

Description of a new species of *Guyanacaris* Sakai, 2011 (Decapoda: Axiidea: Axiidae) from the South China Sea

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Abstract. A new species of axiidean shrimp, *Guyanacaris xinzhenji*, is described and illustrated based on a single specimen recently collected from Beibu Gulf, in the South China Sea, at a depth of 250–300 m. The new species is characterised by: the rostrum reaching midlength of antennular peduncle article 2; the eyestalk reaching the tip of the rostrum; the dactylus of the major cheliped being curved, shorter than the palm, with its upper margin unarmed and its opposable margin with one prominent bifid proximal tooth and one triangular notch; the dactylus of the minor cheliped being unarmed on upper margin, and the opposing fixed finger with an additional row of teeth on the mesial surface; the telson with three pairs of posterolateral teeth and a median tooth; and the uropodal exopod with its dorsal surface armed with a longitudinal row of three teeth. The morphological differences between the new species and other congeners are discussed and a key to the six species of *Guyanacaris* is provided. DNA barcoding sequences (16S rRNA and COI) have been submitted to GenBank.

Key words. Crustacea, Northwest Pacific, Axiidea, taxonomy

INTRODUCTION

The axiid genus *Guyanacaris* Sakai, 2011 includes five or six species (see below) distributed on continental shelves in the Southwest and Northeast Pacific, Northwest Atlantic, and North Indian Oceans (Padate et al., 2022; DecaNet, 2023). It has never been reported from China or anywhere in the Northwest Pacific area. Recently, one axiid shrimp specimen accidentally collected by a fishing vessel in Beibu Gulf, South China Sea, revealed the presence of an undescribed species of this genus from the Northwest Pacific. The new species is described and illustrated herein.

MATERIAL AND METHODS

The holotype of the new species was collected as part of the bycatch of a commercial vessel fishing with a bottom trawl (net opening: 20 × 2.5 m; mesh size: 1.5 × 1.5 cm/3

× 3 cm) around the northern continental shelf of the South China Sea (Beibu Gulf) in November 2020. The specimen was immediately taken to the laboratory, photographed using a Nikon-D810 DSLR camera and preserved in 75% ethanol. The specimen was cleaned to remove debris, examined and illustrated using a Zeiss SteREO Discovery V8 stereomicroscope with a camera lucida attachment. Carapace length (cl) was measured from the tip of the rostrum to the posterior end of the carapace. Total length (tl) was measured from the tip of the rostrum to the posterior end of the telson, with the body stretched.

A small sample of tissue was taken for total genomic DNA extraction and subsequent amplification and sequencing of genetic markers. The procedures of the molecular work follow Kou et al. (2020). As few species of the genus are known and no sequence of other congeners is available, 16S rRNA and COI sequences of the specimen are just for barcoding the new species. The specimen is deposited in the Marine Biological Museum, Chinese Academy of Sciences (MBMCAS), Qingdao, China. The DNA barcoding sequences of the new species have been submitted to the GenBank database.

TAXONOMY

Family Axiidae Huxley, 1879

Genus *Guyanacaris* Sakai, 2011

Guyanacaris Sakai, 2011: 119–120 [type species: *Calocaris* (*Calastacus*) *hirsutumana* Boesch & Smalley, 1972, by original

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designation, gender feminine]. – Dworschak & Poore, 2018: 62 (synonymy). – Poore, 2020: 264. – Padate et al., 2022: 196 (redesignation). – Poore & Ahyong, 2023: 199–200 (redesignation, synonymy).

Bruceaxius Sakai, 2011: 82–83 [type species: *Acanthaxius polychaetes* Sakai, 1994, by original designation and monotypy, gender masculine]. – Padate et al., 2022: 202.

Neoaxius Sakai, 2017: 504–505 [type species: *Neoaxius nicoyaensis* Sakai, 2017, by original designation and monotypy, gender masculine].

Remarks. For the most recent diagnoses of *Guyanacaris* Sakai, 2011, see Padate et al. (2022) and Poore & Ahyong (2023). The genus is characterised by a mesial spine at the base of the scaphocerite, the presence of a male pleopod 1, curved lateral gastric carinae with several small spines, obsolete supraocular spines, a convex carapace profile and a depressed rostrum. Padate et al. (2022) agreed with Poore (2020) that *Acanthaxius polychaetes* Sakai, 1994 (type species of *Bruceaxius* Sakai, 2011) and *A. spinosissima* (Rathbun, 1906) probably belong to *Guyanacaris*, thereby arguing that *Bruceaxius* Sakai, 2011 “should be considered to be a synonym of *Guyanacaris*”. Poore & Ahyong (2023) synonymised the two genera. Padate et al. (2022) suggested that the second species, *B. thailandensis* Sakai, 2015, lacks a mesial spine at the base of scaphocerite, differing from the typical *Guyanacaris* and “may be tentatively retained in *Bruceaxius*”. However, *B. thailandensis* cannot be “retained” in *Bruceaxius* as its type species belongs in *Guyanacaris*. Furthermore, it is unclear in Sakai’s (2015: fig. 3A) illustration of *B. thailandensis* if the scaphocerite is shown at all — even if the mesial spine were absent, this would not be taxonomically significant at the genus level. As such, *B. thailandensis* is hereby transferred to *Guyanacaris*.

A key to the six species of *Guyanacaris* follows.

