

***Heterocarpus tenuidentatus*, a new species of shrimp from the Solomon Islands (Crustacea, Decapoda, Caridea, Pandalidae)**

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Abstract

Heterocarpus tenuidentatus **n. sp.** is described from an ovigerous female collected off the Solomon Islands at a depth of between 814 and 980 meters. It is distinguished by a branchiostegal carina that extends along two thirds of the carapace, this being the only long, sharp carina on the lateral part of the carapace. It is also characterized by having the rostrum scarcely longer than half the length of the carapace, the small size of the upper rostral and postrostral teeth, the proportionally wide blade of the scaphocerite, and by being larger in size than any other *Heterocarpus* species.

Key words: Crustacea, Decapoda, Caridea, Pandalidae, *Heterocarpus*, deep water, Pacific Ocean, Solomon Islands, new species.

Introduction

During the SALOMON 2 cruise of the IRD research vessel *Alis* off the Solomon Islands, organized jointly by the IRD (Institut de Recherche pour le Développement, ex ORSTOM) and the Muséum national d'Histoire naturelle, Paris (MNHN), a single specimen of *Heterocarpus* A. Milne Edwards, 1881, was caught between 814 and 980 meters deep. The specimen clearly belongs to a new species, based on several unique characters.

Carapace length was measured from the posterior margin of the orbit to the mid-dorsal posterior edge of the carapace, total length from the tip of the rostrum to the apex of the telson.

Systematics**Family PANDALIDAE Haworth, 1825****Genus *Heterocarpus* A. Milne Edwards, 1881*****Heterocarpus tenuidentatus* n. sp.**

(Figs. 1–3)

Type material

SALOMON 2 cruise, stn CP 2276, Solomon Islands, New Georgia Sound, 8°41,5'S, 157°38,2'E, 814–980 m, 5 November 2004, ovigerous female, *holotype*, carapace length 77.0 mm, total length 247 mm (MNHN-Na 16080). The new species is only known from the holotype.

Description

Body stout (Figs 1–3), entirely covered with short, dense pubescence, also present on all appendages except chela of second pereopods which are glabrous apart from tufts of setae on dactyls; on appendages, pubescence often appears shorter than on carapace.

Rostrum (Figs 1; 2a, b) rather short (ratio rostrum length:carapace length 0.55), stout (basal height about one quarter its length), moderately upcurved, with strong lateral carina on each side, extending entire length of rostrum but no further on carapace; upper border armed with 5 small teeth, subequal in size except for distal tooth reduced as tubercle; first tooth situated barely beyond level of posterior margin of orbit, following two equally spaced teeth, whereas distance separating fourth from third teeth corresponds to 3/4 distance between two preceding teeth, distance between fifth and fourth also represents 3/4 distance between two preceding teeth (third and fourth); last 3/10 of rostrum upper border unarmed. Ventral border of rostrum armed with 9 teeth, size of teeth increasing from first to fourth, then decreasing; last tooth reduced to tubercles; tip of first tooth situated just beyond tip of stylocerite, distal tooth subapical.

Dorsal border of carapace (Figs 1; 2a, b) carinated, with 8 teeth behind rostrum, all small, subequal like those of rostrum; first tooth located just beyond 2/5 of carapace dorsal border length, just ahead of large tubercle; second tooth rather close to first; following three teeth separated by spaces approximately 1.5 times distance between first and second tooth; following teeth separated by spaces approximately 2 times distance between first and second tooth, except for closer sixth and seventh (separated by distance corresponding to 1.6 times distance between first and second teeth); distance between eighth postrostral tooth and first dorsal rostral tooth about 2.5 times distance between first two postrostral teeth. Dorsal border carina elevated, more or less sharp along all its dentate section, extending backwards along 9/10 of carapace length, becoming round, ending into small but distinct tubercle.

