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Contribution to the Knowledge of the Amphipoda 84. One interesting member of the genus Echinogammarus Stebb. from Malta island, E. ebusitanus (Marg. 1951) (fam. Gammaridae).

ABSTRACT

Echinogammarus ebusitanus (Marg. 1951) from Malta island in the Mediterranean Sea is redescribed and figured (fam. Gammaridae). This species is characterized by unisegmented accessory flagellum, by absence of plumose setae on uropod 3 and by presence of numerous dorsal spines on metasomsegments 1-3.

INTRODUCTION

Genus *Echinogammarus* Stebb. was intensively studied in several last years by many authors (Pinkster, Karaman, Stock, etc.) and many new species of this genus were described.

Schäferna described (1908) *Echinogammarus klaptoczi* n. sp. from North Africa coast. Later Margalef described (1951) *Echinogammarus klaptoczi ebusitanus* n. ssp. from Pitiuze islands (Ibiza) in the Mediterranean Sea, and this subspecies differs from klaptoczi by several good characters (presence of spines on metasomsegments etc.).

During our study of the genus *Echinogammarus* from different parts of the Mediterranean Sea-bassin, the specimens like these of *E. ebusitanus* were found in Malta island. Thanks to prof. Dr. J. Stock from Amsterdam University, who sent me the sketches of *E. ebusi-*

tanus made after the type-material of Margalef, it was possible to establish the identity of our specimens from Malta with these of *E. ebusitanus*.

A c k n o w l e d g m e n t s: I am thankful to prof. Dr. S. Ruffo the Museum of Natural History in Verona, Italy for the loan of material for this study, and to prof. D. J. Stock from University of Amsterdam (Holland) for the sketches and suggestions regarding typical and my material of *E. ebusitanus*.

THE TAXONOMICAL PROBLEM OF THE GENUS ECHINOGAMMARUS STEBB.

Genus *Echinogammarus* Stebb. is presented in the Europe with more than 40 species: the most of them are known from the Mediterranean drenage system, some species live along the Atlantic coast of Europe and some species are known from the Pontocaspian region. All these species are often mentioned by numerous authors sub different genera as *Marinogammarus, Chaetogammarus, Pectenogammarus* or *Echinogammarus*.

Recently Karaman, G. (1976, in press) proved that there are not any difference between genera *Chaetogammarus, Pectenogammarus, Marinogammarus* and *Echinogammarus* and that all these genera are synonyms of the genus *Echinogammarus* Stebb.

Evidently, the region of the Mediterranean Sea was the center of the evolution of the genus *Echinogammarus*, where there are numerous endemic *Echinogammarus* species living on the islands and in the inland waters of the Mediterranean Sea-bassin, as well as the less number of species living in the Sea and brackish waters along whole Mediterranean Sea (circummediterranean species).

Genus *Echinogammarus* Stebb. widened its areal of distribution in two directiones: one direction was towards east over Black Sea and Pontocaspian region to the Baltic Sea; the species living in these regions were mentioned by numerous authors as members of the genus *Chaetogammarus*. Another direction of colonisation of *Echinogammarus* -members was towards west, along the atlantic coast of Europe: the species of this region were mentioned by authors as members of genera *Marinogammarus* and *Pectenogammarus*.

Genus *Pectenogammarus* (Reid), mentioned at first as the subgenus of the genus *Gammarus* (Reid 1940), and later as a distinct genus (Kant, Pinkster, Stock, 1968) consists of only one species, *P. planicrurus* (Reid 1940), known from the coastal atlantic waters of western Europe and of the mediterranean coast of France and Spain. This species has all characters of the genus *Echinogammarus*, and we considered it as member of the genus *Echinogammarus* (Karaman, G. 1976, in press).