Key to species of *Guyanacaris* Sakai, 2011

1. Chelipeds subequal, similar
..... *G. keralam* Padate, Cubelio & Takeda, 2022
- Chelipeds unequal, dissimilar 2
2. Eyestalk overreaching tip of rostrum 3
- Eyestalk shorter than, or just reaching tip of rostrum 4
3. Cervical groove smooth; fingers of major cheliped without prominent teeth on opposable margin
..... *G. hirsutimana* (Boesch & Smalley, 1972)
- Cervical groove armed with several denticles; fingers of major cheliped with prominent teeth on opposable margin
..... *G. caespitosa* (Squires, 1979)
4. Whole body covered with dense, short setae 5
- Body only with sparse, short setae 6
5. Cervical groove smooth; eyestalk reaching midlength of rostrum; maxilliped 3 carpus armed with 1 distal tooth
..... *G. polychaetes* (Sakai, 1994)
- Cervical groove finely denticulate; eyestalk almost reaching tip of rostrum; maxilliped 3 carpus unarmed
..... *G. thailandensis* (Sakai, 2015)
6. Carapace with hepatic spine; cervical groove armed with 11 prominent spines; cheliped carpus with prominent teeth on upper margin; pereopod 2 carpus armed with 1 subdistal tooth on lower margin
..... *G. spinosissima* (Rathbun, 1906)

- Carapace without hepatic spine; cervical groove unarmed; cheliped carpus tuberculate, without prominent tooth on upper margin; pereopod 2 carpus unarmed
..... *G. xinzhenqi*, new species

Guyanacaris xinzhenqi, new species

(Figs. 1–5)

Material examined. Holotype, male (cl 14.9 mm, tl 40.5 mm), Beibu Gulf, northern continental shelf of the South China Sea, Northwest Pacific, 250–300 m depth, fishing vessel, bottom trawl, 4 November 2020, MBM 304660.

Etymology. The new species is named after Dr. Xinzhen Li, principal investigator at the Institute of Oceanology, Chinese Academy of Sciences (IOCAS), who is also the first Chinese marine biologist to take the manned submersibles “*Jiaolong*” and “*Deep-sea Warrior*” to explore the deep sea, and for his great contribution to deep-sea research and crustacean taxonomy in China. Two of the authors (QK, XL) are grateful for his mentoring and guidance.

Diagnosis. Rostrum reaching midlength of antennular peduncle article 2, with 5–7 lateral teeth. Lateral gastric carina with 8 or 9 teeth; submedian gastric carina with 6 teeth; median gastric carina with 7 anterior teeth, 1 tubercle and 6 posterior teeth. Eyestalk reaching tip of rostrum. Chelipeds unequal, dissimilar. Major cheliped, merus upper margin with 2 prominent teeth and lower margin with 5 prominent teeth; carpus upper margin tuberculate; palm upper margin tuberculate, with 1 prominent proximal tooth and short longitudinal submesial row of 8 teeth; fixed finger opposable margin with notch and 1 triangular tooth in proximal half; dactylus 0.8 times as long as palm, opposable margin with 1 prominent bifid proximal tooth and 1 triangular notch in proximal half, upper margin unarmed. Minor cheliped, merus with 3 prominent teeth on upper margin and 5 prominent teeth on lower margin; carpus with upper margin tuberculate; palm upper margin tuberculate, with 1 prominent proximal tooth and a row of 8 teeth; fixed finger opposable margin sharply denticulate; dactylus 1.7 times as long as palm, opposable margin denticulate, upper margin unarmed. Uropodal endopod with 2 teeth on anterior margin; 1 anterolateral tooth; dorsal surface with longitudinal ridge armed with 4 or 5 teeth. Uropodal exopod with 5 or 6 teeth on anterior margin; anterolateral angle with 1 prominent spiniform setae; dorsal surface with longitudinal ridge armed with 3 teeth. Telson with 3–5 lateral teeth, 3 pairs of small posterolateral teeth and 1 median tooth.

Description. Body robust, integument solid, surface sparsely setose. Rostrum triangular in dorsal view, bending downward, 0.13 times as long as carapace, 1.8 times as long as wide at base, apex acute, reaching midlength of antennular peduncle article 2; lateral margins with 7 (left), 5 (right) small, shallow teeth, continuous with lateral carinae; ventral margin unarmed.

Carapace smooth, sparsely setose, anterolateral margin with 1 small antennal spine; cervical groove distinct, unarmed,



Fig. 1. *Guyanacaris xinzhengi*, new species. Holotype, MBM 304660 (male, cl 14.9 mm, tl 40.5 mm), colour in life. Dorsal view (above), lateral view (below). Scale=1 cm.

almost reaching anteroventral pterygostomial angle; gastric region slightly inflated, with 5 longitudinal carinae, distinct, entire, reaching cervical groove; median carina armed with 7 anterior teeth, 1 small tubercle and 6 posterior teeth; submedian gastric carinae armed with 6 teeth; lateral carinae armed with 1 supraocular tooth and 8 (left) or 9 (right) prominent teeth; postcervical carina distinct, extending almost to posterior end of carapace; inferior orbital angle and pterygostomial angle rounded, unarmed.

Thoracic sternite 6 with median groove separating pair of acute opposing teeth. Sternite 7 subrectangular, concave in midline, with sharp anterolateral angles.

Pleonites sparsely setose, dorsal surface with distinct, longitudinal median carina and pair of submedian carinae; pleonite 1 0.65 times as long as pleonite 2, pleuron posteroventrally subacute, unarmed; pleonites 2–5 subequal in dorsal length, pleura posteroventrally nearly right-angled, with 1–6 minute teeth on ventral margin; pleonite 6 1.4 times as long as pleonite 5, pleuron ventrally rounded, with a small tooth at anterior $\frac{1}{3}$, posterolateral projection subacute, posterior margin unarmed.

Eyestalk cylindrical, reaching tip of rostrum, unarmed; cornea pigmented, division between cornea and eyestalk clear.

