

New Records of Alpheid Shrimps (Decapoda: Caridea: Alpheidae) from Korea

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ABSTRACT

Three alpheid shrimps, *Alpheus lobidens* De Haan, 1850, *A. malabaricus* (Fabricius, 1775), and *A. sudara* Banner and Banner, 1966 are reported from southern part of Korea. They represent new records for the Korean marine fauna. Korean Alpheidae consist now of ten species belonging to four genera.

Key words: new records, *Alpheus lobidens*, *Alpheus malabaricus*, *Alpheus sudara*, Alpheidae, Korea

INTRODUCTION

In the major publication on the caridean shrimps of Korea, Kim (1977) and Kim and Kim (1997) reported 58 species belonging to nine families. Of these, the family Alpheidae contained six species in three genera: *Alpheus* (four species), *Betaeus* (one species), and *Synalpheus* (one species). Recently, Kim (1998) described *Chelomalpheus koreanus*, the junior synonym of *Stenalpheops anacanthus* Miya, 1997. This peculiar alpheid was found in burrows of *Upogebia major* in the Korean Yellow Sea.

The material used in this study was collected intertidally in Seonchang, Gadeok Island and from the raft culture bed of the oyster *Crassostrea gigas* in Sangju, Namhae. Carapace length (CL) was

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measured from the tip of the rostrum to the postero-median border of the carapace. Specimens were deposited in Silla University, Busan.

DESCRIPTION

Infraorder Caridea Dana, 1852 생이하목

Family Alpheidae Rafinesque, 1815 딱총새우과

Genus *Alpheus* Fabricius, 1798 딱총새우속

***Alpheus lobidens* De Haan, 1850** 갯가딱총새우, 신칭 (Fig. 1)

Alpheus lobidens De Haan, 1850, p. 179; Ortmann, 1890, p. 474, pl. 36, fig. 13; Chace, 1988, p. 34; Hayashi, 1998, p. 394, figs. 356e, k, 358e, 359e, k.

Alpheus lobidens lobidens A. H. Banner and D. M. Banner, 1974, fig. 31; D. M. Banner and A. H. Banner, 1982, p. 252, fig. 78.

Alpheus crassimanus Heller, 1865, p. 107, pl. 10, fig. 2; De Man, 1902, p. 880, pl. 27, fig. 62, 62a; A. H. Banner and D. M. Banner, 1966, p. 138, fig. 52; Tiwari, 1963, p. 307, fig. 25.

Crangon crassimanus A. H. Banner, 1953, p. 134, fig. 49.

Material examined. 1 ♂, CL 1.15 mm, Gadeok Is. (Seonchang), sand-mudflat, 30 July 1996, coll. H. J. Yang.

Description. (*edwardsii* group) Rostrum (Fig. 1A) acute, triangular, not reaching middle of first article of antennular peduncle. Orbital hoods (Fig. 1A) rounded, unarmed, moderately swollen; orbitorostral grooves shallow. Second article of antennular peduncle (Fig. 1A) about twice as long; stylocerite sharply pointed, reaching distal margin of first article of antennular peduncle. Scaphocerite (Fig. 1A, B) with lateral margin slightly concave; lateral spine strong, overreaching end of antennular peduncle.

Third maxilliped (Fig. 1C) with apex narrow; ultimate article about 1.7 times as long as penultimate article.

Major chela (Fig. 1E) 2.3 times as long as broad; dactylus about 0.7 times as long as palm, with large, robust plunger; palm (Fig. 1D) about 1.3 times as long as high; proximal shoulder rounded, not overhanging dorsal saddle; distal shoulder rounded; medial palmar depression (Fig. 1D) triangular; inferior notch well defined; inferior shoulder blunt; lateral palmar depression (Fig. 1E) quadrangular, extending to *linea impressa*; merus (Fig. 1E) with strong distal tooth on medial margin.

Minor chela sexually dimorphic, balaeniceps only in males (Fig. 1F, G); palm about 2.8 times as long as broad; dactylus subequal to palm; palm (Fig. 1F) about 1.6 times as long as high; superior saddle well defined; proximal shoulder blunt; distal shoulder rounded.

