

Psammogammarus stocki n. sp. (Crustacea, Amphipoda, Melitidae) from beach interstitia on Tenerife

Stygofauna of the Canary Islands, 21

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Abstract

A description is given of *Psammogammarus stocki* n. sp. from the interstitial of loose sediments in heavily exposed rockpools in the mediolittoral zone of Tenerife, Canary Islands. The species apparently represents the ultimate apomorphous condition within the genus and co-occurs with *Psammogammarus initialis* Stock & Sánchez, 1987, a species that exhibits more primitive features.

Résumé

Description de *Psammogammarus stocki* n. sp. de l'interstitiel des sédiments meubles dans les cuvettes des côtes rocheuses fortement exposées du médiolittoral de Tenerife, îles Canaries. Cette espèce représente apparemment la condition apomorphique finale dans le genre, et elle coexiste avec *Psammogammarus initialis* Stock & Sánchez, 1987, espèce présentant des caractères plus primitifs.

Psammogammarus stocki n. sp. was sampled from coarse sediments in mediolittoral rockpools on the north coast of Tenerife. The samples also contained *Psammogammarus initialis* Stock & Sánchez, 1987, a remarkable fact since this species represents the most plesiomorphous condition within the genus, while *Ps. stocki* holds the opposite one. Both species are marine stygobionts, the usual habitat for *Psammogammarus* S. Karaman, 1955. The genus now comprises nine species occurring along the warm-temperate and tropical coasts of the Pacific, the Atlantic and the Mediterranean.

Psammogammarus stocki n. sp. (figs. 1–3)

Material. – 1 ♂ holotype, 1 ♀ allotype, 11 paratypes. Canary Islands, Tenerife, Punta del Hidalgo.

Station 88-604: 1 ♂ paratype, boulevard of Punta del Hidalgo (UTM coord. CS 36987 × 316120) in gravel of rockpool in mediolittoral zone, 0.5 m under substrate surface, Bou-Rouch biophreatical pump (see Bou, 1975); 19 Dec. 1988 (ZMA Amph. 108.698). Accompanying fauna: *Dignatroides leptosoma* Stock & Vonk, 1989 (Isopoda), Melitidae.

Station 88-620B: 1 ♀ allotype, 2 ♀ ♀ paratypes, between cape Punta del Hidalgo and Punta el Guingo (UTM coord. CS 37050 × 316175), rockpool at high-water mark, BR pump 0.4 m under substrate surface; 2 Jan. 1989 (ZMA Amph. 108.693). Accompanying fauna: Melitidae.

Station 88-625: 1 ♂ holotype, 1 ♂ paratype, 2 ♀ ♀ paratypes, boulevard of Punta del Hidalgo (UTM coord. 36987 × 316120) in gravel of rockpool in mediolittoral zone, 0.2 m under substrate surface, BR pump; 4 Jan. 1989 (ZMA Amph. 108.694). Accompanying fauna: *Idunella* spec., Melitidae, Bogidiellidae.

Station 88-630: 3 ♀ ♀ paratypes, between cape Punta del Hidalgo and Punta el Guingo (UTM coord. CS 37050 × 316175), rockpool at high-water mark, BR pump 0.3 m under substrate surface; 14 Jan. 1989 (ZMA Amph. 108.695). Accompanying fauna: Melitidae, Lysianassidae.

2 ♂ ♂ paratype specimens are also deposited in the Museo Nacional de Ciencias Naturales, Madrid, Spain, nr. 20.04/2.

Description. – Melitidae sensu Bousfield, 1973, emend. Stock, 1986. Length ♂ holotype 2.0 mm, ♀ allotype 1.9 mm. White, blind. Head lobes not incised (fig. 1a).

