



Five Shrimp Species of the Genus *Solenocera* (Crustacea: Decapoda: Solenoceridae) in Korea

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We describe and illustrate five species of shrimp of the genus *Solenocera*, collected from the Korean exclusive economic zone (EEZ) between 2001 and 2003 and a commercial seafood market in Busan, South Korea, in 2005. Four of these species, *S. alticarinata* Kubo 1949, *S. comata* Stebbing 1915, *S. koelbeli* De Man 1911, and *S. pectinulata* Kubo 1949, are new records for the Koreas. The fifth, *S. melanthero* De Man 1907, is a ubiquitous and commercially important species in the region. This report extends the known range of *S. pectinulata* to Jeju Island in the East China Sea. A key to these species is presented.

Key words:

Introduction

The genus *Solenocera* belongs to the suborder Dendrobranchiata, which is characterized by peculiar antennular flagella that are lamellate, broad, and trough-shaped (Pérez Farfante & Kensley, 1997). *Solenocera* spp. typically inhabit the continental shelf and slope, from about 15 m to several hundred meters in depth. They often burrow into the bottom mud, leaving only the antennular flagella exposed, and they have the distinctive ability to bend the cephalothorax to an almost 90° angle to the abdomen (Hayashi, 1992; Dall, 1999).

The genus includes 37 known species (Pérez Farfante & Kensley, 1997; Dall, 1999), but only one, *S. melanthero* De Man 1907, has been reported from Korean waters (Kim & Kim, 1997).

The National Fisheries Research and Development Institute (NFRDI) conducted a number of sampling expeditions in the Korean EEZ between 2001 and 2003 to evaluate the region's fisheries resources. Four species of *Solenocera*, *S. melanthero* De Man 1907, *S. comata* Stebbing 1915, *S. koelbeli* De Man 1911, and *S. pectinulata* Kubo 1949, were collected near Jeju Island in the East China Sea. An additional species, *S. alticarinata* Kubo 1949, was found in the Busan Cooperative Fish Market, Busan, South Korea; it was caught by a commercial fishing vessel, from the waters around Jeju Island. Table 1 shows the sam-

pling data for the *Solenocera* species described here. This report provides the first record of these species, except for *S. melanthero*, in Korean waters, and extends the known range of *S. pectinulata* to the East China Sea. All five species are described and illustrated, and an identification key is provided.

The specimens described were deposited in the Laboratory of Invertebrate Zoology, Department of Marine Biology, Pukyong National University (PUIZ). Specimen sizes are based on postorbital carapace length (CL), and the terminology of the descriptions mainly follows that of Pérez Farfante and Kensley (1997).

Systematic Accounts

Solenocera alticarinata Kubo 1949
(New Korean name: *Maru-daerong-suyeom-saewoo*)
(Figs. 1A, 3A, 4A)

Solenocera alticarinata Kubo 1949: 227, Figs. 8W, 45E, 72P, V, 80F, 93, 94A-C, 100; Lee and Yu 1977: 43, Figs. 25, 26; Crosnier 1978: 150, Figs. 53D-E, 56H-I; 1989: 54; Hayashi 1986: 46, Fig. 7, 234; 1992: 191, Fig. 105; Liu and Zhong 1988: 90, Figs. 37-2, 39, pl. 6 (Fig. 2); Chan 1998: 885, unnumbered Fig.

Solenocera choprai – Grey et al. 1983: pl. 4 (plate only); Yu and Chan 1986: 63, unnumbered Fig.; Miyake 1991: 6, pl. 2 (Fig. 4); (not Nataraj 1945).

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Table 1. List of sampling data of *Solenocera* species treated herewith

Station	Position	Depth (m)	Date	Ship
2001 II -Tr-5	33°14.8'N 127°17.8'E	135	Nov. 21, 2001	RV <i>Tamgu 8</i>
2002 I-Tr-9	33°00.2'N 125°01.9'E	83	Mar. 14, 2002	RV <i>Tamgu 1</i>
2002 I-Tr-10	32°21.3'N 126°05.4'E	97	Mar. 15, 2002	RV <i>Tamgu 1</i>
2002 I-Tr-11	32°40.9'N 125°25.2'E	81	Mar. 16, 2002	RV <i>Tamgu 1</i>
2002 I-Tr-12	33°00.2'N 126°22.2'E	108	Mar. 18, 2002	RV <i>Tamgu 1</i>
2002 I-Tr-15	33°48.5'N 126°50.6'E	97	Mar. 20, 2002	RV <i>Tamgu 1</i>
2002 II-Tr-7	34°26.2'N 128°30.0'E	70	Oct. 23, 2002	RV <i>Tamgu 1</i>
2002 II-Tr-8	33°50.9'N 127°30.5'E	87	Oct. 24, 2002	RV <i>Tamgu 9</i>
2002 II-Tr-10	33°43.6'N 126°29.8'E	117	Oct. 28, 2002	RV <i>Tamgu 1</i>
2002 II-Tr-11	33°04.3'N 125°30.3'E	95	Oct. 29, 2002	RV <i>Tamgu 1</i>
2002 II-Tr-13	32°31.1'N 126°25.1'E	107	Oct. 28, 2002	RV <i>Tamgu 1</i>
2003 I-Tr-6	33°00.3'N 124°36.4'E	72	Mar. 26, 2003	RV <i>Tamgu 1</i>
2003 I-Tr-7	33°01.4'N 125°11.5'E	87	Mar. 26, 2003	RV <i>Tamgu 1</i>
2003 I-Tr-8	32°17.3'N 126°17.5'E	101	Mar. 27, 2003	RV <i>Tamgu 1</i>
2003 I-Tr-10	33°00.5'N 125°33.5'E	92	Mar. 29, 2003	RV <i>Tamgu 1</i>
2003 I-Tr-12	33°41.5'N 126°31.7'E	123	Apr. 3, 2003	RV <i>Tamgu 1</i>
2003 I-Tr-14	34°03.8'N 128°11.1'E	94	Apr. 5, 2003	RV <i>Tamgu 1</i>