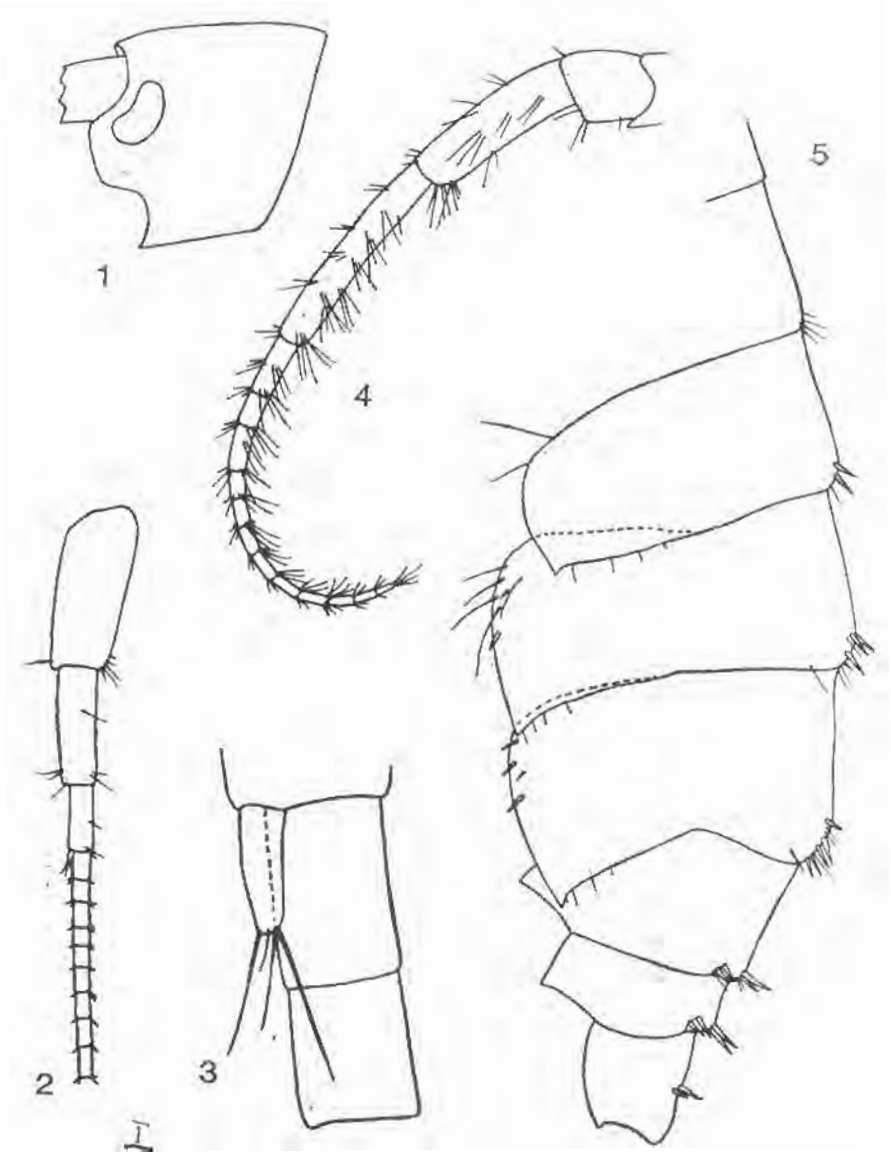

Fig. 1. *Echinogammarus ebusitanus* (Marg. 1951), Malta, male 8.5 mm: 1 = head; 2 = antenna 1; 3 = accessory flagellum; 4 = antenna 2; 5 = metasome and urosome.