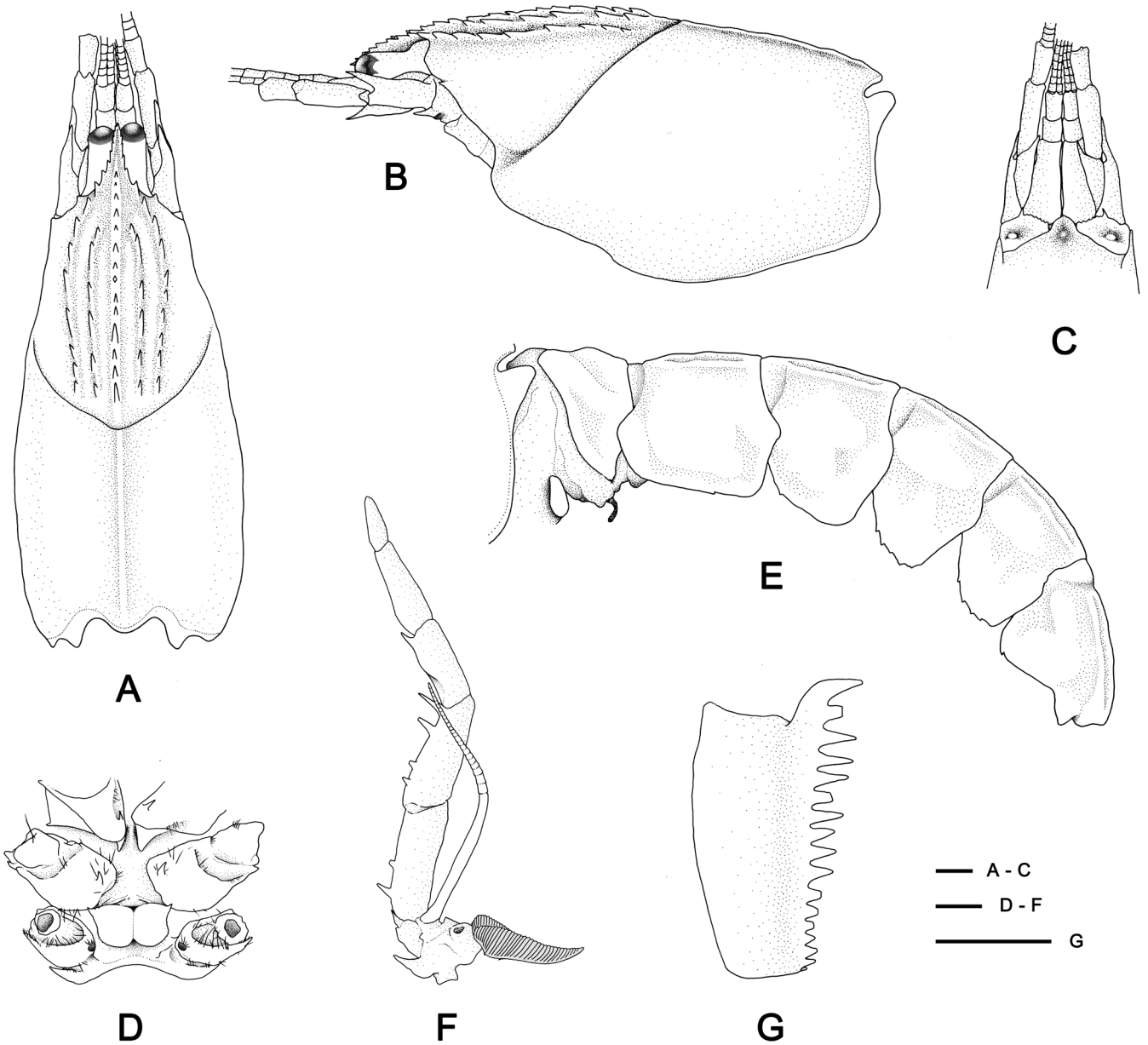


Fig. 2. *Guyanacaris xinzhengi*, new species. Holotype, MBM 304660 (male, cl 14.9 mm, tl 40.5 mm). A, carapace, eyestalks, antenna, antennule, dorsal view; B, carapace, eyestalk, antenna, antennule, lateral view; C, anterior carapace, antenna, antennule, ventral view; D, sternites 6–8, pereopodal coxae 3–5, ventral view; E, pleon, pleopod 1, lateral view; F, maxilliped 3, left, outer view; G, same, ischium, inner view. Scale=1 mm.

Antennular peduncle reaching almost distal margin of antennal article 4; article 1 with statocyst, with acute stylocerite; article 2 0.25 times as long as article 1, 1.2 times as long as wide; article 3 1.3 times as long as article 2, 1.7 times as long as wide. Antennal peduncle article 1 bearing 1 prominent tooth and 6 or 7 denticles on ventrodistal margin; article 2 with 1 blunt ventrolateral tooth, distal spine acute, reaching middle of scaphocerite; scaphocerite slender, acute, reaching midlength of article 4, with 1 small proximal mesial tooth; article 3 with 1 acute ventromesial tooth; article 4 3.4 times as long as wide; article 5 0.60 times as long as of article 4.

Maxilliped 3 coxa and basis with 1 distomesial spine; ischium 1.1 times as long as merus, mesial margin with 2 small spines, crista dentata of 17 small teeth; merus 1.2 times as long as carpus, armed with 4 spines on mesial margin

in distal half, distalmost spine largest; carpus with 1 distal spine on mesial margin, 0.90 times as long as propodus; propodus unarmed, 1.7 times as long as dactylus; dactylus cylindrical, 2.5 times as long as wide; exopod distal half segmented, reaching middle of carpus.