Antenna 1 (fig. 1d): peduncle segments 1 and 2 slightly inflated, second subequal to first. Acces-

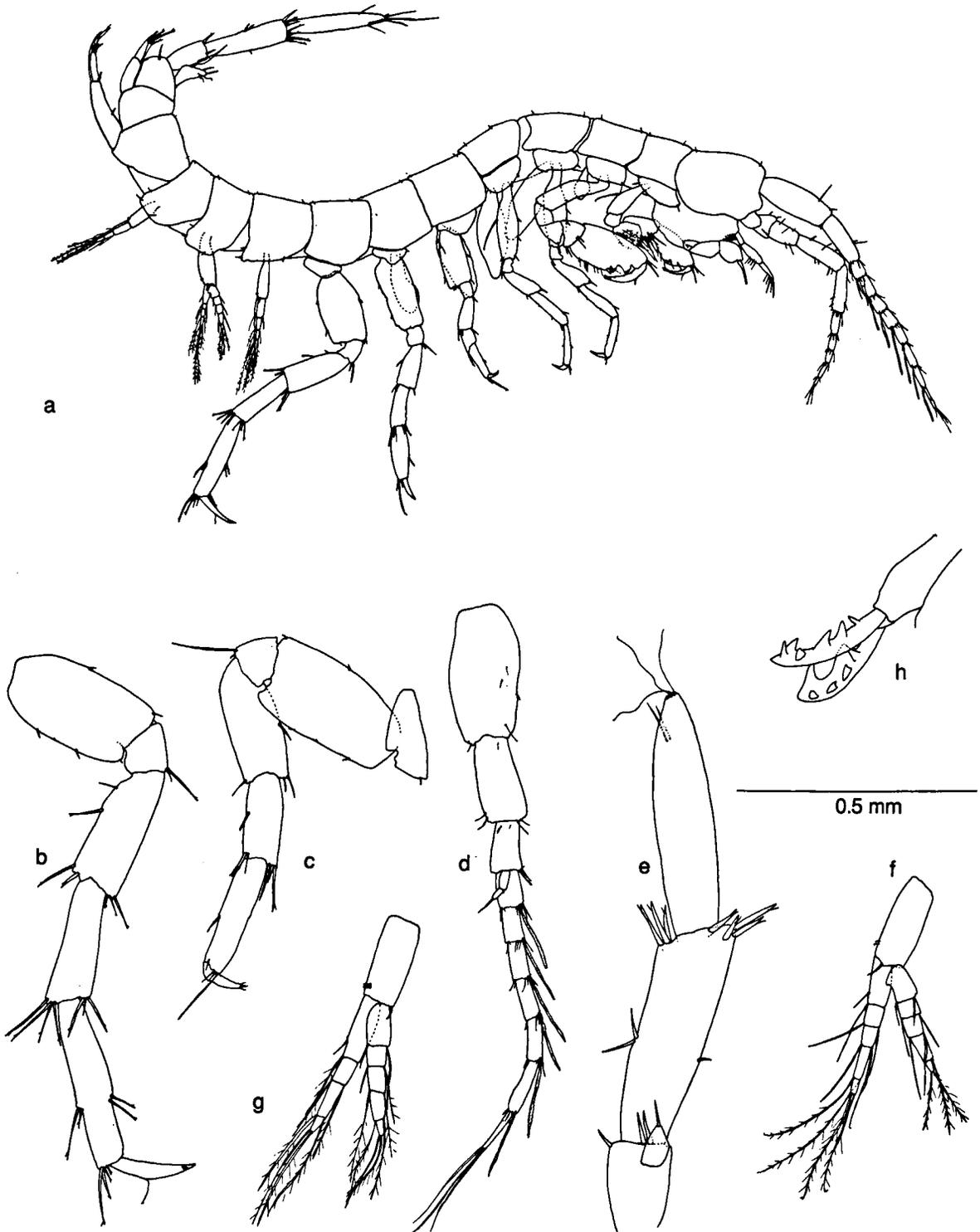


Fig. 1. *Psammogammarus stocki* n. sp.: a, ♂ holotype 2.1 mm; b, pereopod 7 ♂ paratype 2.0 mm; c, pereopod 6 ♂ paratype 1.9 mm; d, antenna 1 ♀ paratype 1.8 mm; e, uropod 3 ♂ paratype 1.9 mm; f, id., pleopod 2; g, id., pleopod 1; h, pleopod 2 retinacula ♀ paratype 2.0 mm (after SEM photograph).