Third pereopod (Fig. 1H) with movable spine on ischium; merus 4.1 times as long as broad; carpus about 0.6 times as long as merus; propodus about 0.7 times as long as carpus, with about 7 spines on inferior margin; dactylus simple, pointed, about 0.3 times as long as propodus.

Color. Dark-olive green and transversely banded on each abdominal somites.

Remarks. *Alpheus lobidens* is a species complex, which is currently under taxonomic revision.

Distribution. This species complex is known from the entire Indo-Pacific from the Red Sea to

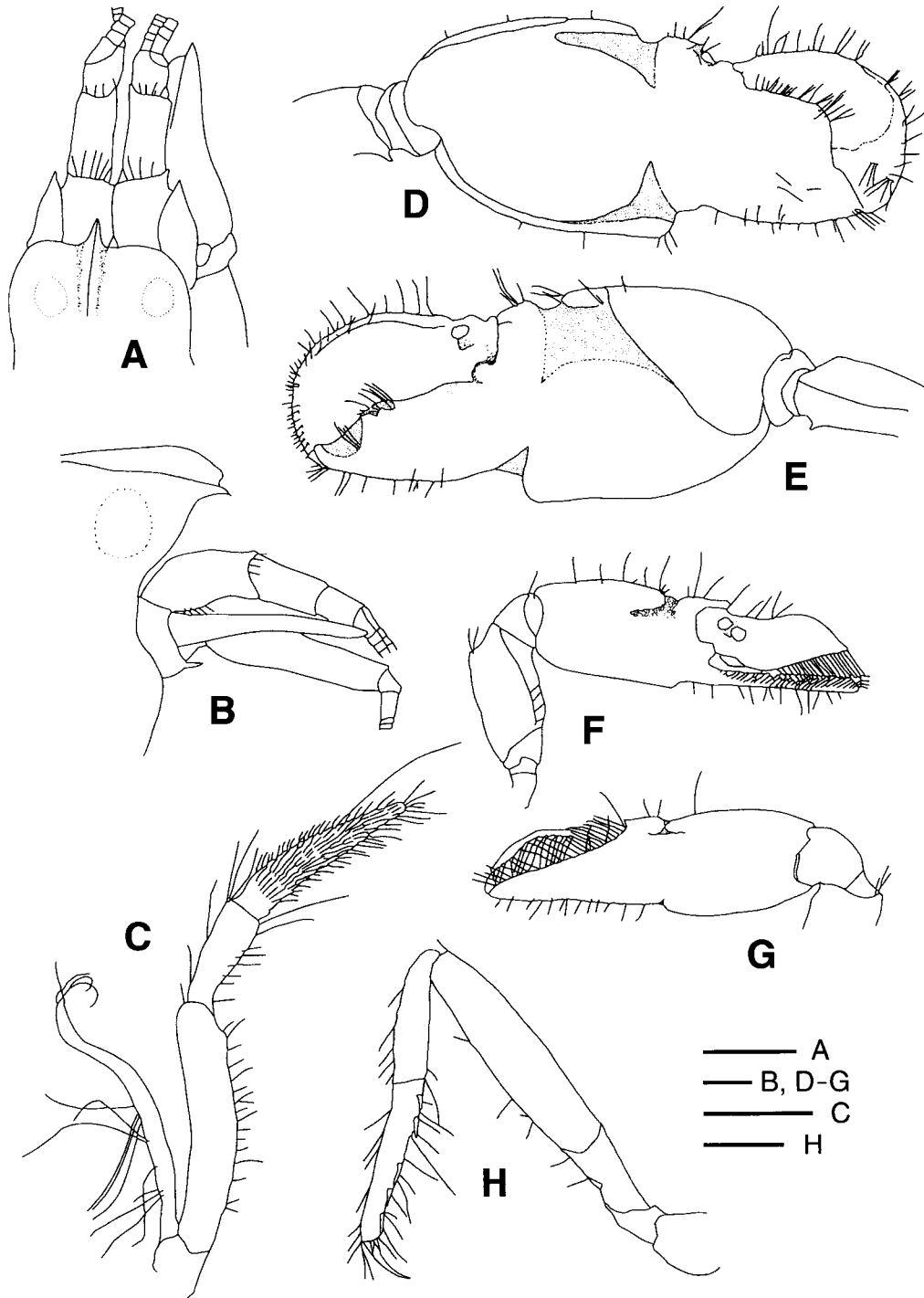


Fig. 1. *Alpheus lobidens* De Haan, 1850, male. A, dorsal view; B, lateral view; C, third maxilliped; D, major chela, medial face; E, major chela, lateral face; F, minor chela, lateral face; G, minor chela, medial face; H, third pereopod. Scales are 1 mm.

Hawaii, as well as from the eastern and southern-central Mediterranean Sea (lessepsian migrant). Reported for the first time from Korean waters.

***Alpheus malabaricus* (Fabricius, 1775) 긴손가락딱총새우, 신칭 (Fig. 2)**

Astacus Malabaricus Fabricius, 1775, p. 415.

Alpheus macrodactylus Ortmann, 1890, p. 473, pl. 36, fig. 10, 10e.

Alpheus dolichodactylus Ortmann, 1890, p. 473, pl. 36, fig. 11; Hayashi, 1998, p. 390, figs. 356a, g, 358d, 359a, g, m.

Alpheus malabaricus mackayi A. H. Banner, 1959, p. 149, fig. 12.

Alpheus malabaricus malabaricus A. H. Banner and D. M. Banner, 1966, p. 145, fig. 55.

Alpheus malabaricus songkla A. H. Banner and D. M. Banner, 1966, p. 147, fig. 56.

Alpheus malabaricus trefzae D. M. Banner and A. H. Banner, 1982, p. 207, fig. 64.

Alpheus malabaricus Chace, 1988, p. 39, fig. 9.

Alpheus mazatlanticus Wicksten, 1983, p. 46, figs. 7, 8.