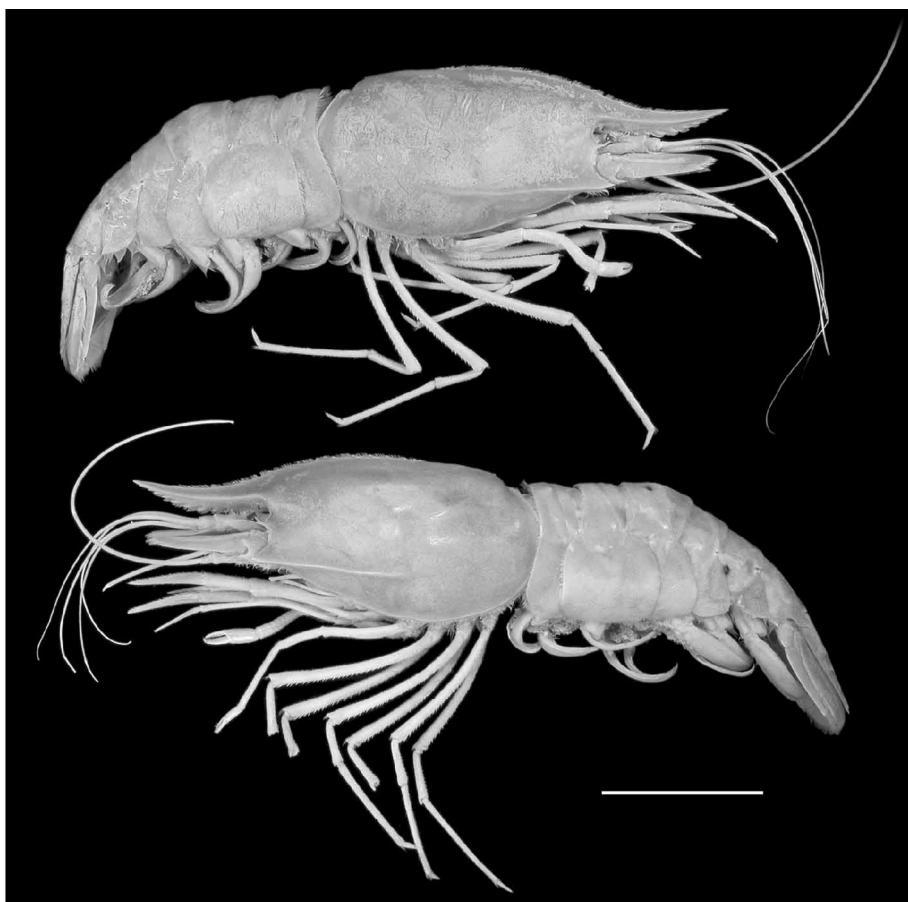


FIGURE 1. *Heterocarpus tenuidentatus* n. sp., female holotype, carapace length 77.0 mm, Solomon Islands, SALOMON 2 cruise, Stn CP 2276, 814-980 m (MNHN-Na 16080). Scale bar: 5 cm.

Carapace with only reduced ornamentation (Figs 1; 2a): sharp, slender antennal spine, tip at level of cornea basis; very strong branchiostegal spine (nearly as high as long), tip projecting slightly beyond tip of antennal spine, prolonged backwards by a conspicuous, rather sharp carina extending along 2/3 of carapace length. Also present short, weak branchiocardiac carina, fringed by furrow, plus slight swelling in hepatic area; short, weak carina on posterior part of branchiostegite, initially submarginal at level of posterior border of carapace, then anteriorly round.

Eyes well developed, without ocelli; cornea wider than peduncle, black.

Stylocerite (Figs 2a, b, e) extending to 2/3 of second article of antennular peduncle. Scaphocerite (Figs 1; 2a, b, e) 2.1 times longer than wide, not narrowing in distal part, border following large, regular curve; distolateral spine situated well behind distal border of blade. Antennal flagella broken. One superior antennular flagellum remaining practically entire, 83.0 mm long.

