

Shrimps of the family Rhynchocinetidae (Crustacea: Decapoda: Pleocyemata) of the Red Sea and Gulf of Aden, Indian Ocean

Креветки семейства Rhynchocinetidae (Crustacea: Decapoda: Плеоциемата) Красного моря и Аденского залива Индийского океана

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KEY WORDS: *Rhynchocinetes holthuisi*, *Rhynchocinetes durbanensis*, *Cinetorhynchus reticulatus*, distribution, zoogeographical analysis.

КЛЮЧЕВЫЕ СЛОВА: *Rhynchocinetes holthuisi*, *Rhynchocinetes durbanensis*, *Cinetorhynchus reticulatus*, распространение, зоогеографический анализ.

*In memory of Michael Türkay
and Vassily Spiridonov —
outstanding researchers of decapod crustaceans,
organizers of research projects, and just friends.*

ABSTRACT. Currently, three species of shrimps from the family Rhynchocinetidae Ortmann, 1890 (Crustacea: Decapoda: Pleocyemata) are known in the Red Sea. Two of them (*Rhynchocinetes holthuisi* Okuno, 1997 and *Cinetorhynchus reticulatus* Okuno, 1997) are common in shallow water along its eastern coast (Saudi Arabia) at depths from the low-water mark, but mainly at depths of 10–20 m. Their habitats are mainly associated with various shelters. At each of the stations where these shrimps were collected, only the representatives of one genus were found. It seems that *R. holthuisi* and *C. reticulatus* avoid each other for some reasons. The third species (*Rhynchocinetes durbanensis* Gordon, 1936) was found at the mouth to the Bab el-Mandeb Strait (Djibouti) in a bottom trawl catch at a depth of 26–29 m. It is the most northeastern locality of its Indo-West Pacific Ridge, and the closest area where it was previously discovered is Cape Guardafui (Somalia), the western part of the Gulf of Aden. The exact data of the capture site in the same bay of *R. holthuisi* are unknown, but the species is separated from *R. durbanensis* bathymetrically: the first species is usually found at a depth of 12–20 m, while the latter at a depth of 26–29 m.

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РЕЗЮМЕ. В Красном море на настоящее время известны три вида креветок из семейства Rhyn-

chocinetidae Ortmann, 1890 (Crustacea: Decapoda: Pleocyemata). Два из них (*Rhynchocinetes holthuisi* Okuno, 1997 и *Cinetorhynchus reticulatus* Okuno, 1997) практически освоили все мелководье вдоль его восточного побережья на глубинах от уреза отлива, но, в основном на глубинах 10–20 м. Тяготеют к укрытиям разного рода. На каждой из станций, где были собраны эти креветки, были пойманы только представители одного рода. Складывается впечатление, что *R. holthuisi* и *C. reticulatus* избегают друг друга по каким-то причинам. Третий вид (*Rhynchocinetes durbanensis* Gordon, 1936) встречен у входа в Баб-эль-Мандебский пролив в траловом улове на глубине 26–29 м. Это самая крайняя северо-восточная окраина его индо-востпафического ареала. Ближайшее место его другой находки — мыс Гвардафуй, западная граница Аденского залива. Координаты места поимки в этом же заливе *R. holthuisi* неизвестны, но они разделены с *R. durbanensis* батиметрически: первый встречался здесь на глубине 12–20 м, а второй — 26–29 м.

Introduction

The shrimps of the family Rhynchocinetidae Ortmann, 1890 (Crustacea: Decapoda: Pleocyemata), or hinge-beak shrimps, can be identified by the important taxonomic feature: the rostrum, movably articulated with a cephalothorax. They live mainly in the upper part of the shelf of tropical seas, occupying mainly underwater shelters such as coral reefs. Due to their bright and whimsical coloring, the hinge-beak shrimps

are well known to visitors of marine aquariums and enthusiasts of colorful photos of the underwater world. Despite this, the family Rhynchocinetidae, consisting of two genera (*Rhynchocinetes* H. Milne-Edwards, 1837 (14 species), and *Cinetorhynchus* Holthuis, 1995 (12 species) (data for 2011: De Grave, Fransen [2011]), cannot be attributed to well-studied groups of shrimps.

The purpose of this paper is to describe the species composition and distribution of the family Rhynchocinetidae in the Red Sea and adjacent area of the Gulf of Aden, based on the materials of the expeditions that had conducted under the leadership of Michael Türkay and with the participation of Vassily A. Spiridonov.