Not *Solenocera alticarinata* – Hall 1961: 79; 1962: 12, Fig. 75C; Starobogatov 1972: Fig. 5A-C; Motoh and Buri 1984: 14, Figs. 8, 9; (= *S. choprai* Nataraj 1945).

Material examined

West of Jeju Island, 33°25.5'N 125°35.5'E, 95 m, otter trawl, 1 February 2005, one female (CL 39.6 mm), PUIZ 177.

Description

Integument glabrous, except for den-sely setose area of rostrum base and anterior dorsal part of carapace. Rostrum broken distally and falls short of distal margin of first segment of antennular peduncle; ventral margin convex; dorsal margin with seven teeth including epigastric spine, four posterior teeth on carapace. Postrostral carina high, lamellated, extending to posterior margin of carapace, although interrupted by cervical groove; highest at posterior 1/4 of carapace. Orbital, postorbital, antennal, and hepatic spines present; pterygostomian angle rounded. Cervical and branchiocardiac grooves distinct. Hepatic groove curved downward anteriorly; anterior end arched with deep pterygostomian depression (Fig. 1A). Abdomen with small median tubercle on second somite; mid-dorsal carina present, extending from posterior half of third somite to distal margin of sixth somite, ending in an acute tooth. Antennular flagella missing. First pereopod with spines on basis and ischium; second pereopod with spine on basis only. In female, seventh thoracic sternum with median ridge; eighth sternum (thelycum) largely excavated, surrounded by anterior and lateral ridges; median ridge distinct, two pairs of circular processes just anterior

to anterior ridge (Fig. 3A).

Coloration

Body light reddish-brown; rostrum, postrostral carina, and dorsal carina of abdomen orange to red; tail fan yellow with yellow tips (Fig. 4A).

Distribution

Rare in Korean waters, only west of Jeju Island at a depth of 95 m. West Pacific from Korea, Japan, Taiwan, East China Sea, South China Sea, Hong Kong, and the Philippines, 50-180 m deep (Chan, 1998).

Remarks

Solenocera alticarinata closely resembles *S. choprai* Nataraj 1945 in having similar genitalia and a remarkably elevated postrostral carina on the carapace. This species was previously considered a junior synonym of *S. choprai* (Grey et al., 1983; Yu & Chan, 1986; Miyake, 1991) and is often confused with *S. choprai* (Hall, 1961, 1962; Starobogatov, 1972; Motoh & Buri, 1984). However, it is distinguished from *S. choprai* by its variably elevated postrostral carina, which peaks in the posterior 1/4 of the carapace; the postrostral carina of *S. choprai* gradually decreases in height posteriorly (Crosnier, 1978). Also, *S. choprai* is restricted to the Indian Ocean and the seas around the Philippines and northern Australia (Crosnier, 1978).

Solenocera comata Stebbing 1915

(New Korean name: *Kkoma-daerong-suyeom-saewoo*)

(Figs. 1B, 2A, 3B, 4B)