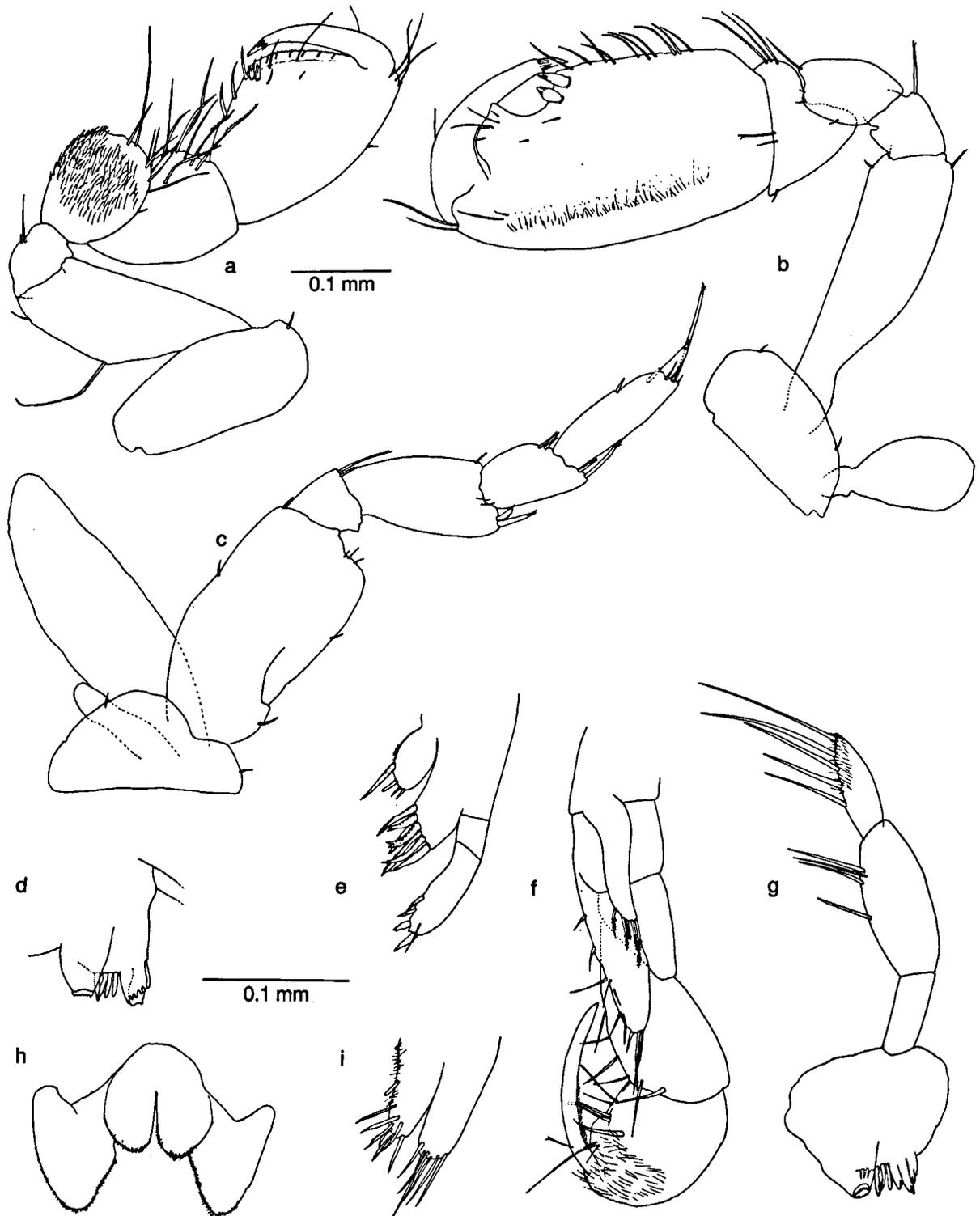


Fig. 2. *Psammogammarus stocki* n. sp.: a, gnathopod 1 ♂ paratype 1.9 mm; b, id., gnathopod 2; c, pereopod 5 ♂ paratype 1.8 mm; d, left mandible ♀ paratype 1.8 mm; e, maxilla 1 ♂ paratype 1.9 mm; f, id., maxilliped; g, id., right mandible with palp; h, lower lip ♂ paratype 2.0 mm; i, maxilla 2 ♂ paratype 1.9 mm.

sory flagellum 2-segmented, not overreaching tip of first flagellum segment. Flagellum 7-segmented; aesthetascs longer than corresponding segment, present on first through penultimate segment.

Antenna 2 (fig. 3d) slightly shorter than antenna 1. Peduncle segments 4 and 5 slender, subequal. Flagellum 5-segmented.

Upper lip (fig. 3i) triangular, with few setules on distal margin.

Mandible palp (fig. 2g) 3-segmented. Segment 1 naked, segment 2 with 4 ventral setae, segment 3 with 5 strong ventral setae; palp segment 3 slightly longer than 2.

Mandibular body (figs. 2d, g): Left mandible with 4, right mandible with 3 barbed spines between molar and pars incisiva. Left lacinia mobilis (fig. 2d) with 5 teeth; right lacinia (fig. 2g) smooth. Molar simple, without setae.

Lower lip (fig. 2h) with inner lobes, setulose.

Maxilla 1 (fig. 2e): Palps symmetrical; distal margin with row of 4 elements and 1 subterminal seta. Outer lobe with 7 spines; 4 spines barbed, 2 forked, outermost bold. Inner lobe small, oval, with 2 short and 2 long setae.

Maxilla 2 (fig. 2i) inner lobe with rudimentary oblique row of 4 setae.

