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Pontoniine shrimps (Crustacea: Decapoda: Palaemonidae) from Viet Nam. *Onycocaris temiri* sp.n., a new sponge-associated shrimp from Nha Trang Bay

Креветки-понтониины (Crustacea: Decapoda: Palaemonidae) из Вьетнама. *Onycocaris temiri* sp.n., ассоциированный с губками вид из залива Ня Чанг

Ivan N. Marin
И.Н. Марин

Laboratory of Ecology and Morphology of Marine Invertebrates, A.N. Severtzov Institute of Ecology and Evolution RAS, Leninsky prosp., 33, Moscow 117071 Russia. E-mail: coralliodecapoda@mail.ru

Лаборатория экологии и морфологии морских беспозвоночных, Институт проблем экологии и эволюции им. А.Н. Северцова РАН, Ленинский проспект, 33, Москва 117071 Россия.

KEY WORDS: *Onycocaris*, new species, Viet Nam.

КЛЮЧЕВЫЕ СЛОВА: *Onycocaris*, новый вид, Вьетнам.

ABSTRACT. A new species of the genus *Onycocaris*, *O. temiri* sp.n., is described from Nha Trang Bay, South Viet Nam. The new species is associated with shallow-water sponges of the genus *Kallipilidion* extracted from dead coral rocks. This is the first record of this genus from Vietnamese waters. Morphologically, the new species is closely related to *O. profunda* Bruce, 1985 and *O. seychellensis* Bruce, 1971, collected from the Philippines, at depth of 81–84 m and the Seychelles, at a depth of 0.5 m, respectively. The new species is recognized by the form of the proximal segment of the antennules, dentition of dactyli of the second pereiopod and, especially by the pointed posterior margin of the telson.

РЕЗЮМЕ. Вид из рода *Onycocaris*, *O. temiri* sp.n., описан из залива Нячанг, Южный Вьетнам. Вид ассоциирован с мелководными губками рода *Kallypilidion*, обитающими в глыбах мертвых кораллов. Это первая находка представителя данного рода во Вьетнаме. Морфологически новый вид наиболее близок к видам *O. profunda* Bruce, 1985 и *O. seychellensis* Bruce, 1971, собранных на Филиппинах, на глубине 81–84 м, и Сейшельских островах, на глубине 0.5 метра, соответственно. От данных видов новый вид легко отличим по форме проксимального сегмента антеннул, строением дактилусов вторых переопод и, особенно, заостренной формой заднего края тельсона.

Introduction

The sponge-associated species of the genus *Onycocaris* Nobili, 1904 have not been recorded previously from Viet Nam. During the collecting of pontoniine shrimps in Nha Trang Bay, in September-November, 2003, three male-female couples of this genus were obtained from sponges collected from shallow-water dead coral boulders. A complete examination and comparison with descriptions of other species allowed the separation of the species from other members of the genus and hence the species is here described as new. CL indicates postorbital carapace length. All specimens are deposited in the collection of the Zoological Museum of Moscow State University, Moscow (ZMMU).

Systematic account

Family Palaemonidae Rafinesque, 1815
Subfamily Pontoniinae Rafinesque, 1815
Genus *Onycocaris* Nobili, 1904

Onycocaris temiri sp.n.
Figs 1–8.

MATERIAL EXAMINED. Holotype — 1 ovigerous ♀ (CL 4.2 mm, holotype, ZMMU, Ma 5441, dissected); Allotype — 1 ♂ (CL 2.8 mm, allotype, ZMMU, Ma 5443, dissected) — Mung Island, depth 16 m, dead coral, inside boring sponge Kallipilidion sp., SCUBA, 07.10.2003, Leg. I. Marin; 1 ovigerous ♀ (CL 3.6 mm, paratype, ZMMU, Ma 5442), 1 ♂ (CL 3.8 mm, paratype, ZMMU, Ma 5442) — Mot Island, depth 10 m, dead coral, inside boring sponge *Kallipilidion* sp., SCUBA, 07.10.2003, leg. I. Marin; 1 ovigerous ♀ (CL 2.25 mm, paratype, ZMMU); 1 ♂ (CL 1.85 mm, paratype, ZMMU) — Mung Island, depth 10 m, inside boring sponge *Kallipilidion* sp., SCUBA, 27.10.2003, leg. I. Marin.

DESCRIPTION (based on holotype). Small-sized shrimps with subcylindrical body (Figs 1, 2). Carapace smooth, subcylindrical, with height subequal to postorbital carapace length (Figs 1, 2). Rostrum short, acute, with tip upturned, reaching to the midlength of proximal antennular segment (Fig. 3a, c); dorsal rostral carina well developed, proximally convex, especially in