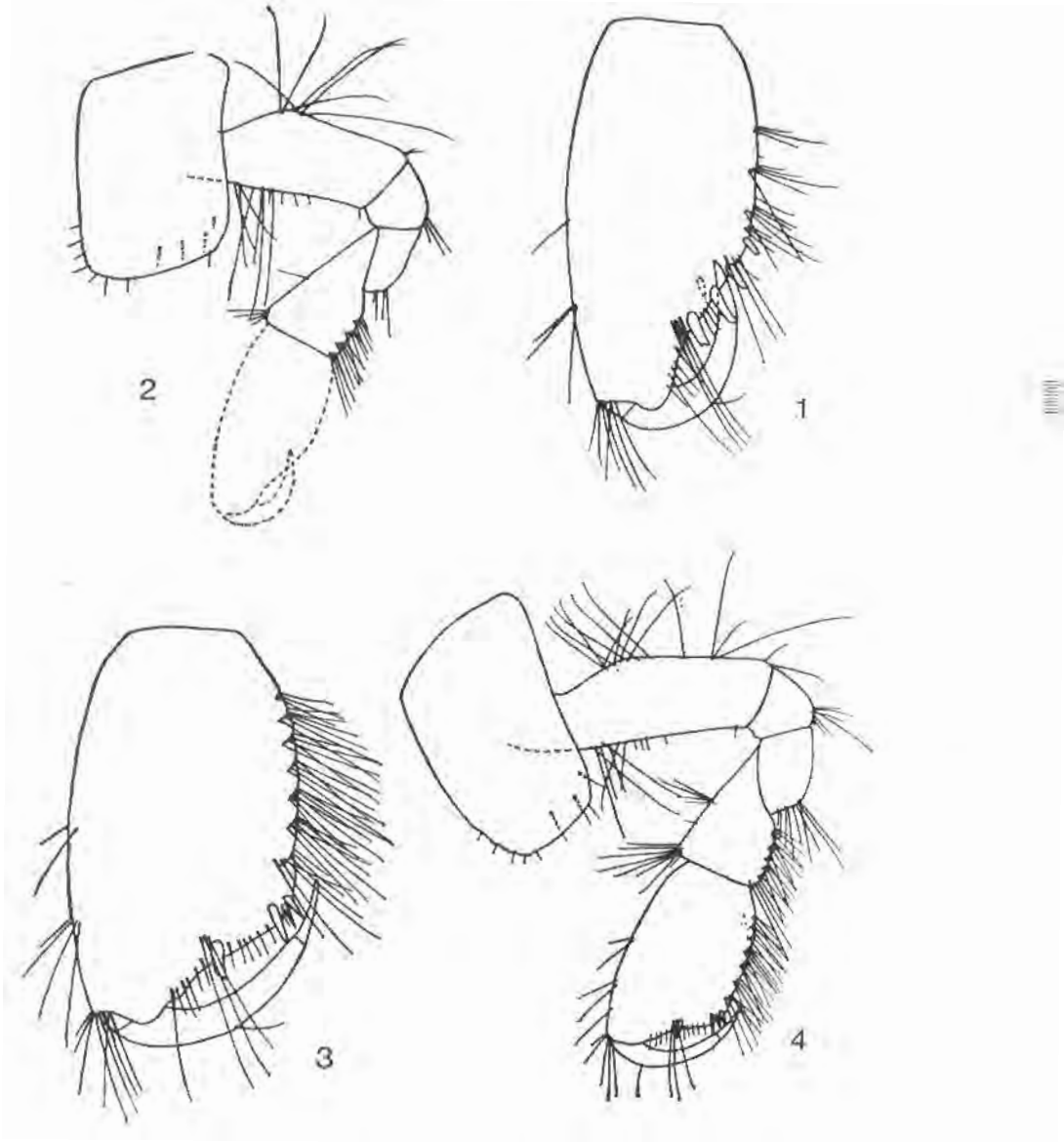

Fig. II. *Echinogammarus ebusitanus* (Marg. 1951), Malta, male 8.5 mm: 1-2 = gnathopod 1; 3-4 = gnathopod 2.