Maxilliped (fig. 2f): Claw of palp longer than last segment. Outer plate with a row of paired setae on medial margin; no distal spines. Inner plate with 5 distal plumose setae.

Gnathopod 1 (fig. 2a): Coxal plate wider than long, with posterodistal notch. Merus swollen, rugose, with one long seta and 6 to 8 shorter ones. Carpus shorter than propodus, with serrate setae irregularly placed. Propodus with finely serrate palmar margin, margin delimited by 2 palmar angle spines which are almost split, a sensory hair protruding from it; palmar margin with 9 spinules in ♂, 3 in ♀; palma transverse.

Gnathopod 2 (fig. 2b): Coxal plate wider than long, with posterodistal notch. Coxal gill oval, stalked, half as long as basis. Merus not swollen. Carpus of ♂ shorter than that of ♀. Propodus of ♂ larger than propodus of ♀, with bisinuate palm; 2 palmar angle spines. Palm of ♀ convex; 2 palmar angle spines; regular row of 4 to 5 palmar spinules. Claw of ♀ more slender than that of ♂.

Pereopod 3 (fig. 3e) resembles P4 (fig. 3f). Coxal plates wider than long. Coxal gills elongate-oval, large, not stalked.

Pereopod 5 (fig. 2c): Coxal gill elongate-oval, longer than basis, not stalked. Coxal plate anterolobate. Posteroventral corner of basis lobate. Propodus with long distal spine. Claw small.

Pereopod 6 (fig. 1c) much longer than P5. Coxal gill elongate-oval, smaller than in P5, not stalked. Coxal plate slightly anterolobate. Basis lobate, slightly overhanging. Propodus with long distal spine.