Material and methods

The materials for this research were the collections of the Crustacean Section Forschungsinstitut und Naturmuseum Senckenberg, FIS; Frankfurt am Main, Germany. Most of them were collected in the coastal waters of the Red Sea belonging to the Kingdom of Saudi Arabia in 2011–2017 (“Red Sea Biodiversity Study”). In addition, other materials on shrimps of this family, stored in the funds of the Crustacean Section, collected in the south of the Red Sea, were included. They were described earlier [Burukovsky, 2007]. Shrimps were collected by hands and hand nets using SCU-BA equipment. Collected specimens were measured from the posterior edge of the orbits to the posterior edge of the carapace (CL, ДК) along the middle of the dorsal side with an accuracy of 0.1 mm. All measurements in the text are indicated in millimeters. There are no catalog numbers.

Taxonomy

Suborder Pleocyemata Family Rhynchocinetidae

Rhynchocinetes durbanensis Gordon, 1936

Fig. 1.

Rhynchocinetes typus: Stebbing, 1917: 26–27, Fig. VI.

Rhynchocinetes durbanensis Gordon, 1936: 83, Fig. 7c, d, 58 c; Barnard, 1950: 763, Fig. 145; Zarenkov, 1968: Fig. 3; Okuno, 1994 (in the key for species identification); Chace, 1997 (in the key for species identification).

MATERIAL EXAMINED. 1 ♂, CL 9.8 mm, 1 ovig. ♀, CL 8.0 mm, Indian Ocean, the Gulf of Aden, Djibouti, 25.VI.1996, time 11.07–11.43 (the label data: “Obock, Dou-Wrack”, 11°58.6 N, 43°20.5 E, depth 26–29 m); 6 ♂♂, CL 5.4–10.2 mm, 1 ovig. ♀, CL 7.5 mm, Pacific Ocean, Indonesia, Bali Sea, off the Island of Bali, Padang Bay (in the label: Padang-Bay), without coordinates, depth 16–20 mm, coll. H. Debelius (FIS), 31.III.1982.

DESCRIPTION. Since this was the first, and so far the only discovery of this species in this area bordering the Red Sea, we provide a complete description of the shrimps examined.

Integument dense, not pubescent, carapace covered with transverse thin dotted stripes. Rostrum elevated, compressed laterally, slightly bent dorsally. Its length exceeds CL by 1.2 times. Postrostral crest behind articulation with carapace armed with 2 large teeth. Dorsal side of rostrum with 9 teeth: 3 large ones, one of which located directly in front of articulation, and others (2 teeth) divide dorsal side of rostrum into three equal parts approximately. Distal part of rostrum armed with group of 6 smaller teeth, curved forward. Ventral side

of rostrum armed with 18 teeth constantly increasing in size from front to back (Fig. 2a–c) (the terminal spine of the rostrum was not taken into account).

Carapace armed with large suborbital and antennal spines, as well as noticeably smaller pterygostomial spines (Fig. 2a). Distal edge of antennular stalk reaches the level of the middle of rostrum. Stylocerite long and narrow, its apex slightly shorter than tip of sharp spike on distolateral margin of 1st segment of antennular stalk (Fig. 2d). Scaphocerite narrow, its length exceeds its greatest width for 5 times, margin of plate reaches the level of posterior of distodorsal teeth of rostrum. Towards distal end, width of scaphocerite plate greatly narrowed. Its outer edge is slightly concave. Distolateral spike sharp, protruding beyond distal edge of plate (Fig. 2a, f). Maxilliped 3 strong, long, and extend beyond end of rostrum by 1/3 of length of their distal segment. It ends in powerful, highly chitinized prong, with 2 pairs of smaller teeth situated behind it, and 3 more teeth of gradually decreasing size situated along outer edge of distal part of segment.

Both pereopods 1 powerful, developed equally. Elongated in length, almost reaching tip of rostrum. Length of claw about 0.8 of length of carapace. Distal edges of merus and carpus armed with strong teeth. Palm long, 2/3 of length of entire claw. It slightly compressed laterally, rounded ribs with numerous bumps, and lateral surfaces almost smooth. Fingers short, male has tooth-like elevation on inner surface of stationary finger. Distal edge of fixed finger armed with 3, and mobile one — with 4 strongly chitinized teeth (Fig. 2g). Platform, pubescent with short coarse bristles situated along inner surface of proximal part of palm.

