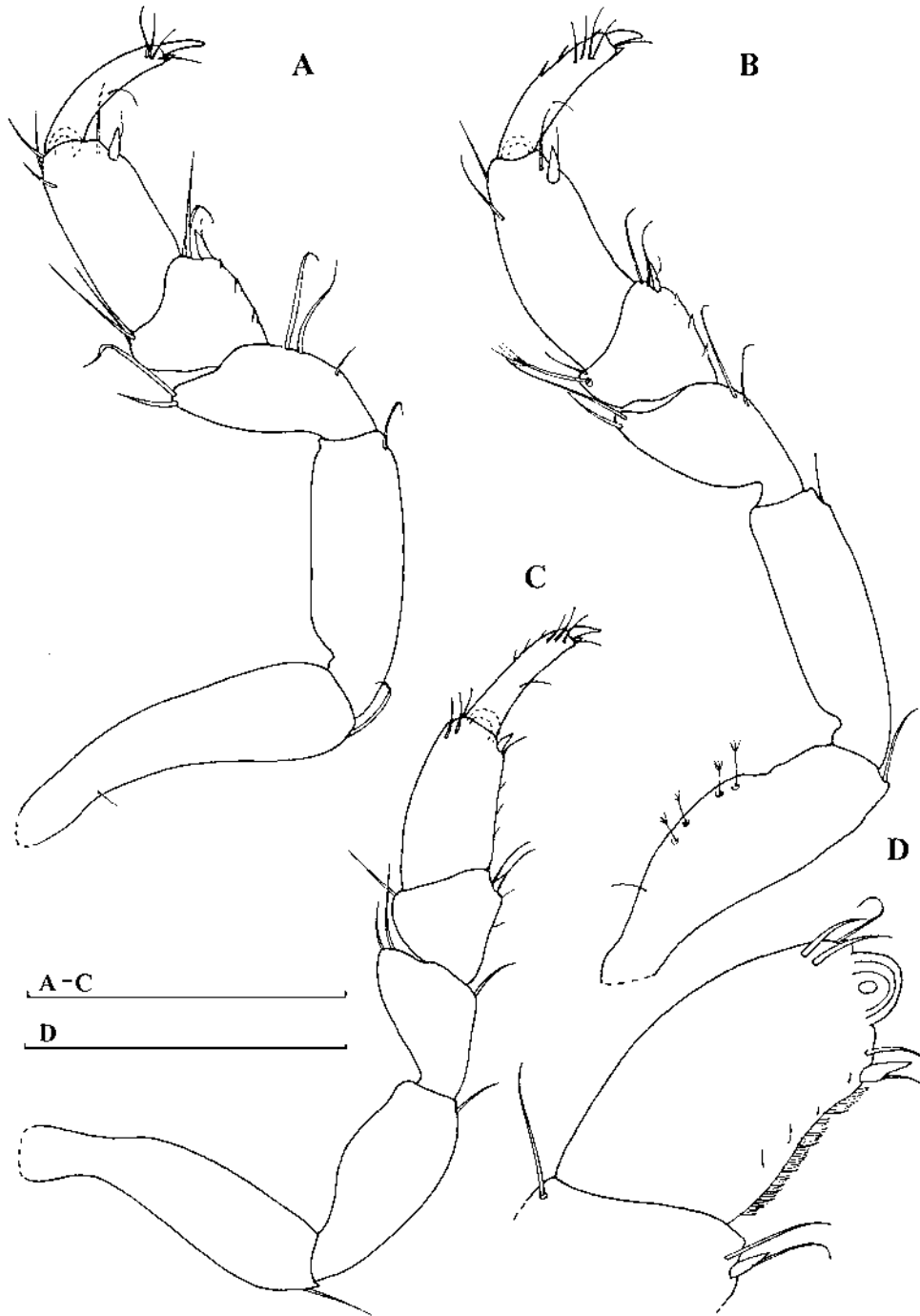


Fig. 7 – *Kupellomura cryosi* n. sp., non-ovigerous female holotype. Pereopods (r): A, 5; B, 6; C, 7; D, 7; distoventral part of carpus, propodus. Scale (in mm): A-C 0.2; D 0.1.