Chelipeds unequal and dissimilar, densely setose; carpus-palm length of major cheliped 0.9 carapace length, of minor cheliped 0.7 carapace length. Major (left) cheliped, coxa and basis with 1 distal tooth on mesial margin; ischium compressed laterally, 0.60 times as long as wide, armed with 5 teeth on lower margin, distalmost tooth largest, upper margin unarmed; merus 3.6 times as long as ischium, lower margin with 5 prominent teeth, subequal in size, upper margin arcuate, with 2 prominent teeth, distoventral angle with 1 acute tooth; carpus 0.70 times as long as merus, lower

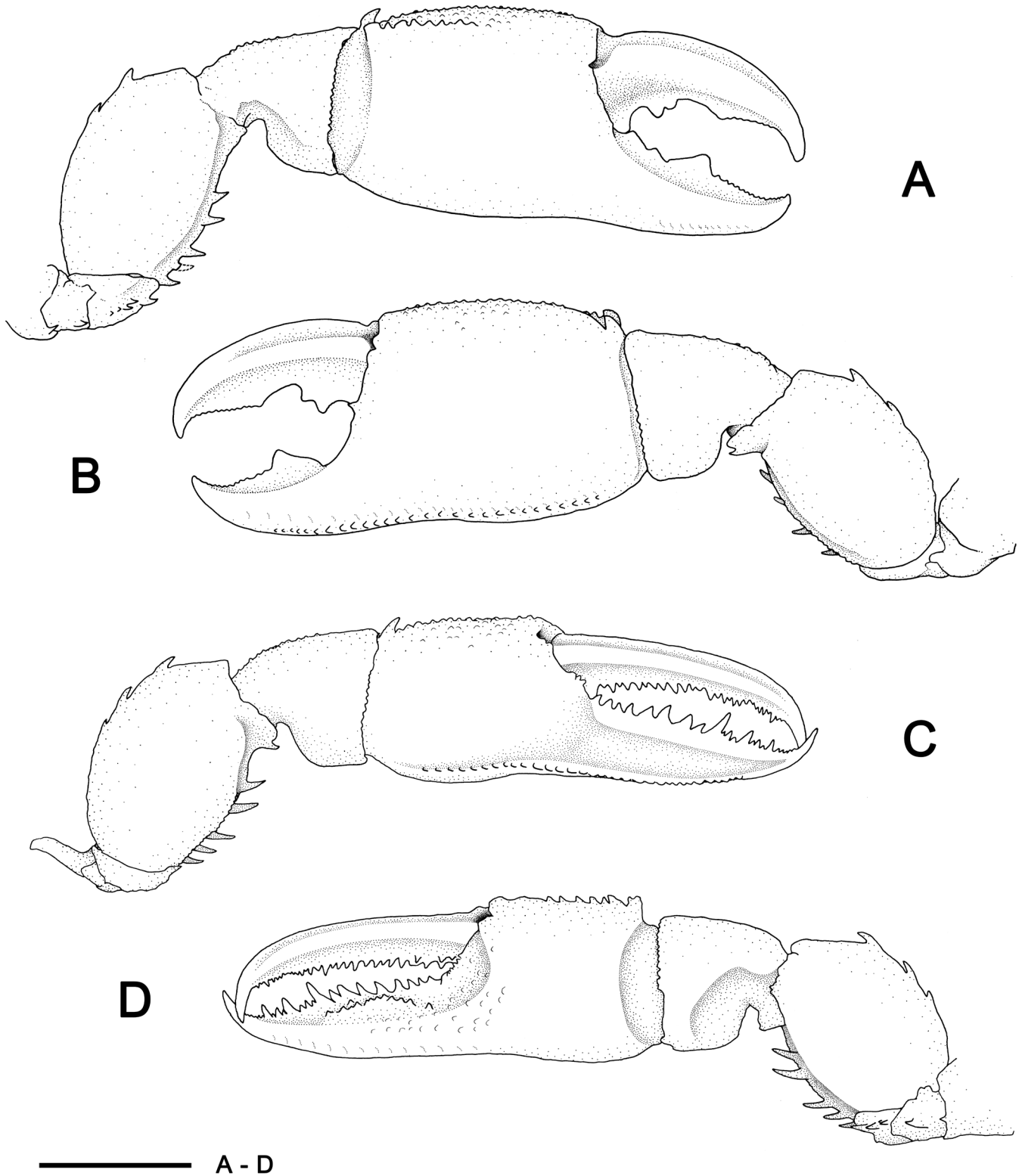


Fig. 3. *Guyanacaris xinzhengi*, new species. Holotype, MBM 304660 (male, cl 14.9 mm, tl 40.5 mm). A, major cheliped, left, mesial view; B, same, lateral view; C, minor cheliped, right, lateral view; D, same, mesial view. Scale=5 mm.

margin unarmed, upper margin tuberculate, distal margin finely denticulate; propodal palm inflated, slightly longer than merus, upper margin 1.1 times as long as wide, tuberculate, with 1 prominent proximal tooth and short longitudinal submesial row of 8 teeth, lateral and mesial surfaces with few scattered tubercles, lower-lateral carina sharp, extending to midlength of fixed finger, with 28 submarginal tubercles, distolateral margin with 1 small acute tooth, distomesial

margin oblique, unarmed; fixed finger 0.70 times as long as palm, distally slightly upturned, lower margin unarmed, opposable margin with shallow concavity over proximal third, 1 prominent triangular tooth at midlength, followed by several weak teeth distally; dactylus 0.8 times as long as palm, distally curved, upper margin unarmed, opposable margin with 1 prominent bifid proximal tooth and several weak teeth distally, separated by 1 triangular notch. Minor