Female has shorter limbs. First pair of pereopods less developed than in males, with smooth surface, except for proximal part of palm. Without tooth-like structure on inner surface of stationary finger. Terminal spines more strongly developed than in males, and there are additional spines. Field of bristles in proximal part of palm much more extensive than in males (Fig. 2h). Differences in the structure of claws of pereopod 1 is a trait of sexual dimorphism. In rest (armament of rostrum, limbs, pleura of abdomen), no differences were found between males and females. Pereopods 2 thin, smooth, and slightly go beyond middle of length of scaphocerite. Claw long. Its palm equal to 0.8 of length of entire claw. Fingers armed with highly chitinized denticles, as fingers of claws of pereopod 1 (Fig. 3j). Pereopods 3–5 have almost same structure. Pereopods 3 exceed rostrum by length of finger. Meral segments of pereopods 3–5 with 3–4 spines, and carpal segments — a single spine (Fig. 3a). Fingers short, equipped with 2 highly chitinized claws and 3 additional spines (Fig. 3e). All pereopods, except last, with reduced epipodite. In addition, each pereopod with pleurobranch, 2 arthrobranches on maxillipeds 3 and 1 on pereopods 1–3. Pleurae of 1–3 segments of abdomen widely rounded. Pleurae of 5–6 segments armed with posterolateral spines. Shape of pleura of 4th segment of abdomen undergoes ontogenetic variability. In small individuals, relatively narrow and ends with blunt posterolateral denticle (Fig. 3i). Larger shrimp has wider posterolateral part of pleura and less pronounced denticle (Fig. 3k). In large males, it can be seen at high magnification only. Pleura appears to be broadly rounded posterolateral without magnification (Fig. 3m).

Endopodite of pleopod 1 more developed than exopodite, approximately oval. Their length exceeds maximum width by 2.3 times. Towards distal end, endopodite noticeably narrowed. Male appendage attached approximately in the