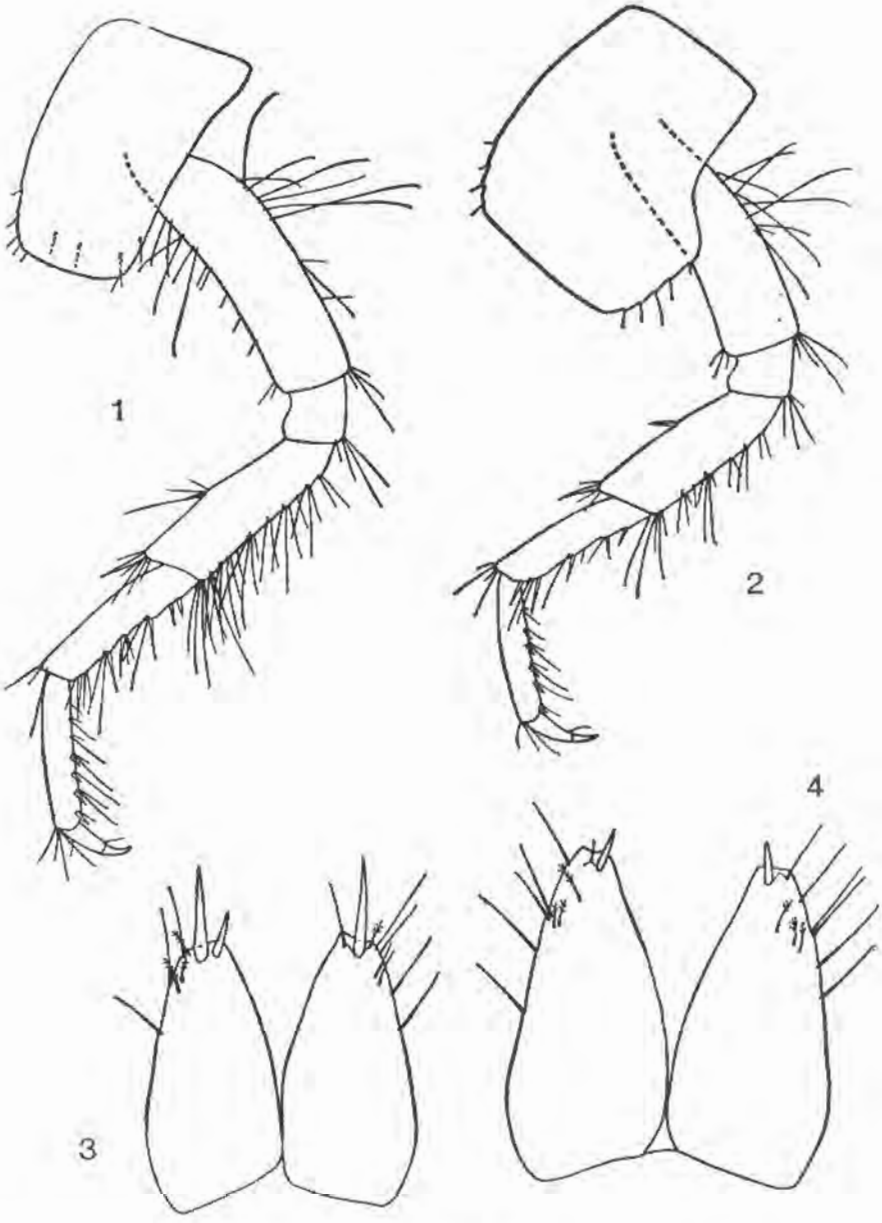

Fig. III. *Echinogammarus ebusitanus* (Marg. 1951), Malta, male 8.5 mm: 1 = pereopod 3; 2 = pereopod 4; 3 = telson; 4 = telson, male 8.9 mm.