Pereopod 7 (fig. 1b) longer than P6. Coxal plate non-lobate, no coxal gill. Merus and carpus with groups of heavy distal spines. Claw long and sturdy.

Epimeral plates 1 to 3 (fig. 1a) with 2 setules on posterior margin. Ventral margin with 1 spinule.

Pleopods 1 to 3 (figs. 1a, f, g): Peduncle naked, except for two retinacula (fig. 1h); exopodite of pleopod 2 with swelling on first segment.

Uropod 1 (fig. 3g) with 1 dorsal peduncular spine. Exopodite slightly shorter than endopodite, both with 3 distal spines.

Uropod 2 (fig. 3h) without dorsal peduncular spine, otherwise resembling U1 but for its shorter length.

Uropod 3 (fig. 1e) long. Exopodite segment 2 as long as segment 1, with 3 thin distal setae. Segment 1 with distal groups of 3 and 4 spines. Endopodite very small, 1 spine distally.

Telson (fig. 3j) almost cleft entirely. Each lobe bluntly pointed, with 3 lateral spines and 1 dorsal pair of setules.

Oostegites (figs. 2c, 3a, e, f) linear, short, with 1 or 2 subdistal setules; present from gnathopod 2 through pereopod 5.

Remarks. – Using the characters described by Notenboom (1988: 170) in a numerical phylogenetic analysis of a large group of genera in the Melitidae (Melitidae sensu Bousfield, 1973, emend. Stock, 1986) an apomorphic state is found for *Ps. stocki* in 13 out of the 21 described character transformation series. This is the highest count within *Psammogammarus* except for *Ps. gracilis* Ruffo & Schiecke, 1976, which equals *Ps. stocki*. *Ps. gracilis*