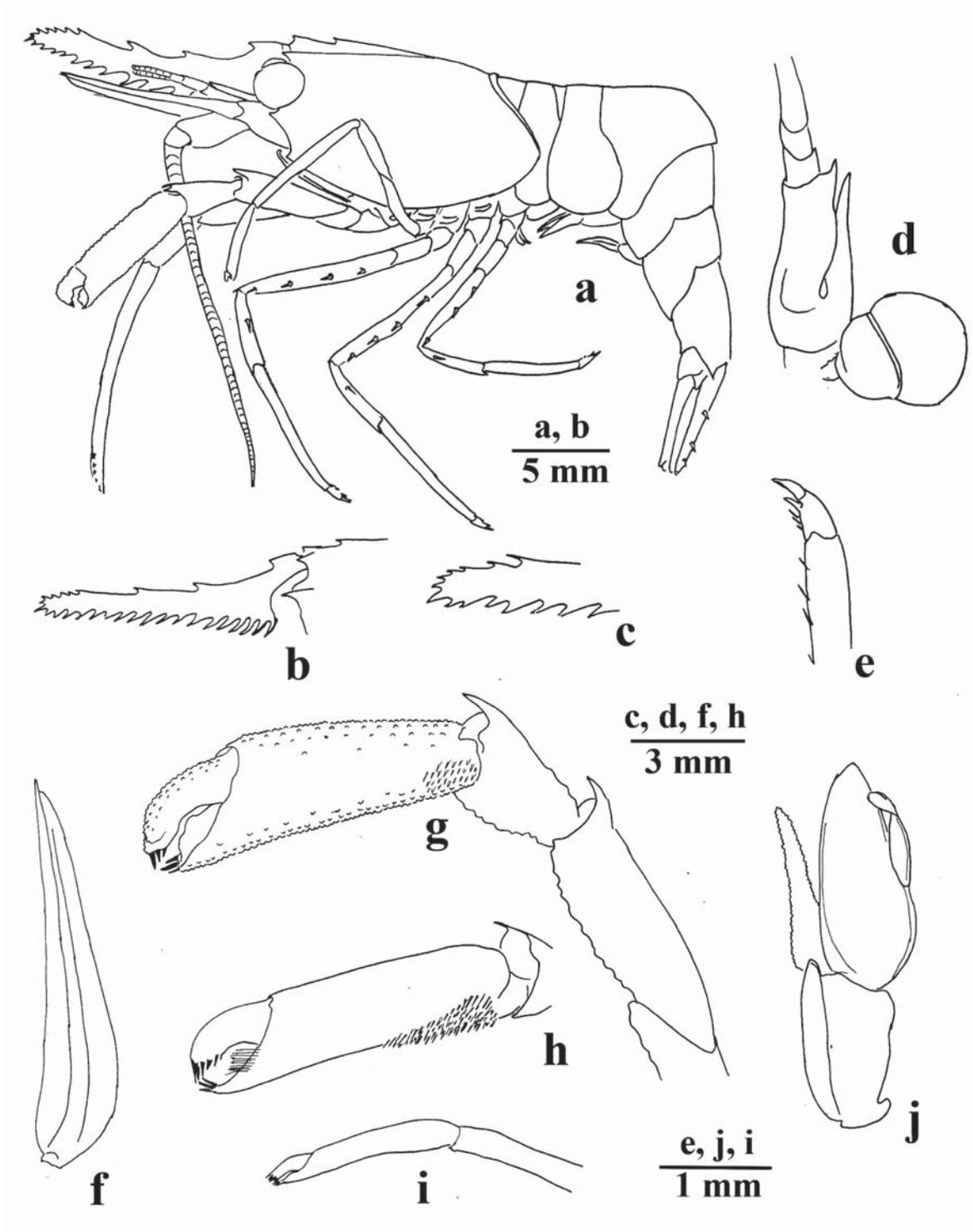


Fig. 1. *Rhynchocinetes durbanensis* Gordon, 1936 (a-g, i, l, m — ♂, CL 9.8, Gulf of Aden, Djibouti; h — ♀, CL 8.0; in the same place; j, k — ♂, CL 5.6 and ♀, CL 7.5, Indonesia, Bali): a — general side view; b — rostrum, side view; c — anterior part of rostrum, side view; d — antennular stalk, top view; e — finger of pereopod 3, side view; f — scaphocerite, top view; g — pereopod 1; h — claw of pereopod 1; i — claw of pereopod 2; j-l — posterolateral part of pleura of 4th segment of abdomen; m — pleopoda 1, posteriorly. Scale: a, b — 5 mm; c, g, e-i — 3 mm; d, k-m — 1 mm.

Рис. 1. *Rhynchocinetes durbanensis* Gordon, 1936 (a-g, i, l, m — ♂, ДК 9,8, Аденский зал, Джибути; h — ♀, ДК 8,0, там же; j, k — ♂ с ДК 5,6 и ♀ с ДК 7,5, Индонезия, о-в Бали): a — общий вид сбоку; b — рostrum, сбоку; c — передняя часть роstrума, сбоку; d — антеннулярный стебелек, сверху; e — палец переопод 3, сбоку; f — скафоцерит, сверху; g — переопод 1 самца; h — клешня переопода 1 самки; i — клешня переопода 2; j-l — постеролатеральная часть плевры 4-го сегмента живота; m — плеопода 1, сзади. Масштаб: a, b — 5 мм; c, g, e-i — 3 мм; d, k-m — 1 мм.