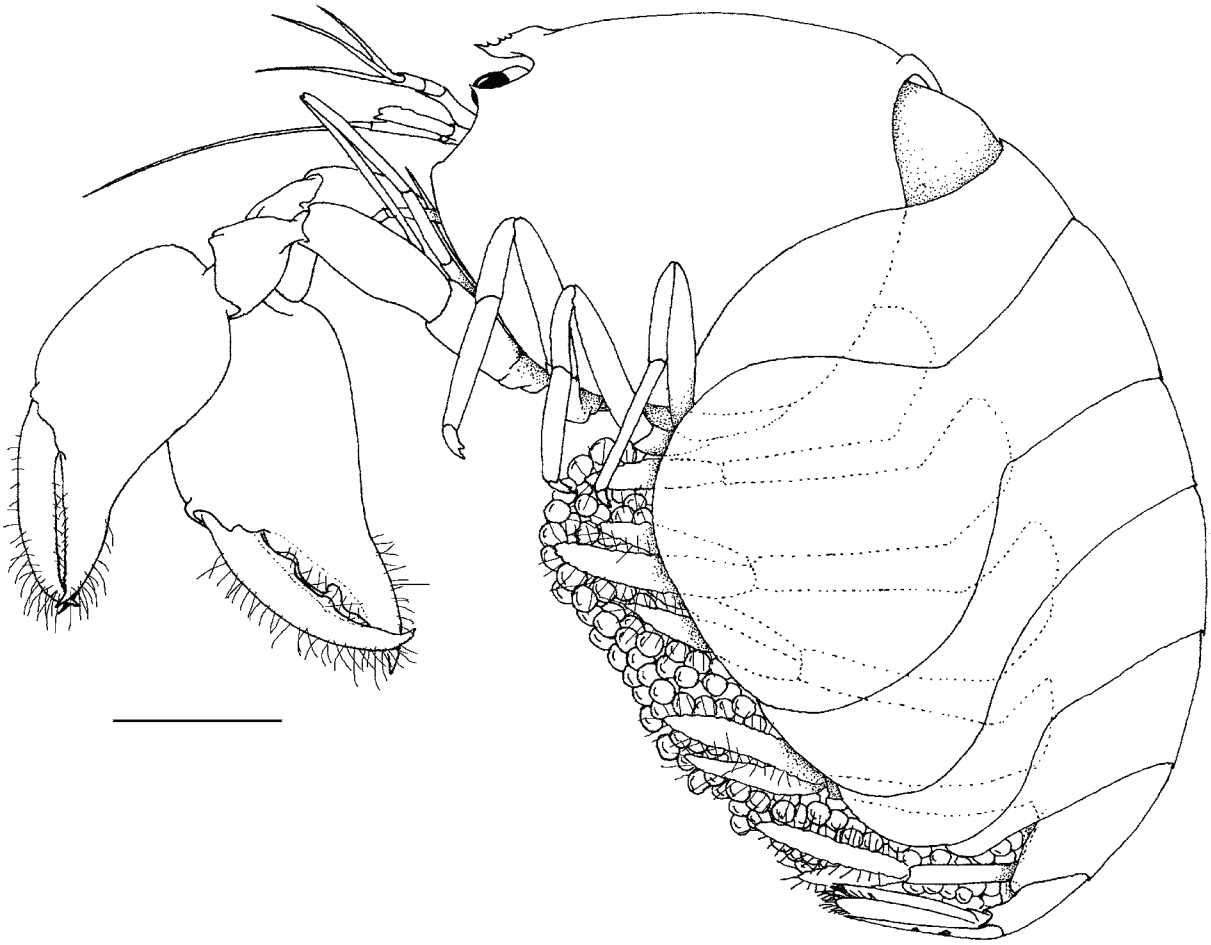

Fig. 1. *Onycocaris temiri*, sp. n., holotype ♀, lateral view. Scale 2 mm.
Рис. 1. *Onycocaris temiri*, sp. n., голотип ♀, вид с боку. Масштаб 2 мм.

females (Fig. 3b, e); lateral carina passing smoothly into orbital margin (Fig. 3c); ventral carina absent; in distal part bearing four well developed teeth (Fig. 3b), without ventral teeth. Orbits are obsolete, with well developed acute inferior angle (Fig. 3a, d). Anterolateral angle of branchiostegite broadly rounded (Fig. 3a).

Eyes short and stout, with hemispherical cornea, deeply set (Fig. 3c, f). Antennule (Fig. 3g) well developed, with robust and short peduncle, especially in females; proximal segment about 2.5 times as long as wide, margins subparallel, lateral border with small acute stylocerite, slightly exceeding the level of the midlength of proximal segment, antero-lateral border with large acute distolateral tooth, slightly overreaching the midlength of the intermediate segment (Fig. 3h, g); intermediate segment short and stout, without lateral lobe, about 0.2 times of the length of proximal segment, about 0.65 times as long as wide in females and about 1.1 times as long as wide in male; distal segment is about 1.3 times as long as wide; upper flagellum biramous, rami fused for the first 5 proximal segments, upper flagellum with 8–10 groups of aesthetascs; lower flagellum slender, with 12 segments (Fig. 3g).

Antenna (Fig. 3i) with stout basicerite and ischiocerite; scaphocerite is about 2.1 times longer than broad, with anterior margin of blade convex, with lateral border straight and large acute disto-lateral tooth, exceeding the distal margin of blade; carpocerite is slender, about 5.7 times as long as broad, slightly overreaching the level of lamella of scaphocerite; the flagellum is short, equal to about 1.5 times the postorbital carapace length. Mandible (Fig. 4a) feebly developed, without palp; molar process slender, distally with rounded surface, bearing small acute teeth (Fig. 4b); incisor process short, tapering distally to two acute teeth, disto-lateral mesial margin with row of small teeth (Fig. 4a, b).

Maxillula (Fig. 4c) stout, with well-developed palp; palp with convex upper lobe, lower lobe bearing a single long setae; upper lacinia distally rounded, broad, with short setae and spines on distal margin; lower lacinia curved, with setae distally. Maxilla (Fig. 4d) well-developed, coxal endite reduced to rounded lobe; basial endite, distally rounded, with eleven long setae; palp without setae, distally rounded; scaphognathite well developed, with broad lobes, about 3.6 times as long as wide. First maxilliped (Fig. 4e) with well-developed non-setiferous palp; coxal endite is larger than basal endite, both bordered with small setae, coxal endite with disto-dorsal margin bearing longer and stout setae than lateral margin; exopod with well developed flagellum, with 4 plumose setae distally; caridean lobe broad, with numerous