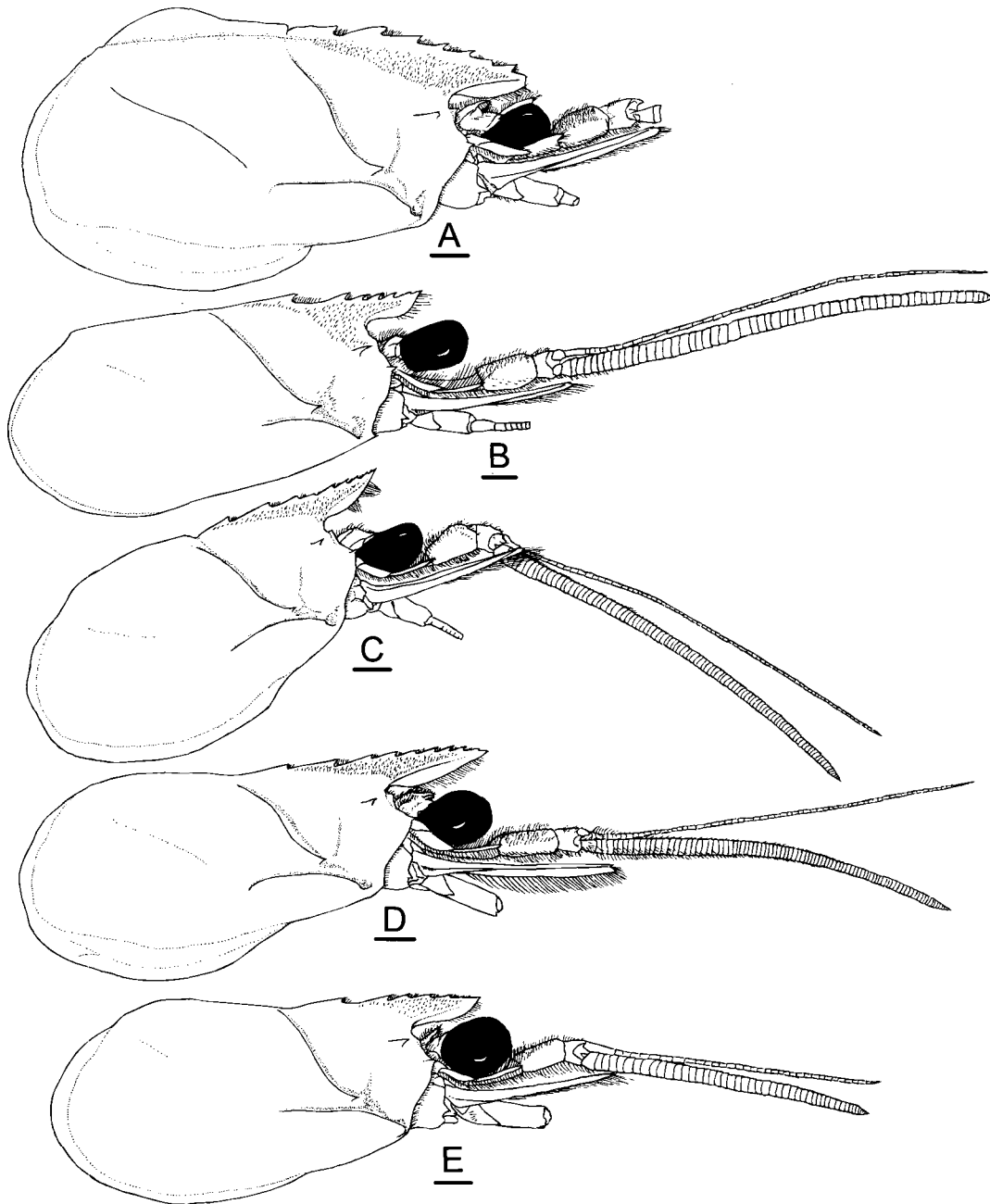


Fig. 1. Carapace and cephalic appendages (lateral view). A, *Solenocera alticarinata* Kubo, 1949 (female, CL 39.6 mm); B, *S. comata* Stebbing, 1915 (female, CL 16.9 mm); C, *S. koelbeli* De Man, 1911 (female, CL 27.5 mm); D, *S. melantho* De Man, 1907 (male, CL 28.5 mm); E, *S. pectinulata* Kubo, 1949 (male, CL 14.3 mm). Scale 2 mm.

Restricted synonymy

Solenocera comatum Stebbing 1915: 67, pls. 13, 14.

Solenocera brevipes Kubo 1949: 246, Figs. 1S, 8X, 20N, 27F-H, 45D, 66I-J, 72Q, W, 80A, 98H-J, 99, 100; Yu and Chan 1986: 67, unnumbered Fig.

Solenocera comata – Crosnier 1978: 138, Figs. 48B,

49B, 50D-F, 51B-C, 52B, 55B, 58B, 59E; Hayashi 1986: 46, Fig. 7, 234; 1992: 192, Figs. 106A, 107A, 108A; Liu and Zhong 1988: 92, Figs. 37-7, 40; Dall 1999: 577, Fig. 16 (see full synonymy).