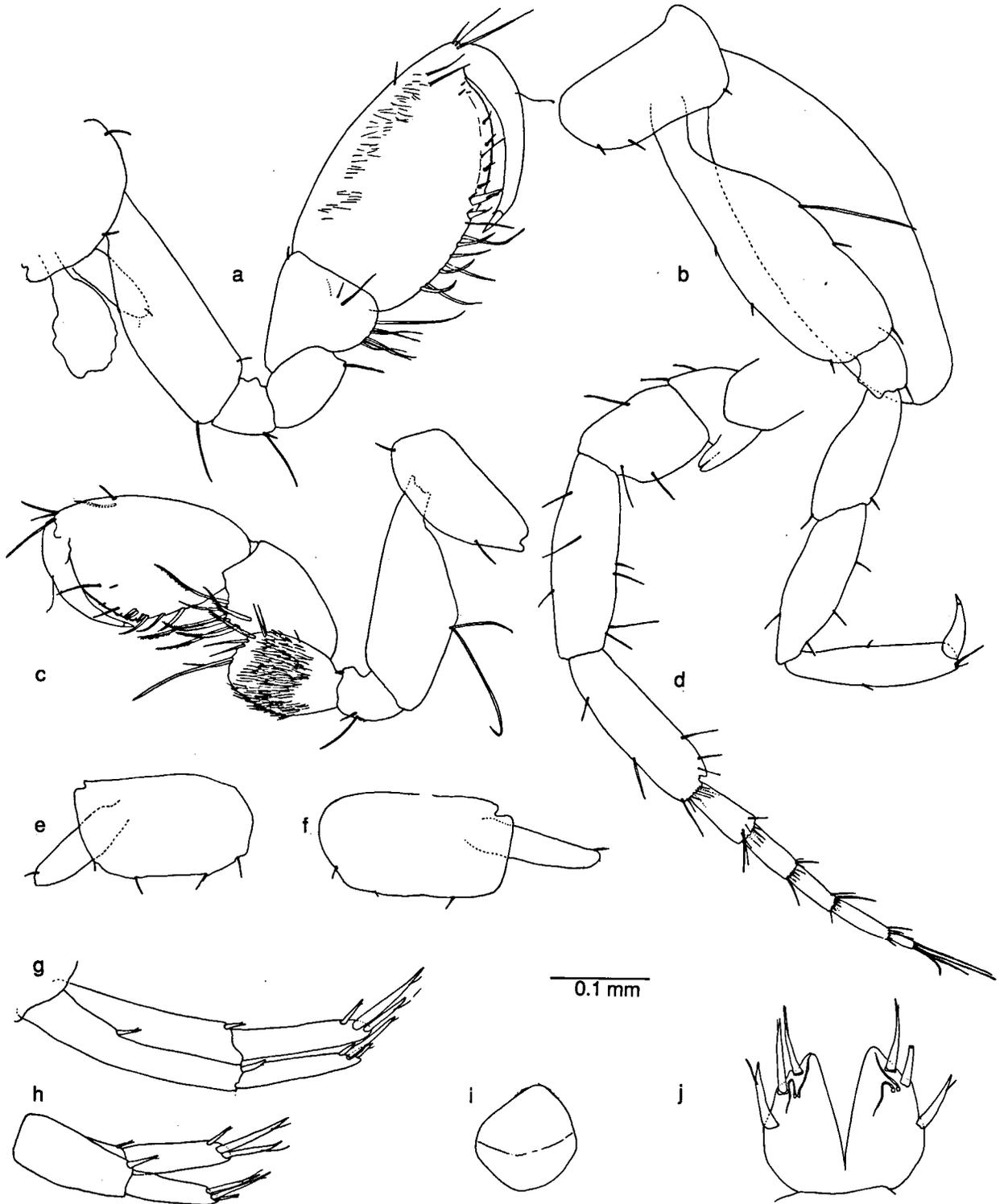


Fig. 3. *Psammogammarus stocki* n. sp.: a, gnathopod 2 ♀ paratype 1.8 mm; b, pereopod 4 ♂ paratype 1.9 mm; c, gnathopod 1 ♀ paratype 1.8 mm; d, antenna 2 ♂ paratype 2.0 mm; e, pereopod 3 ♀ paratype 1.8 mm; f, id., pereopod 4; g, uropod 1 ♂ paratype 1.9 mm; h, id., uropod 2; i, upper lip ♀ paratype 1.8 mm; j, id., telson.

was found in 5 m deep coastal water of the mediterranean island of Malta.

Stock & Sánchez (1987: 275) used for their delimitation of the genus *Psammogammarus* s. l. some 12 characters in which *Ps. stocki* would have, next to *Ps. gracilis*, 11 apomorphic states.

As the above predicts – although it does not necessarily have to follow – the phenetic similarities between *Ps. stocki* and *Ps. gracilis* are large. Differences reside in: the palm and armature of the ♂ second gnathopod; where *Ps. stocki* has 2 palmar angle spines placed near to each other, *Ps. gracilis* has 1 spine on the angle and 1 spine farther down the curved palm. Pereopods 5 and 6 have distal propodal spines exceeding the length of the claw in *Ps. stocki*, not so in *Ps. gracilis*. Endopodite of uropod 3 has 1 distal spine in *Ps. stocki*, 2 in *Ps. gracilis*.

Palmar shape and armature of ♂ second gnathopod of *Ps. caecus* S. Karaman, 1955, *Ps. garthi* Barnard, 1952, and more so of *Ps. initialis* Stock & Sánchez, 1987, resemble that of *Ps. stocki* quite closely. Other character states, however, are scattered over several species in the genus in a seemingly uncorrelated way (Stock & Sánchez, 1987).

Etymology. – The species name is proposed in honour of Dr. Jan H. Stock, Professor of Systematic and Geographic Zoology at the University of Amsterdam, in recognition of his numerous fine contributions to the knowledge of subterranean amphipods.

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