Material examined. 1 ♀, CL 8.0 mm, Gadeok Is. (Seonchang), mudflat, 30 July 1996, coll. H. J. Yang.

Description. (*edwardsii* group) Rostrum (Fig. 2A) acute, triangular, not reaching end of first article of antennular peduncle. Orbital hoods (Fig. 2A) slightly inflated, unarmed. Second article of antennular peduncle (Fig. 2A) 2.3 times as long as broad; stylocerite sharply pointed, reaching distal margin of first article of antennular peduncle. Scaphocerite (Fig. 2A, B) with lateral margin straight; lateral spine strong, overreaching endopod of antennular peduncle.

Third maxilliped (Fig. 2C) with apex narrow; ultimate article 2.1 times as long as penultimate article.

Major chela (Fig. 2D) compressed, about 2.8 times as long as broad; dactylus 0.6 times as long as palm, with moderately developed plunger; palm (Fig. 2D) about 1.7 times as long as high; proximal shoulder obtusely rounded, slightly overhanging; distal shoulder rounded; medial palmar depression (Fig. 2D) triangular, narrow; lateral palmar depression (Fig. 2E) triangular; merus (Fig. 2E) with 2 spines and fine setae on infero-medial margin, and strong distal tooth.

Minor chela not balaeniceps neither in female (Fig. 2G) nor in male; female chela 5.5 times as long as broad; dactylus 2.6 times as long as palm; palm (Fig. 2F, G) about 1.5 times as long as high; superior saddle well defined; proximal shoulder blunt; distal shoulder gradually rounded.

Third pereopod (Fig. 2H) with movable spine on ischium; merus 5.2 times as long as broad; carpus about 0.5 times as long as merus; propodus 0.7 times as long as carpus, with 4 spines on inferior margin and spine distally; dactylus subspatulate, about 0.4 times as long as propodus.