Trachypenaeopsis richtersii – Cha et al. 2001: 34

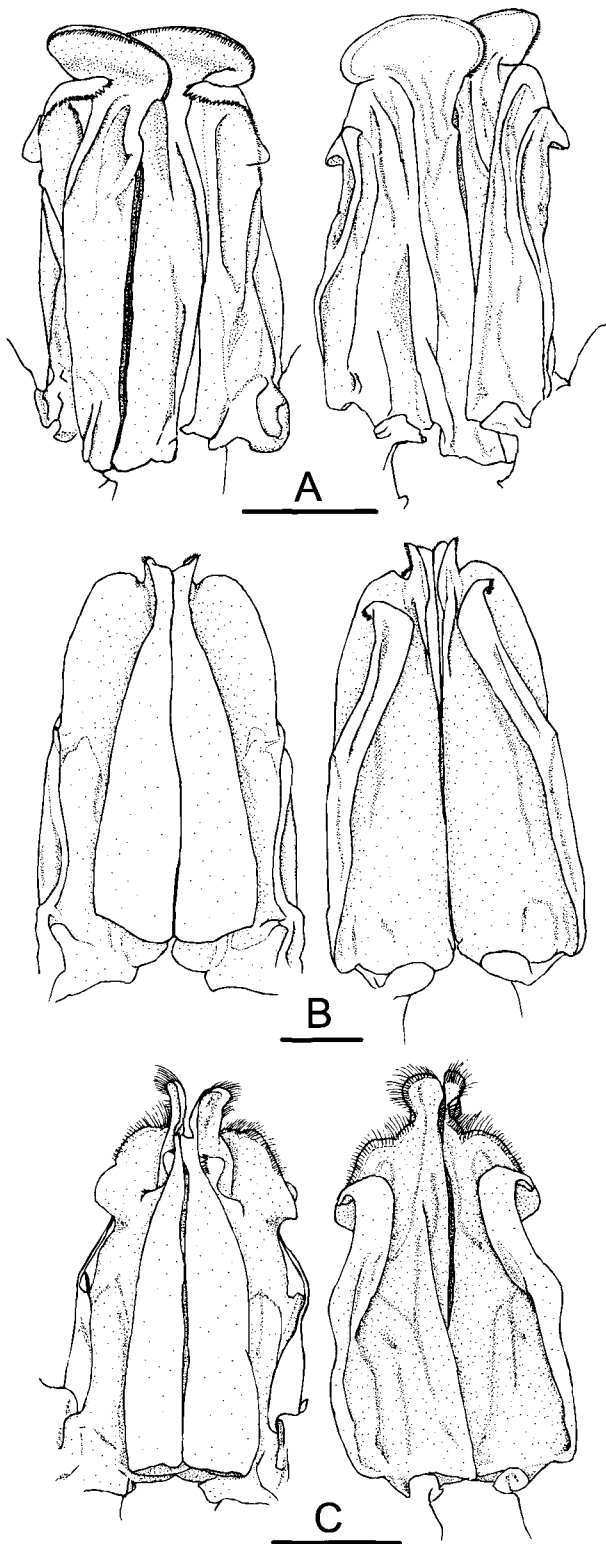


Fig. 2. Petasama (left, dorsal; right, ventral). A, *Solenocera comata* Stebbing, 1915 (CL 12.9 mm); B, *S. melantho* De Man, 1907 (CL 10.8 mm); C, *S. pectinulata* Kubo, 1949 (CL 110.9 mm). Scale 2 mm.

(color photo only); (not Miers 1884).

Material examined

EEZ 2001 II-Tr-5, five males (CL 11.8-12.9 mm), four females (CL 12.7-17.0 mm), PUIZ 178; EEZ 2002 I-Tr-15, one female (CL 10.6 mm), PUIZ 179. Other material. Ochong Island, western coast of Korea, December 1997, one female (CL 14.6 mm), referred to as *Trachypenaeopsis richitersii* by Cha et al. (2001), PUIZ 180.

Description

Carapace setose anterodorsally, from base of rostrum and postorbital area ventrally to postorbital spine. Rostrum small and short, extending to about the midpoint of first segment of antennular peduncle; ventral margin strongly convex with tip curved downward; dorsal margin with five teeth closely arranged and evenly spaced, two posterior teeth on carapace; epigastric spine widely separated from posterior-most rostral tooth. Postrostral carina extends to dorsal extremity of cervical groove. Orbital angle blunt; postorbital, antennal, and hepatic spines large; pterygostomial spine small. Cervical groove distinct, extending to dorsal margin; branchiocardiac groove vestigial. Anterior end of hepatic groove with shallow, sparsely setose, pterygostomial depression (Fig. 1B). Abdomen with mid-dorsal carina from posterior half of third somite to posterior margin of sixth somite, ending in a small tooth. Antennular flagella moderately long, 1.32-1.65 times as long as carapace (Fig. 1B). First pereopod with spines on basis and ischium; second pereopod with spines on basis only. Ventro-medial lobule of petasma much longer than dorsomedial lobule, oval distally with marginal denticles; dorsomedial lobule with similar denticles; dorsolateral lobule curved outward, without denticles (Fig. 2A). In females, median tongue-like process on sixth thoracic sternum; eighth sternum with median transverse ridge and Y-shaped groove posterior to median ridge (Fig. 3B).

Coloration

Body light brown; antennular flagella pink-red except for white distal part; pereopods with pink bands (Fig. 4B).

Distribution

Rare in Korean waters, east of Jeju Island and Ochong Island, western coast of Korea, 97-135 m deep. Indo-West Pacific from Korea, Japan, Taiwan, the Philippines, Indonesia, Timor Sea, and western Indian Ocean, 55-460 m deep (Yu and Chan, 1986;