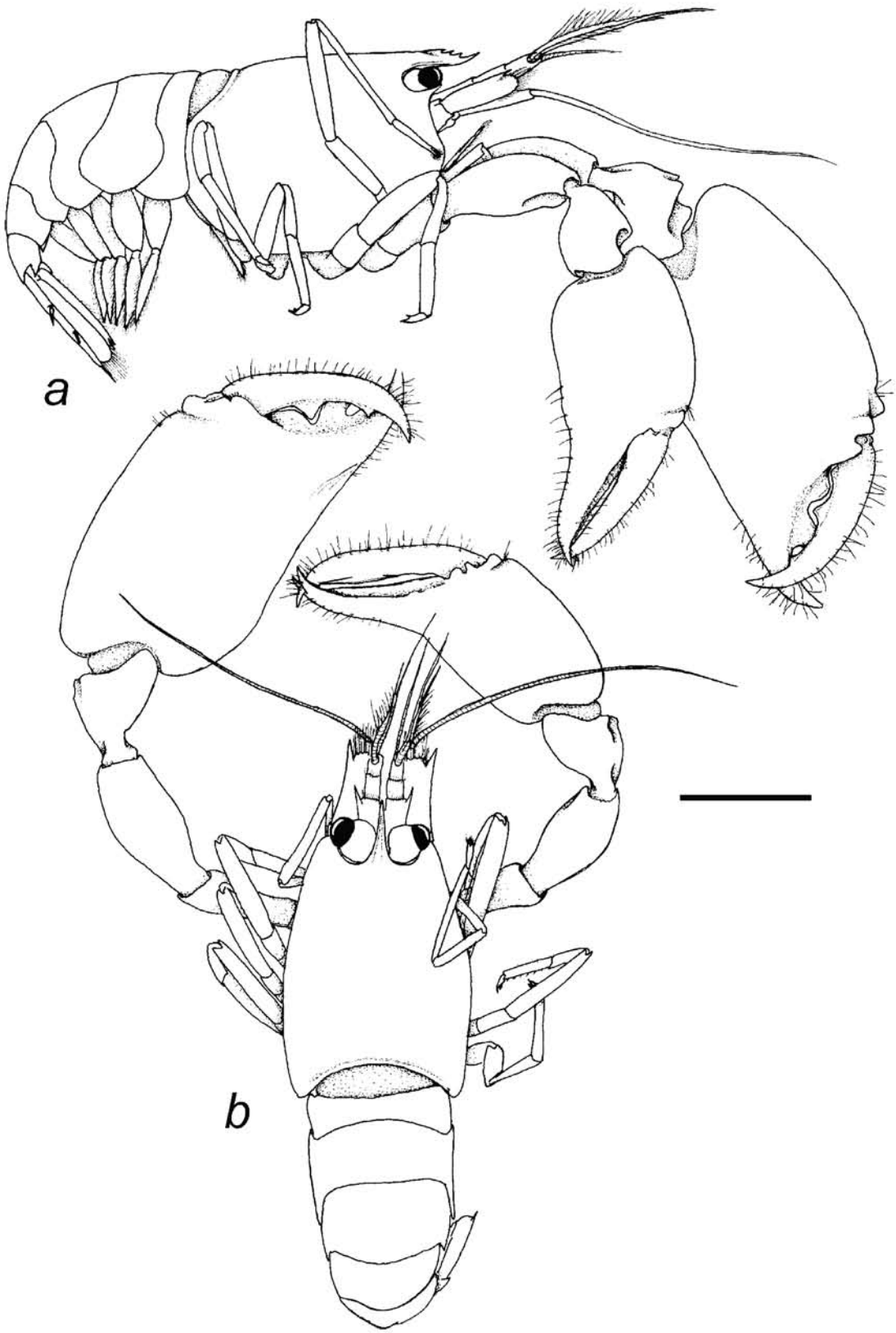

Fig. 2. *Onycocaris temiri*, sp. n., allotype ♂: a — lateral view; b — dorsal view. Scale 2 mm.
Рис. 2. *Onycocaris temiri*, sp. n., аллотип ♂: a — вид сбоку; b — дорсальный вид. Масштаб 2 мм.

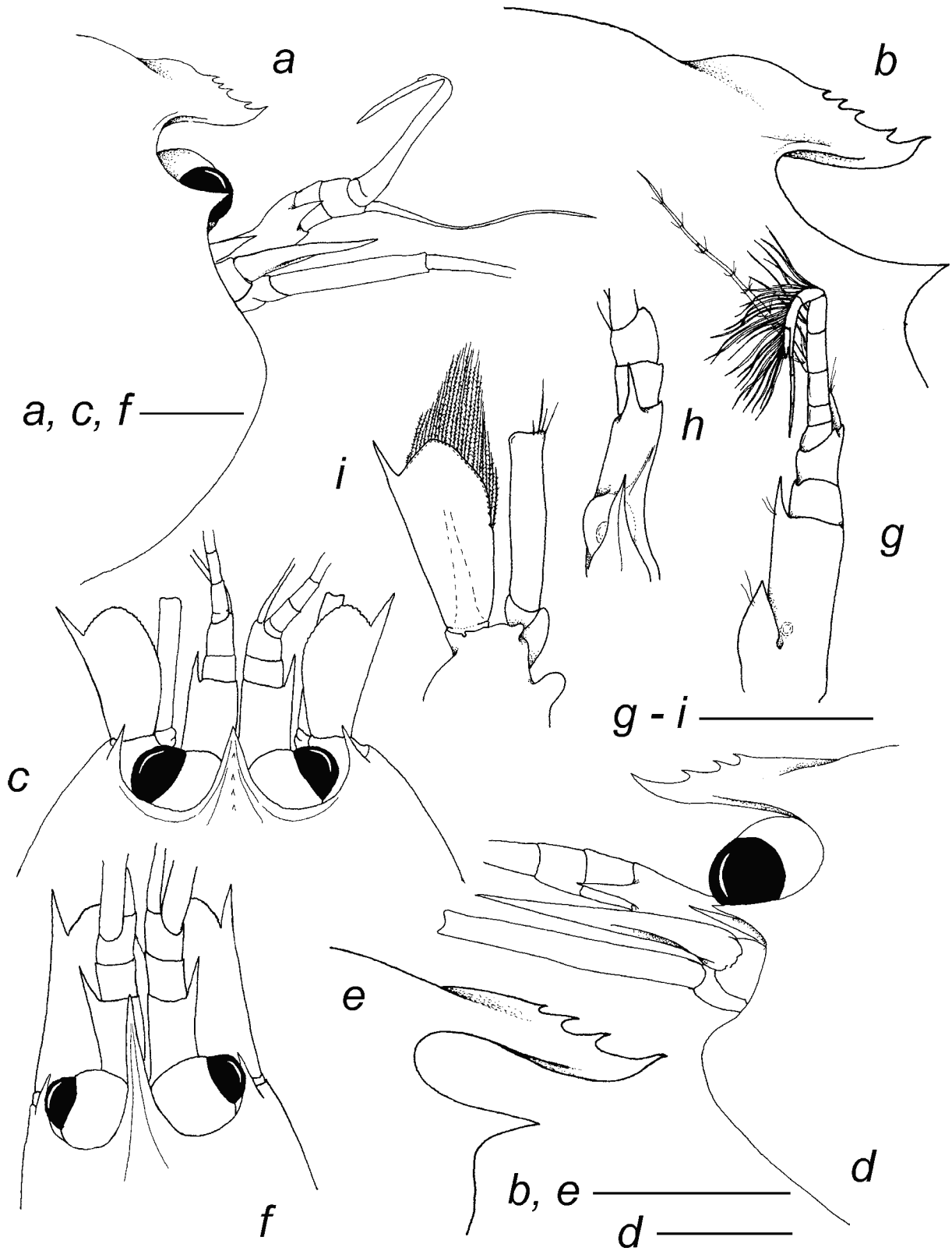

Fig. 3. *Onycocaris temiri*, sp.n., holotype ♀ (a–c, g–i), allotype ♂ (d–f): a, d — frontal margin of carapace, lateral view; b, e — same, rostrum; c, f — same, dorsal view; g — antennule, dorsal view; h — same, lateral view; i — antenna, dorsal view. Scale 1 mm.