Remarks. Within *Alpheus malabaricus* complex, seven species or subspecies, namely *A. macrodactylus* Ortmann, 1890, *A. mazatlanticus* Wicksten, 1983, *A. malabaricus malabaricus* Fabricius, 1775, *A. m. dolichognatha* Ortmann, 1890, *A. m. leptopus* De Man, 1902, *A. m. trefzae* Banner and Banner, 1982, and *A. m. songkla* Banner and Banner, 1966, were separated one from another by the combination of several features, including the size of the rostrum, the presence or absence of the tooth on the merus of the major chela, the proportions between the fingers and the palm in the major and minor chela, and the shape of the finger of the minor chela. Other features which could be used to separate more clearly all these forms, most of which would

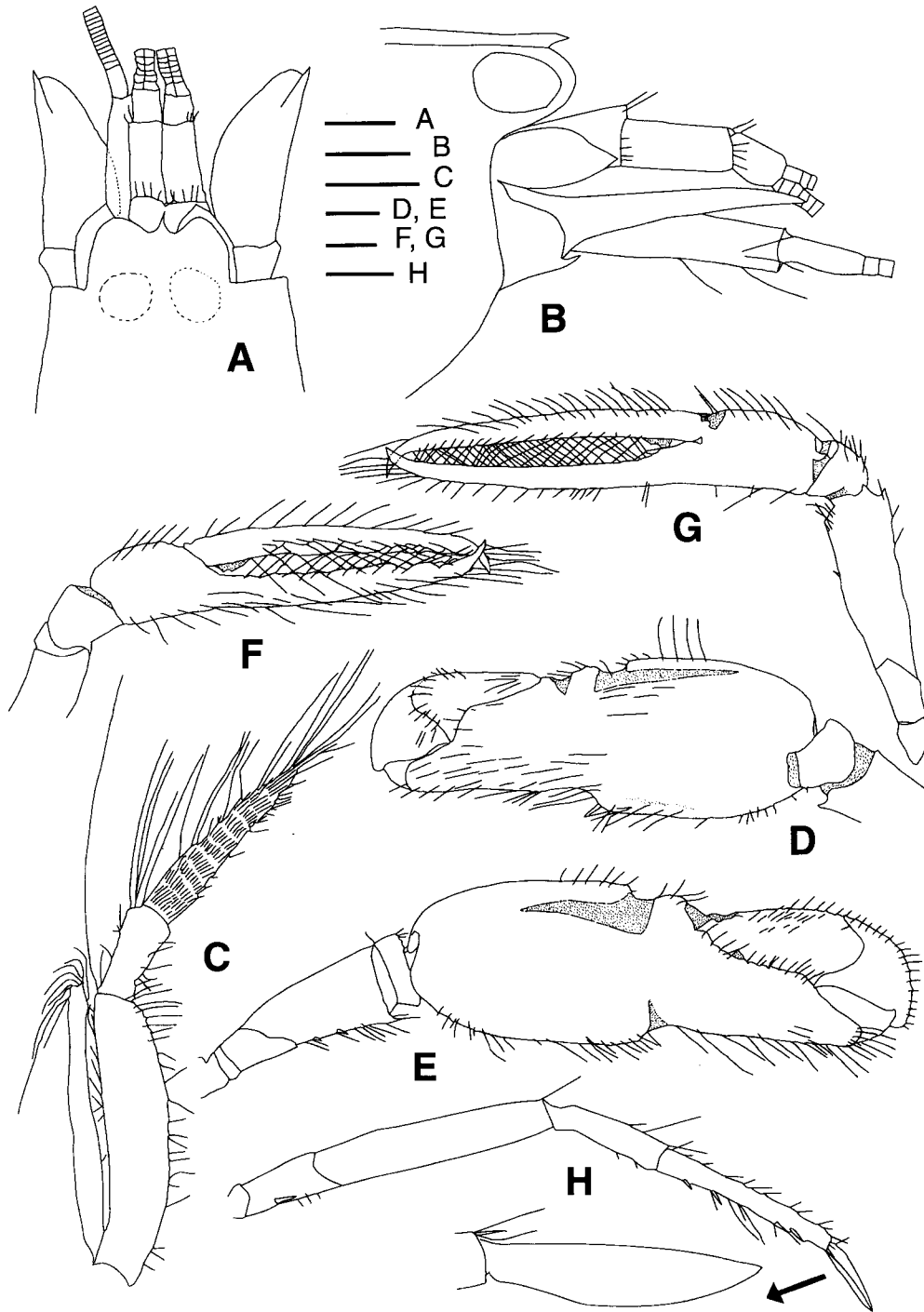


Fig. 2. *Alpheus malabaricus* (Fabricius, 1775), female. A, dorsal view; B, lateral view; C, third maxilliped; D major chela, medial face; E, major chela, lateral face; F, minor chela, medial face; G, minor chela, lateral face H, third pereopod. Scales are 1 mm.

probably deserve a specific status, including color pattern and ecology. Therefore, the whole *A. malabaricus* complex needs a careful taxonomic revision.

Distribution. East Africa to Mexico, Indian Ocean, Central and Eastern Pacific, Australia, Indonesia, Philippine, Japan, and herewith reported from Korea.

***Alpheus sudara* Banner and Banner, 1966** 날씬이딱총새우 신칭 (**Fig. 3**)

Alpheus sudara, A. H. Banner and D. M. Banner, 1966, p. 153, fig. 59; D. M. Banner and A. H. Banner, 1982, p. 243, fig. 76.

Material examined. 1 ♀, CL 12.5 mm, 1 ♂, CL 6.8 mm, Namhae (Sangju), *Crassostrea gigas* raft culture bed, 8 April 1997, coll. H. J. Yang.