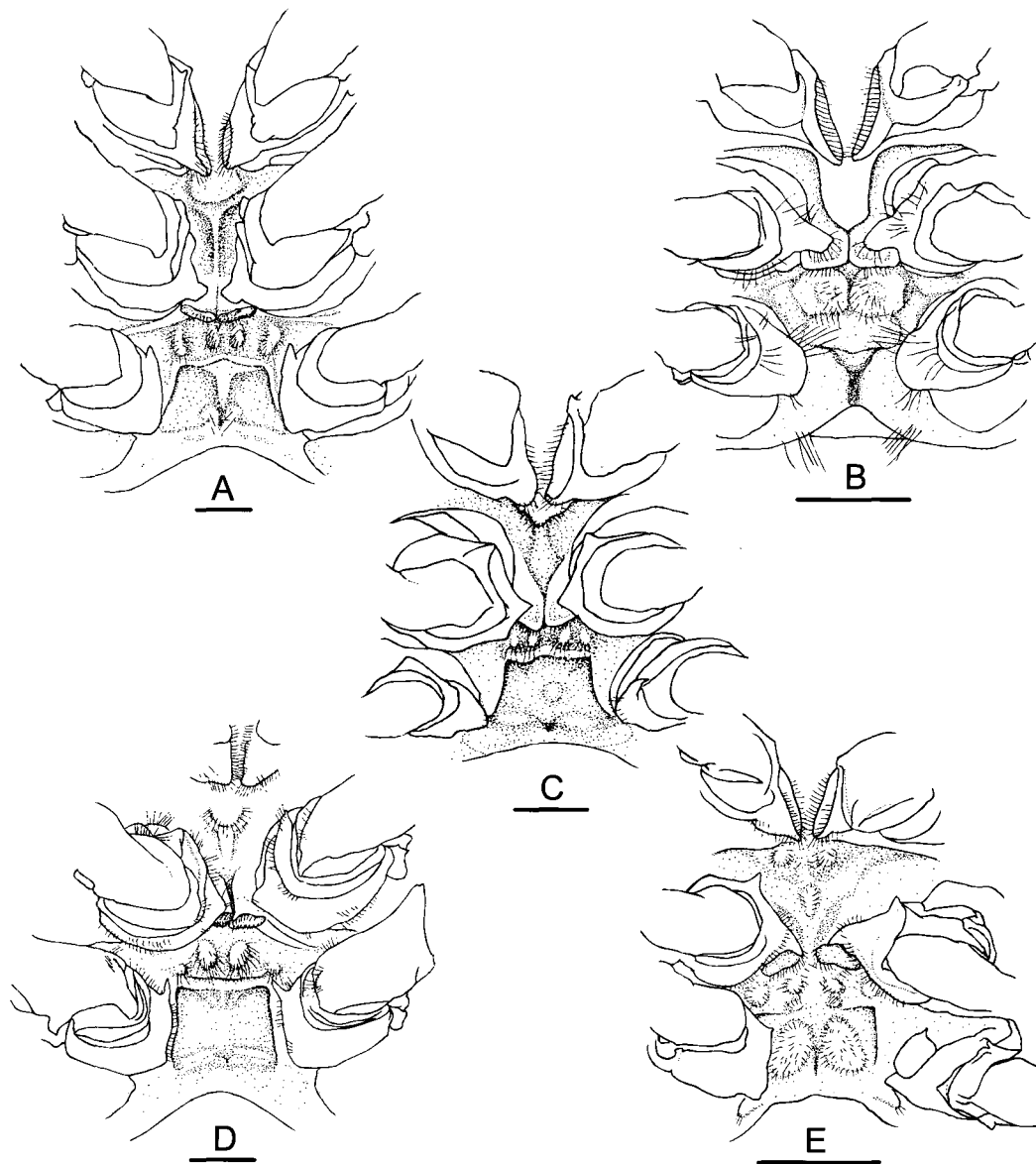


Fig. 3. Thelycum. A, *Solenocera alticarinata* Kubo, 1949 (CL 39.6 mm); B, *S. comata* Stebbing, 1915 (CL 17.0 mm); C, *S. koelbeli* De Man, 1911 (CL 27.5 mm); D, *S. melantho* De Man, 1907 (CL 32.3 mm); E, *S. pectinulata* Kubo, 1949 (CL 17.4 mm). Scale 2 mm.

Dall, 1999).

Remarks

Solenocera comata is easily distinguished from the other Korean *Solenocera* species by its pterygostomial spine on the carapace and large ventromedian lobule of the petasma in males and the median process on the sixth thoracic sternum in females. The setose area near the base of the rostrum is comparatively wider than those of other species, although setae are comparatively sparse. *Trachypenaeopsis*

richitersi from Ochong Island, western coast of Korea (Cha et al., 2001), is *S. comata*.

Solenocera koelbeli De Man 1911

(New Korean name: *Gin-daerong-suyeom-saewoo*)
(Figs. 1C, 3C, 4C)

Restricted synonymy

Solenocera koelbeli De Man 1911: 48; Crosnier 1978: 144, Figs. 53F, 54C, 56F-G; 1989: 55, Figs. 3D, 5A-E (see full synonymy); Yu and Chan 1986: 69, three unnumbered Figs.; Hayashi 1986:

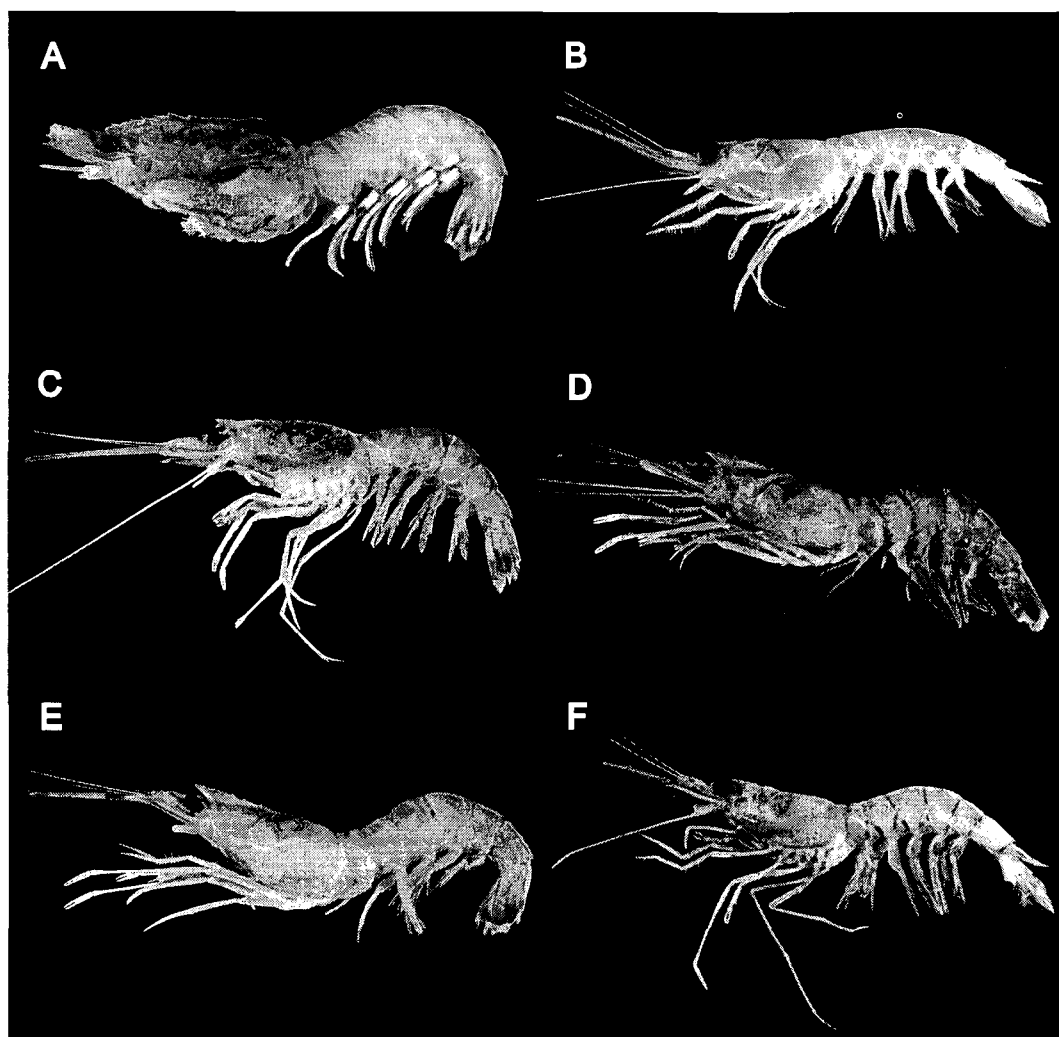


Fig. 4. A. *Solenocera alticarinata* Kubo, 1949 (female, CL 39.6 mm); B, *S. comata* Stebbing, 1915 (female, CL 16.9 mm); C, *S. koelbeli* De Man, 1911 (female, CL 27.5 mm); D, *S. melantho* De Man, 1907, (female, CL 42.0 mm); E, same, (female, CL 35.9 mm); F. *S. pectinulata* Kubo, 1949 (male, CL 14.3 mm).

48, Fig. 8, 235; 1992: 197, Figs. 106D, 107C, 108C; Liu and Zhong 1988: 88, text (Figs. 37-3, 38), pl. 1 (Fig. 2); Dall 1999: 578, Fig. 18.

Solenocera depressa Kubo 1949: 237, Figs. 8R, 27T-V, 45B, 66E-F, 72O-U, 80G, 96, 98A-D, 100.

Solenocera melantho – Lee and Yu 1977: 45, Figs. 27, 28; (not De Man 1907).

Material examined

EEZ 2002 II-Tr-11, one female (CL 27.5 mm), PUIZ 181.

Description

Integument moderately hard, glabrous, moderately dense setose area confined to rostrum base and

anterior dorsal part of carapace. Rostrum short, falls slightly short of first segment of antennular peduncle; ventral margin convex; dorsal margin with eight teeth including epigastric spine, four posterior teeth on carapace. Postrostral carina relatively low, extends to posterior margin of carapace, although interrupted by cervical groove; postrostral groove irregular in width, widens posteriorly. Orbital spine blunt; postorbital, antennal, and hepatic spines present; pterygostomian angle rounded. Cervical groove distinct, extending to postrostral carina; branchiocardiac groove vestigial. Hepatic groove arched anteriorly, with deep pterygostomian depression (Fig. 1C). Abdomen with indistinct mid-dorsal carina on second somite; distinct mid-dorsal carina extends from posterior half of third somite to posterior margin of sixth somite, ending in

an acute mid-dorsal tooth. Antennular flagella long, 1.70 times as long as carapace. First pereopod with spines on basis and ischium, second pereopod with spine on basis only. In females, eighth sternum (thelycum) largely excavated, surrounded by anterior and lateral ridges, with low median tubercle, two pairs of small circular processes just anterior to anterior ridge (Fig. 3C).

Coloration

Body light brown; carinae on carapace and posterior margin of each abdominal somite darker; distal part of antennular flagella and distal half of tail fan red (Fig. 4C).

Distribution

Rare in Korean waters, only west of Jeju Island at a depth of 95 m. Western Pacific from Korea, Japan, Taiwan, South China Sea, Vietnam, the Philippines, Indonesia, and northwestern Australia, 21-241 m deep (Chan, 1998).

Remarks

Solenocera koelbeli is similar to *S. melantho* in general appearance and genitalia, but differs by having a distinct notch on the postrostral carina, a longer antennular flagellum (1.70 versus 1.03-1.38 times as long as the carapace) in matured specimens, and a low median tubercle on the thelycum.

Solenocera melantho De Man 1907
(Korean name: *Daerong-suyeom-saewoo*)
(Figs. 1D, 2B, 3D, 4D, E)

Restricted synonymy

Solenocera melantho De Man 1907: 137; Yu and Chan 1986: 65, unnumbered Fig.; Hayashi 1986: 48, Fig. 9, 235; 1992: 197, Figs. 104, 107D, 108D; Kim and Kim 1997: 212 (list); Dall 1999: 578, Fig. 19A (see full synonymy); Cha et al. 2001: 24, five unnumbered Figs.