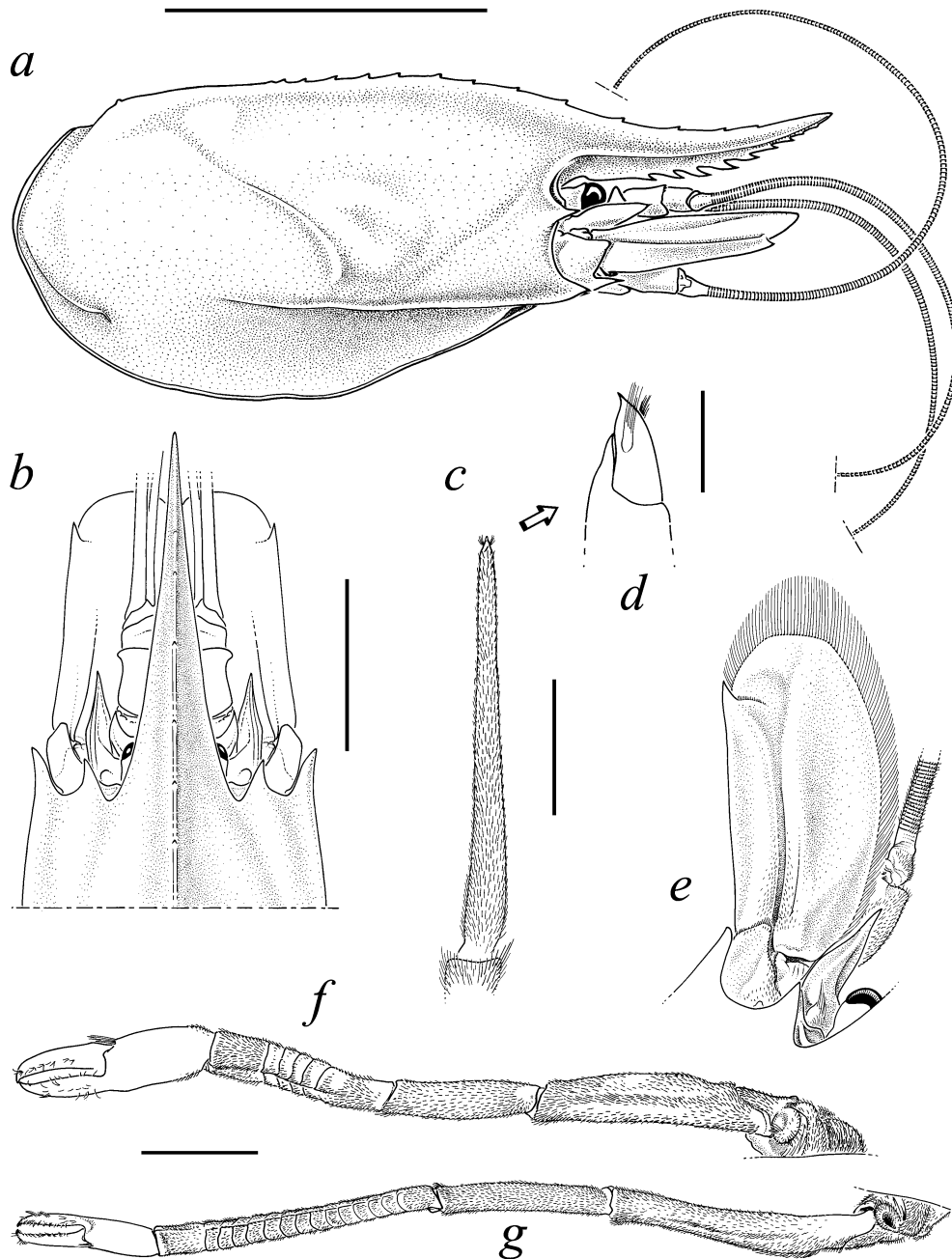


FIGURE 2. *Heterocarpus tenuidentatus* n. sp., female holotype, carapace length 77.0 mm, Solomon Islands, SALOMON 2 cruise, Stn CP 2276, 814-980 m (MNHN-Na 16080), a, anterior region of body, lateral view, b, distal part of the same, dorsal view, c, dactyl of left first pereopod, laterodorsal view, d, *idem*, distal part, lateral view, e, left scaphocerite and stylocerite, dorsal view, f, right second pereopod, g, left second pereopod. Scale bars: a, 5 cm; b, 2 cm; c, 5 mm; d, 1 mm; e-g, 1 cm.