Description. (*edwardsii* group) Rostrum (Fig. 3A) acute, triangular, not reaching end of first article of antennular peduncle. Orbital hoods (Fig. 3A) inflated, unarmed; orbitorostral grooves shallow. Second article of antennular peduncle (Fig. 3A) 2.1 times as long as broad; stylocerite sharply pointed, not reaching distal margin of first article of antennular peduncle. Scaphocerite (Fig. 3A, B) with lateral margin markedly concave; lateral spine strong, reaching well beyond endopod of antennular peduncle.

Third maxilliped (Fig. 3C) with apex narrow; ultimate article 2 times as long as penultimate article.

Major chela (Fig. 3D) compressed, 2.2 times as long as broad; dactylus about 0.7 times as long as palm, with moderately developed plunger; proximal shoulder not overhanging; distal shoulder low, rounded; lateral palmar depression quadrangular, well marked, extending to *linea impressa*; medial palmar depression (Fig. 3E) narrow, triangular; merus without distal tooth on median margin.

Minor chela of male (Fig. 3F, G) balaeniceps, 3.0 times as long as broad; dactylus about 0.6 times as long as palm, proximally not expanded; palm without trace of superior saddle; inferior shoulder and notch well marked.

Third pereopod (Fig. 3H) with ischium lacking spine; merus 3.5 times as long as broad; carpus 0.6 times as long as merus; propodus about 0.7 times as long as carpus, with 8 spines on inferior margin and 1 pair of distal spines; dactylus simple, about 0.3 times as long as propodus.

Remarks. This species resembles *A. lobidens* by having lateral palmar depression of the major chela quadrangular and medial palmar depression of the major chela triangular. It differs from *A. lobidens* by the shape of the minor chela, the scaphocerite with lateral margin markedly concave, and the ischium of the third pereopod unarmed.

Distribution. Thailand, Vietnam, and herewith reported from Korea.