Solenocera distincta – Yoshida 1941: 17, text (Fig. 11), pl. 4 (Fig. 2); Kim and Park, 1972: 189 (list); (not De Haan 1849)

Solenocera prominentis Kubo 1949: 231, Figs. 8V, 14C, 16C, 20M, 27Q-S, 45A, 66G, H, 72F, L, 80E, 94G, O, 95, 100; Kim and Park 1972: 189, pl. 1 (Fig. 1); Kim 1976: 132; 1977: 99, text (Fig. 12), pl. 41 (Fig. 1); Lee and Yu 1977: 47, Figs. 29, 30; Kim and Kim 1988: 167.

Not *Solenocera melantho* – Lee and Yu 1977: 45, Figs. 27, 28; (= *S. koelbeli* De Man 1911)

Material examined

EEZ 2002 I-Tr-9, one male (CL 17.1 mm), eight females (CL 16.7-22.6 mm), PUIZ 182; EEZ 2002 I-Tr-10, three males (CL 12.8-28.5 mm), eight females (CL 13.8-33.6 mm), PUIZ 183; EEZ 2002 I-Tr-11, two males (CL 14.0, 15.5 mm), six females (CL 12.0-25.6 mm), PUIZ 184; EEZ 2002 I-Tr-12, one male (CL 15.0 mm), one female (CL 16.3 mm), PUIZ 185; EEZ 2002 II-Tr-7, one female (CL 37.7 mm), PUIZ 186; EEZ 2002 II-Tr-8, one male (CL 21.7 mm), PUIZ 187; EEZ 2002 II-Tr-10, one male (CL 23.6 mm), eight females (CL 22.7-40.2 mm), PUIZ 188; EEZ 2002 II-Tr-11, two males (CL 19.8, 21.9 mm), seven females (CL 21.3-32.3 mm), PUIZ 189; EEZ 2002 II-Tr-13, four males (CL 19.2-22.8 mm), PUIZ 190; EEZ 2003 I-Tr-6, seven males (CL 11.8-19.3 mm), 11 females (CL 10.9-34.8 mm), PUIZ 191; EEZ 2003 I-Tr-7, seven males (CL 16.0-20.0 mm), eight females (CL 17.2-22.8 mm), PUIZ 192; EEZ 2003 I-Tr-8, six males (CL 12.9-25.4 mm), four females (CL 18.3-22.9 mm), PUIZ 193; EEZ 2003 I-Tr-10, one male (CL 16.2 mm), four females (CL 13.9-24.9 mm) PUIZ 194; EEZ 2003 I-Tr-12, three males (CL 15.4-27.0 mm), six females (CL 10.8-32.3 mm), PUIZ 195; EEZ 2003 I-Tr-14, one male (CL 12.7 mm), PUIZ 196.

Other material

Geomun Island, 9 Sep. 1994, five males (CL 18.5-30.0 mm), PUIZ 197. Gori, near Korea Strait, 50 m, trawl, 25 April 2002, one male (CL 9.5 mm), one female (CL 9.5 mm), PUIZ 198. South of Jeju Island, 32°44.9'N 126°06.3'E, IKMT, RV Tamgu I, 2 June 2003, two males (CL 17.4, 18.5 mm), one female (CL 19.0 mm), PUIZ 199.

Description

Relatively soft integument, glabrous, setose area extending from dorsal part of rostrum posteriorly to epigastric spine, along adrostral carina; setae moderately dense. Rostrum straight, extending to distal margin of first segment of antennular peduncle; dorsal margin with nine teeth, including epigastric spine, three posterior teeth on carapace; teeth gradually spaced posteriorly; ventral margin convex proximally. Postrostral carina well defined but low, extending to just short of the posterior margin of carapace, but faintly interrupted by cervical groove. Orbital spine small; postorbital, antennal, and hepatic spines moderately large; pterygostomian angle rounded. Cervical groove distinct, extending to postrostral carina; branchiocardiac groove vestigial. Hepatic groove anteriorly curved ventrally, arched at anterior end with deep pterygostomian depression

(Fig. 1D). Abdomen with mid-dorsal carina present, extending from posterior half of third somite to posterior margin of sixth somite; small tooth present on posterior end of sixth somite. Antennular flagella 1.03-1.38 times as long as carapace in specimens with CL >25.0 mm, 1.44-1.78 times in specimens with CL <23.0 mm. First pereopod with well-developed spines on basis and ischium; second pereopod with moderately developed spines on basis only. Petasma with dorsomedian lobule as large as ventromedian lobule, apex with marginal denticles; dorsolateral lobule poorly developed, with marginal denticles; ventrolateral lobule long, curved outward, with denticles (Fig. 2B). In females, eighth sternum (thelycum) largely excavated, surrounded by lateral and anterior transverse ridges, with two pairs of small circular processes just anterior to anterior ridge, medial pair larger than lateral one; seventh thoracic sternum with short median ridge (Fig. 3D).

Coloration

Two types of color patterns present, called red type and white type. In red type, body entirely pale red, dorsal margin of abdomen, tail fan, and antennular flagella darker (Fig. 4D). In white type, body whitish pink, distal part of tail fan darker, antennular flagella with red bands (Fig. 4E).

Distribution

Relatively common in Korean waters, including the Korean Strait, southern coast of Korea, and around Jeju Island in waters 50-123 m deep. Western Pacific from Korea, Japan, Taiwan, the Philippines, Indonesia, and northwestern Australia, 50-400 m deep (Chan, 1998; this study).

