

**TWO NEW SPECIES OF FRESHWATER SHRIMPS
(CRUSTACEA: DECAPODA: ATYIDAE)
FROM YUNNAN, CHINA**

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ABSTRACT. - Two new species of freshwater shrimps, *Caridina shilinica* and *C. curta* from Yunnan Province, southern China, are described. The former is characterised by the long rostrum, long stylocerite and the large egg size. The latter is distinctive because of the short appendix masculina of the male second pleopod.

KEY WORDS. - Taxonomy, new species, Atyidae, *Caridina*, Yunnan, China

INTRODUCTION

Up to date, 24 species of atyid shrimps have been reported from Yunnan Province, Southern China (Kemp, 1923; Yu, 1938; Liang et al., 1984; Liang & Yan, 1985; Liang et al., 1987; Liang, 1989; Liang 1990; Cai, 1996; Cai & Duan, 1998; Cai & Liang, 1999; Cai & Dai, 1999; Liang & Cai, 1999; Cai & Ng, in press). In a recent revision, the authors examined a number of atyid specimens which are kept in Shanghai Fisheries University, Shanghai (SFU). The result shows that two new species of *Caridina*, with consistent differences from all congeners, can be recognised. They are the subjects of the present paper, and are here described and figured. Types are deposited in SFU. The abbreviation cl. is used for carapace length (measured from the postorbital margin to the posterior margin of carapace), bl. for body length (measured from the postorbital margin to the posterior margin of the telson).

TAXONOMY

FAMILY ATYIDAE

GENUS *CARIDINA* H. MILNE EDWARDS, 1837

Caridina shilinica, new species

(Fig. 1)

Materials examined.- Holotype: one male, cl. 6.4mm, bl. 33mm (SFU 83-60-01), Shilin (Stone forest) Tour Resort in Lunan County, Yunnan Province, southern China, coll. X. Liang & S. Yan, 8 May 1983. Paratypes: 5 males, cl. 5.2-6.4mm, 5 females, cl. 6.4-7.6mm (SFU 83-60-02), same data as holotype.

Description. - Rostrum long, reaching beyond end of antennular peduncle, upturned distally. Rostral formula 6-8+5-7/3-6, anterior half of dorsal margin unarmed; stylocerite reaching to or slightly beyond end of basal segment of antennular peduncle. Pterygostomian margin rounded.

Telson terminating in a median projection, with 6 to 7 pairs of dorsal and 1 pair of dorsolateral spinules; distal margin with lateral pair of spine-like setae, subequal to intermediate pairs.

Third maxilliped reaching to middle of third segment of antennular peduncle, ultimate segment as long as

penultimate segment, both shorter than antepenultimate segment.

First pereiopod reaching to 0.7 times length of basal segment of antennular peduncle; carpus 2.2 to 2.5 times as long as high; chela 2.2 to 2.4 times as long as broad, dactylus 1.4 to 1.6 times as long as palm. Second pereiopod reaches to end of second segment; carpus 4.5 to 4.7 times as long as high; chela 2.9 to 3.0 times as long as broad; dactylus 1.4 to 1.5 times as long as palm. Third pereiopod reaches distal end of scaphocerite, with propodus 9.4 to 9.6 times as long as wide, 3.5 to 3.9 times as long as dactylus; dactylus 3.6 to 3.7 times as long as wide, with about 6-7 accessory spines increasing in length and size distally on flexor margin. Fifth pereiopod reaches to middle or end of third segment of antennular peduncle, with propodus 10.3 to 11.2 times as long as wide; dactylus 3.8 to 3.9 times as long as wide, with 27 to 39 denticulate spinules on flexor margin.

Endopod of male first pleopod sub-rectangular, with some short spinules on inner margin and some longer spinules on anterior and distal half of outer margin, with some plumose setae on proximal half of outer margin. Appendix interna reaching slightly beyond distal end of endopod. Appendix masculina of male second pleopod slender, with numerous spinules on proximal half of inner surface, with two rows of spines on distal half of inner and distal surfaces. Appendix interna very short, about 0.2 times as long as appendix masculina.

Uropodal diaeresis with 10 to 12 spinules.

Egg size 0.93-0.99 x 1.20-1.32mm.

Etymology. - The new species is named after the type locality— Shilin Tour Attraction in Lunan County, Yunnan Province, China.