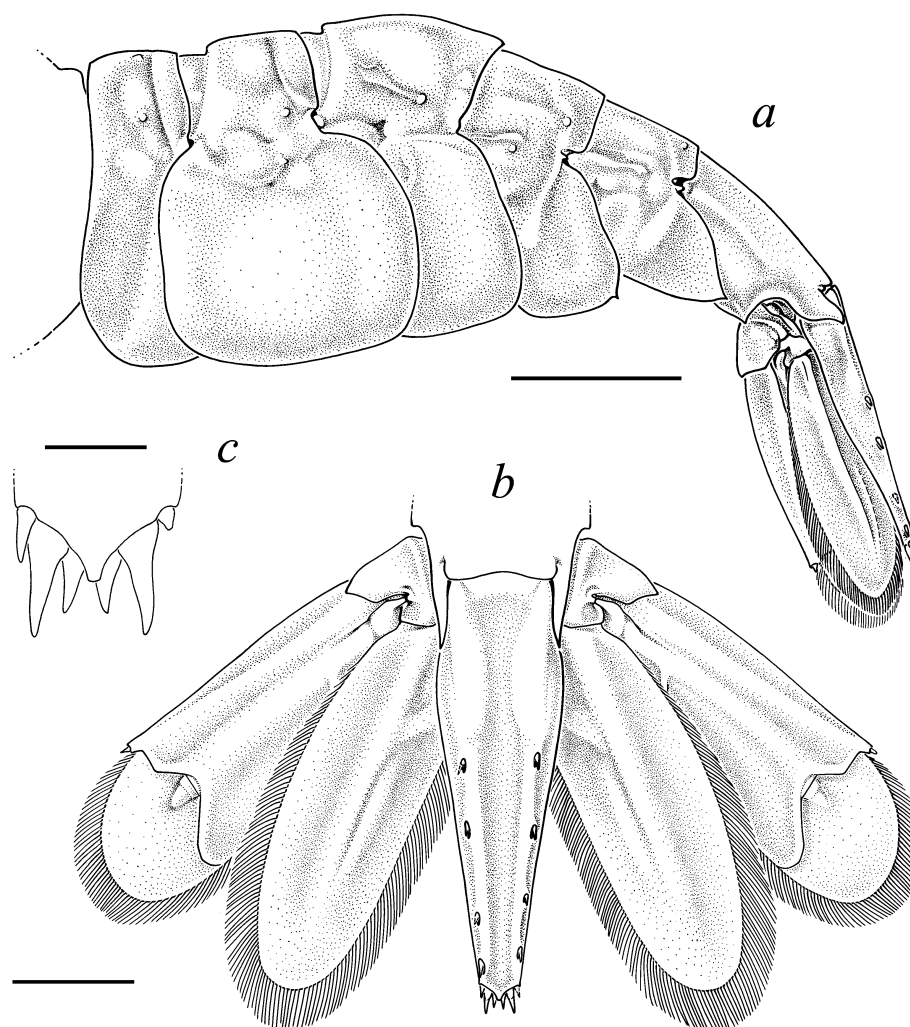


FIGURE 3. *Heterocarpus tenuidentatus* n. sp., female holotype, carapace length 77.0 mm, Solomon Islands, SALOMON 2 cruise, Stn CP 2276, 814-980 m (MNHN-Na 16080), a, abdomen, lateral view, b, tail fan, dorsal view, c, telson, distal part, dorsal view. Scale bars: a, 2 cm; b, 1 cm; c, 2 mm.

Mouthparts corresponding to those already described for *Heterocarpus* (see Monterossa, 1988, fig. 2D–I). Mandibular palp composed of three articles. Third maxillipeds stout, exceeding scaphocerite by slightly more than one quarter of last article length. Third maxilliped exopodite extending to $2/3$ of basal article; last article 1.6 times longer than penultimate, showing on superior side numerous corneous, mobile, slender (rather long towards base) spines, then becoming shorter and stouter toward extremity, ending in a corneous spine.

First to fourth pereopods with well developed epipod. First pereopods (Figs. 1; 2c, d) more slender than others, extending just to end of scaphocerite; their meri and carpi roughly of same length, propodus about 0.7 times their length. Second pereopods unequal

(Figs. 1; 2f, g); right appendage shorter, stouter than left, exceeding tip of antennular peduncle by finger length; ratios of merus, carpus, chela lengths to ischium length respectively 0.6:0.8:0.9; carpus composed of 6 articles with lengths in following proportions: 10:2.2:2.0:1.8:2.0:7.5; fingers of chela 4/5 as long as palm; mobile finger ending into two small, corneous teeth which, when chela closes, interlock similar corneous tooth situated at tip of fixed finger. Left second pereopod longer, more slender than right, extending to end of scaphocerite; ratios of merus, carpus, chela lengths relative to ischium length 0.6:1.1:0.5, respectively; carpus with 15 articles (13 subequal articles between basal and distal articles, basal 3 times their length, distal slightly longer than basal; chela displaying same characteristics as that of right second pereopod. Third pereopods exceeding third maxillipeds by length of dactyl plus about 1/6 of their propodus; fourth pereopods extending to tip of third maxillipeds; fifth pereopods extending to level of distolateral scaphocerite spine; ratios of merus, carpus, propodus, dactyl lengths relative to ischium length (measured along its superior border) respectively 3.5:1.4:2.5:0.6 for third pereopods, 3.5:1.5:3.0:0.7 for fourth pereopods, 3.1:1.5:2.9:0.6 for fifth pereopods; ventral side of articles of third to fifth pereopods with mobile spines, slender and rather long, arranged along two rows, particularly well developed on merus : 20, 15 on merus of right third pereopod (along external and internal row respectively); 22, 12 on merus of left third pereopod; 20, 12, and 21, 10 for right and left fourth pereopods merus; 18, 10, and 21, 9 for right and left fifth pereopods meri.