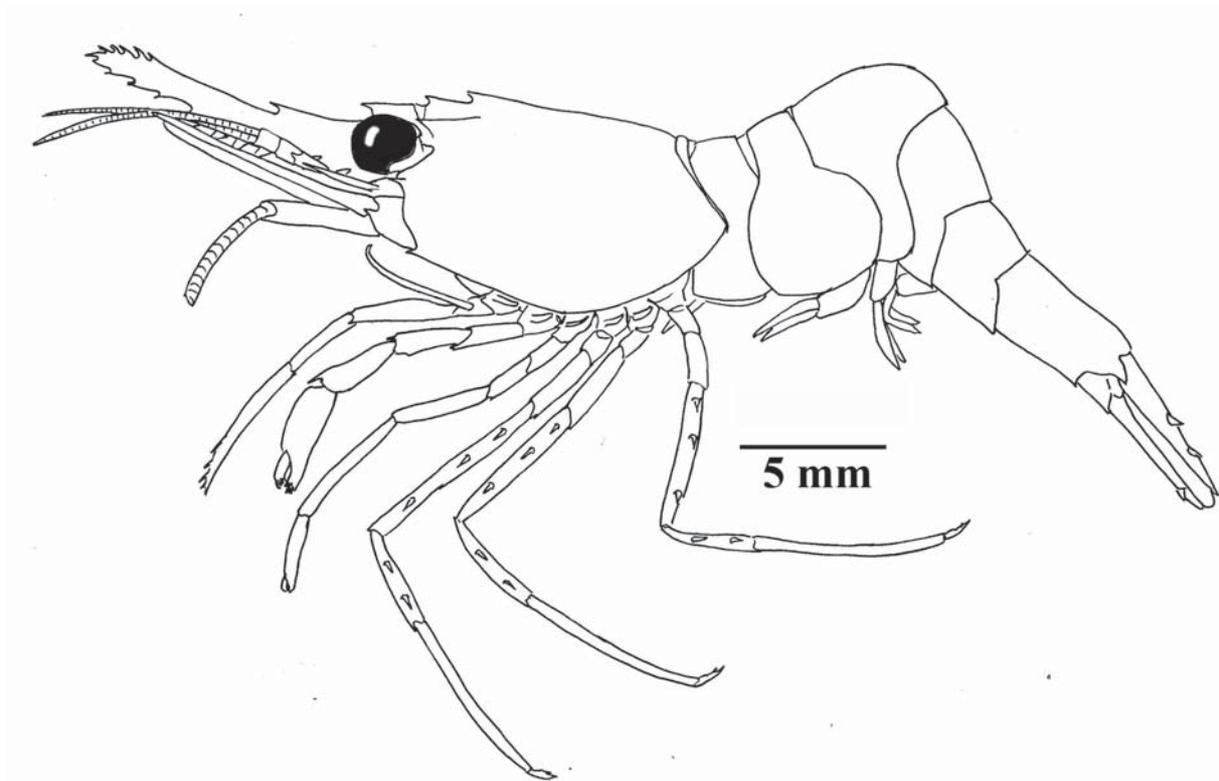


Fig. 2. *Rhynchocinetes holthuisi* Okuno, 1997: ♂ CL 4.8. Lateral view. Gulf of Aden, Djibouti, Tadjoura Bay. Scale 5 mm.

Рис. 2. *Rhynchocinetes holthuisi* Okuno, 1997: ♂ с ДК 4,8. Вид сбоку. Аденский залив, Джибути, залив Таджура. Масштаб 5 мм.

middle of inner edge of endopodite, about 2.3 times smaller in length.

REMARK. *Rhynchocinetes durbanensis* differs from all other species of the genus with 2 dorsal teeth in front of articulation of rostrum with carapace, by the presence of 3 such teeth. Investigated specimens from Djibouti and Indonesia are in good agreement with notes of other authors [Gordon, 1936; Zarenkov, 1968; Okuno, 1994; Chace, 1997], but rather a complete diagnosis of species was not previously, as well as describe ontogenetic variability pleura of 4th segment of the abdomen.

DISTRIBUTION. The species was previously known from South Africa (near Durban) [Gordon, 1936; Barnard, 1950] and East Africa (Cape Guardafui, Ras Asir: Somalia) [Zarenkov, 1968], as well as from the Ryukyu Islands, the Philippines, and Indonesia [Chace, 1997]. Discovery of species in Djibouti (Fig. 1) extends its range to the southern border of the Red Sea. It usually found at depths of 16–50 m.

Rhynchocinetes holthuisi Okuno, 1997

Fig. 2.

Rhynchocinetes holthuisi Okuno, 1997a: 43–51, Figs 2, 4.
MATERIAL EXAMINED. 2 juvs, CL 3.0, 3.1, 3, ♂, CL 2.9–4.8, 2 ♀♀ with eggs on pleopods, CL 5.1, 5.9 mm, Indian Ocean, Djibouti, Tadjoura Bay, near city of same name (label says “Tadjoura, Plage du Sable Blanc”), depth 12–22 m, coordinates of place are missing; 1 ovig. ♀, CL 7.2 mm, Indian Ocean, Red Sea, (Red Sea Biodiversity Study-1)-2011, St.37, Al Maqunah, 28°25.456'N, 34°45.298'E, diving, depth 10–12 m, among corals, coll. S. Bogorodsky, 13.04.2011; ♀, CL 6.3 mm, Farasan Islands, 16°37.123'N; 41°56.038'E, Abqar Island, diving (FIS).

DIAGNOSIS. Studied specimens fully corresponds to the original description, presented by Okuno [1997a]. Clearly visible external differences from *R. durbanensis*: 2 large dorsal teeth on rostrum, 2 spines on merus of pereopods 3–5 (Fig. 2). On pleura of 4th segment of abdomen with well-defined posterolateral spine, degree of development of which does not depend on size of individual. In addition, *R. holthuisi* without arthrobranch on pereopod 3.

DISTRIBUTION. This species was described from Gulf of Aqaba, Egypt [Okuno, 1997a], where it was found at depths of 3–12 m. Its discovery in Djibouti allowed us to assume this species inhabits all shallow waters of the Red Sea [Burukovsky, 2007]. This confirmed by new findings listed above, as well as in Figure 4. Outside Red Sea, it found only in the Gulf of Tadjoura (Djibouti), i.e. actually at “threshold” of Red Sea. In Indian Ocean and in western Pacific, it not yet known, although almost 30 years have passed since its discovery and description. Therefore, for now it can be considered as endemic of Red Sea.

Cinetorhynchus reticulatus Okuno, 1997

Fig. 3.