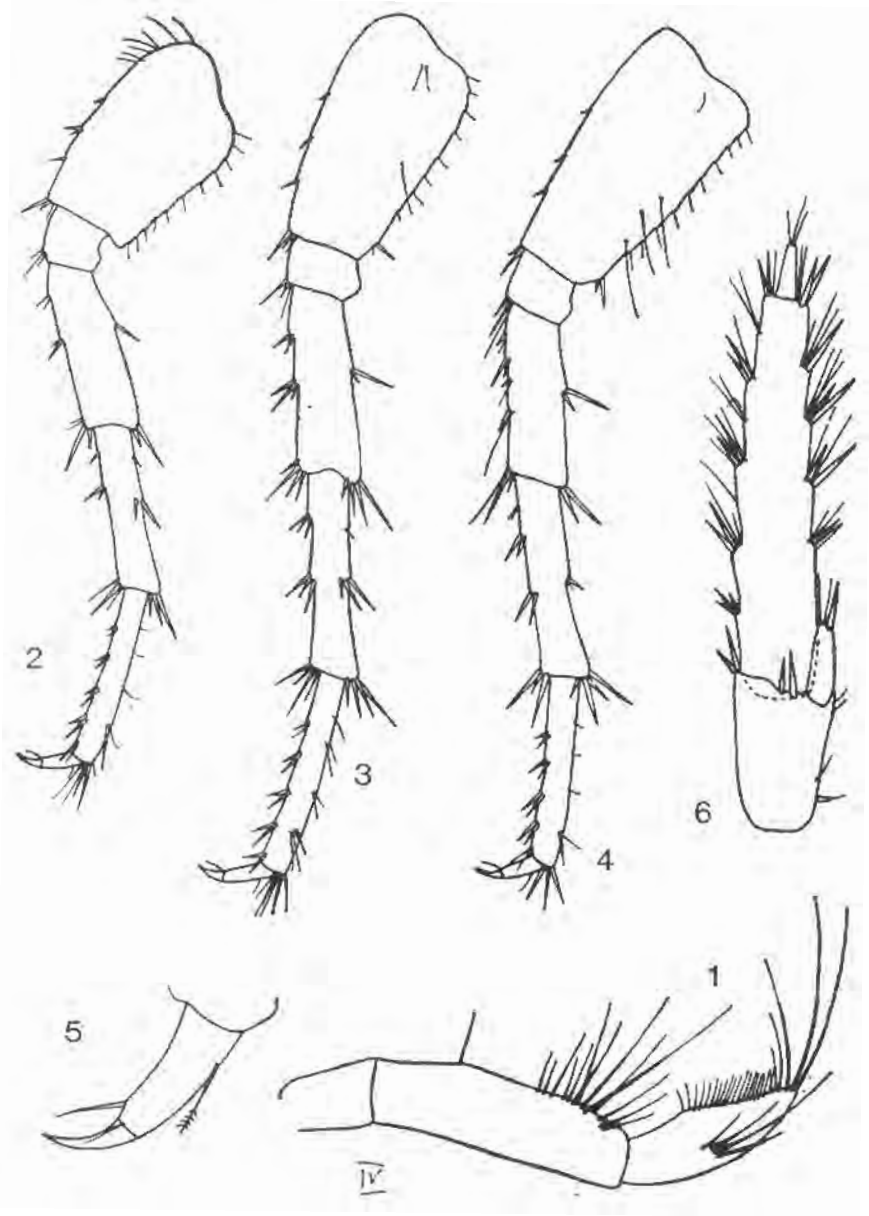

Fig. IV. *Echinogammarus ebusitanus* (Marg. 1951), Malta, male 8.5 mm: 1 = mandible palp; 2 = pereopod 5; 3 = pereopod 6; 4-5 = pereopod 7; 6 = uropod 3.

Because of the relative isolation of some mediterranean islands, the endemic *Echinogammarus* species were often developed on them (*E. eisentrauti* Schell. 1937, *E. ebusitanus* Marg. 1951 etc.).

ECHINOGAMMARUS EBUSITANUS (MARGALEF 1951)

Gammarus klaptoczi ebusitanus Margalef 1951, p. 5; Margalef 1953, p. 195, fig. 236.

Diagnosis: Last mesosomsegments with dorsal setae, metasomsegments 1-3 with dorsal spines, accessory flagellum 1- segmented. Dactyl of gnathopods 1-2 long, uropod 3 without plumose setae.

Description Male: Length up to 8,9 mm. Last mesosomsegment with several setae at dorsal surface. Metasomsegments 1-3 at dorsal surface with several spines intermixed with single short setae (fig. I, 5). Urosome moderately elevated, weakly laterally compressed: Urosomites 1-2 with one dorsomedian and two dorsolateral bunches of spines often intermixed with 1-2 short setae. Urosomite 3 with 2 dorsolateral bunches of spines (fig. I, 5).

Lateral cephalic lobes weakly subrounded; eyes reniform, nearly as long as the diameter of peduncle of antenna 1 (fig. I,1).