Рис. 3. *Onycocaris temiri*, sp.n., голотип ♀ (a–c, g–i), — аллотип ♂ (d–f): a, d — передняя часть карапакса, вид сбоку; b, e — рострум; c, f — передняя часть карапакса, вид сверху; g — антеннула, вид сверху; h — тоже, вид сбоку; i — антенна. Масштаб 1 мм.

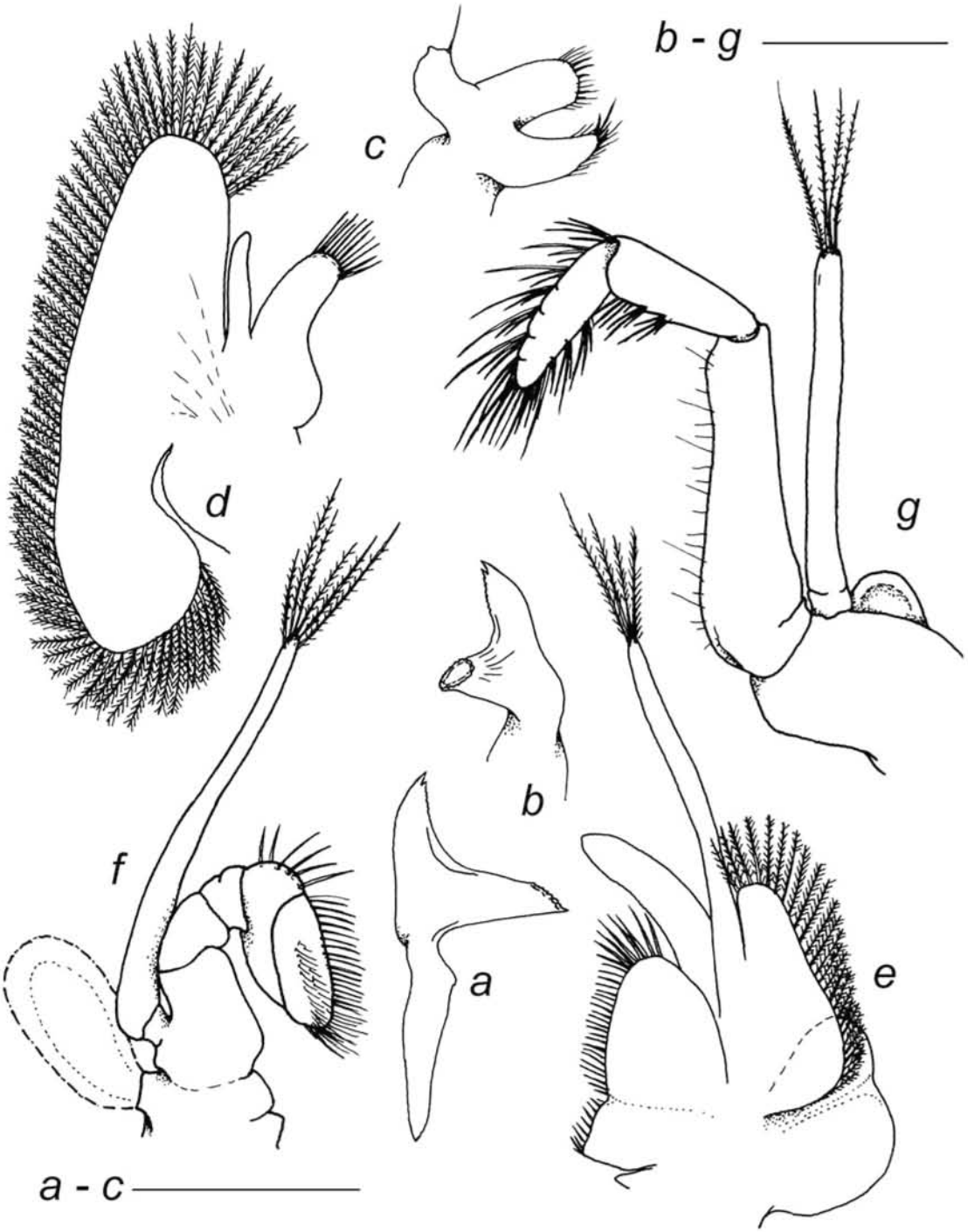

Fig. 4. *Onycocaris temiri* sp.n., holotype ♀: a — mandible; b — same, incisor and molar processes; c — maxillule; d — maxilla; e — first maxilliped; g — second maxilliped; h — third maxilliped. Scale 1 mm.

Рис. 4. *Onycocaris temiri* sp.n., голотип ♀: a — мандибула; b — тоже, режущий и жевательный отростки; c — максиллула; d — максилла; e — первая максиллепеда; g — вторая максиллепеда; h — третья максиллепеда. Масштаб 1 мм.

setae; epipod well-developed, bilobed. Second maxilliped (Fig. 4f) typical for genus; coxa with well-developed oval epipod; exopod well developed; dactylar segment of the endopod is about 3 times as long as wide, with several rows of short spines. Third maxilliped (Fig. 4g) typical for genus; coxa smooth, with rounded epipod laterally; exopod well-developed, with plumose setae distally; endopod with basis and ischio-meral segments completely fused, about 3.7 times as long as wide, with lateral border bearing long setae; penultimate segment is

