

***Caridina xiangnanensis*, a new freshwater atyid shrimp (Crustacea, Decapoda, Atyidae) from Hunan Province, China**

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Abstract

Caridina xiangnanensis, new species is described on the basis of specimens collected from Lingxiu Village, Rucheng County, Hunan Province, China. This new species can be distinguished from the closely related species, *C. paracornuta* Cai & Yang, by the narrower endopod of the male first pleopod, lacking a projection on the proximal region; a longer appendix interna; a shorter appendix interna of the male second pleopod; and the comparatively narrower scaphocerite.

Key words: Decapoda, Atyidae, *Caridina*, taxonomy, China

Introduction

The family Atyidae presently contains 39 genera in 4 subfamilies (Cai & Bahir, 2005; Holthuis, 1993; Liang & Cai, 1999; Liang, Guo & Tang 1999). To date, thirty-two species of Atyidae belonging to four genera, *Caridina* Milne-Edwards, 1837, *Neocaridina* Kubo, 1938, *Paracaridina* Liang & Guo, 1999, and *Mancicaris* Liang, Guo & Tang, 1999 have been recorded from Hunan Province (Cai, 1996; Guo & Choy, 1994; Guo, Choy & Gui, 1996; Guo & De Grave, 1997, 2004; Guo, He & Bai, 1992; Guo *et al.*, 1992, 2002a, b; Guo & Liang, 2003; Guo, Jiang & Zhang, 1992; Guo & Suzuki, 1996; Guo & Wang, 2005; Jiang, Guo & Zhang, 2002; Liang, 2004; Liang, Guo & Gao, 1993; Liang, Guo & Tang, 1999).

A small collection of atyid shrimps was collected from Rucheng County, southern Hunan Province. When checking this collection, a new species of the genus *Caridina* was

encountered, which is described and illustrated herein. The relationship between the new species and the closely related species, *C. paracornuta* is discussed.

The following abbreviations are used throughout the text: tl, total length of body (measured from the rostral tip to the posterior margin of the telson); cl, carapace length (measured from the postorbital margin to the posterior margin of the carapace); rl, rostral length (measured from the rostral tip to the postorbital margin).

Type specimens are deposited in the collections of the Foshan Science and Technology College (FSTC), Foshan City, Guangdong Province.

Material and methods

Specimens were collected by hand net (mesh size 0.5 mm) and then preserved in 75% alcohol. The drawings were made with the aid of drawing tube mounted on an Olympus BX-41 compound microscope.

Systematics

Family ATYIDAE De Haan

Genus *Caridina* H. Milne Edwards, 1837

Caridina xiangnanensis new species

(Fig.1)

Material

Holotype, adult male (FSTC, 96-07-11-01), tl 20.6 mm, cl 4.8 mm, rl 1.6 mm, near Lingxiu Village, Rucheng County, Hunan Province (ca. 25°33'N, 113°40' E), collected by Z. L. Guo, July 15, 1996. Paratypes. 1 female (FSTC, 96-07-11-02); 2 males (FSTC, 96-07-11-03 to 04), same data as for holotype.

Diagnosis

Rostrum short, extending to end of first segment of antennular peduncle, unarmed dorsally but ventral margin bearing 1 tooth. Endopod of the first male pleopod is sub-rectangular, slightly wider proximally, distal margin broadly rounded, inner margin slightly concave, outer margin slightly convex; appendix interna well developed, arising from distal 1/3 of endopod, just reaching beyond tip of endopod. Appendix masculina rod-shaped, reaching about 0.67 times length of endopod, inner margin and distally bearing numerous stout hamate setae; appendix interna reaching about half length of appendix masculina.