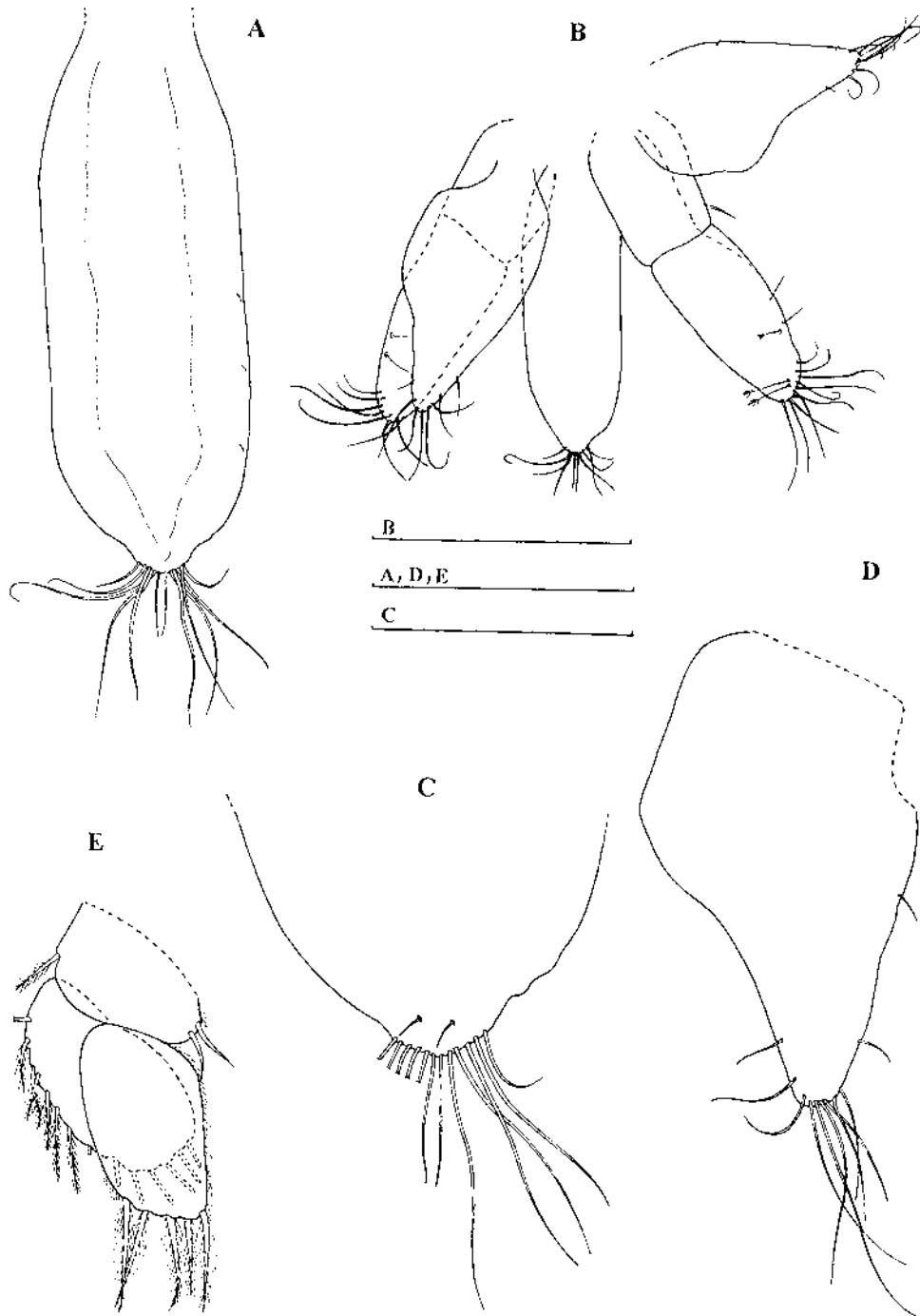


Fig. 8 – *Kupellonura cryosi* n. sp., non-ovigerous female holotype. A, telson; B, telson and uropods; C, apex of telson (some setae cut off); D, exopod of uropod (l); E, pleopod 1 (r). Scale (in mm): A,D,E 0.2; B 0.4; C 0.1.

*Pleopod 1* (Fig. 8 E): sympod with two retinaculae. Exopod and endopod subequal in length and width; exopod, lying over endopod, surrounded distolaterally by 14 plumose setae, and endopod distally with five plumose setae, stronger than in exopod.

*Uropod* (Figs 5 A, 8 B, D): sympod rectangular, 1.5 times longer than wide. Endopod elongate oval, 1.4 times longer than sympod, 2.3 times longer than greatest width, with rounded apex; surrounded distally by about 15 simple long setae; subapically plumose sensory setae. Endopod reaches apex of telson. Exopod broad, pyriform shape, narrowed towards distal part, about 1.5 times longer than wide, 1.2 times longer than endopod, on outer margin slightly concave; distally with about nine simple setae; it reaches apex of telson.