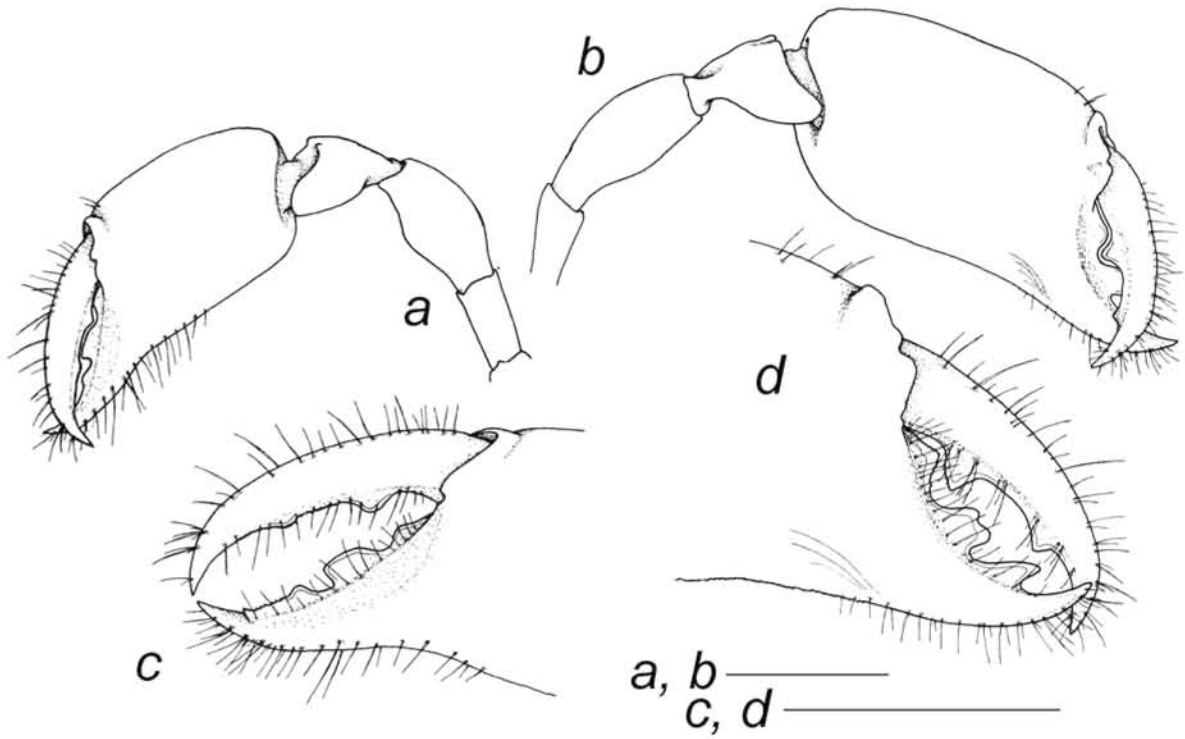

Fig. 5. *Onycocaris temiri* sp.n., holotype ♀ (a, b), allotype ♂ (c, d): a, c — major second pereiopod; b, d — same, dactylus. Scale 1 mm.

Рис. 5. *Onycocaris temiri* sp.n., голотип ♀ (a, b), аллотип ♂ (c, d): a, c — большая вторая переопода; b, d — тоже, дактилус. Масштаб 1 мм.

about 2.7 times longer than broad and about 0.5 times the length of the ante-penultimate segment, with transverse rows of setae medially; the distal segment is stout, tapering distally, about 3.7 times as long as wide, bordered with transverse groups of long setae.

First pereiopod (Fig. 7a) very slender; basis and coxa are robust, without special features; ischium stout, about 6 times as long as wide; merus is about 7.4 times as long; carpus is about 12 times as long as wide; ratio ischium : merus : carpus subequal to 1 : 1.2 : 1.6; palm of chela smooth, slender, subcylindrical, about 4 times as long as wide; fingers are short and stout, about 0.3 times of the palm length, with cutting edges bordered by setae; tips with apical teeth and dense groups of setae (Fig. 7b). Second pereiopods large and robust, almost subequal in size, dissimilar (Figs 1, 2b). Major second pereiopod (Fig. 5a, c) with basis and coxa simple, stout, smooth, unarmed; ischium is robust, smooth, unarmed, subcylindrical, slightly widening distally, about 1.75 times as long as wide in distal part; merus is stout, smooth, oval-shaped, about 2.1 times as long as wide in the midlength, with small excavation in disto-ventral part and disto-ventral angle unarmed; carpus is stout, smooth, widening distally, about 1.6 times as long as wide distally, with series of distal lobes and excavations; chela with palm strongly compressed, smooth, about 1.3 times as long as broad, proximo-dorsal angle rectangular and ventro-proximal rounded, bearing moderately long setae along the ventral border; fingers are 0.85 times of palm length, with long setae along the outer border and shorter setae along the cutting edges; fixed finger (Fig. 5 b, d) slightly flattened, concave and curved, tapering distally, with three large teeth in proximal, middle and distal parts, proximal and distal teeth are triangular and medial teeth is rectangular, teeth being more feeble in females; dactylus (Fig. 5 b, d) slightly flattened, convex, tapering distally, with two moderately large triangular teeth in proximal and distal parts (teeth being more feeble in females). Minor second pereiopod (Fig. 6a, d) with basis and coxa simple, stout, smooth, unarmed; ischium robust, smooth, unarmed, subcylindrical, slightly widening distally, about 1.6 times as long as wide in distal part; merus stout, smooth, oval-shaped, about 2.1 times as long as wide in midlength, with small excavation in disto-ventral part and disto-ventral angle unarmed; carpus stout, smooth, widening distally, about 1.25 times as long as wide distally, with series of distal lobes and excavations; chela with palm strongly compressed, smooth, about 1.3 times as long as broad, proximo-dorsal angle rectangular and ventro-proximal angle rounded, moderately long setae occurs along the ventral border; fingers are 0.85 times of palm length, dactylus (Fig. 6b, c, e) is subcylindrical, slender, about 0.9 times of the palm length in female, and equal to palm length in male, about 6 times as long as deep, tapering distally to acute tooth, especially in males; cutting edges of fingers are clearly dentate, especially