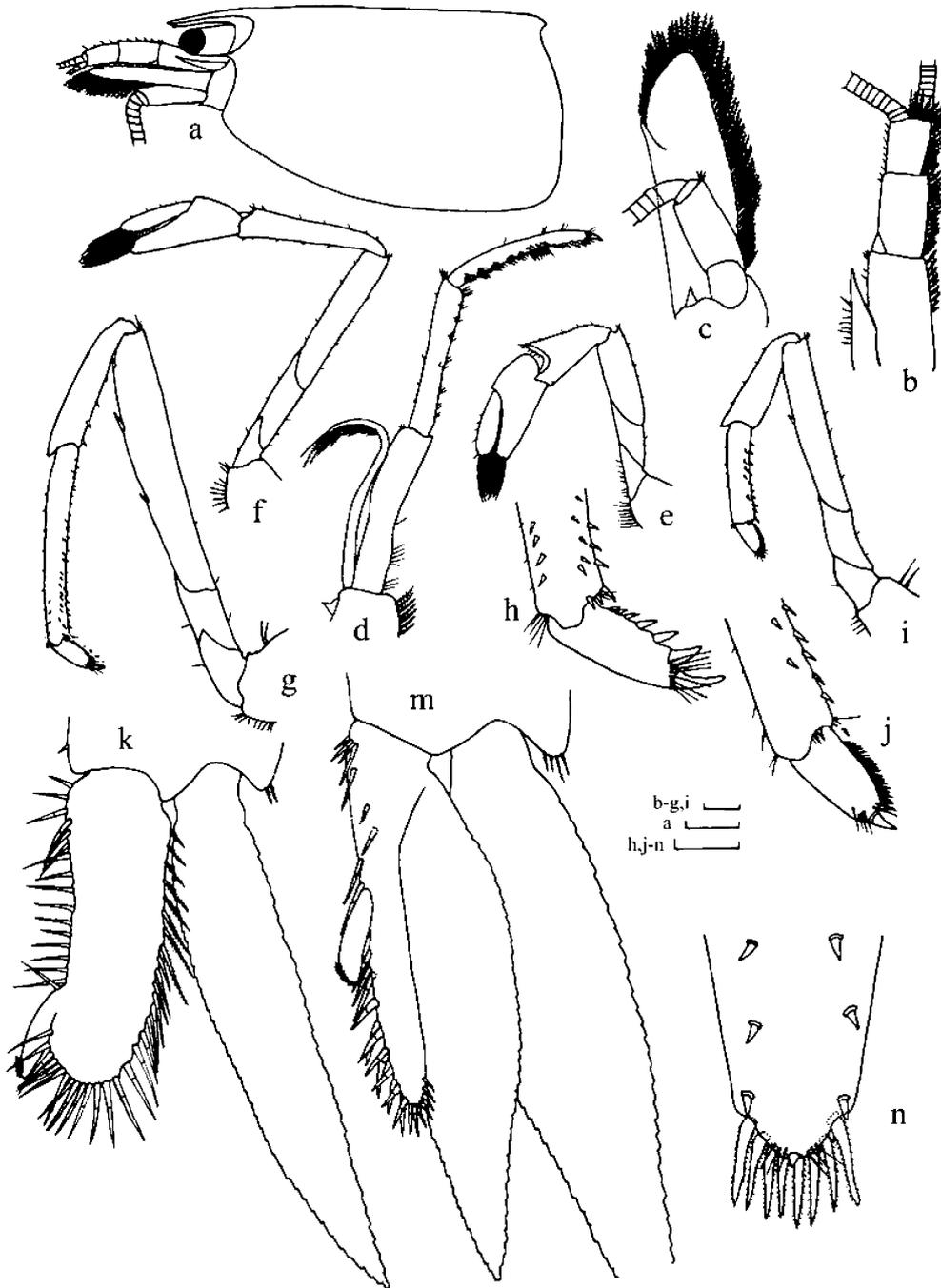


FIGURE 1. *Caridina xiangnanensis*, new species. a. cephalothorax, holotype, male, cl 5.6 mm (FSTC, 96-07-01), b. antennular peduncle, c. scaphocerite, d. third maxilliped, e. first pereopod, f. second pereopod, g. third pereopod, h. dactylus of the third pereopod, i. fifth pereopod, j. dactylus of the fifth pereopod, k. first pleopod of the male, m. second pleopod of the male, n. posterior portion of the telson. b-n: paratype, male, cl 4.8 mm (FSTC, 96-07-02). Scale bars indicate 1.0 mm (a); 0.5 mm (b-n).

Description

Body: Slender and sub-cylindrical, males up to 23.9 mm tl, females up to 24.8 mm tl. Rostrum (Fig. 1a): Short and narrow, only 0.27–0.35 of cl, usually reaching to end of first antennular segment; curving downwards; dorsal border without teeth; ventral border with one tooth; lateral carina dividing rostrum into two unequal parts, continuing posteriorly to orbital margin.

Eyes (Fig. 1a): Small, on short ocular peduncle, cornea globular, well developed.

Carapace (Fig. 1a): Smooth, glabrous; lower orbital angle indistinct; pterygostomial margin rounded, slightly produced forward; pterygostomial spine absent. Antennal spine pointed sharply and placed below orbital angle, long and strong.

Antennule (Fig. 1a, b): Peduncle reaching beyond scaphocerite; stylocerite about 0.90 times as long as proximal segment; second segment about 0.69 times as long as proximal segment, about 1.4 time as long as distal segment; all segments with sub-marginal plumose setae.

Antenna (Fig. 1a, c): Peduncle about 0.51 times as long as scaphocerite; scaphocerite length about 3.3 times width, outer margin straight, non-setose, ending in a strong sub-apical spine, inner and anterior margins with long plumose setae.

Mandibles, maxillula, maxilla, first and second maxillipeds, and branchial formula typical for genus.