MATERIAL EXAMINED. RSS1-2012. ♀ ovig. CL 7.6 mm, ♀ ovig. CL 8.0 mm, Indian Ocean, Red Sea, Farasan Islands. St.2. 16°44.788'N; 42°0.389'E, pier in the lagoon, near bridge, intertidal bryozoans, coll. by S. Bogoradsky (FIS), 19.02.2012; ♂, CL 6.9 mm, RSS1-2012, St.51, Al Lith, St.51, 20°14.725'N; 40°00.057'E, boat diving, 5.03.2012; ♂, CL 7.5 mm, St.61, Al Lith, 20°13.371'N; 40°02.295'E, Boat dive 2, Passage with current 15 m, reef slopes (FIS), depth 3 m, coll. Tilmarn, 6.03.2012; ♂, CL 9.2 mm, RSS1-2013, St.7, Al Wajh. 25°35'52.86"N; 36°41'01.80"E, Sea-

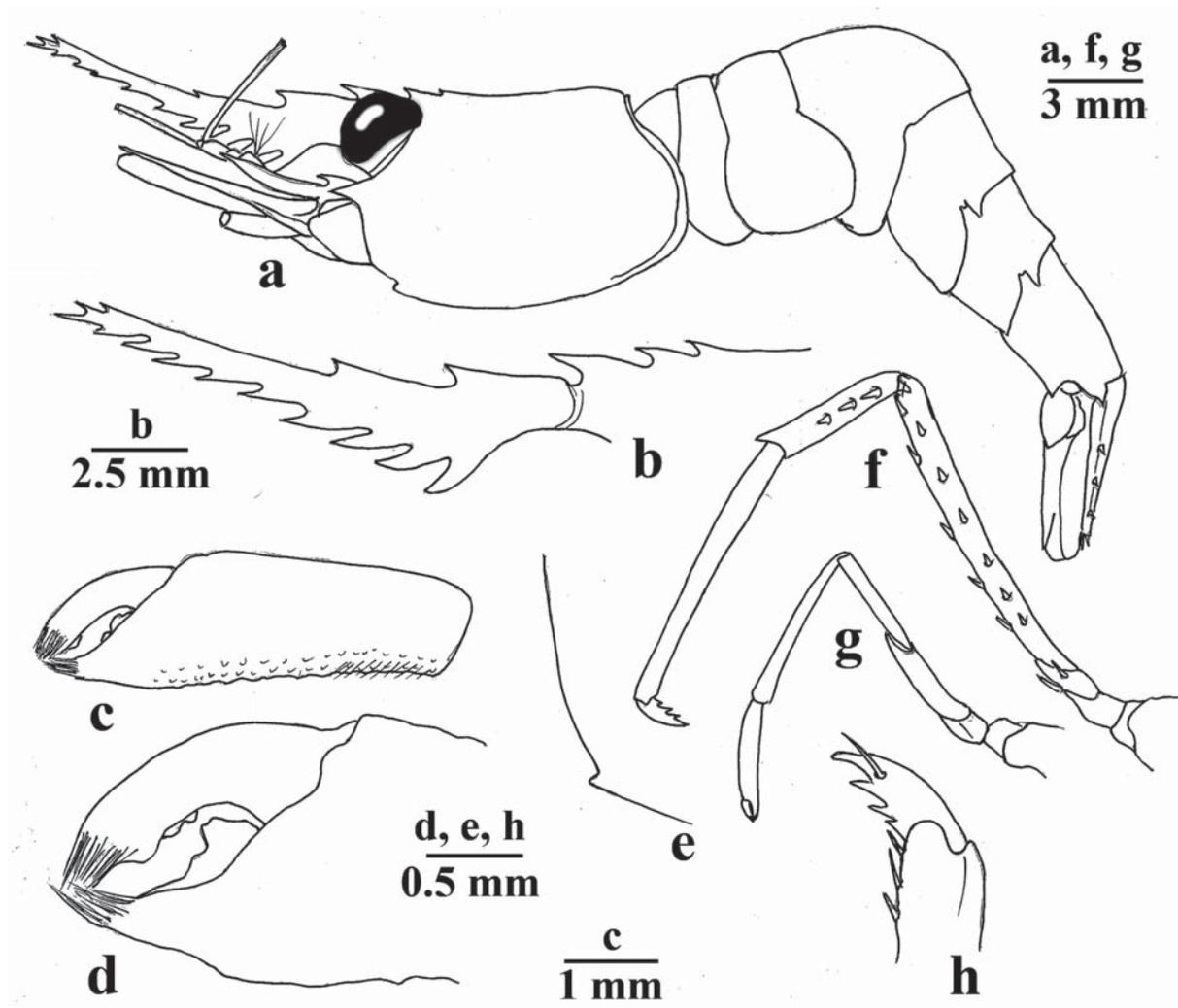


Fig. 3. *Cinetorhynchus reticulatus* Okuno, 1997: ♂, CL 6.9 mm, Red Sea. RSS1. 2012. St.51; ♀ CL 6.3 mm. RSS1. 2012, St.37: a — general side view; b — rostrum, side view; c — distal part of rostrum, side view; d — stalk of right antennula, top view; e — dactylus of pereopod 3, side view; f — left scaphocerite, top view; g — claw of pereopod 1, side view; h — claw of pereopod 1, side view; i — claw of pereopod 1, side view; j — left pleopod, rear view. Scale — a, f, g — 3 mm; d — 2.5 mm; c — 1 mm; d, e, h — 0.5 mm.

Рис. 3. *Cinetorhynchus reticulatus* Okuno, 1997: ♂, ДК 6,9 мм, Красное море, RSS1-2012. Ст.51; ♀ ДК 6,3 мм. RSS1-2012. Ст.37: а — общий вид сбоку; б — рostrum, вид сбоку; в — дистальная часть рostrума, вид сбоку; д — стебелек правой антеннулы, вид сверху; е — палец переоподы 3, вид сбоку; ф — левый скафоцерит, вид сверху; г — коготь переоподы 1, вид сбоку; h — коготь переоподы 1 самки, вид сбоку; и — коготь переоподы 2, вид сбоку; j — левый плеопод, вид сзади. Масштаб — а, ф, г — 3 мм; б — 2,5 мм; в — 1 мм; д, е, h — 0,5 мм.

ward slope of Island, Sediment with coral patches, under *Allopora*, coll. Alpermanns, S. Bogoradsky and V. Spiridonov (FIS), 12.06.2013; ♂, RSS1-2013, St.24, Duba, 24; 27°04'52.74"N 35°46'25.92"E, sandy slope with corals (FIS), diving, 11.5 m depth, coll. S. Bogoradsky, 19.06.2013.