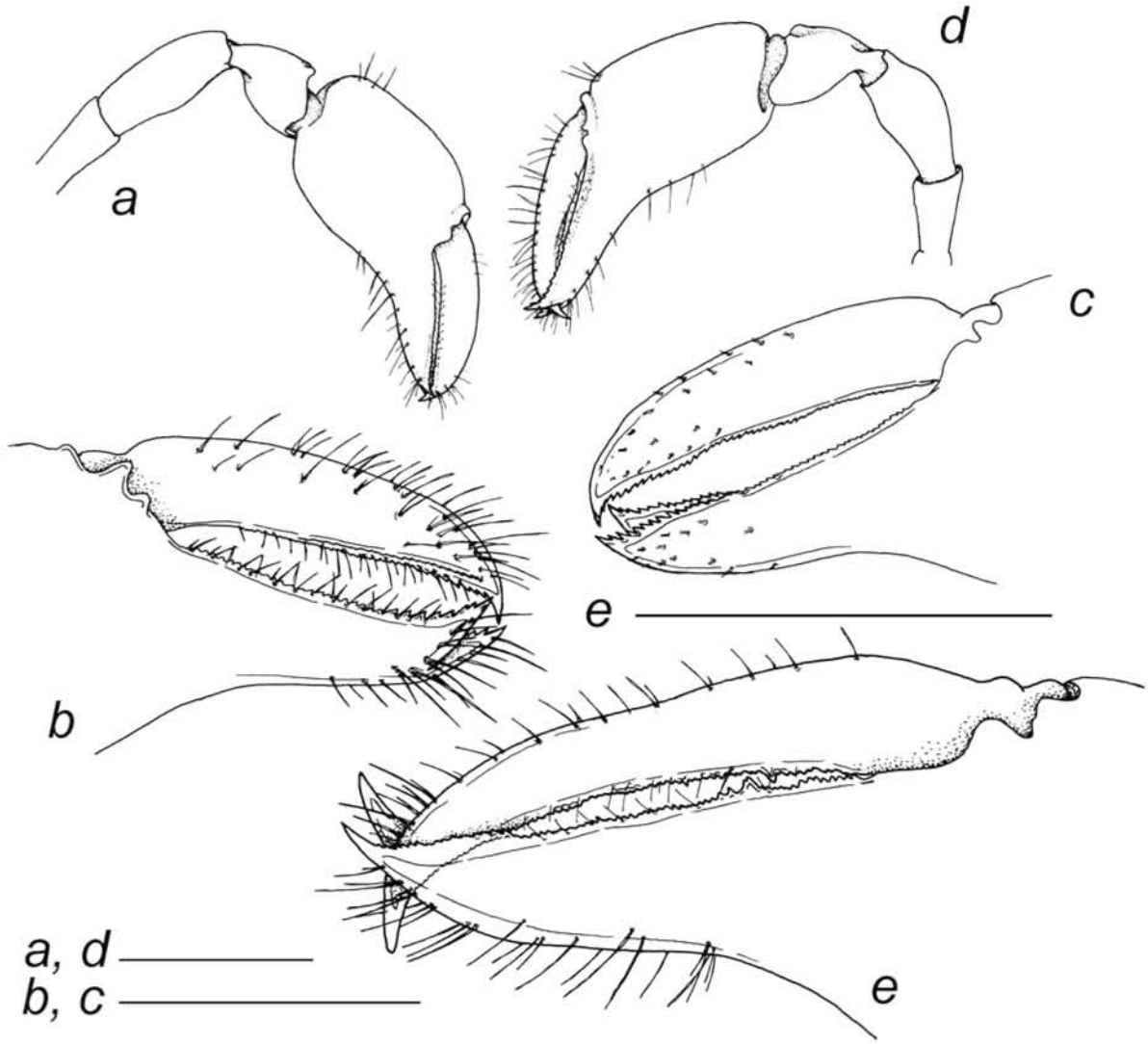

Fig. 6. *Onycocaris temiri* sp.n., holotype ♀ (a, b, c), allotype ♂ (d, e): a, d — minor second pereiopod; b, e — dactylus of minor second pereiopod, c — same, without setae, ommited mesial view. Scale 1 mm.

Рис. 6. *Onycocaris temiri* sp.n., голотип ♀ (a, b, c), аллотип ♂ (d, e): a, d — малая втроая переопода; b, e — дактилус малой второй переоподы, c — тоже, без щетинок, вид с внутренней стороны. Масштаб 1 мм.

distally and bordered by moderately long setae; fixed finger with well developed denticulate flange extending through the length laterally, with acute tooth distally giving the finger a bidentate appearance, fingers with long setae along the outer margins and dense groups of setae distally. Third pereiopod stout (Fig. 7c); basis and coxa stout and unarmed; ischium is stout, unarmed, about 2 times as long as wide; merus simple, unarmed, about 4.2 times as long as wide; carpus is moderately stout, unarmed, about 2,6 times as long as wide; propodus is robust, about 5.5 times as long as wide at base, slightly tapering distally armed with 6 ventral and a pair of disto-ventral spines; ratio ischium : merus : carpus : propodus is 1 : 2.3 : 1.2 : 1.8; dactylus short and stout, strongly compressed laterally (Fig. 7 d), about 2.2 times as long as wide proximally and about 0.2 times of the propodal length, with acute tip and a large irregulate accessory spine and with eight relatively large spines situates along a ventral margin proximally to accessory spine. Fourth and fifth ambulatory pereiopods (Fig.7e, f) are similar but more slender than third pereiopod;; propodus of fourth pereiopod has six ventral and a pair of disto-ventral spines, the propodus of the fifth pereiopod has five ventral and a pair of disto-ventral spines; fifth pereiopod (Fig. 7 f) with groups of grooming setae at the end of propodus laterally.