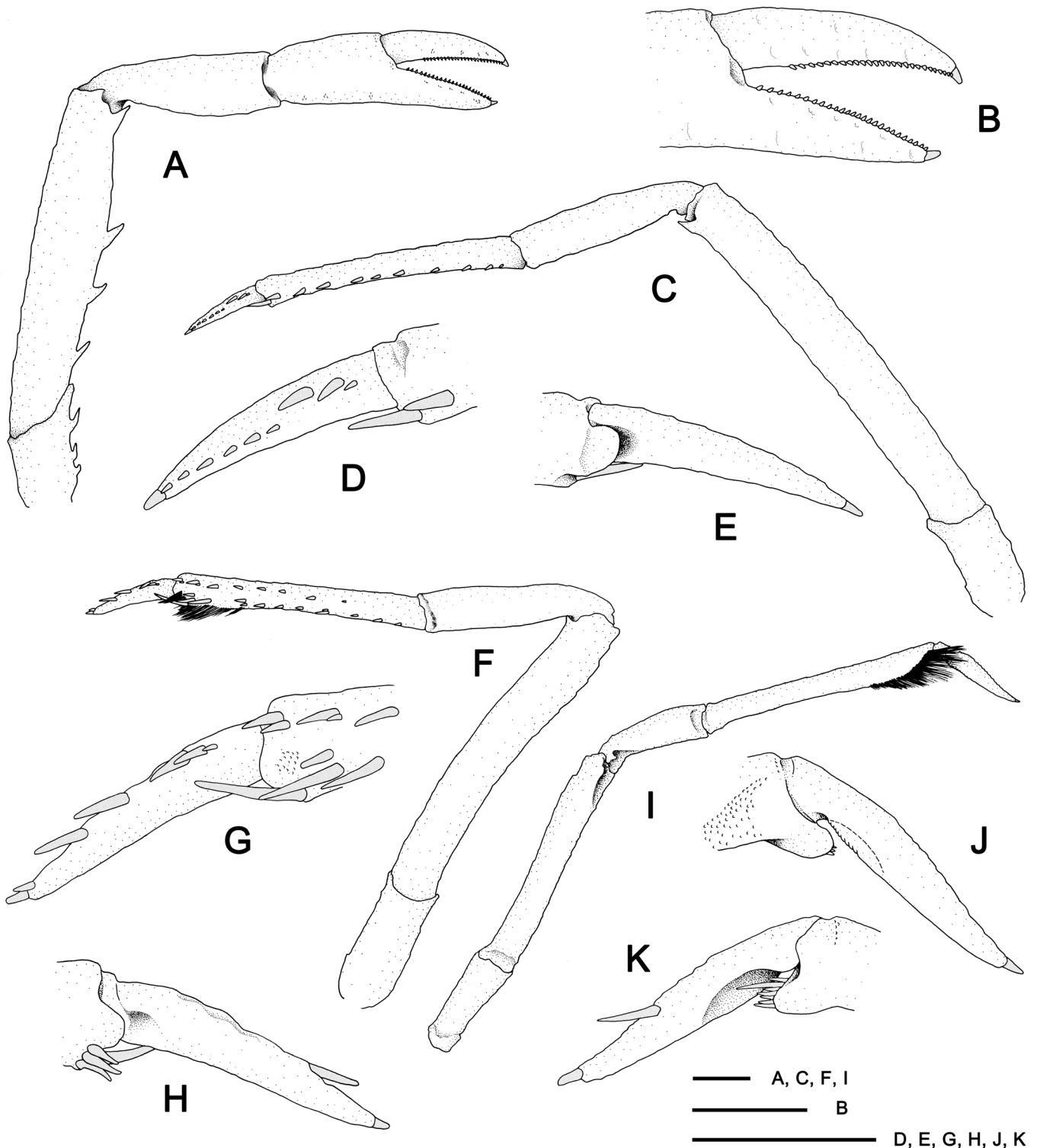


Fig. 4. *Guyanacaris xinzhengi*, new species. Holotype, MBM 304660 (male, cl 14.9 mm, tl 40.5 mm). A, pereopod 2, right, lateral view; B, same, fingers, lateral view; C, pereopod 3, left, lateral view; D, same, dactylus, lateral view; E, same, dactylus, mesial view; F, pereopod 4, left, lateral view; G, same, dactylus, lateral view; H, same, dactylus, mesial view; I, pereopod 5, right, lateral view; J, same, dactylus, lateral view; K, same, dactylus, mesial view. Scale=1 mm.

(right) cheliped shorter, more slender than major, palm 0.70 times width of major; coxa and basis with 1 distal tooth on mesial margin; ischium compressed laterally, 0.6 times as long as wide, with 4 teeth on lower margin, upper margin unarmed; merus 3.5 times as long as ischium, lower margin armed with 5 prominent teeth, subequal in size, upper margin arcuate, armed with 3 prominent teeth, distoventral angle with 1 acute tooth; carpus 0.6 times as long as merus,

lower margin unarmed, upper margin tuberculate, distal margins finely denticulate; propodal palm slightly inflated, slightly shorter than merus, upper margin 1.1 times as long as wide, tuberculate, with 1 prominent proximal tooth and submesial longitudinal row of 8 teeth, lateral and mesial surfaces with few scattered tubercles, lower-lateral carina sharp, extending almost to distal third of fixed finger, with 33 submarginal tubercles, distolateral margin with 3 teeth,