First, second abdominal segments (Fig. 3a) devoid of carina but with thin, well marked transverse furrow on posterior third of always visible region, joining articular condyles of following segment; 4 well spaced tubercles on dorsal surface of first segment, beyond furrow. Third segment with longitudinal dorsal carina, extending only along always visible part; two following segments carinated dorsally along their entire margin; these carinae rather rounded in transversal section, that of third segment being the best-marked. Sixth segment devoid of carina, with regularly rounded transversal section. Pleura of first, second, third abdominal segments rounded, unarmed, that of fourth segment with postero-ventral denticle, that of fifth with postero-ventral angle ending as spiniform tooth. Sixth abdominal segment with well developed postero-ventral spiniform tooth, its posterior lobule, which covers base of lateral side of telson, ending in a stout spiniform, ventrally recurved tooth.

Telson (Fig. 3b, c) 1.55 times longer than sixth abdominal segment, measured along its dorsal margin; base 2.8 times wider than its extremity; superior surface barely hollowed, ending in triangle with small apical tooth; each dorsolateral margin bears 5 mobile spines, quite regularly spaced, first spine implanted at level of 4/10 of margin length, last spine at base of triangle formed by distal part of dorsal surface; additional spine between last spine and tip of triangle, twice as long and stouter than previous one, followed by third spine, slightly stouter than last spine (distal dorsolateral spine), partially implanted under distal tip. Internal, external uropods of same length, only slightly longer than telson.

Coloration

Unknown.

Etymology

From the Latin *dentatus*, for dentate, and *tenuis*, for small, in reference to the unusually small size of the upper rostral and postrostral teeth, in contrast to other species of *Heterocarpus*.

Remarks

The diagnosis of the genus *Heterocarpus* given by Chace (1985: 19) agrees with our specimen, except for the number of articles in the carpi of the second pair of pereopods, ranging, according to Chace (1985), from 7 to 12 for the left appendage and from 18 to 25 for the right. In contrast, the holotype of the new species has 6 articles on the left carpus and 15 on the right. This detail does not warrant the exclusion of the new species from the genus *Heterocarpus*, hence the diagnosis of the genus is modified in this respect, 7–12 being replaced by 6–12 and 18–25 by 15–25.

Heterocarpus tenuidentatus can be distinguished from all other species in the genus by the small size of its upper rostral and postrostral teeth and by a single, well marked, long carina on the lateral part of the carapace, which extends backwards from the branchiostegal spine along $2/3$ of the carapace length.

The size of the new species is superior than that of all other species of the genus. Previously, the largest specimen of *Heterocarpus* that we had examined was a female of *H. laevigatus* Bate, 1888, with a carapace length of 56.5 mm and total length of 199.0 mm (Crosnier, 1988: 75). King (1986: 16), again for *H. laevigatus*, mentioned 217.0 mm as being the maximum size observed. Another distinctive character of the new species is the blade of the scaphocerite, which is only 2.1 times longer than wide and which does not narrow in its distal portion, contrary to what is usually observed in this genus (Chace, 1985, fig. 13). The species displaying a scaphocerite blade closest in form to that of the new species is *H. cutressi* Monterossa, 1988, but in the latter the ratio length/width of the blade is 2.5 (Monterossa, 1988, fig. 2c); this ratio can reach 4.2, particularly in *H. parvispina* de Man, 1917, and *H. hostilis* Faxon, 1893.

The rostrum of the new species is short compared to that of other species in the genus. However, large specimens of other species may show a rostrum that is almost as short, notably in *H. grimaldii* A. Milne-Edwards and Bouvier, 1900.

Distribution

The new species is thus far known only from the Solomon Islands, from a depth of 814–980 m.

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