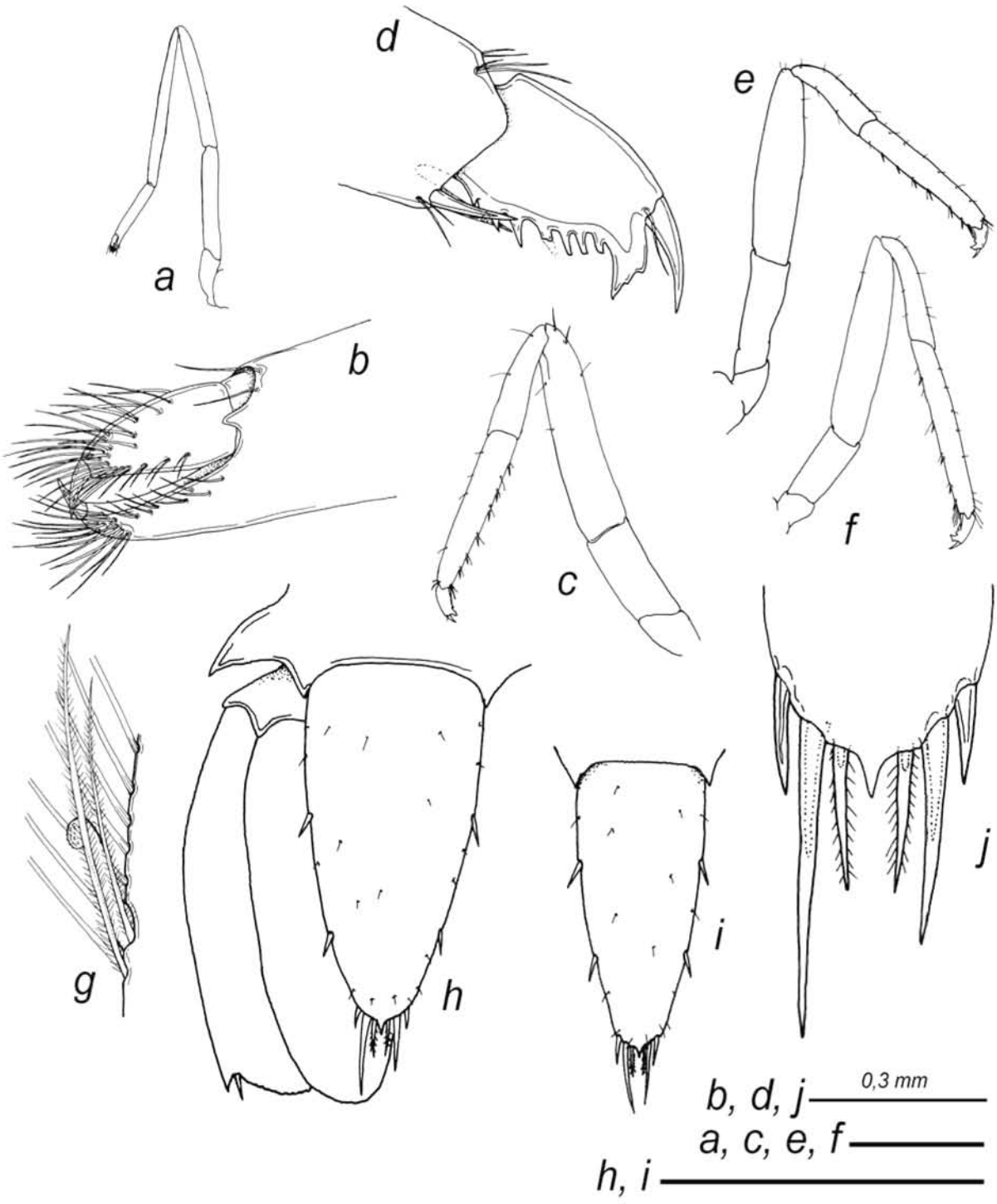

Fig. 7. *Onycocaris temiri* sp.n., holotype ♀ (a–h, j), allotype ♂ (i): a — first pereiopod; b — same, fingers; c — third pereiopod; d — dactylus of third pereiopod; e — fourth pereiopod; f — fifth pereiopod; g — appendix masculina; h — telson and uropods; i — telson; j — same, posterior margin and spines. Scale 1 mm, g — without scale.

Рис. 7. *Onycocaris temiri* sp.n., голотип ♀ (a–h, j), аллотип ♂ (i): a — первая переопода; b — тоже, пальцы; c — третья переопода; d — дактилус третьей переоподы; e — четвертая переопода; f — пятая переопода; g — appendix masculina; h — тельсон и уроподы; i — тельсон; j — тоже, задний край и дистальные шипы. Масштаб 1 мм, g — без масштаба.