DIAGNOSIS. Carapace with small rounded pterygostomial tooth. Rostrum slightly curved upwards, about 1.6 times longer than length of carapace. Its dorsal side proximally armed with 2 large teeth and subterminally with 2 small teeth. Ventral part of rostrum armed with 10 teeth, size of which decreases in direction from distal to proximal tooth. Scaphocerite about half-length of rostrum and about 0.8 of length of carapace. Length of stalk of antennae about half-length of rostrum. Carpal segments of pereopods 3–5 with 3

spines, which distinguishes this species from *C. hendersoni* [Kemp, 1925; Okuno, 1997b]. Three additional behind terminal one on dactyli of 3–5 pereopods in addition to terminal “claw”. Sexual dimorphism observed in structure of pereopod 1 in males, claws of which are strongly modified depending on size of body, similar to *C. hendersoni*. Remaining characters quite consistent with description of this species [Okuno, 1997b].

DISTRIBUTION. *C. reticulatus* is widely distributed in the Red Sea from northern part of Sinai coast of Gulf of Aqaba, Eilat, Muss Muhammad, southern tip of Sinai Peninsula [Okuno, 1997b; Okuno, Hoover, 1997], along eastern coast of Red Sea to 16°N (Fig. 4). In addition, it known in Indo – West Pacific off East Africa coast (Zanzibar), as well



Fig. 4. Distribution of the shrimps from Rhynchocinetidae family in the Red Sea: 1 — *Cinetorhynchus reticulatus*; 2 — *Rhynchocinetes holthuii*; 3 — *R. durbanensis*.

Рис. 4. Распространение креветок семейства Rhynchocinetidae в Красном море. 1 — *Cinetorhynchus reticulatus*; 2 — *Rhynchocinetes holthuii*; 3 — *R. durbanensis*.

as in Timor Sea, off Southern Japan, off Papua New Guinea, the Marquesas Islands and Western Samoa. It found at depths from 3 to 30 m [Okuno, 1997b; Okuno, Hoover, 1997].

Discussion

The family Rhynchocinetidae is a relatively small group among shrimps of the suborder Pleocyemata, comprising only two genera: *Rhynchocinetes* H. Milne Edwards, 1837 (14 species) and *Cinetorhynchus* Holthuis 1995 (12 species) [De Grave, Fransen, 2011]. The first West African species of this family, *C. gabonensis* Đuriš, Šobánová et Wirtz, 2019, was recently described [Đuriš *et al.*, 2019]. All species of the family are bottom shelf dwellers from the littoral (*R. rathbunae* Okuno, 1996) to a depth of 120–170 m (*R. enigma* Okuno, 1997), but most species of the family live at depths of 10–30 m.