Antenna 1 reaching 2/3 of body-length. Peduncle segments 1-3 progressively shorter towards segment 3, all poorly setose. Principal flagellum up to 28-segmented, poorly setose (setae are shorter than the diameter of segments) (fig. I, 2). Accessory flagellum unisegmented, shorter than the first flagellar segment (fig. I, 3).

Antenna 2 shorter than antenna 1. Peduncle segment 3 short, segment 4 slightly shorter than segment 5, both bearing several bunches of moderately long setae at ventral margin (setae are as long as or weakly longer than the diameter of segments themselves). Flagellum 11-13 segmented, slender, moderately setose (fig. I, 4), setae are nearly twice longer than the diameter of the segments), calceola absent (fig. I, 4). Antennal gland cone short (fig. I, 4).

Mouthparts like than in *Echinogammarus pungens*, normal. Labrum with entire distal margin, labium without inner lobes. Inner lobe of maxilla 1 triangular, with many plumose setae at margin, outer lobe with numerous toothed spines. Palps of left and right maxilla 1 asymmetric to each other (left palp with spine-like setae narrow, right palp broader, bearing distal large spines). Maxilla 2 with narrow both lobes, inner lobe with dorsal row of setae. Maxilliped normal. Mandible palp: segment 1 short, smooth; segment 2 with one seta in proximal part and 12-14 setae in distal part; segment 3 shorter than segment 2, bearing on outer surface one group of A--setae, on inner surface one group of B-setae, as well as 24-28 short

marginal D-setae and 4-5 long distal E-setae (fig. IV, 1). C-setae are absent.

Coxae 1-4 with almost short setae at distoanterior and distoposterior corners, distal margin of coxae is smooth (figs. II, 2, 4; III, 1, 2). Coxa 4 with well developed proximoposterior incision (fig. III, 2).

Gnathopod 1: segment 2 slightly stout, bearing long setae at both margins (fig. II, 2), segments 3-4 short. Segment 5 slightly shorter than segment 6, bearing 4-5 groups of setae at posterior margin. Segment 6 twice longer than broad, with almost parallel lateral margins, bearing 4 groups of setae at posterior margin. Palm concave, bearing one median and 3 corner spines on outer surface, and one subcorner spine on inner surface. Dactyl recurved, with one dorsal seta (fig. II, 1).

Gnathopod 2 weakly longer than gnathopod 1: segment 2 longer, bearing long setae at both margins; segments 3-4 short. Segment 5 triangular, bearing 5-7 groups of setae at posterior margin (fig. II, 4). Segment 6 distinctly longer than 5, less than twice longer than broad, with parallel lateral margins and provided with 7-8 groups of setae at posterior margin (fig. II, 3). Palm concave, bearing one median and 2-3 corner spines on outer surface and 2 subcorner spines on inner surface. Dactyl long, relatively slender, with one dorsal seta.

Pereopods 3 and 4 moderately long. Pereopod 3: posterior margin of segment 4 bearing numerous bunches of setae as long as or slightly longer than the diameter of the segment. Segment 5 at posterior margin with several spines intermixed with several setae longer than the spines. Posterior margin of segment 6 with 6-7 groups of long setae accompanied in distal part of segment with short spines (fig. III, 1). Dactyl moderately slender, nearly half of sagment 6-length.

Pereopod 4 similar to pereopod 3, but its posterior margin of segments 3-6 is setose (fig. III, 2), especially of segment 4.

Pereopods 5-7 moderately long, their segments 3-6 bearing numerous strong spines at both margins, accompanied by single setae at anterior margin of pereopod 7 (fig. IV, 2-4). Segment 2 of pereopod 5 longer than broad, with distoposterior corner and with 10-13 setae at posterior margin (fig. IV, 2). Segment 2 of pereopod 6 and pereopod 7 twice longer than broad, without distoposterior corner, bearing several moderately long setae at posterior margin and one distoposterior spine (fig. IV, 3, 4). Inferior surface of segment 2 of pereopod 5 is smooth, that of pereopods 6 and 7 with 1-5 long setae each. Dactyl relatively slender, but not long, shorter than half of segment 6 (fig. IV, 5), its nail is shorter than the remaining part of dactyl, bearing one seta at inferior margin.