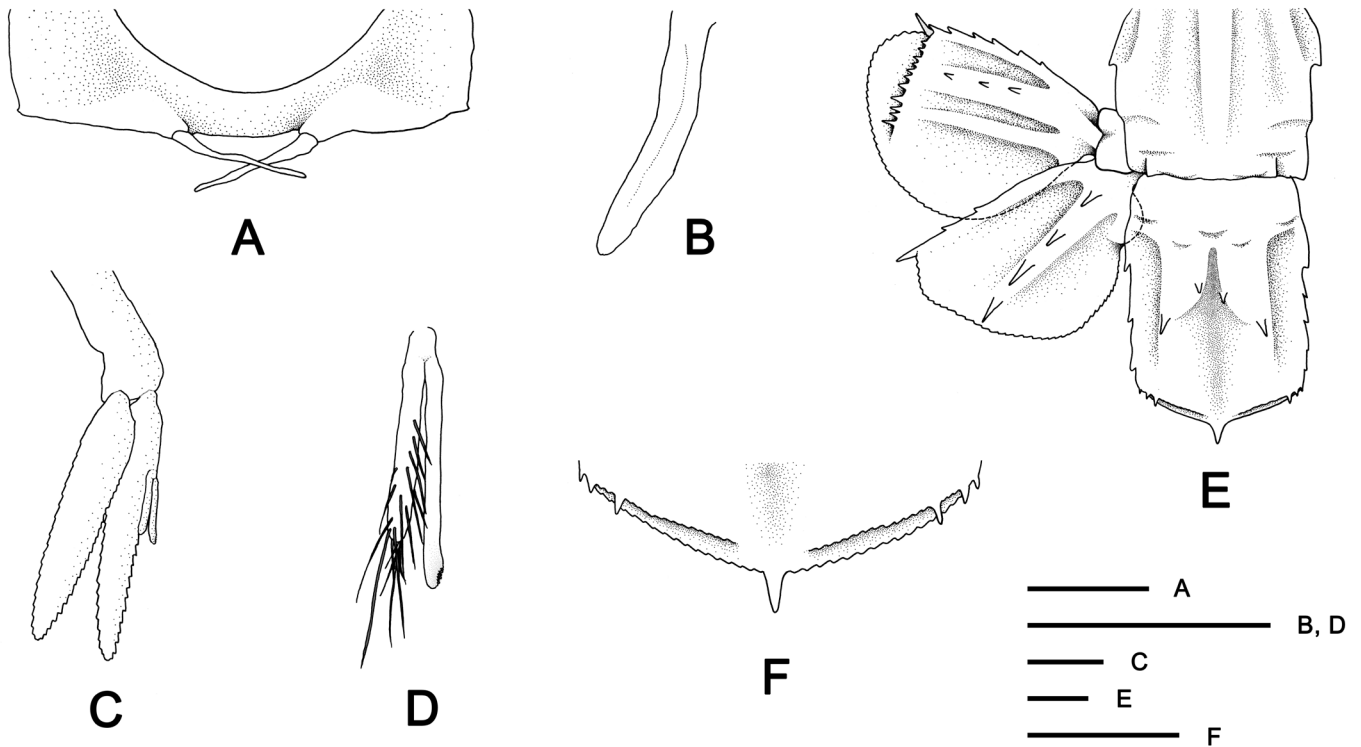


Fig. 5. *Guyanacaris xinzhengi*, new species. Holotype, MBM 304660 (male, cl 14.9 mm, tl 40.5 mm). A, pleonite 1, pleopods 1, ventral view; B, pleopod 1, left, lateral view; C, pleopod 2, right, anterior view; D, same, appendix masculina, appendix interna, anterior view; E, posterior pleonite 6, telson, left uropod, dorsal view; F, posterior telson, dorsal view. Scale=1 mm.

distomesial margin with 5 denticles; fixed finger 1.5 times as long as palm, nearly straight, distally slightly upturned, opposable margin with row of irregular sharp teeth along whole length, below with additional ridge of 13 teeth on mesial surface; dactylus 1.4 times as long as palm, distally curved, upper margin unarmed, opposable margin with row of sharp teeth along whole length, above with 3 proximal teeth on mesial surface.

Pereopod 2 coxa with 1 mesial and 1 distomesial tooth; basis with 1 mesial tooth; ischium 1.5 times as long as wide, with 3 prominent teeth on lower margin; merus 3.7 times as long as ischium, upper margin unarmed, lower margin with 3 prominent teeth, plus 1 subdistal tooth on lateral surface; carpus 0.5 times as long as merus, unarmed; palm unarmed, 0.7 times as long as carpus, 1.8 times as long as wide; fingers as long as palm, terminating in corneous unguis, opposable margins with row of 26 spinules.

Pereopod 3 coxa with 1 mesial teeth; basis unarmed; ischium 1.8 times as long as wide, unarmed; merus 4.3 times as long as ischium, upper and lower margins unarmed, lateral surface with 1 prominent subdistal tooth; carpus half as long as merus, unarmed; propodus 1.4 times as long as carpus, lateral surface with 10 (left), 7 (right) spiniform setae along whole length, mesial surface unarmed, 1 long spiniform seta at lower distal angle; dactylus lanceolate, densely setose, lateral surface with 9 (left), 8 (right) spiniform setae, mesial surface unarmed, terminating in corneous unguis.

Pereopod 4 similar to pereopod 3, slightly shorter. Right side missing. Left with propodus lateral surface with 2 rows

of 23 spiniform setae along whole length, mesial surface unarmed, 1 long and 3 short spiniform setae at lower distal angle, distal lower-mesial surface densely setose; dactylus lateral surface with 6 spiniform setae, mesial surface unarmed, terminating in corneous unguis.