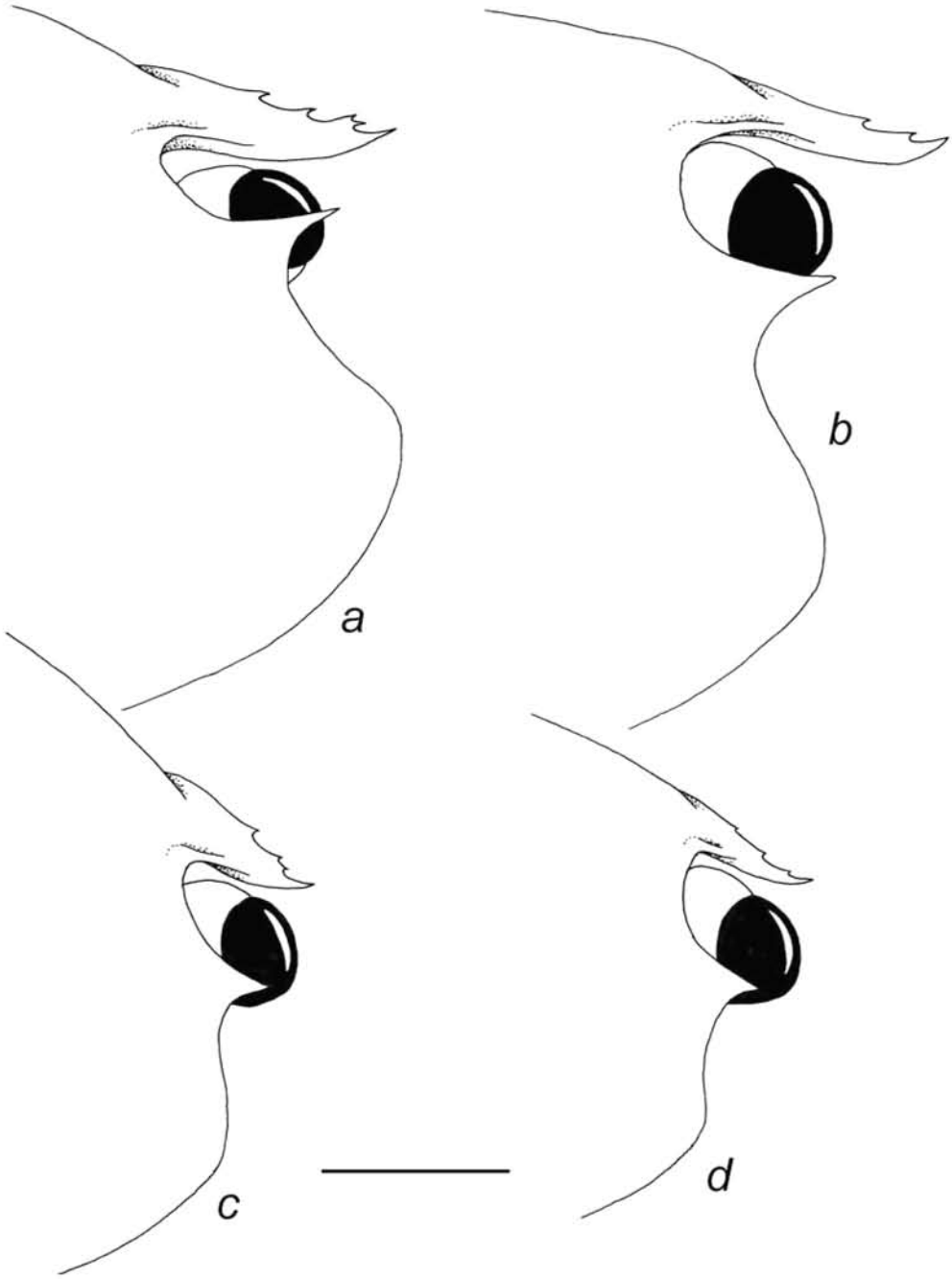

Fig. 8. *Onycocaris temiri* sp.n., variation in rostrum: a — paratype ♀ (CL — 3.6 mm); b — paratype ♂ (CL — 3.8 mm); c — paratype ♀ (CL — 2.25 mm); d — paratype ♂ (CL — 1.85 mm).

Fig. 8. *Onycocaris temiri* sp.n., вариация рострума: a — паратип ♀ (CL — 3,6 мм); b — паратип ♂ (CL — 3,8 мм); c — паратип ♀ (CL — 2,25 мм); d — паратип ♂ (CL — 1,85 мм).

Second pleopods with broad peduncles, appendix masculina well developed, with two long spinulate setae, arising from it place of origin (Fig. 7 g). Uropods exceeding distal margin of telson (Fig. 7 h), with short unarmed protopodite; exopod about twice as long as broad, with lateral margins convex ending in small acute tooth and acute spine distally; endopod is about 2.2 times as long as wide.

Abdomen large, smooth, subcylindrical, with the pleura of I–V segments rounded and pleura of last abdominal segment with distal tooth (Fig. 7h); the sixth segment with posterior edge straight, postero-lateral angles acute, slightly curved, postero-ventral angles expanded posterior and acute. Female with small and very numerous ova (Fig. 1). Telson (Fig. 7h, i) about 0.75 times of the length of the sixth segment, 1.8 times as long as wide at the base,

tapering to posterior border, lateral borders slightly convex, posterior border medially pointed; two pairs of dorsal spines, equal to 0.09 of the telson length, situated on lateral margins at 0.35 and 0.67 of telson length; intermediate posterior spines about 0.2 times of length of telson, and about 3.4 times the length of the lateral spines, submedian spines are well developed, setose, about 0.5 times of the length of intermediate spines (Fig. 7j).

REMARKS. Female (holotype) and male (allotype) of this species are morphologically slightly dissimilar. Rostrum of male slightly longer, reaching to distal margin of proximal antennular segment (Fig. 3d, f); in distal part bearing only three well developed teeth (Fig. 3e); anterior angle of branchiostegite interiorly produced (Fig. 3d). Second pereiopod more large and robust (Fig. 2); dactylus of second major pereiopod with more developed teeth (Fig. 5b, d); dactylus of second minor pereiopod slightly longer than in holotype female, equal to palm length (Fig. 6d), about 10 times as long as deep (Fig. 6e).

VARIABILITY. In the paratype specimens variations in the form of the rostrum are represented (Fig. 8a–d). No other significant differences were observed.

COLOUR PATTERN AND COLOUR IN LIVE. Body and appendages are transparent. Carapace and abdomen is covered with tiny whitish dots.

AFFINITIES. The genus *Onycocaris* Nobili, 1904 previously included fourteen species: *O. amakusensis* Fujino & Miyake, 1969; *O. aualitica* (Nobili, 1904); *O. bocki* Bruce, 1992; *O. callyspongiae* Fujino & Miyake, 1969; *O. furculata* Bruce, 1979; *O. longirostris* Bruce, 1980; *O. oligodentata* Fujino & Myiake, 1969; *O. profunda* Bruce, 1985; *O. quadratophthalmus* (Balls, 1921); *O. seychellensis* Bruce, 1971; *O. spinosa* Fujino & Miyake, 1969; *O. stradbrokei* Bruce, 1998; *O. trullata* Bruce, 1978 and *O. zanzibarica* Bruce, 1971. All species occur in the Indo-Pacific, and most are know as sponge associates.

DIFFERENTIAL DIAGNOSIS. *Onycocaris temiri* sp.n. is characterized by short dentate rostrum, well-developed acute inferior orbital angle, proximal segment of antennules with anterolateral margin bearing a large acute disto-lateral tooth, scaphocerite with distolateral tooth and convex lateral border, very slender first pereiopods, very feebly subspatulate fingers of second pereiopod, and the unarmed proximal segments and unique ventral dentition of the dactylus of the second pereiopod (Fig. 7d). On the basis of these characters, *O. temiri* sp.n. is morphologically most similar to *O. profunda* and *O. seychellensis*.

Onycocaris temiri sp.n. can be separated from *O. profunda* by more feebly developed teeth on the rostrum in females of *O. profunda*; the absence of an acute disto-lateral tooth on the antero-lateral border of the proximal segment of the antennules; the straight lateral border of the scaphocerite; the presence of only one apical tooth on the incisor process of the mandible; the proportions of the palm of the minor second pereiopods [Bruce, 1985: Fig.11A]; pronounced smooth tips of the fingers of the minor second pereiopods; the dentition of the the dactylii of the ambulatory pereiopods [Bruce, 1985: Fig. 10E] and the feebly rounded posterior margin of the telson of the last species.

Onycocaris temiri sp. n. differs from *O. seychellensis* by the presence of four feeble teeth on the rostrum in males of *O. seychellensis*; clearly subspatulate fingers of the second pereiopods and their dentition [see Bruce, 1971a: Fig. 6]; and the rounded posterior margin of the telson of the last species.

ETYMOLOGY. The species is named in honour of my PhD supervisor, Dr. Temir A. Britayev, who was the initiator of our investigations of pontoniine shrimps in Viet Nam.

HOSTS. All specimens were collected from the spongocoel of *Kallipilidion* sp. (Porifera), boring into boulders of dead coral.

DISTRIBUTION. Presently known only from the type locality, Nha Trang Bay, Viet Nam.

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