Pleopods with 2 retinacula each. Epimere 1-3 moderately pointed. Epimera 2 with setae and spines at distal margin and on outer surface, epimera 3 with spines at distal margin (fig. I, 5).

Uropods 1 and 2 normal, well developed. Uropod 3 moderately long: peduncle shorter than outer ramus; inner ramus short, bearing one distal spine. Outer ramus 2-segmented: first segment with bunches of spines at both margins intermixed with 1-2 simple setae each (setae are not longer than spines), second segment short (fig. IV, 6).

Telson nearly as long as brosa: each lobe with 1-2 distal spines and several setae at distal and outer margins; three plumose setae occur in upper part of each lobe (fig. III, 3, 4).

Variability: The number of spines and setae on epimere and on metasomsegments is rather variable, but always present. The unisegmented accessory flagellum, absence of plumose setae on uropod 3 and absence of calceola are very constant characters in our studied specimens.

The specimens from Malta differ from these from Ibiza by slightly different shape of epimere and eyes. Margalef mentioned (1953, p. 193) that palm of gnathopod 2 is provided with 4 corner spines (2-3 corner spines in our specimens).

Material examined: Malta island, st. (Coll. Mus. Civ. St. Nat. Verona), several specimens.

Distribution: Ibiza (Margalef 1951, 1953); Malta (present paper).

Remarks and affinities. *Echinogammarus ebusitanus* (Marg. 1951) is rather allied to *Echinogammarus berilloni*-group from Spain by the presence of numerous spines on dorsal surface of metasomsegments 1-3, but differs from all these species by the presence of unisegmented accessory flagellum of antenna 1.

E. ebusitanus belongs to *E. tacapensis*-group because of its unisegmented accessory flagellum, absence of calceola, absence of setae on segments 3-6 of pereopods 5-7, etc., but differs from *E. tacapensis* (Chevr. et Gauthier 1924) by more setiferous telson, by obtuse median palmar spine of gnathopods 1-2, by more setose uropod 3, pereopods 3-4 and basis of pereopods 6-7.

E. ebusitanus differs from *E. afer* Stock 1974, known from N. Africa, by absence of setae on segments 3-6 of pereopods 5-7, by presence of dorsal setae on inferior surface of segment 2 of pereopods 6-7, by absence of plumose setae on uropod 3 etc.

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Rezime

84. PRILOG POZNAVANJU AMPHIPODA JEDAN INTERESANTAN PREDSTAVNIK IZ RODA ECHINOGAMMARUS STEBB. SA OTOKA MALTA, E. EBUSITANUS (MARG. 1951)

Echinogammarus ebusitanus je opisao Margalef 1951. kao podvrstu vrste *E. klaptoczi* sa Pitiuckih ostrva u Sredozemnom moru (Ibiza). Međutim kako je opis ove podvrste bio vrlo kratak i nedovoljno detaljan, sada je detaljno opisan ovaj takson iz jednog novog nalazišta, sa otoka Malte. Istovremeno je takson *ebusitanus* podignut na rang vrste.

E. ebusitanus (Marg. 1951) se odlikuje prisustvom grupa trnova na leđnoj površini metazomalnih segmenata, dok zadnji mezozomalni segment nosi dlake. Druga antena je dosta dlakava i bez kalceola, a uropod 3 nema perastih dlaka. Druga epimera nosi dlake i trnove, a treća samo trnove na donjem rubu. Šesti i sedmi bazipoditi nose po nekoliko dlaka na unutrašnoj površini, dok segmenti 3-6 kod pereopoda 5-7 nose samo trnove. Bočni bič prve antene je jednočlan i kraći od prvog segmenta glavnog biča. Telzon nosi distalne i marginalne dlake kao i 1-2 distalna trna. Oči su bubrežastog oblika, a treći pereopod nosi nešto duže dlake na stražnjem rubu.