Pereopod 5 left side missing. Right with precoxal lobe suboval; coxa with gonopore, coxa to carpus unarmed; propodus subchelate, distal lower-lateral surface densely setose, with 7 slender spinules at lower distal angle; dactylus slightly twisted, densely setose, upper-mesial surface with 1 spiniform seta, lateral surface unarmed, terminating in corneous unguis.

Pleopod 1 uniramous, rod-like, slightly tapering, 7.0 times as long as wide. Pleopod 2 biramous; endopod slightly longer than exopod; appendix masculina rod-like, 0.20 times as long as endopod, with numerous terminal setae; appendix interna 1.2 times as long as appendix masculina, tip slightly curved, bearing cluster of small hooks. Pleopods 3–5 similar, biramous, endopod slightly longer than exopod; with appendix interna, slender, 0.35 times as long as endopod.

Uropod almost as long as telson, marginally densely setose; peduncle stout, unarmed; endopod 1.6 times as long as wide, with 2 subdistal teeth on anterior margin and 1 longer anterodistal tooth, distoposterior margin unevenly rounded, dorsal surface with longitudinal ridge and row of 4 (left), 5 (right) teeth; exopod with almost complete transverse suture, 1.3 times as long as wide, slightly longer than endopod, anterior margin armed with 6 (left), 5 (right) small teeth over distal two-thirds, anterodistal angle with 1 prominent

spiniform seta, distoposterior margin rounded, dorsal surface with longitudinal ridge armed with 3 teeth; transverse suture with 11 (left), 10 (right) denticles; exopod and endopod both with short simple setae and long plumose setae along posterodistal margins.

Telson subrectangular, 1.4 times as long as wide, lateral margins parallel, straight, with 3 (left), 5 (right) small teeth, posterior margin rounded, with prominent median tooth, posterolateral angle with 3 denticles; dorsal surface armed with 2 pairs of teeth, with dense short simple setae, midline concave, posterolateral and posterior margins with long plumose setae.

Colour in life. Body and pereopods generally orange; carapace with 4 transverse, white bands; each pleonite with 1 white transverse band; pleopods, telson and uropodal endopods entirely orange; uropodal exopods generally white with posterior margin orange. Cornea of eye brownish, opaque; eyestalk orange (Fig. 1).

Distribution. Known only from the type locality: Beibu Gulf, the South China Sea, 250–300 m depth.

GenBank accession numbers. OR886605 (16S rRNA), OR887453 (COI).

DISCUSSION

The taxonomic history of *Guyanacaris* Sakai, 2011 and the detailed morphological comparison among its species and the closely related genus *Bruceaxius* Sakai, 2011 were summarised by Padate et al. (2022). As explained above, it is not possible, as Padate et al. (2022) suggested, to retain *B. thailandicus* in *Bruceaxius* while its type species is synonymised with *Guyanacaris*. Therefore, *Guyanacaris* includes six accepted species at present.

Of the six species, *Guyanacaris xinzhengi*, new species, differs from the two American species, *G. hirsutimana* (Boesch & Smalley, 1972) and *G. caespitosa* (Squires, 1979), in the smooth carapace (Fig. 2A, B) (vs covered with numerous tiny tubercles); longer rostrum, reaching tip of eyestalk (Fig. 2A, B) (vs rostrum shorter than eyestalk); median gastric carina armed with 13 teeth (Fig. 2A) (vs no more than 8 teeth); less denticulate margins of pleura 1–5 (Fig. 2E) (vs each pleuron with many denticles on anterior and ventral margins); less denticulate chelipeds (Fig. 3) (vs chelipeds covered with teeth on both sides and along margins); major cheliped with dactylus shorter than palm (Fig. 3A, B) (vs dactylus about 1.5 times as long as palm); uropodal exopods with dorsal surface armed with longitudinal row of three teeth (Fig. 5E) (vs unarmed); and telson with three denticles at posterolateral angle (Fig. 5E, F) (vs unarmed) (cf. Boesch & Smalley, 1972: figs 1–8; Squires, 1979: figs 2, 3; Sakai, 2011: fig. 22A, B; Sakai, 2017: figs 1–3; Dworschak & Poore, 2018: fig. 1).

The new species differs from *G. spinosissima* (Rathbun, 1906) from Hawaii in the relatively more slender rostrum, 1.8 times as long as wide at base (Fig. 2A) (vs 1.3 times as long as wide at base); carapace with one small antennal spine and without a hepatic spine (Fig. 2B) (vs with two small anterolateral spines and three hepatic spines); unarmed cervical groove (Fig. 2A, B) (vs armed with 11 prominent spines); unarmed pleuron 1 (Fig. 2E) (vs anterior margin armed with several denticles); cheliped with merus 1.5 times as long as wide (Fig. 3) (vs cheliped with merus 3.0 times as long as wide); and unarmed carpus of pereopod 2 (Fig. 4A) (vs armed with one subdistal tooth on lower margin) (cf. Rathbun, 1906: fig. 50; de Man, 1925: fig. 18; Ngoc-Ho, 2005: fig. 1).

Guyanacaris xinzhengi, new species, can be separated from the other West Pacific species, *G. polychaetes* (Sakai, 1994), by the less setose body (vs body covered with dense setae); longer eyestalk, reaching tip of rostrum (Fig. 2A, B) (vs reaching midlength of rostrum); palm of major cheliped armed with one prominent proximal tooth and longitudinal row of eight teeth on upper margin (Fig. 3A, B) (vs unarmed); telson with three denticles at posterolateral angles (Fig. 5E, F) (vs posterolateral angle unarmed or with one minute denticle); and uropodal exopods with dorsal surface armed with longitudinal row of three spines (Fig. 5E) (vs unarmed) (cf. Sakai, 1994: figs. 11–13).