Remarks

Kim and Kim (1997) clarified the taxonomical status of this species in Korean waters. It has been referred to as *Solenocera distincta* (De Haan, 1849) and *S. prominentis* Kubo, 1949 by previous authors (Yoshida, 1941; Kim and Park, 1972; Kim, 1976; 1977; Kim and Kim, 1988).

Solenocera pectinulata Kubo 1949

(New Korean name: *Jjalbeun-daerong-suyeom-saewoo*)

(Figs. 1E, 2C, 3E, 4F)

Restricted synonymy

Solenocera pectinulata Kubo 1949: 251, Figs. 8S, 27A, B, 66K, L, 72N-T, 83B, 101, 102C; Hayashi, 1986: 50, Fig. 10, 236; 1992: 198, Figs. 106C,

107E, 108E; Liu and Zhong 1988: 97, Figs. 37-5, 43; Dall 1999: 580, Fig. 21B-D (see full synonymy).

?*Solenocera utinomii* Kubo 1951: 263, Fig. 4.

Material examined

EEZ 2001 II-Tr-5, four males (CL 9.3-14.3 mm), four females (CL 10.0-11.1 mm), PUIZ 200; EEZ 2002 II-Tr-8, two females (CL 17.2, 17.4 mm), PUIZ 201.

Description

Relatively soft integument, sparse setose area extending from dorsal part of rostrum posteriorly to epigastric spine, along base of rostral teeth. Rostrum small and short, falls just short of distal margin of first segment of antennular peduncle; ventral margin slightly convex; dorsal margin with five rostral teeth closely arranged and evenly spaced, two posterior teeth on carapace; epigastric spine widely separated from posterior-most rostral tooth. Postrostral carina extending posteriorly to dorsal extremity of cervical groove. Orbital angle small, obscure process; post-orbital spine large; antennal and hepatic spines small; pterygostomian angle rounded. Cervical groove distinct, extended to just below dorsum; branchio-cardiac groove indistinct. Anterior end of hepatic groove curved, forming blunt projection, not extending beyond anterior margin of carapace (Fig. 1E). Abdomen with mid-dorsal carina present, extending from posterior half of third somite to posterior margin of sixth somite, ending in small tooth. Antennular flagella moderately short, 1.04-1.13 times as long as carapace (Fig. 1E). First pereopod with moderately developed spine on basis and ischium; second pereopod with spine on ischium only. All lobules of petasma (except for dorsolateral lobule, which lacks denticles) and accessory lobule lateral to distal part of ventromedian lobule, and with well-developed marginal denticles; they fall short of the distal end of dorsomedian lobule (Fig. 2C). In females, seventh thoracic sternum with pair of circular processes anteriorly and short median ridge; trapezoidal plate of eighth sternum (thelycum) with median groove between pair of prominent ovoid bosses (Fig. 3E); two pairs of circular processes present on anterior to trapezoidal plate.

Coloration

Body bright red with narrow transverse line near posterior margin of each abdominal somite (Fig. 4F).

Distribution

Rare in Korean waters and in the East China Sea; only known from eastern Geomun Island at a depth of 87 m and eastern Jeju Island at 135 m. Widely distributed in the Indo-West Pacific from Korea, Japan, South China Sea, the Philippines, Indonesia, northern Australia, and the eastern coast of Africa to Madagascar, 75-350 m deep (Chan, 1998; this study).

Remarks

Solenocera pectinulata resembles *S. pectinata* (Bate, 1888) in genital morphology, habitat, and distribution. It is distinguished from *S. pectinata* by a fewer number of rostral teeth (6-7, including the epigastric spine, versus 8-9), the absence of a distinct groove between the hepatic and postorbital spines, and comparatively short antennular flagella (about 1.0-1.2 versus about 1.3-1.9 times as long as the carapace; Hayashi, 1986; Dall, 1999).

Kubo (1951) described *Solenocera utinomii* based on a mutilated female collected near Kii Peninsula, Japan, at a depth of 150 m. However, *S. utinomii*, was synonymized with *S. pectinulata* by Hayashi (1992) based on the shape of the thelycum and the same number of rostral teeth (five teeth). Lee et al. (1999) listed *S. utinomii* as the valid taxon in the checklist of Penaeoidea from Taiwan. The present study supports Lee et al. (1999). The identity of *S. utinomi* with *S. pectinulata* seems doubtful because the anterior end of the hepatic carina does not curve ventroposteriorly (Kubo, 1951, Fig. 4A) as it does in *S. pectinulata*, forming a blunt protuberance. However, the type specimen of *S. utinomii* should be reexamined. This is the first record of this species from the East China Sea.

Key to *Solenocera*

1. Pterygostomian spine present
 *S. comata* Stebbing, 1915
 – Pterygostomian spine absent 2
2. Anterior end of hepatic carina curved ventroposteriorly, forming blunt protuberance; postrostral carina short, extending to cervical groove
 *S. pectinulata* Kubo, 1949
 – Anterior end of hepatic carina not curved posteriorly, arched with deep pterygostomian depression; postrostral carina extending to near the posterior margin of carapace 3
3. Postrostral carina not interrupted by indistinct notch at level of cervical groove
 *S. melantho* De Man, 1907
 – Postrostral carina interrupted by distinct notch at level of cervical groove 4
4. Postrostral carina high and blade-like; postrostral

- groove absent *S. alticarinata* Kubo, 1949
 – Postrostral carina low and not blade-like;
 postrostral groove present
 *S. koelbeli* De Man, 1911

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