Remarks. - *Caridina shilinica*, new species, is similar to *Caridina dianchiensis* Liang & Yan, 1985, in the form of rostrum and male first pleopod, but differs from the latter by the long stylocerite which reaches to the end of the basal segment of the antennular peduncle or slightly beyond it (vs. not reaching); the more slender carpus of the first pereiopod (2.2 to 2.5 times as long as high in *C. shilinica* vs. 1.6 to 2.0 times in *C. dianchiensis*); the short and stout carpus of the second pereiopod (4.5 to 4.7 times as long as high in *C. shilinica* vs. 5.0 to 5.3 times in *C. dianchiensis*), the third pereiopods which do not show sexual dimorphism (vs. sexual dimorphism present in *C. dianchiensis*); and the larger egg size (0.93-0.99 x 1.30-1.32mm vs. 0.66-0.77 x 0.99-1.16mm in *C. dianchiensis*).

Caridina curta, new species

(Fig. 2)

Materials examined. - Holotype: male (SFU 83-63-01), cl.

5.6mm, bl. 21.5mm. Longquan spring in Huanglong (Yellow Dragon) Temple, Jianshui County, Yunnan, coll. X. Liang & S. Yan, 13 May 1983. Paratypes: 5 males, cl. 5.4-5.6mm, 5 females, cl. 5.0-5.6mm (SFU 83-63-02), data same as holotype.

Description. - Rostrum straight, reaching to end of antennular peduncle. Rostral formula 5-8+4-6/4-5. Pterygostomial margin broadly rounded.

Telson terminating in a median projection. Dorsal surface with 5-6 pairs of spinules and distal margin with 4 pairs of subequal compound spine-like setae, lateral pair subequal in length to intermediate pairs.

Stylocerite reaching slightly beyond end of basal segment of antennular peduncle. Third maxilliped reaching slightly beyond end of antennular peduncle; ultimate segment subequal to penultimate segment, both shorter than antepenultimate segment.

First pereiopod reaching to end of basal segment of antennular peduncle; carpus 1.0 to 1.2 times as long as high; chela 1.8 to 2.1 times as long as broad, dactylus as long as palm. Second pereiopod reaching to middle of third segment of antennular peduncle; carpus 3.5 to 3.8 times as long as high; chela 2.3 to 2.4 times as long as broad; dactylus 1.5 to 1.7 times as long as palm. Third pereiopod reaching beyond distal end of scaphocerite, with propodus 8.4 times as long as wide, 3.4 to 3.5 times as long as dactylus; dactylus 3.3 to 3.4 times as long as wide, with about 5 accessory spines increasing in length and size distally on flexor margin. Fifth pereiopod reaching to or slightly beyond end of first segment of antennular peduncle, with propodus 8.7 times as long as wide; dactylus 3.3 to 3.7 times as long as wide, with 30 to 31 spinules on flexor margin.

Endopod of male first pleopod sub-rectangular, inner margin concave, with some short spinules on inner margin and some longer plumose setae on anterior and outer margin. Appendix interna reaching distinctively beyond distal end of endopod. Appendix masculina of male second pleopod stout, short, reaching to 0.7 times length of endopod, with numerous spinules on distal half of inner surface. Appendix interna stout, about 0.4 times as long as length of appendix masculina.

Uropodal diaeresis with 10 to 12 spinules.

Etymology. - The species name adopted a Latin word 'curtus' for 'short', alluding to the short appendix masculina of the male second pleopod.

Remarks. - *Caridina curta*, new species, closely resembles *C. longa* Liang & Yan, 1985, which is found together with the new species, with regards to the form of the rostrum and various pereiopods, but differs by having a proportionately longer appendix interna on the first pleopod (distinctively reaching beyond distal end of endopod in *C. curta* vs. just reaching to end of endopod in *C. longa*); the form of the setae along the