*Length of other specimen (paratype)*: non-ovigerous female – 5.87 mm.

*Remarks.*

The species of genus *Kupellonura* have very similar size and external morphological features, but the shape of telson and of uropods are distinctive and allow immediate identification.

*K. cryosi* n. sp. is closely allied with *K. mediterranea* described by Barnard (1925) from western Mediterranean (70-880 m depth) and with *K. formosa* described by Menzies & Frankenberg (1966) from Atlantic Ocean (off Georgia and Florida, 10-159 m depth) and introduced in *Panathura* genus. The original descriptions for these two species being too brief, Wägele redescribed them in 1981, and Kensley completed the description of *K. mediterranea* in 1987 and of *K. formosa* in 1997.

The new species differs chiefly from the two species by the shape of the telson and by the absence of the eyes. It differs from *K. mediterranea* also in the following external morphological features (in brackets being mentioned features of *K. mediterranea*): body slightly wider (body 17 times longer than greatest width, pleon much more longer, i. e. 2.7 times longer than pereonite 7, and 2.3 times longer than telson; telson longer than pereonite 7); telson narrower, with parallel, straight margins, tapering distally to a rounded apex (2.5 times longer than greatest width, distally with marginal serrulations, tapering in a prominent apex); in all pereopods propodus wider; palm with three simple sensory spines in P1 and two bifid sensory spines in P2 and P3 (P1 propodus 3 times longer than greatest width; palm with two sensory spines; P2 and P3 palm with three sensory spines each, propodus 2.2 and respectively 2.5 times longer than greatest width; propodus in P4 2.3, P5 2.4, P6 2.5 and P7 2.8 times longer than greatest width). *K. cryosi* n. sp. differs from *K. formosa* (in brackets being mentioned features of *K. formosa*) in: antennula flagellum of four articles (flagellum two-jointed); article 3 of mandibular palp with three setae (two setae); article 5 of maxilliped palp with four setae (two setae); in P1 carpus distoventrally truncated (carpus distoventrally with acute prolongation); in P7 propodus elongate oval (propodus wider); telson with almost parallel, straight margins, tapering in the distal fifth to a rounded narrow apex („Pleotelson spatulate, widest at distal two-thirds, apex truncate, lateral margin serrate.” – according to Menzies & Frankenberg (1966: 39); „margin of Tel crenulated” – according to Wägele (1981: 72), and „Telson with posterolateral margins finely serrate;” – according to Kensley (1997: 280)).

The new species *K. cryosi* is recorded at a greater depth than the two species mentioned above.

## ACKNOWLEDGEMENTS

I express my thanks to Dr. Michel Segonzac (IFREMER, Brest) for providing me the material for study from the French oceanographical cruises. Thanks are due to anonymous referees, to Mrs Mihaela Achim who verified the English version of the manuscript and to Mrs Petruța Dumitrică for inking my drawings in pencil.

IZOPODE ANTURIDEE (CRUSTACEA: ISOPODA: ANTHURIDEA) DIN ESTUL OCEANULUI ATLANTIC (LARGUL COASTELOR IBERO-MAROCANE). II. SPECIA NOUĂ *KUPELLONURA CRYOSI*

## REZUMAT

Materialul studiat provine din estul Oceanului Atlantic, largul coastelor ibero-marocane, fiind colectat în timpul expediției franceze BALGIM 84 cu vasul „Cryos”, din două stații de la adâncimi de 556 m și 1141 m.

Din familia Hyssuridae este descrisă specia nouă *Kupellonura cryosi* care prezintă afinități morfologice cu specia *K. mediterranea* (semnalată în vestul Mediteranei, la adâncimi între 70 și 880 m) și *K. formosa* (de la coastele atlantice ale Georgiei și Floridei, între 10 și 159 m). Pentru prima dată este semnalată în Oceanul Atlantic specia *Hyssura ligurica*, la aproximativ aceeași adâncime la care este cunoscută în prezent în bazinul Mediteranei (Marea Ligurică, 600-690 m). Până în jurul adâncimii de 1200-1300 m apele din nordul Golfului Ibero-Marocan sunt de origine mediteraneană; ajungând aici prin strâmtoarea Gibraltar, ele influențează procesele sedimentologice din zona amintită. Astfel s-ar putea explica prezența speciei *Hyssura ligurica* în estul Oceanului Atlantic.

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Received: February 13, 2006

Accepted: March 30, 2006

Muzeul Național de Istorie Naturală „Grigore Antipa”  
Șos. Kiseleff nr. 1, 011341 București 2, România  
e-mail: negoescu@antipa.ro