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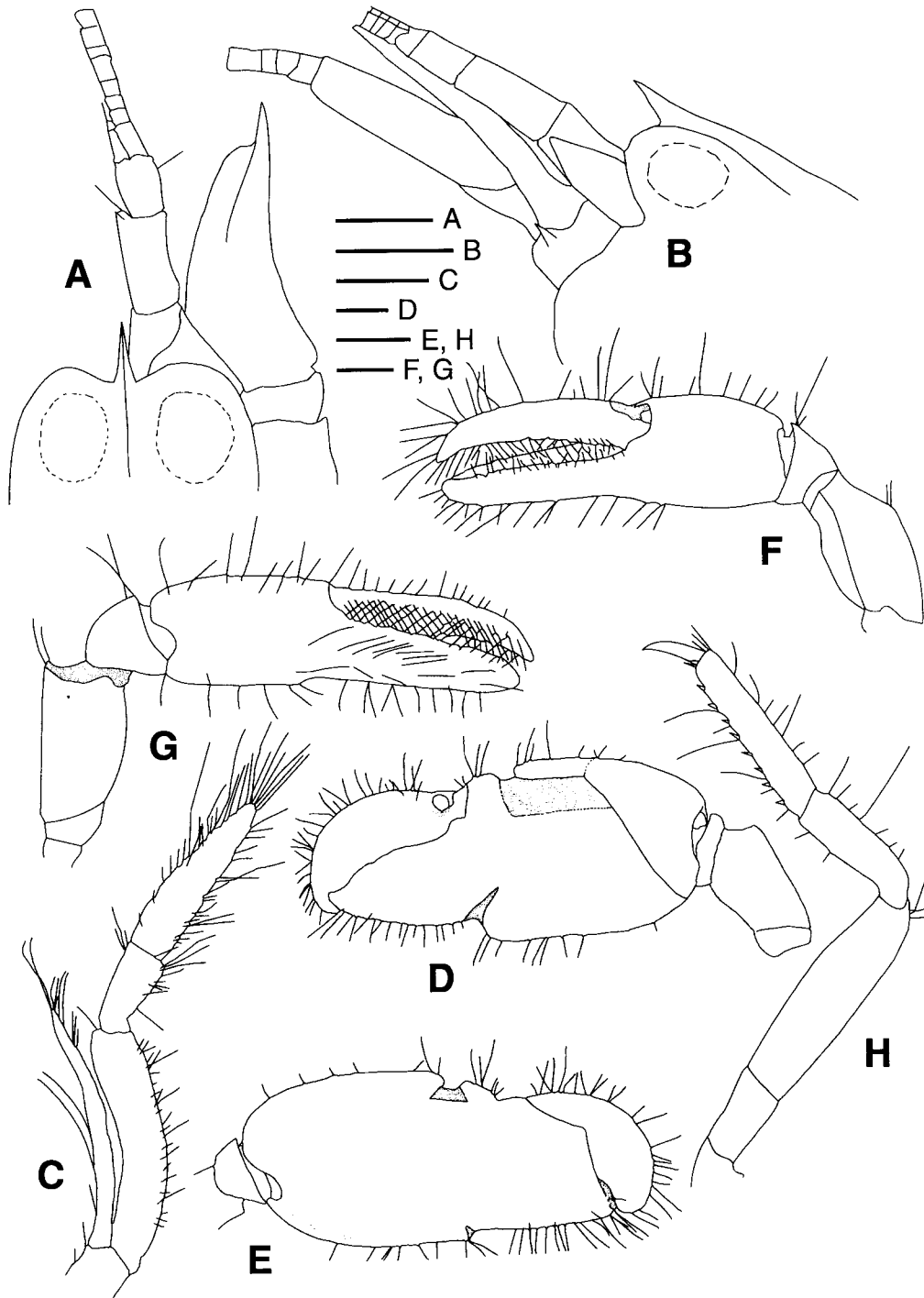


Fig. 3. *Alpheus sudara* Banner and Banner, 1966. A, dorsal view, female; B, lateral view, male; C, third maxilliped, female; D, major chela, male, lateral face; E, major chela, male, medial face; F, minor chela, male, lateral face; G, minor chela, male, medial face; H, third pereiopod, female. Scales are 1 mm.

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한국 미기록 딱총새우과 (십각목: 생이하목) 3종

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요 약

한국 남부지역에서 채집된 딱총새우류 3종, 갯가딱총새우 (*A. lobidens*), 긴손가락딱총새우 (*A. malabaricus*), 날씬이딱총새우 (*A. sudara*)가 한국 미기록종으로 판명되어 재기재하고 보고한다. 지금까지 기록된 한국산 딱총새우과는 모두 4속 10종이 된다.