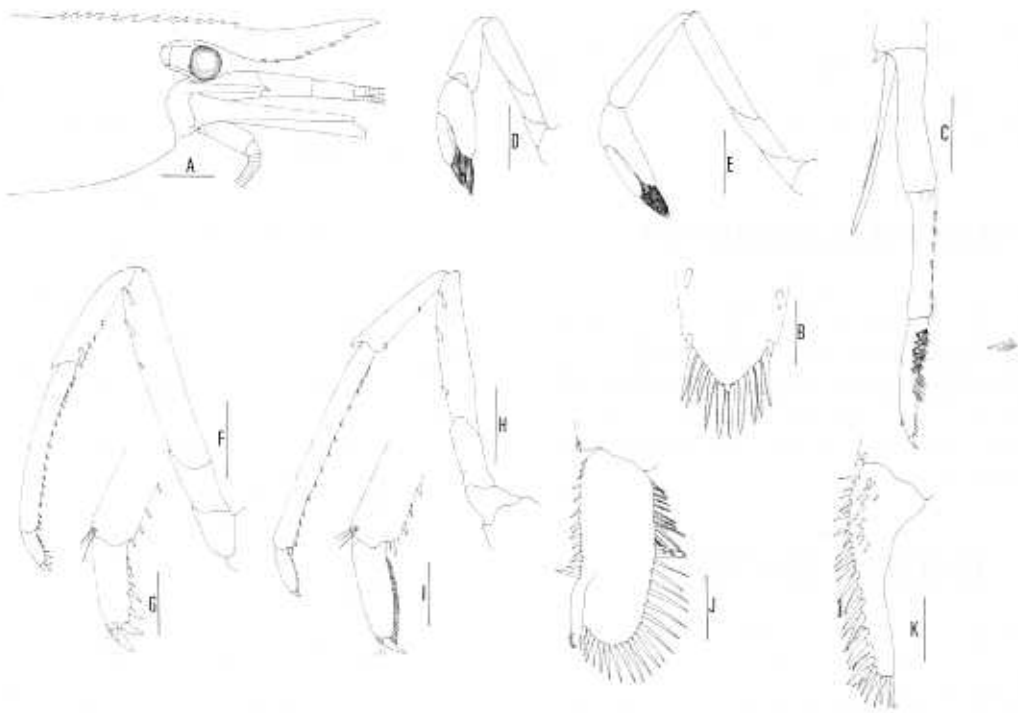


Fig. 1. *Caridina shilunica*, new species. A. anterior portion of cephalothorax and appendages, paratype, cl.5.6 mm. B. distal portion of telson, C. third maxilliped. D. first pereopod, E. second pereopod, F. third pereopod, G. dactylus of third pereopod, H. fifth pereopod, I. dactylus of fifth pereopod, J. endopod of male first pleopod, K. appendix masculina of male second pleopod. Scale: A=1 mm, B, J, K=0.2 mm, C-F, H=1 mm, G, I=0.3 mm.