The new species can be readily distinguished from *G. keralam* Padate, Cubelio & Takeda, 2022 from the Indian Ocean, by the unequal and dissimilar chelipeds (Fig. 3) (vs chelipeds subequal in size and similar in shape); rather smooth pleura (Fig. 2E) (vs each pleuron with lateral crease and many denticles on anterior and ventral margins); and longer eyestalk, reaching tip of rostrum (Fig. 2A, B) (vs not reaching midlength of rostrum) (cf. Padate et al., 2022: figs. 2–5).

Guyanacaris xinzhengi, new species, is similar to *G. thailandensis* (Sakai, 2015) in the shape of chelipeds, but differs in the less setose body (vs body covered with dense setae); smooth cervical groove (Fig. 2A, B) (vs finely denticulate along cervical groove); carpus of maxilliped 3 armed with one distal tooth (Fig. 2F) (vs carpus unarmed); telson with three denticles at posterolateral angle (Fig. 5E, F) (vs with two teeth); uropodal endopods with lateral margin armed with three teeth (vs unarmed); and uropodal exopods with dorsal surface armed with longitudinal row of three teeth (Fig. 5E) (vs unarmed) (cf. Sakai, 2015: figs. 3–4).

In addition, the new species is distinguishable from all other congeners by the following morphological characteristics: (1) dactylus of major cheliped with a prominent bifid proximal tooth and a triangular notch on the opposable margin (Fig. 3A, B); (2) fixed finger of minor cheliped has long, sharp teeth, and an additional row of teeth on mesial surface (Fig. 3C, D); and (3) dactylus of pereopod 5 armed with one corneous spiniform seta on upper-mesial surface (Fig. 4K). In view of the above, a new species is warranted.

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LITERATURE CITED

- Boesch DF & Smalley AE (1972) A new axiid (Decapoda, Thalassinidea) from the Northern Gulf of Mexico and tropical Atlantic. *Bulletin of Marine Science*, 22(1): 45–52.
- DecaNet (2023) DecaNet. *Guyanacaris* Sakai, 2011. World Register of Marine Species. <https://www.marinespecies.org/aphia.php?p=taxdetails&id=741319> (Accessed 1 November 2023).
- de Man JG (1925) The Decapoda of the Siboga-Expedition. Part VI. The Axiidae collected by the Siboga-Expedition. *Siboga Expédition*, 39(5): 1–127, pls. I–X.
- Dworschak PC & Poore GCB (2018) More cautionary tales: family, generic and species synonymies of recently published taxa of ghost and mud shrimps (Decapoda: Axiidea and Gebiidea). *Zootaxa*, 4394(1): 61–76.
- Huxley TH (1879) On the classification and the distribution of the crayfishes. *Proceedings of the Zoological Society of London*, 1878: 752–788.
- Kou Q, Xu P, Poore GCB, Li X & Wang C (2020) A new species of the deep-sea sponge-associated genus *Eiconaxius* (Crustacea: Decapoda: Axiidae), with new insights into the distribution, speciation, and mitogenomic phylogeny of axiidean shrimps. *Frontiers in Marine Science*, 7: 469.
- Ngoc-Ho N (2005) Thalassinidea (Crustacea, Decapoda) from French Polynesia. *Zoosystema*, 27(1): 47–83.
- Padate VP, Cubelio SS & Takeda M (2022) Two axiidean ghost shrimps (Crustacea: Decapoda) from India, *Guyanacaris keralam* sp. nov. (Axiidae) and *Paragourretia galathea* (K. Sakai, 2017) (Ctenochelidae). *Zootaxa*, 5093(2): 195–217.
- Poore GCB (2020) Axiid and micheleid lobsters from Indo-West Pacific deep-sea environments (Crustacea: Decapoda: Axiidea: Axiidae, Micheleidae). In: Corbari L, Ahyong ST & Chan T-Y (eds) *Deep-sea crustaceans from Papua New Guinea. Tropical Deep-Sea Benthos 31. Mémoires du Muséum national d'Histoire naturelle*, Paris, 213: 259–367.
- Poore GCB & Ahyong ST (2023) *Marine Decapod Crustacea. A Guide to Families and Genera of the World*. CSIRO Publishing, Melbourne and CRC Press, Boca Raton. 928 pp.
- Rathbun MJ (1906) The Brachyura and Macrura of the Hawaiian Islands. *Bulletin of the United States Fish Commission*, 23(3): 827–930, pls. I–XIV.
- Sakai K (1994) Eleven species of Australian Axiidae (Crustacea: Decapoda: Thalassinidea) with descriptions of one new genus and five new species. *The Beagle, Occasional Papers of the Northern Territory Museum of Arts and Sciences*, 11: 175–202.
- Sakai K (2011) Axiioidea of the world and a reconsideration of the Callianassoidea (Decapoda, Thalassinidea, Callianassida). *Crustaceana Monographs*, 13: 1–616.
- Sakai K (2015) Two new species, *Colemanaxius andamanensis* sp. nov. and *Bruceaxius thailandensis* sp. nov. from the Andaman Sea, Thailand (infraorder Axiidea de Saint Laurent, 1979). *Crustaceana*, 88(7–8): 867–880.
- Sakai K (2017) One new species of a new genus, *Neoaxius* gen. nov., in a new family, Neoaxiidae fam. nov., from the Gulf of Nicoya, Costa Rica (Decapoda, Axiioidea). *Crustaceana*, 90(4): 503–510.
- Squires HJ (1979) *Axiopsis caespitosa* (Thalassinidea, Axiidae), a new species from the Pacific coast of Colombia. *Canadian Journal of Zoology*, 57: 1584–1591.