Third maxilliped (Fig. 1d): Reaches to end of second antennular peduncle segment, endopod three-segmented, length of penultimate segment about 1.2–1.4 times as long as basal segment; distal segment about 0.88–0.97 times as long as penultimate segment, ending in a large claw-like spine surrounded by simple setae, preceded by about 5–7 spines on distal third of posterior margin, proximally a clump of long and short simple, serrate setae; exopod reaches to about 0.42 of second segment of endopod, distal margin with long plumose setae.

First pereopod (Fig. 1e): Reaches end of eyes; chela 2.2–2.5 times as long as wide, about 1.2–1.4 length of carpus; movable finger 2.8–3.3 times as long as wide, 1.1–1.4 times length of palm; carpus excavated disto-dorsally, 1.6–1.9 times as long as wide, about 0.86–0.93 times length of merus.

Second pereopod (Fig. 1f): Reaches about end of third antennular peduncle segment, more slender and longer than first pereopod; chela about 2.5–2.7 times as long as wide; about 0.78–0.92 length of carpus, movable finger 4.4–5.3 times as long as wide and 1.3–1.6 length of palm; setal brushes well developed; carpus 4.2–5.1 times as long as wide, slightly excavated distally, about same length of merus.

Third pereopod (Fig. 1g, h): 1/4 distal propodus reaches beyond end of scaphocerite; dactylus 3.6–3.7 times as long as wide, ending in prominent claw-like spine surrounded by simple setae, behind which bears 4–6 spines; propodus 3.2–3.4 times length of dactylus, bearing numerous thin hamate setae on posterior margin plus a few of thin hamate setae on the anterior and lateral margin, about 9.5 times as long as wide; carpus about 0.80 length

of propodus; merus 1.7–2.0 times as long as carpus, longer and broader than propodus, with about 2–3 strong hamate setae on the posterior lateral margin.

Fourth pereopod: Reaches middle of second segment of antennular peduncle, proportion and spination similar to third pereopod.

Fifth pereopod (Fig. 1i, j): Reaches end of second segment of antennular peduncle; dactylus 3.4–4.5 times as long as wide, ending in claw-like spine surrounded by simple setae, behind which bears comb-like row of 40–50 hamate setae on posterior margin; propodus 3.6–4.4 times length of dactylus, bears numerous thin hamate setae on posterior margin, about 5.0 times as long as wide; carpus 0.52–0.54 times as long as propodus; merus 1.5–1.6 times as long as carpus, with 1–3 strong hamate setae on posterior margin.

First pleopod (Fig. 1k): Endopod in male is sub-rectangular, slightly wider proximally, about 0.60 length of exopod, 3.1 times proximal width, tip broadly rounded, inner margin slightly concave, outer margin slightly convex, inner margin, distal half of outer margin and tip bearing numerous nearly equal hamate setae, basal part of outer margin with marginal plumose setae; appendix interna well developed, arising from distal 1/3 of endopod, slightly longer than width of endopod, just reaching beyond end of endopod, distally with numerous cincinuli.

Second pleopod (Fig. 1m): Appendix masculina rod-shaped, reaching about 0.67 times length of endopod, inner margin and tip bearing numerous stout hamate setae; appendix interna reaching about 0.70 times length of appendix masculina, distally with many cincinuli.

Telson (Fig. 1n): 0.61–0.65 times cl, distinctly longer than sixth abdominal segment, tapering posterior, ending in rounded margin, dorsal surface with 6 pairs of stout movable hamate setae including the pair at poster lateral angles; posterior margin with 4 pairs of intermedial plumose setae, the outer one usually strongest and longest, other pairs almost equal in length. Exopodite of the uropod bears a series of 15–16 stout hamate setae along the diaresis.

Live colouration: Body is of a light orange colour.

Etymology

Hunan province is called “Xiang” for short, because posses the Xiang River, the longest river within this province’s boundary. The new species is named after its distributional area, the south part of Hunan province.

Remarks

Caridina xiangnanensis is most similar to *C. paracornuta* Cai & Yuan, from Guizhou Province (see Cai & Yuan, 1996) in the shape of the rostrum. It can be distinguished from *C. paracornuta* by the narrower endopod of the male first pleopod (3.1 times as long as wide versus 2.5 times), lacking a projection on the proximal region (versus a horned projection present) and a longer appendix interna (slightly longer than proximal width of

endopod versus distinctly shorter than proximal width); the shorter appendix interna of the male second pleopod (reaching about to about 0.5 of appendix masculina length versus about 0.9 times); and the narrower scaphocerite (3.3 times as long as wide versus 3.0 times).

Habitat

The type specimens were collected from a small stream at an elevation of 750–900 m near Lingxiu village, Rucheng County, Hunan Province (ca. 25°33'N, 113°40' E). The stream is about 2–3 m in width and about 0.3–0.6 m in depth, with a rocky substrate. The shrimps lived under stones and in between aquatic grass beds. The temperature was 28°C and pH was 7.0.

Distribution

Presently only known from the type locality.

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