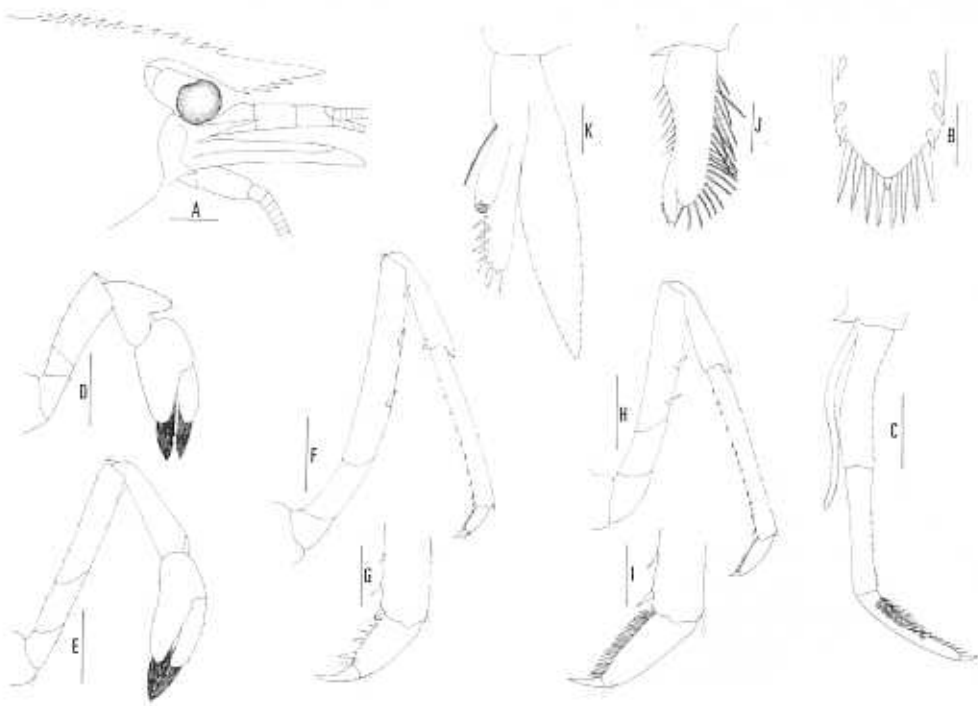


Fig. 2. *Caridina curta*, new species. A. anterior portion of cephalothorax and appendages, paratype, cl.5.2 mm. B. distal portion of telson, C. third maxilliped, D. first pereopod, E. second pereopod, F. third pereopod, G. dactylus of third pereopod, H. fifth pereopod, I. dactylus of fifth pereopod, J. endopod of male first pleopod, K. appendix masculina of male second pleopod. Scale: A=1 mm, B, J, K=0.2 mm, C-F, H=1 mm, G, I=0.3 mm.

distal half of the outer margin of the male first pleopod (plumose vs. simple); and the stouter and shorter appendix masculina of the male second pleopod (reaching to 0.7 times length of endopod in *C. curta* vs. as long as endopod in *C. longa*).

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LITERATURE CITED

Cai, Y., 1996. A revision of the genus *Neocaridina* (Crustacea: Decapoda: Atyidae). *Acta Zootaxon. Sinica*, **21**:129-160; figures,1-16.
Cai, Y. & A. Y. Dai, 1999. Freshwater shrimps (Crustacea: Decapoda: Caridea) from the Xishuangbanna region of Yunnan Province, southern China. *Hydrobiologia*, **400**: 211-241; figs.1-16.
Cai, Y. & S. Duan, 1998. *Caridina lufengensis*, a new species of freshwater shrimps from Yunnan, Southern China. *Raffles Bull. Zool.*, **46**(2): 329-334; figs.1-3.
Cai, Y. & X. Liang, 1999. Descriptions of three new species of freshwater shrimps (Crustacea: Decapoda: Caridea)

from Yunnan, southern China. *Raffles Bull. Zool.*, **47**(1): 73-80; figs.1-4.
Cai, Y. & P. K. L. Ng, in press. A revision of the *Caridina yunnanensis* and its allied species from Yunnan, southern China, with description of one new species. *J. Nat. Hist.*
Kemp, S., 1923. Zoological results of the Percy Sladen Trust Expedition to Yunnan under the leadership of Professor J. W. Gregory. F. R. S. (1922) 40. Decapod Crustacea. *Jour. Asiat. Soc. Bengal.*, **19**(9): 437-441, figs.1-2.
Liang, X., 1989. A new species of *Caridina* from Lugu lake, China (Decapoda: Atyidae). *Acta Zootaxon. Sinica*, **14**(3): 282-284; figures,1-10.
Liang, X., 1990. On *Caridina gregoriana* Kemp and allied species. *Ocean. Linn. Sinica*, **21**(3): 218-224; figures,1-3.
Liang, X. & Y. Cai, 1999. *Sinodina*, a new genus of freshwater shrimps from south-eastern China. *Raffles Bull. Zool.*, **47**(2): 577-590; figs.1-7.
Liang, X. & S. Yan, 1985. Study on *Caridina* (Decapoda, Caridea) from Yunnan, China. *Ocean. Linn. Sinica* **16**(3): 196-206; figs.1-4.
Liang, X., S. Yan & X. Wang, 1984. A new species of *Caridina* (Decapoda: Caridea) from Yunnan, China. *Acta Zootaxon. Sinica* **9**(3): 253-256, figures,1-16.
Liang, X., S. Yan & Z. Wang, 1987. Description of a new species of *Caridina* from Yunnan, China. *Acta Zootaxon. Sinica*, **12**(2): 133-135 ; figs.1-9.
Milne Edwards, H., 1837. *Histoire naturelle des Crustacés, Comprenant l'Anatomie, la Physiologie et la Classification de ces Animaux*. Volume 2. (Paris: Libraire Encyclo. Roret), pp. 1-532.
Yu, S. C., 1938. Study on Chinese *Caridina* with descriptions of five new species. *Bull. Fan Mem. Inst. Biol. Zool. Ser.*, **8**(3): 275-310, figs. 1-16.