Previously, only *Cinetorhynchus rigens* (Gordon, 1936) from the waters of the Cape Verde Islands was classified as a West African species [Burukovsky, 2017], but strictly speaking this is not the case. Only *C. gabonensis* should really be considered as a typical equatorial and West African species, with the coordinates of its discovery — 00°33.49'N, 09°17.75'E [Đuriš *et al.*, 2019].

All currently known species of the family can be divided into the Atlantic and Indo-West Pacific groups, and separately — the only ampho-American species *R. typus* H. Milne Edwards, 1837 [Melo, 2007], which lives off the coasts of Brazil and Chile. *Cinetorhynchus rigens* is distributed in the Atlantic Ocean, on coastal island waters, such as Bermuda, the Bahamas, the Azores, the Virgin Islands, Madeira, Cape Verde, Ascension, St. Helena. It is also found off the coast of Florida (USA), Pernambuco (Brazil) [Melo, 2007; Pava *et al.*, 2007; De Grave *et al.*, 2019]. Another species, *Cinetorhynchus manningi* Okuno 1996, was found in the waters of the Virgin Islands [Okuno, 1996].

There is an important characteristic: half of the Atlantic species are island warm-water species. This can be seen even when looking at the simplest map of the warm currents of the Atlantic Ocean (e.g., Atlas ... [2008], map 139) and the location of the islands where these species were found: they match up very well.

In addition to *R. holthuisi* — endemic to the Red Sea, *C. fasciatus* Okuno et Hiroki Tachikawa, 1997, *C. hawaiiensis* Okuno et Hoover, 1998, *R. rathbunae* Okuno, 1996 are endemic to the Hawaiian Islands [Okuno, 1996; Okuno *et al.*, 1997; Okuno, Hoover, 1997]; *R. ikatere* Yaldwin, 1971 — endemic to New Zealand; *R. serratus* H. Milne Edwards, 1837, *R. kuiteri* Tiefenbacher, 1983; *R. enigma* Okuno, 1997 and *R. australis* Hale, 1941 — endemic to the south-eastern and southern coasts of Australia [Hale, 1941; Chace, 1997; Okuno, 1997b; Poor, 2004]; all other species are Indo – West Pacific or Pacific species. And with the exception of the Australian endemics, all other are island species. Even *Cinetorhynchus hendersoni* (Kemp, 1925) and *C. reticulatus* Okuno, 1997, found in East African waters off Zanzibar, are no exception, since Zanzibar is nothing more than an archipelago of 75 islands [Zanzibar, 2021]. However, in the Red Sea, *C. reticulatus* leads a completely continental shelf lifestyle. What is interesting: the continental shelf species are found on the northern and southern borders of the Indo – West Pacific part of the range of the family.

Among the West Pacific and Indo-West Pacific species, there are 10 species (*Cinetorhynchus striatus* Nomura et Hayashi 1992, *C. concolor* Okuno, 1994, *C. reticulatus* Okuno, 1997, *C. erythrostickus* Okuno, 1997, *C. brucei* Okuno, 2009, *C. concolor* Okuno, 1994, *C. fasciatus* Okuno et Tachikawa 1997, *R. durbanensis* Gordon, 1936, *R. uritai* Kubo, 1942, *R. conspiciocellus* Okuno et Takeda, 1992), that is about 50%, were caught off the coast of Japan and the Ryukyu Archipelago, which are a natural extension of Japan [Okuno, 1997; Okuno, Takeda, 1992; Okuno, Tachikawa, 1997; Okuno, Hoover, 1997]. Among them are those that are found only there, and those that are more common in the southwest, south, or east. Undoubtedly, this region of the Indo – West Pacific can be considered as the center of the diversity of the family, and these shrimps from this region had distributed in all Oceans. Almost every one of its archipelagos, from the Hawaiian Is-

lands to the Tubuai Islands, has one or two species of this family, or even more.

Their radiation was more wide to the east and south. Only three species have crossed the Indian Ocean from east to west: *C. hendersoni*, *C. reticulatus*, and *R. durbanensis*. In the south, the representatives of the family Rhynchocinetidae reached waters of the New Zealand. However, the most mysterious range has *R. balssi* Gordon, 1936, which was found off New Zealand and off the island of Juan Fernandez — the easternmost island of Oceania, lying only 600 km from the coast of Chile [Chace, 1997].

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